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The Journal

OF THE

American Medical Association

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THE ANNUAL SESSION, IN THE SEVERAL SECTIONS, TOGETHER WITH THE

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GEORGE H. SIMMONS, LL.D., M.D.

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THE FUNCTIONS OF THE LARGE INTESTINE*

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BOSTON

The portion of the alimentary canal in which the final processes of normal digestion occur, and in which almost all the digested food is absorbed, is the small intestine. At the lower end of this long tube is the large intestine, serving as a reservoir to receive, store and periodically discharge the accumulation of waste. Mixed with the waste received in the large intestine is a slight amount of food which has hitherto escaped absorption; and if the diet has contained much vegetable substance, a good deal of cellulose may also be present. Throughout the small intestine the contents are maintained in a semifluid state—a state favorable to the energetic chemical processes which the food there undergoes, and favorable also to ease of movement through the canal and to readiness of absorption. The material delivered to the colon is still semifluid.

In the cecum and ascending colon the stagnant mixture of indigestible matter, food, cellulose, water and bacteria presents an ideal condition for putrefactive and fermentative decomposition. Indeed, Folin and Denis have recently shown that ammonia in the portal blood arises to a large degree in the colon¹ in which there is an abundance of ammonia developed from bacterial putrefaction. In this first part of the large intestine the last of the food disappears, the cellulose may undergo changes which result in its being utilized by the body,² and the water content begins to be reduced. Since no provision is made for continuance of important digestive processes in the colon and since very little available food is carried there from the small intestine, the main functions of the colon are those of storage and periodic riddance of waste—both mechanical functions.

The absorption of water causes the consistency of the waste to be gradually more dense. Whereas the content of the cecum and ascending colon is soft and mushy, the content of the transverse colon may be found as firm as that which is discharged through the rectum.³ This difference in consistency of the material in the proximal and in the distal colon corresponds to a difference in motor activity in these two regions.

MOVEMENTS OF THE PROXIMAL COLON

In 1902 I reported that in the proximal colon of the cat the characteristic movement is antiperistalsis,⁴ or

more briefly, anastalsis, a movement of waves backward toward the cecum.⁵ In the distal colon, on the contrary, the firmer material is gripped by persistent rings of tonic constriction.

Anastalsis.—The anastaltic waves rarely run continuously for a long time. A series of waves, at the rate of about five per minute, can occasionally be seen running for four or five minutes and then ceasing. It is important to note that the waves start at the nearest ring of constriction. The condition for their appearance is normally the pushing of a fresh mass of material from the small intestine into the colon. This addition to the colonic contents results in a contraction of the proximal colon and a distention of the constriction ring. Recently I have presented evidence that the stretching of the ring of constriction causes it to pulsate, and that each pulsation sends off an anastaltic wave—a local response of the neuromusculature of the intestinal wall.⁶ The distention of the colon by rectal injection will usually occasion the appearance of a long succession of these backward-moving undulations.

These x-ray observations on anastalsis of the cat's proximal colon were confirmed, in 1904, by Elliott and Barclay-Smith, who studied the activities of the large bowel exposed under warm salt solution. They also observed the activity in the rat and guinea-pig, and to some extent in the rabbit, hedgehog and ferret.⁷ In the herbivorous animals which they studied, they found that sacculation of the proximal colon was associated with kneading movements, each sacculus becoming at times the seat of swaying oscillations. Indeed, there was a direct correlation between the degree of this kneading motion and the degree of sacculation of the wall.

The Question of Anastalsis in the Human Colon.—The colon of man is sacculated as in herbivores, rather than cylindrical as in carnivores. The question has arisen, and has stimulated a good deal of argument and observation, as to whether anastalsis occurs in the colon of man.

From the soft homogeneous nature of the contents of the proximal colon Elliott and Barclay-Smith assumed that in man the material is here "still delayed by a backward current, still commingled by the activity of the walls of the sacculi."

Inferential evidence for anastalsis in the human proximal colon has been drawn from cases of cecal fistula. In these cases rectal enemas have been observed to traverse the entire length of the colon and to escape through the artificial opening. In such cases also, surgeons have attempted to stop the fecal discharge by transplanting the ileum into the transverse colon, but the discharge continued. F. T. Murphy and others have

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Folin and Denis: Jour. Biol. Chem., 1912, xi, 162.

2. Zuntz and Ustjanzev: Arch. f. Physiol., 1905, p. 403.

3. Rolth: Merkel and Bonnet's Arbeiten, 1903, xx, 32.

4. Cannon: Am. Jour. Physiol., 1902, vi, 265.

5. Cannon: Am. Jour. Physiol., 1912, xxx, 126.

6. Cannon: Am. Jour. Physiol., 1911, xxix, 238.

7. Elliott and Barclay-Smith: Jour. Physiol., 1904, xxxi, 272.

reported cases of this character.⁸ Maucaire has described an instance of persistent fecal discharge from a fistula in the cecum after the ileum had been sewed into the lower end of the descending colon; the backward transport of material ceased only when the colon was cut across and closed above the new ileocecal junction.⁹ This reversed current is certainly consistent with effective anastalsis in man.

A variety of *x*-ray observations also have been interpreted as indicating anastalsis in the human proximal colon. Thus Stierlin found that the cecum and near-by colon retain longer than any other part of the alimentary canal the mixture used to produce *x*-ray shadows.¹⁰ Furthermore, the sacculi or haustra are in this region often absent or only slightly developed. Bloch¹¹ and von Bergmann and Lenz¹² have seen in man, by means of the *x*-rays, the contents of the cecum and ascending colon quickly forced onward to the beginning of the transverse colon; and then after a short period a definite retrograde movement of the contents which again filled the proximal portion.¹³ This to-and-fro shifting may recur rhythmically for some time, and, although appearing spontaneously, can be stimulated by palpation. Von Bergmann and Lenz have suggested that the backward movement, or "retrograde transport," of the contents may result simply from relaxation of the proximal portion, after the contraction which forced the material onward. They admit, however, that this return may be hastened by contraction of the transverse colon.

Although the escape through cecal fistulas of material introduced distally into the colon clearly demonstrates a backward current in the human large intestine, although the long retention of material in the cecum is good evidence of retarded progress, and although the retrograde transport of material in the proximal colon can be interpreted as due to a backward pressure, nevertheless these facts do not prove the presence of anastalsis, in the sense of visible waves passing backward over the intestinal contents. And Hertz has testified to having watched with the *x*-rays the shadows of the human colon for various periods in a large number of individuals without seeing the phenomenon. Even the introduction of an enema (containing bismuth) under a pressure which rendered the entire colon visible, did not call forth any anastaltic activity.¹⁴ Rieder† has recently been able to bring evidence, however, on the basis of his *x*-ray studies, that anastalsis actually does occur in the human colon. While it appeared in the main along the cecum, ascending and proximal transverse colon, it might appear in any portion of the large intestine. These observations on man are wholly in accord with those of myself and Elliott and Barclay-Smith on lower animals.

As will be recalled, the anastaltic waves start in the cat at the tonically constricted ring nearest the cecum. Furthermore, they can be started in the inactive intestine by making a tonic ring. The tonic ring is therefore of prime importance in originating anastalsis. Now, Boehm has recently described human cases in which the *x*-rays have revealed a narrowing of the transverse colon usually situated at the right of the mid-line,

with undivided contents between it and the cecum, and with permanently segmented masses between it and the sigmoid flexure.¹⁵ As Boehm noted, the narrow place is similar to the first tonic ring observed in cats, which served as the source of anastaltic waves. Injection of the human colon under these conditions might evoke these waves.

Haustral Churning.—On the basis of Elliott and Barclay-Smith's testimony that kneading or mixing contractions of the colonic walls are specially notable when sacculi or haustra are well developed, the human colon should be expected to manifest such activities. According to Schwarz's *x*-ray studies on man,¹⁶ such haustral changes are occurring constantly. He refers to these changes as due to peristalsis, but his figures and his statement that the changes are strictly local depressions of the contour, now here, now there, suggest that he was actually watching haustral contractions, which are in fact not unlike the rhythmic segmentation of the small intestine. Rieder also has seen these oscillations of the haustra, and has revived for them the undescriptive term, "pendulum movements."

Whether the predominant movements of the proximal colon are extensive contractions shifting the mass of contents rhythmically forward and back, as von Bergmann and Lenz observed them (the large "pendulum movements" of Rieder), or gentle compressions of the contents of the sacculi, as Schwarz has noted, the effect must be, in either case, a thorough mixing and overturning of the material in this region, and an exposure of the semifluid mass to the absorbing mucosa. This first portion of the large intestine should be regarded, therefore, as a place in which digestion and absorption might still continue.

MOVEMENTS OF THE DISTAL COLON

The distal colon, which, on the basis of Roith's studies, may be regarded as beginning in man roughly near the middle of the transverse portion, contains normally firm and formed masses of waste material. In this region the characteristic activity of the intestinal wall is an onward-moving wave, or diastalsis. There is indeed some evidence that difference in the direction of waves is dependent on the consistency of the contents. Thus in the rat the proximal colon is the seat of anastaltic waves if the contents are soft and moist, but exhibits the diastaltic reflex if the material is stiff and dry.

Diastalsis.—Two modes of advancing the contents of the distal colon have been observed in man. Holzknicht has recorded having seen, by means of a fluorescent screen, the contents of one section of the colon moved onward into an empty distal section by a sudden push lasting only a few seconds. The haustral segmentation disappeared just before the advancement began, but reappeared at once when the material became settled in its new position. The function of the haustra suggested by this observation is, as in the proximal colon, that of increasing the surface for absorption, and not that of propelling the fecal matter.

The second method of propelling contents in the distal colon has been reported by Fischl and Porges.¹⁷ They saw a small piece about the size of the thumb separated from the mass in the transverse colon, and pushed slowly to and around the splenic flexure, then

8. Murphy, F. T.: Boston Med. and Surg. Jour., 1911, clxiv, 154.

9. Maucaire: Cong. franç. de chir., Paris, 1903, p. 86.

10. Stierlin: Ztschr. f. klin. Med., 1910, lxx, 392.

11. Bloch: Med. Klin., 1911, vii, 219.

12. von Bergmann and Lenz: Deutsch. med. Wchnschr., 1911, xxxvii, 1425.

13. I have seen the same phenomenon in the cat. (Cannon: The Mechanical Factors of Digestion, London and New York, 1911, p. 160.)

14. Hertz: Constipation and Allied Intestinal Disorders, London, 1909, p. 7.

† Rieder: Fortschr. a. d. Geb. d. Röntgenstrahlen, 1912, xviii, 118.

15. Boehm: Deutsch. Arch. f. klin. Med., 1911, cii, 444.

16. Schwarz: München med. Wchnschr., 1911, lviii, 1489.

17. Fischl and Porges: München. med. Wchnschr., 1911, lviii, 2064.

down the descending colon. Three or four similar masses followed the first, each new one starting as its predecessor came to a stop. Thus, either extensive accumulations of waste, or small fragments, can be transmitted toward the rectum.

In 1905, I reported, in a paper on auscultation of the alimentary canal,¹⁸ having heard a progression of little crackling noises starting in the transverse colon and traceable from point to point along the distal portions of the large intestine. The progress is continuous and requires hardly a minute for its completion. It is likely to be followed by a tendency to pass gas from the bowel. Last year von Bergmann and Lenz reported seeing with the *x*-rays a superficial wave of contraction run along the transverse colon, and suggested that this intestinal gases might be carried from the proximal to the terminal section of the intestine. Since the fermentative processes in the cecum and ascending portion would be likely to cause a considerable production of gas in this region, a means of rapidly carrying it away is obviously advantageous. A similar rapid transport of material probably occurs when irritant products of putrefaction result in diarrhea.

Defecation.—The process of clearing the distal colon in the cat consists of a gradual reduction of the material present. First the tonic constrictions disappear, just as the haustral indentations disappear in man, and are replaced by a strong, broad contraction of the circular muscle, which separates proximal and distal masses. Simultaneously, a shortening of the descending colon pulls on the region of contraction and crowds material into the rectum. Now the broad contraction moves downward, and aided by muscles of the abdominal wall pushes the separated mass out of the canal. The colon then returns to its former position; but in about two hours, the remnant left in the colon is spread throughout the colon. Afterward the distal part of this mass is cut off and pushed out of the canal in the manner above described.

In man, the changes during defecation have been studied by the *x*-ray method by Hertz, Schwarz and others. As in the cat, a relatively long column of feces is passed out at one time. Hertz's tracings show that the entire large intestine below the splenic flexure is normally evacuated at a single act. And Schwarz has reported that at defecation the colon can clear itself from the ascending portion onward. The soft character of the final portion of a large fecal discharge would thus be accounted for. Again, as in the cat, so in man, the remnant left in the ascending colon is within a short time spread along the colon even to the end.¹⁹

According to Hertz the waste material accumulating in the distal colon in man normally stops at the junction between the pelvic colon and the rectum where an acute angle offers some obstruction to progress. Then from below upward the pelvic colon fills, and, if more material arrives, it gathers increasingly in the iliac and descending portions.

On becoming distended the pelvic colon rises and widens its acute angle with the rectum, thus removing the obstruction to the advancement of fecal matter. Some of this matter now entering the rectum leads to the desire to defecate. The common performance of the act regularly after breakfast may be attributed, in part at least, to stimulation of peristalsis in the colon by taking food, aided perhaps by the muscular activities that attend

arising and dressing. When the "desire to defecate" is not aroused by these natural events, voluntary contraction of the abdominal muscles may cause some feces to enter the rectum and thus evoke the call.

When the call to defecation has come, the further performance of the act is usually accomplished, but not necessarily, by increased intra-abdominal pressure—a result of voluntary contraction of the abdominal muscles—and by reflex contraction of the intestinal wall. As the diaphragm contracts, the entire transverse colon is pushed downward, and the ascending colon and cecum are forced into an almost globular form. The intra-abdominal pressure, as measured in the rectum during this stage, may be from four to eight times the normal, i. e., may be between 100 and 200 mm. of mercury.²⁰ This pressure causes more feces to enter and distend the rectum and anal canal. The distention of these parts arouses reflexes which start strong diastaltic contractions of the colon, continues the tendency to strain with the voluntary muscles, and produces relaxation of both anal sphincters.

The time required for a mass containing bismuth salts to pass through the alimentary canal has been variously given. According to Hertz the long way through the esophagus, stomach and small intestine is traversed in about four hours and a half. In a case carefully studied by Rieder material began to appear in the cecum in three hours and a half, and the small intestine was empty at the end of nine and a half hours. At least as much more time is required for the material to go along the relatively short distance from the cecum to the splenic flexure, four hours and a half, according to Hertz, and in Rieder's case about eleven hours. Defecation nine hours after breakfast (e. g., at 5 p. m. after an 8 o'clock morning meal) might, therefore, rid the body of waste taken in the same day. If the act were performed at 4 o'clock, however, this waste would not be discharged. And if 4 o'clock were the regular time for the act, the waste from breakfast must be retained for another twenty-four hours. Thus the interval between the taking of a meal and the excretion of its residue may vary when the bowels are opened regularly once a day, between nine and thirty-two hours—the period depending on the time of eating and the time of defecation.

INNERVATION OF THE LARGE INTESTINE

The large intestine receives, like the stomach and small intestine, a double nerve-supply from the central nervous system—a tonic or motor supply through the sacral visceral nerves, and an inhibitory supply from the lumbar cord through the sympathetic system, by way of the inferior mesenteric ganglion. According to Elliott and Barclay-Smith the sacral visceral nerves do not innervate the proximal third of the colon in the cat or the cecum in the dog. Indeed, the regions of anastalsis seem not to receive motor impulses.

The functioning of the two sets of nerves is indicated by the results of sectioning, as well as by stimulating them. Severance of the sympathetic fibers in the cat and rabbit causes no lasting disturbance of the motor functions. After removal of the motor impulses, however, by destruction of the sacral cord or by cutting the nerves, feces accumulate and the contractions of the intestine are weak and sluggish.²¹ These functional defects may be due to the persistence of inhibitory tonus, for when both sets of nerves are abolished in the dog, the animal,

18. Cannon: *The Mechanical Factors of Digestion*, London and New York, 1911, p. 176.

19. Schwarz: *München. med. Wehnschr.*, 1911, lviii, 2063.

20. Keith: *Allbutt and Rolleston's System of Medicine*, 1907, iii, 860.

21. Elliott and Barclay-Smith: *Jour. Physiol.*, 1904, xxxi, 288.

after a few weeks, exhibits normal activity of the colon, with feces of usual consistency discharged at customary intervals.

CONSTIPATION

As already stated, defecation is a reflex initiated by the presence of feces in the rectum. The section of sensory roots of the sacral nerves supplying the rectal mucosa causes an abolition of the normal coordination.²² It is a matter of much practical importance that the rectal mucosa soon becomes adapted to the presence of a fecal accumulation, and then fails either to induce the desire to defecate or to initiate reflex contraction of the colon. If the call to defecation is not promptly obeyed, therefore, it ceases to be given, and the feces stagnate in the rectum.

Stagnation of feces in the rectum is only one of the ways in which passage of material through the alimentary canal may be delayed. In this form, for which Hertz has revived the name "dyschezia,"²³ the rate of movement through the entire length of the digestive tract, as far as the pelvis, may be normal, but the rectum and pelvic colon are not properly emptied. In other forms there may be delay somewhere in the long course which the food takes, because of inefficient motility, as in states of general atony, in depressive emotions, and in reflex inhibitions of intestinal movements. In still other cases the delay may be due to obstructions of various sorts. In distinguishing these various causes of delay in the passage of material through the alimentary canal, the x-ray method has provided a highly important aid to other methods of clinical examination.

A NEW METHOD OF SUTURING BLOOD-VESSELS *

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Suturing blood-vessels is an eminently practical field of surgery, and its chief usefulness will probably be found in repair of accidental wounds of the vessels, in restoring the continuity of an artery or a vein after removing a portion of it when it is involved in a malignant growth, and in transfusion of blood. Aneurysms arising from any form of arteritis can hardly be dealt with successfully by the method of suturing applicable in a trauma of a healthy vessel, because satisfactory union requires a healthy intima. Aside from aneurysms, however, there should be many cases in the service of every general surgeon, and particularly those who do emergency surgery, in which the operator can employ blood-vessel suturing to great advantage.

The method of suturing blood-vessels generally used is that of Carrel. Transferring the guy sutures after suturing each third of the vessel, the likelihood of their becoming tangled, the maintenance of proper tension on the guy sutures, and the relaxation of the tension while changing from one-third of the vessel to the other are confusing and tend to make the sutures irregular and faulty. Another very practical objection is the difficulty of obtaining the services of an assistant trained in this work at just the time when such help is most needed.

In an effort to obviate these difficulties I have employed a technic by which the guy sutures can be

fastened to a special instrument, which I call an "arterial suture staff," and the suturing done by a continuous mattress stitch which everts and apposes the intima.

This instrument (Fig. 1) consists of a small steel shaft which curves at one extremity into a shorter shaft. The long shaft, or handle, is 6 inches long, and the short shaft is $1\frac{3}{4}$ inches long and is placed at an angle of about 55 degrees to the long shaft. The curved portion is flattened to form a spring. There are five buttons; one on the main shaft as close as possible to the curved spring, one at the extremity of the short shaft, one just below this, and two on the main shaft at points about opposite the buttons on the short shaft. These buttons hug the instrument closely and are so constructed that the guy sutures are securely held by simply wrapping them twice around the buttons.

The strictest asepsis must be maintained. The operating-room should be washed and preferably sprayed one or two hours before the operation in order to eliminate dust. Every detail for the most careful aseptic operation, such as wearing mouth-pieces, etc., should be carried out for, as Carrel has shown, the slightest infection which clinically shows only as a mild redness of the skin will often cause clotting and obliteration of the lumen of the vessel. The intima should be handled gently and never permitted to dry. Dropping warm salt solution from a medicine-dropper on the ends of the vessel at frequent intervals during the operation is the most satisfactory way of preventing drying of the intima. It keeps the field clearer than is possible when petrolatum is employed for this purpose.

DESCRIPTION OF TECHNIC

Short straight needles, No. 16, and fine black silk thread are used. The needle is threaded and the silk fastened to the needle by a single knot. Five of these needles are threaded through a piece of gauze and are sufficient for one operation, allowing two extra needles. Besides these, the special instruments required are the arterial suture staff, two Crile clamps, an iris forceps, a few mosquito forceps and a medicine-dropper.

The artery is exposed by a long incision and the Crile clamps are placed on the artery, which is then cut across with a pair of sharp scissors. The adventitia of each end is caught between the thumb and finger, pulled over the end of the vessel and cut squarely off, when it retracts, leaving the end of the vessel clear. The artery is then washed out with salt solution from a medicine-dropper. All bleeding around the wound must be carefully stopped. The lowest suture is passed by taking one of the threaded needles which has been boiled in petrolatum and passing it from without inward in one end of the vessel and reversing this direction in the other end, the needle here going from within outward. This suture is tied, holding the ends taut as the knot is run down. The staff is then passed beneath the vessel with the handle away from the operator and the

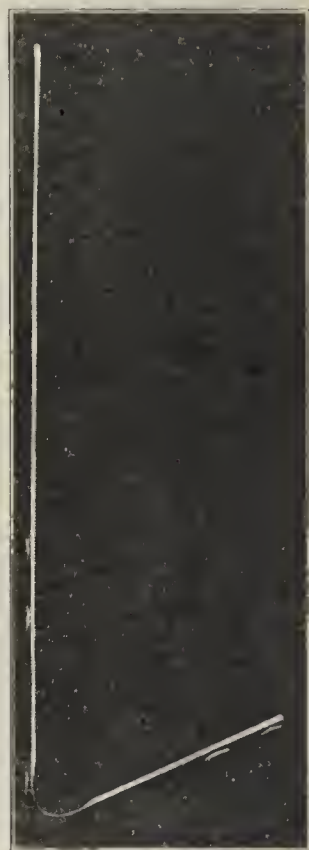


Fig. 1.—The arterial suture staff for holding the guy sutures.

22. Merzbacher: Arch. f. d. ges. Physiol., 1900, lxxxI, 474.

23. Hertz: Constipation and Allied Intestinal Disorders, London, 1909, p. 45.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

short shaft of the instrument pointing toward the operator. The suture is wrapped two or three times around the lowest button on the long shaft and should be of such length that the distance from the artery to the button is about half an inch. The suture is then cut so as to leave no long ends, and another suture is passed in the same way as the first. This should be the upper suture farthest from the operator. After being tied, the short end of this suture is wrapped around one of the upper buttons on the main shaft, the threaded end being left for future suturing. The third and last guy suture is placed and is the one nearest the operator. It is tied and wrapped around one of the buttons (usually the upper one) on the short shaft while this shaft is slightly compressed toward the handle of the instrument in order to make tension when released. The ends of this suture are cut short.

When the shaft is released it will be found that the tension of the spring converts the vessel from a circular into a triangular circumference and holds the margins of the wound under the same tension throughout the operation (Fig. 2). By placing the first guy suture in



Fig. 2.—A thin rubber tube representing an artery with the three guy sutures placed and fastened to the buttons on the instrument. The circumference of the tube is made triangular by the tension of the guy sutures.

the manner indicated the others can be passed more readily, as the vessel can be rolled gently into any desired position by means of the first suture, which has been attached to the staff, and the staff can be permitted to lie flat without being held while placing the second and third guy sutures. By cutting the guy sutures short after wrapping them around the buttons no long ends are left to become entangled or to stick to the moist surface.

The suturing is done with the threaded end of the second guy suture which is farthest away from the operator (Fig. 3). This is passed back and forth after the manner of a mattress suture. The staff is lifted up so as to increase the eversion of the upper third of the artery while it is being sutured. In a vessel like the carotid artery in a medium-sized dog about five stitches are taken in each third. When the guy suture attached to the short shaft has been reached the needle and thread is pulled on in the direction of the line of sutures. This approximates the intima quite closely. If the margins of the wound were not held under tension this procedure would tend to crumple up the wound as when a

purse-string suture is drawn tight. The tension of the spring, however, prevents this and unless the margins of the vessel are very snugly approximated, when tension is released there will be leakage. While holding the suture taut in one hand a back stitch is taken at the guy suture. This serves to lock each third after it has been sutured and maintains the snug apposition. When the guy sutures are reached the suture should be taken somewhat deeper than usual to avoid the wound made by the guy suture and also because the vessel is unduly pulled out at this point and the sutures consequently will have to be deeper in order to maintain uniformity with the rest of the suture line. The handle of the staff is then depressed to a horizontal position, pointing away from the operator, and the whole instrument is slightly shoved toward the operator so as to increase the eversion of the intima in the third that is being sutured (Fig. 4).

The second division is completed in the same manner as the first, the line of sutures being pulled on snugly, and a backstitch is taken to maintain the tension. The handle is then carried through 180 degrees and is depressed until it is horizontal, this time pointing toward the operator (Fig. 5). Care should be taken not to let too much weight rest on the tip of the short shaft



Fig. 3.—The handle of the staff is upright and the continuous mattress suture has been started.

in this position, as this will relax the tension by compressing the spring. The instrument is then lifted up so as to increase the eversion of the margins of the wound. The suture is continued as heretofore and is completed at the point at which it was begun by returning the instrument to its original position, taking one back stitch and carrying the suture about two stitches beyond the starting-point, where it is finished by whipping it over after the manner of an overhand suture and running the thread under the loop before the loop is drawn tight. This holds the thread securely. The Crile clamps are loosened gradually, the distal one first. The shafts of the instrument are grasped between the thumb and fingers and pressed toward each other so as to relax tension (Fig. 6).

If any spurting occurs, the clamps may be tightened, pressure on the instrument released, and an extra suture placed at the spurting point. If care is taken in following these directions, an extra suture will not often be necessary in an artery which has been divided, but in transplanting a section of a vein or in joining vessels of different caliber a spurting point will sometimes occur in spite of careful suturing. There is frequently

a small amount of oozing immediately after the suturing, but if no distinct spurting point occurs this can be controlled by gentle pressure for a minute with dry gauze. If it has not stopped at the end of a minute, an extra stitch should be placed at the bleeding point. The wound should not be closed while there is the slightest amount of oozing. The guy sutures are then cut close to the vessel and the instrument removed.

There have been several changes in the technic now employed over that which was described in an earlier paper.¹ The most important of these changes are the following:

1. The guy sutures are placed directly on the arterial suture staff, instead of first clamping them and later fixing them to the staff. This not only avoids handling the sutures twice, but also renders easier the placing of the last two guy sutures and enables the operator to roll the vessel over in any desired position and hold it there by manipulating the handle of the staff.



Fig. 4.—The handle is depressed till it is horizontal and points away from the operator. The second division is being sutured.

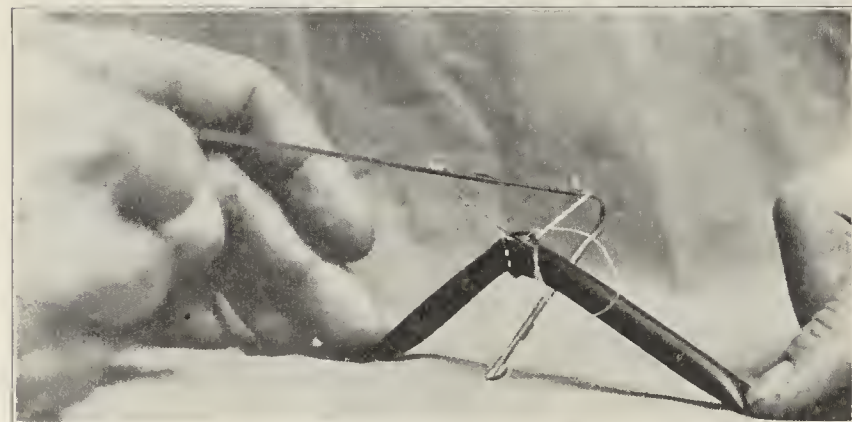


Fig. 5.—The handle of the staff is depressed till it is horizontal—this time pointing toward the operator. The last division is being sutured.

2. The sutures are placed without particular regard to tension until the end of each third of the suture line is reached when traction is made on the thread in the direction of the suture line and a back stitch is taken in order to maintain the snugness of the apposition.

3. No petrolatum is used except to boil the sutures. The gauze containing the threaded needles is taken directly from petrolatum and the needle is taken from the gauze just before it is used. At frequent intervals, warm salt solution is dropped on the ends of the vessel to keep the intima moist.

Exactly the same technic can be employed in transfusion of blood, and, in this operation, has the advantages of giving a large stream; of affording the opportunity of clearing any obstruction that might occur at

the site of union; or of overcoming the contraction of the radial artery if a vein is selected near one of its branches, when a probe can be run up through the branch of the vein into the contracted artery.²

In healing, it seems that after a few days the coats of the vessel begin to stretch and the suture line becomes more prominent on the internal surface of the vessel than it was when first applied. This naturally will be true of any type of suturing adopted. The endothelium of the intima, however, soon covers the sutures with a transparent coat so that after the first few days the sutures are not in contact with the blood-stream at any point though readily visible from the inside. It can be easily seen that a continuous mattress suture leaves less thread exposed to the lumen of the vessel than would the ordinary continuous overhand stitch. Besides, it everts the margins of the wound more readily and keeps a broad surface of intima in contact.

The arterial suture staff not only facilitates to some extent the passing of the last two guy sutures, but holds them in proper position and under uniform tension throughout the operation. By means of this instrument the tension is kept uniform at all points along the arterial wound. There are no long ends of sutures to become entangled and there is no necessity for several changes



Fig. 6.—The handle of the staff has been brought to its original position and the suturing has been completed. The instrument is grasped between the thumb and fingers and compressed to relax tension of the guy sutures and to demonstrate whether there is a spurting point along the suture line.

with the alternate increase and relaxation of tension when the sutures are handled in the ordinary way, which necessarily interferes with the regularity and accuracy of the suturing. In order to secure satisfactory results the instrument must be properly used; it should be used experimentally before being employed clinically. Any competent surgeon should be able to suture blood-vessels successfully by this method after trying it on the lower animals.

A few specimens illustrative of this work are submitted. All experimental work was done under complete anesthesia and the animals were later killed by ether and large doses of morphin.

Figure 7 is a photograph of a vein and artery joined together and is from a case of transfusion of blood. The

1. Notes on the Technic of Suturing Blood Vessels with a New Instrument. *Ann. Surg.*, February, 1912; *Tr. South. Surg. and Gynec. Assn.*, 1911.

2. Horsley: The Technic of Transfusion of Blood, *THE JOURNAL A. M. A.*, Aug. 20, 1910, p. 663.

artery (a) is on the right, the vein (b) on the left. The specimen shows how little thread is exposed to the lumen.

Figure 8 shows on the right (a) a segment of the femoral vein which has been implanted between the cut ends of the right common carotid, and on the left (b) the left carotid artery which was merely divided and sutured. Both specimens were sutured according to the method recommended and the dog was killed after fifteen days. The transplanted vein and the left carotid were examined while the dog was under ether and just before he was killed; blood was circulating freely through both. As the photograph shows, there was no clot and the intima was smooth in both specimens. The

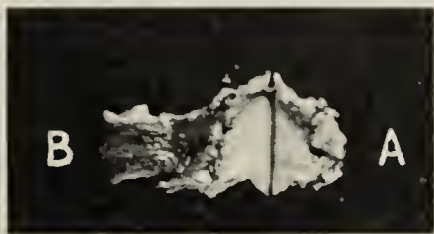


Fig. 7.—A specimen from transfusion of blood. On the right (a), a radial artery; on the left (b), a superficial vein of the forearm much contracted.

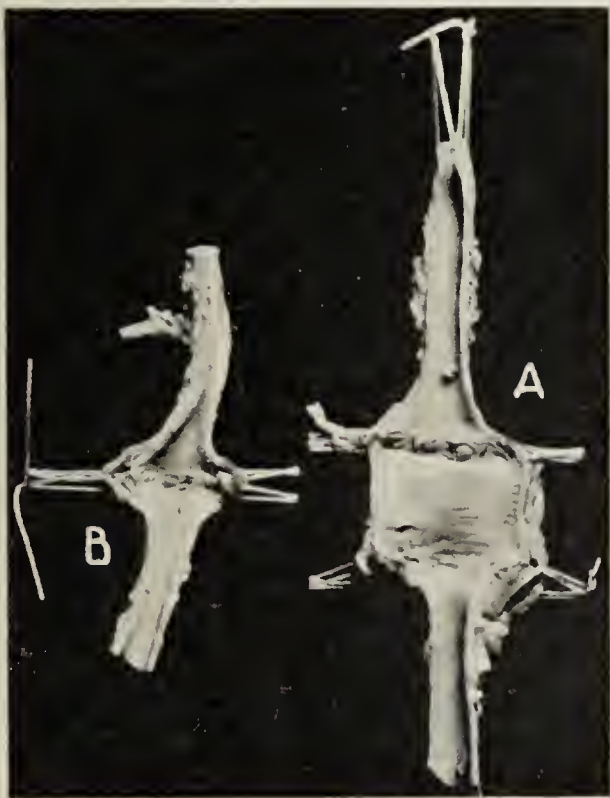


Fig. 8.—On the right (a), a segment of the femoral vein sutured between the cut ends of the right carotid. On the left (b), the left carotid divided and sutured. Specimen removed after fifteen days. Note smooth intima; sutures are distinctly seen in places under transparent endothelium.

interposed vein is suggestive of the clinical possibility of transplanting a segment of vein between the ends of an injured artery when the ends cannot be approximated. One of the superficial veins could be taken from the arm or leg and used for this purpose.

Figure 9 shows on the right (a) a femoral artery of a medium-sized dog which had been divided and sutured. The specimen was removed after twenty-seven days. The wall of the vessel is almost occluded at the suture line by an organized thrombus. At one point there is no thrombus and here the stitches are barely visible through the intima. The occlusion was not complete. This thrombus is probably due to a mild infection which caused the skin wound to break down. On the left (b)

is the carotid which was divided and sutured. This specimen was removed forty-one days after operation. There was no obstruction to the lumen. At points in the photograph the sutures can be seen underneath the intima, though at most places they are hidden. The traction threads have slightly wrinkled the intima and caused a shadow in the photograph, though the specimen itself shows a fairly smooth surface along the suture line.

Figure 10 shows two specimens, the upper one (a) being a carotid artery removed two days after operation. This demonstrates very clearly the small amount of



Fig. 9.—On the right (a), femoral artery divided and sutured. Removed after twenty-seven days. Almost complete occlusion by thrombus, probably due to mild infection. On the left (b), a carotid divided, sutured and removed after forty-one days. At several points sutures are visible beneath the intima. The traction threads wrinkled the specimen and the photograph shows shadows at the line of union (see text).



Fig. 10.—The upper specimen (a), a carotid divided, sutured and removed two days after operation. Note almost complete absence of thread in lumen. The lower specimen (b), a femoral artery divided, sutured and removed thirty-three days after operation. A black speck on the upper and lower margins shows the black silk sutures where the line of sutures was cut when the specimen was opened.



Fig. 11.—A femoral artery removed a few minutes after suturing. Note eversion of edges without diminution of caliber.

suture material exposed to the blood current after this operation. The lower specimen (b) is the femoral of a dog, removed thirty-three days after operation. A black speck along the upper and lower margins of this specimen shows where the suture line was cut when the specimen was opened. The intima was smooth and free from any evidence of obstruction. In Figure 8 the stitches can be seen in several places. This is because the endothelium is yet transparent, though it has covered the stitches. Later it becomes opaque and the

sutures sink deeper in the vessel-wall, as is shown in the femoral artery of Figure 10.

Figure 11 shows the femoral artery which was removed a few minutes after suturing. The blood was allowed to flow through this in order to demonstrate that it was tight. It was then ligated and removed. Note the eversion of the edges of the wound which are accurately approximated and at the same time there is no diminution of the caliber of the vessel.

617 W. Grace Street.

A PROSTATIC STUDY

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Since mere theorizing has had to give way to an exact study of the removed specimens and to a thorough examination of the patients at various postoperative stages, our views as to prostatectomy have had to be changed considerably. As a rule, it would be idle to take up the nomenclature as a starting-point for revising set medical teachings. But when it once is taken as granted that certain terms correctly describe anatomic and pathologic facts, then each term will assume an axiomatic dignity. It becomes a fixture and will be used as premise for further conclusions. If later on it is discovered that this traditional nomenclature does not tally with the actual conditions, then this nomenclature will be an obstacle to the correction of erroneous ideas. This seems to hold especially true in prostatic hypertrophy.

Zuekerkandl and Tandler have called attention to the fact that our usual terms describing the prostatic anatomy and the pathology of prostatic hypertrophy are in need of a thorough revision.

They assert that our accepted division of the prostate in two lateral and one median lobe does not correspond with the anatomic facts; they furthermore state that the anatomic capsule of this gland is derived from, and is in intimate connection with, the endings of the pelvic fasciæ that meet around this gland, that it is impossible to enucleate the prostate out of this capsule, that it could only be dissected out of it and that the "surgical capsule" of the prostate is in fact a misnomer. They agree with Freudenberg's statement that the prostatic capsule of the surgeons consists of compressed prostatic tissue.

Their anatomic studies convinced them that the hypertrophy of the prostate takes place exclusively in this part of the gland, which extends from the internal urethral orifice onto the openings of the ductus deferentes, and that this hypertrophy includes only the central nucleus of the gland. The so-called total prostatectomy ought properly be called subtotal prostatectomy. The enucleation of the hypertrophied part of the prostate occurs inside of a circular layer of compressed prostatic tissue, detached from the central part of the gland. This latter part of the gland is intimately connected with the proximal end of the urethra and will always be removed together with the enucleated part of the prostate; if the operation is properly done, the urethra will be severed proximal from this section of the canal that carries the colliculus seminalis with the openings of the ductus deferentes. Lendorf endorses the views of these authors.

The healing occurs in this way: the lowest part of the bladder helps in the reformation of the urethra; this is facilitated by the fact that after the removal of the hypertrophied part of the prostate the whole bladder

sinks down, thus approaching the distal part of the urethra that is fixed by the urogenital diaphragm.

Considering that the part of the prostate that hypertrophies is always that which is closest to the bladder, it becomes obvious that the suprapubic method ought to be the method of choice.

I repeatedly took occasion in meetings devoted to the discussion of prostatectomy to demonstrate on series of specimens that it is impossible to preserve the prostatic urethra if one actually removes the entire hypertrophied part of the prostate, provided this hypertrophy involved the central nucleus in the sense of Zuekerkandl and Tandler. The accompanying pictures of prostates, representing various types of this central hypertrophy, will illustrate this point. The presence of the urethra in these specimens was proved not only by sounding before the specimens were split, and by the macroscopic aspect after the specimens were cut in half, but also by microscopic examinations, done at excised parts of the mucous canal assumed to be urethra. This inclusion and removal of the prostatic urethra is illustrated by the clinical fact that in most of the cases of prostatic hypertrophy the urethra appears to be considerably elongated, while in turn, after the prostatectomy is once done, the canal shows some shortening, a fact that can be demonstrated just as well immediately after the operation as in the later periods of recovery and of definite cure. It must be admitted, however, that in a very small minority of specimens no trace of urethral mucosa could be found, although everything that seemed to be hypertrophied was removed. Out of eighty of my specimens examined in this respect, in two only could no urethra be demonstrated. It has to be added that in these two cases no appreciable elongation of the urethra could be recognized before the operation and that, after the healing was completed, no appreciable shortening of the urethra could be found. These two specimens, while *in vivo*, were situated low and developed principally toward the perineum.

The urinary disturbances in these cases have to be explained by compression of the prostatic urethra. It therefore must be assumed that the Zuekerkandl and Tandler rule admits of some exceptions, and that in rare cases tumefaction may take place in parts of the gland that do not encircle the prostatic urethra and are not in any direct connection with it, but are separated from it by unhyertrophied prostatic tissue.

The fact that the "surgical capsule" of the hypertrophied part of the gland is composed of compressed and atrophied glandular tissue furnishes a pointer as to the way access ought to be gained to the tumor to be enucleated. This item emphasizes even more the rule that the covering of the prostate, viz., vesical mucosa and "surgical capsule," should be perforated, not by boring with the finger, but by incision with a knife. I pointed out in former publications that this incision ought to be deepened until the palpating finger can no longer discern tissue movable over the prostatic tumor. The character of this surgical capsule will readily explain the surgical experience that the larger a prostatic tumor is, the easier will be its enucleation—the extensive growth of the hypertrophied nucleus having led to excessive compression and complete separation of the peripheral glandular tissue. It accounts, also, for the occasional difficulty of finding the cleavage and the occasional obstacles to a smooth enucleation. If this differentiation between the peripheral prostatic tissue and the central hypertrophied tissue is not complete, then the operator will encounter rather tense strands that run from



These illustrations show the removed hypertrophied prostatic nuclei in natural size. Each specimen was split in two in order to demonstrate the removed part of the prostatic urethra contained in the tumor. *U* indicates urethra; *P*, false passage.

the central tumefaction to the prostatic shell; these strands consist of the lobular septa and of rests of glandular tissue; if the separation has not taken place at all, then enucleation is out of the question and the tumor has to be dissected out of the surrounding tissue, a condition which is most frequently found in central cancers of the prostate. If such a state of affairs is encountered, then an energetic pressure exerted from the rectal cavity has to bring the whole prostatic region upward and it is imperative to clear the field of operation by means of retractors, so that the parts to be removed can be excised under the permanent guidance of the eye.

I am convinced that operating in the dark has something to do with postoperative hemorrhages. It is not uncommon, if one makes the mucosa incision under the guidance of the eye, to notice one or two little spurters; it is easy to control these definitely by a Blunck clamp or by inserting an enclosing suture. It is also true that such little arteries in most cases will retract and then cause no more trouble; but, on the other hand, it is an old surgical experience that such arteries, while not bleeding toward the end of the operation, will again commence to bleed when the patient begins to recover from the depression caused by the interference. By working in the dark the operator deprives himself of the opportunity of seeing these arteries and of dealing with them appropriately. The digging out of the prostate in the dark, which as a rule has to be done by using quite a good deal of force, may lead to another source of hemorrhage which, being as a rule overlooked, becomes even more dangerous. The forcible pulling inside of the bladder may lead to the detaching of the anterior part of the viscus from its connections, and to the breaking of the big vein located thereabouts. I have seen such cases *in vivo* and at post-mortems.

For the above claimed preservation of the veru montanum and of the ejaculatory ducts clinical symptoms and direct ocular evidence can be furnished. Every surgeon with an extensive experience in suprapubic prostatectomy will record cases in which the sexual power appears to have improved after the operation or was even revived after the enucleation.

I myself have three cases on record in which the patients reported considerable improvement in their sexual power, which, however, never had entirely vanished before. A fourth patient, a man of 60, who stated that for years previous to the operation no sexual desire or function had existed, complained six weeks after the enucleation of rather frequent nocturnal emissions.

The direct ocular evidence is furnished by urethroscopy. Even if one is dealing with a large material, extraneous influences will prevent one from collecting a large number of urethroscopies in prostatectomized patients; after they are once cured, one will not have the chance of examining a great number of them because some will have left town again and some will object to the inconvenience of a urethroscopy, of the necessity of which they cannot always be convinced.

At all events, I have at my disposal seven urethroscopic findings, gleaned from seven cases of suprapubic enucleation. In all of these seven cases the specimens showed complete removal of the proximal part of the prostatic urethra. In each case the veru montanum and the openings of the ducts could be seen through the urethroscope. The only difference from the normal finding was that the distance between veru montanum and bladder cavity was shortened.

The sinking down of the bladder and the subsequently established contact of the inner urethral ring with the distal stump of the urethra, after the enucleation is once completed, can be very easily demonstrated by the insertion of a catheter immediately after the operation. The catheter passes through the urethra into the bladder without any difficulty; at the same time it can be demonstrated that the whole canal was shortened to the extent of the piece of the urethra removed with the central part of the gland. This shortening of the urethra to the extent of from $1\frac{1}{2}$ to 2 inches can also be demonstrated by measuring the urethra, after once definite cure has been established.

108 North State Street.

A CASE OF PITYRIASIS RUBRA (HEBRA)*

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Cases of pityriasis rubra bearing out the requirements of the original description are of such rare occurrence that the following was considered worthy of report.

Regarding the relation of this to other forms of generalized dermatitis, Hebra claimed, in his description, three distinct characteristics, namely, universal dermatitis, scaling and fatal termination. Since his time some writers have been inclined to take a less certain view regarding the fatal ending. Kaposi mentions a case of possible cure, which, however, he does not substantiate, as he lost track of the patient; he also cites another case from the oral statement of a physician.

In the literature of the subject there are no reported recoveries in cases that extended over a long period, and inasmuch as Hebra in an experience with fifteen cases did not modify his opinion, it would seem that more conclusive evidence than has been advanced was necessary to prove the contrary. While I am aware that it will appear presumptuous to give an opinion regarding this phase of the question from an experience with only one case, yet I am prompted to do so by the extreme dissimilarity of the case here reported compared to other forms of generalized dermatitis that have come under observation.

History.—The patient was a Russian, aged 50, a glazier, married and the father of six children. The condition in question extended over a period of about thirty-two years. It began with two oval, isolated, scaly patches on the inner side of the right thigh, which continued without any noticeable change for about sixteen years, when a similar lesion developed on the right side of the abdomen; this was soon followed by others, appearing on various parts of the body without predilection for any particular region. As the patches increased in number, a general dermatitis gradually developed, accompanied by desquamation. The scales were not so large or loosely attached as seen in cases of dermatitis exfoliativa following eczema, psoriasis, etc., but a varying amount of scaling was a constant feature throughout the course of the disease. The color of the hyperemia, light at first, became steadily darker as the disease progressed, until it assumed a deep purplish red in the general eruption, and a dark brown or almost black in the patches. Shortly after the development of the dermatitis, a general atrophy of the skin became noticeable, resulting in the following conditions: the lips became thinned, the nose pinched, the scalp tightly drawn over the vertex, and an ectropion of both lower lids became a

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Patient was shown at a meeting of the New York Dermatological Society, Jour. Cutan. Dis., 1899, p. 84.



Fig. 1.—Showing the general characteristics, also ulcerations, on bridge of nose and foot.

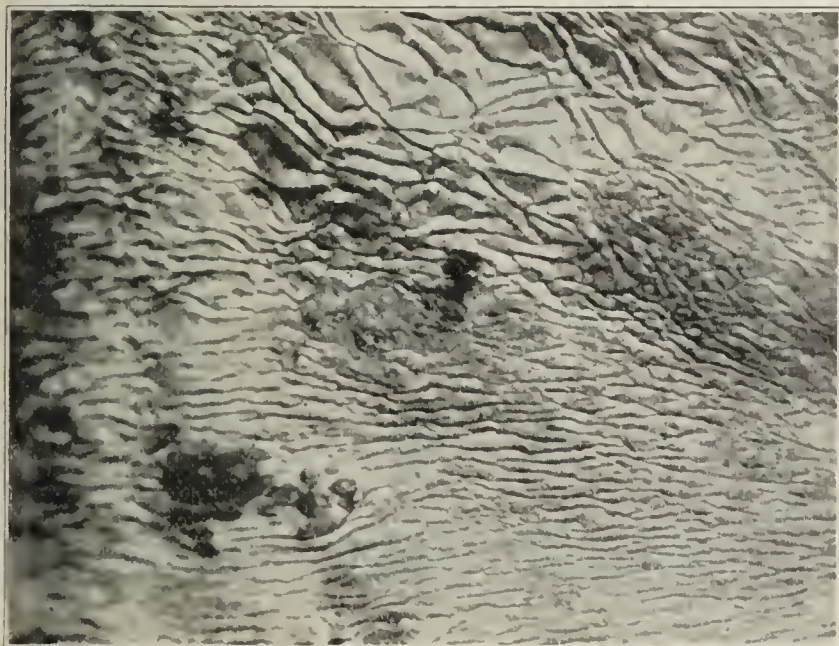


Fig. 2.—Wrinkled atrophic condition of the skin, resembling blotting-paper, and with seborrheal scaly nodules.



Fig. 3.—Lamellation and retention of nuclei in the horn-cell layer.

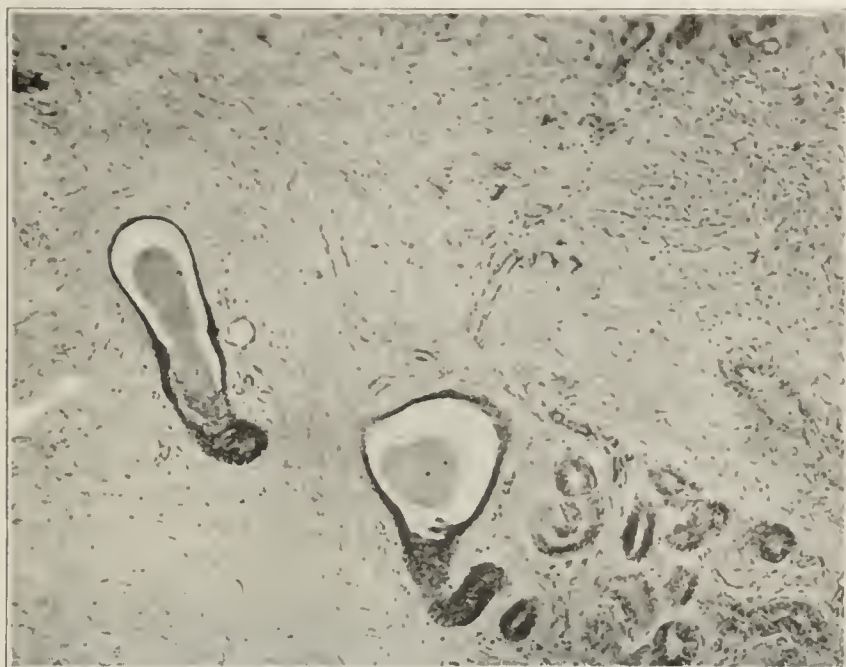


Fig. 4.—Cystic dilatations in sweat-glands containing hyaline masses.

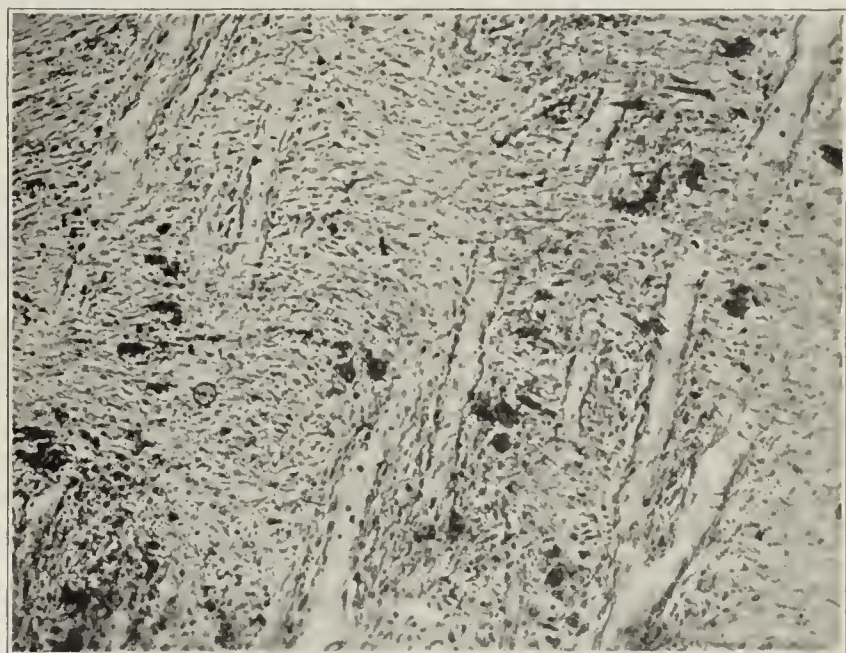


Fig. 5.—Vessels of upper corium showing sclerosis.

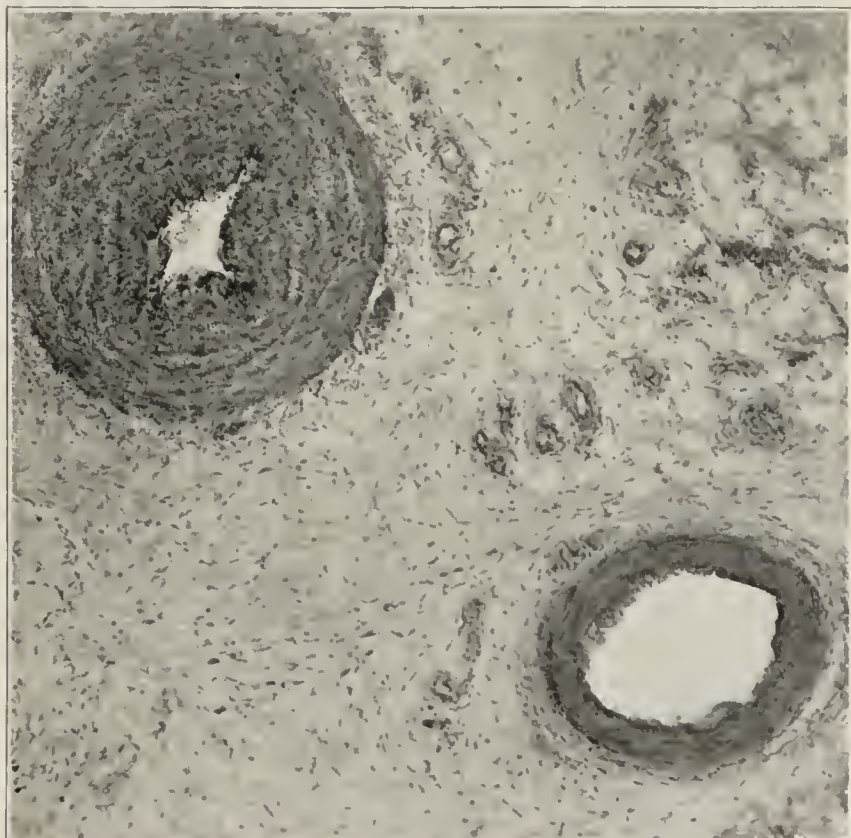


Fig. 6.—Artery and vein of lower corium showing hyperplasia.

prominent feature. The general character of the atrophy was also evident by the loose and wrinkled appearance of the skin over the abdomen and back where it resembled old parchment. On the extremities about the joints, the skin was shrunken and on the flexor surfaces numerous transverse superficial fissures occurred. The hair, including the lanugo hairs, shared in the atrophy, disappearing in all locations. The nails were not noticeably altered. The surface of the skin presented some unusual features: on the face in the location about the mouth involving the chin and sides of the nose, there was a heavy yellowish seborrheal crusting, which would peel off from time to time and reform; on the back and extremities, variously sized epidermal thickenings occurred, consisting of heaped-up masses of closely adherent oily scales that could be peeled off, exposing roughened nodular keratotic excrescences.

The patient was shown at a meeting of the New York German Medical Society and on account of the above apparently



Fig. 7.—Showing absence of elastin in the upper and abundantly present in the lower corium.

beginning tumors, a diagnosis of mycosis fungoides was advanced, but none of these lesions ever developed beyond the above stage during the time he was under observation, a period of about ten years.

No further evident changes occurred, until about a year preceding death, when small pea-sized ulcerations developed, mostly over bony prominences, as the bridge of the nose and the malleoli. Over the external malleolus of the left leg, a dime-sized superficial ulceration appeared, remained quiescent for several weeks, then gradually extended peripherally. Small ulcers developed outlying the border, which increased and coalesced with each other and with the original ulcer, until almost the entire foot became involved in an ulceration extending down through the fascia, muscles and tendons, exposing the metatarsal bones. As the ulceration advanced, the leg became edematous and a very profuse watery, foul-smelling discharge exuded; it could be seen issuing from various points of the ulceration in large droplets. On account of the severe pain accompanying the ulceration, and as nothing seemed to have the slightest effect in controlling the advance of the sloughing, amputation was advised.

Treatment and Course.—The patient was admitted to the Newark City Hospital for operation, and a circular flap ampu-

tation was performed at the middle third of the leg under ether anesthesia by Dr. Edward Staehlin; an uneventful recovery followed. About three weeks later, an ulceration appeared over the outer malleolus of the right leg; rapidly extending, it developed outlying ulcerations which coalesced similar to the ulceration described above. The patient now gradually lost strength, an uncontrollable diarrhea developed, the stools becoming involuntary and he gradually passed into a state of coma and died.

Constitutional symptoms during the course of the disease were not a marked feature, consisting only of languor, malaise and gradual loss of strength; chilly sensations, mild at first, increased toward the end, so that the slightest draught would cause intense rigors; perspiration was absent except in extremely hot weather.

Examination.—Nothing abnormal was observed in the thoracic or abdominal viscera. There was a general adenopathy present, most noticeable in the inguinal and axillary regions. Blood examination showed a slight leukocytosis with no distinct predominance of any special forms of leukocytes; and no abnormal erythrocytes were observed.



Fig. 8.—Showing numerous mast-cells and large masses of blood pigment.

Pathology.—Sections were fixed in Müller's fluid and formaldehyd solution and stained variously with hematoxylin-eosin, Unna's polychrome methylene-blue, Wright's method for elastin and Van Gieson's picric acid fuchsin for connective tissue.

The changes in the epidermis corresponded somewhat to the conditions of a parakeratosis; the nuclei of the horn-cells were retained; cohesion was lessened as evidenced by lamellation in some specimens, and separation of individual cells in others. In the cells of the stratum lucidum, the nuclear spaces appeared vacuolated and contained rod-like remnants of nuclei. The stratum granulosum was increased. The cells of the rete were swollen and the intercellular bridges widened. The stratum cylindricum appeared normal. The papillary processes were considerably lengthened and extended down in narrow processes.

The corium presented atrophic changes chiefly limited to the upper region. The collagen of the papillary and sub-papillary regions stained only faintly, or not at all. Just below the region of the cutaneous network, the color reaction gradually reappeared, becoming about normal in the deeper corium; elastin was abundantly present in the lower corium, but as the location above mentioned was reached it disappeared quite abruptly and was entirely absent in the upper

corium and papillary processes. Large particles of yellowish pigment were present in this area of degeneration, and numerous variously shaped cells, small lymphoid cells with well-stained nuclei and faintly stained protoplasm, were seen in groups in some of the papillary processes, also around the blood-vessels and sweat-glands. Intermingled and scattered between these foci, oval and round cells resembling endothelial cells were present, often arranged in irregular rows; they probably resulted from degenerated blood-vessels. Mast-cells were a predominating feature; in the upper corium, fifty could be counted in a field (1/7 obj.); seventy were counted in a single papillary process. In the papillæ, they were arranged with the long axis perpendicularly; as the lower corium was reached, they became less in number, until only one or two could be counted in a field. Plasma cells, though diligently sought, were not observed in any of the specimens examined. The walls of the vessels were thickened and had lost their normal twisting. Cross-section showed an arteriocapillary sclerosis, and in some vessels entire hyperplastic obliteration of the lumen occurred. The walls of the veins were also thickened and greatly dilated. The sweat-glands showed cystic dilatations with masses of hyaline material. No hair follicles or sebaceous glands were observed in any of the specimens.

In the literature of the microscopic findings we find a wide difference in results, generally due to the stage of the inflammation at which the examinations were made. In early cases reported by H. von Hebra and Crocker, simple inflammatory conditions of the upper corium with parakeratosis are recorded. In cases that extended over a long period, the results, while not uniform, seem to agree regarding the region most involved and the character of the changes. H. von Hebra in a case of thirty years' duration found the corium degenerated and infiltrated with cells. The degeneration was most evident in the upper corium where the ridge net and papillary body had disappeared; then followed a thin layer of cellular infiltrated cutis, below which the cellular infiltration gradually disappeared; this location was rich in elastic fibers and pigment granules which in some specimens extended up to the epidermis.

Petrini and Babes in an early case found a parakeratosis with increase in the keratohyalin and, in a later examination, parakeratosis with a feebly developed granular layer. In the corium they describe changes slightly different from other observers; the connective tissue fibers were thickened and sclerosed; elastic fibers were abundantly present, but they do not state that this was so for the papillary layer, in which they found a thin and sclerotic quality of the papillæ. The vessels were thickened and had lost their normal twisting; cross-section showed thrombi. The hair follicles were atrophic; the sebaceous glands had disappeared, and the coil glands contained hyaline masses.

Jadassohn found the same changes in the epithelium as Petrini and Babes, but does not confirm the degeneration of the connective tissue or blood-vessels. He particularly mentions mast-cells, which he found very numerous in the papillary body and around the coil glands.

The case here reported embodied nearly all the changes severally reported by these observers. Briefly summarizing, the most important condition in the above findings calling attention to the grave character of the disease was the degeneration found in the vessel walls. Comparing the general findings and clinical course of the disease, we can assume that the process primarily involves the capillaries as is evidenced by the early hyperemia gradually involving the vessel walls in an obstructive hyperplasia followed by degeneration; thus accounting for the gradually deepening color of the hyperemia due to the deposit of blood pigment in the

corium. The atrophic changes are also accounted for as the result of the hardening of the vessels and consequent malnutrition. The peculiar progressive character of the ulceration was explained as follows: the primary pea-sized ulcer developed as the result of the obliteration of a small arteriole, apparently remaining quiescent until several neighboring branches shared in the process of occlusion, then coalesced and finally extended down through the underlying tissues as the deeper vessels became involved. From the microscopic findings we can assume that in pityriasis rubra we have a condition producing changes in the histologic structure of the skin of a permanent character, and until some remedy is found or the etiologic factor isolated and controlled, these cases will nearly, if not always, substantiate the prognosis as advanced by Hebra.

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ABSTRACT OF DISCUSSION

DR. A. RAVOGLI, Cincinnati: In my younger days, while in Vienna, I had the opportunity of seeing a case of pityriasis rubra of Hebra. In that case there was a diffuse redness all over the body, which was covered with thin, bran-like scales, and Professor Hebra insisted on those lesions as certain characteristics of the skin in these cases; moreover, he showed that it would not be elastic, and in consequence would be distended above its possibility. On this feature he insisted. In that case there was no crusting and very little exudation. That patient died from tuberculosis. In another case which Hebra reported, death was also due either to tuberculosis or to some other pulmonary trouble, and in consequence of the frequent association of the pityriasis rubra of Hebra with tuberculosis it has been considered that this skin disease was produced by a general tuberculous condition. At the present time there is considerable confusion in the minds of dermatologists in regard to pityriasis rubra and dermatitis exfoliativa, forms which must be separated. I have seen several of these cases, and I can say that if the patient failed to recover, the case was regarded as one of pityriasis rubra Hebra, while when he recovered it was regarded as a case of dermatitis exfoliativa. As it is, we have no clear conception of these chronic forms of exfoliating dermatitis, and any light which can be given on this subject has to be cheerfully accepted.

DR. WILLIAM S. GOTTHEIL, New York: What Dr. Ravogli said in regard to the confusion that exists between the recognition of pityriasis rubra of Hebra and dermatitis exfoliativa is undoubtedly true, and yet typical examples of these two diseases are entirely different. We all see more or less of dermatitis exfoliativa; it is not a very rare disease, and while the condition of the skin, the redness and thickening, is quite similar to that observed in pityriasis rubra, the scaling is entirely different. A typical case of pityriasis rubra—I have seen perhaps one or two—does not look at all like dermatitis exfoliativa.

DR. H. J. F. WALLHAUSER, Newark, N. J.: I agree with Dr. Ravogli that we are more or less mixed up in regard to the classification of the exfoliative dermatites. He made the statement, however, that all cases of generalized dermatitis exfoliativa that ended fatally were of the Hebra type. I had a case recently in which the patient developed a large, scaling, light-colored eruption, and gradually succumbed, and yet a microscopic examination of sections of the skin in that case showed a condition entirely different from that observed in pityriasis rubra. The eruption was different both in its color and method of scaling, yet the patient died from symptoms very similar to those seen in the chronic form. I recall another case of generalized exfoliative dermatitis closely resembling the Hebra type in which the patient recovered, and I have come to the conclusion that we have a great variety of etiologic factors for this type of eruption. Still, I believe that the Hebra type is a distinct disease and different from all other clinical forms. It differs in the color of the hyperemia and in its progression, and, as Hebra insists, it must be accompanied by atrophy.

CANCEROUS DEGENERATION IN CHRONIC LEG ULCER *

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Deference to mistaken usage has determined the title of this paper, the symptom of ulceration being an epiphenomenon in many dermatoses ranging from simple inflammation on the one hand to cancer on the other. The ulcers herein referred to are those so common on the lower limbs as a complication of ordinary dermatitis, which enjoy the additional usual misnomer of varicose ulcers.

Cancerous degeneration of the skin, most common on the face and hands as the parts most exposed to irritation and infection, usually develops on the basis of a senile hyperkeratosis or a benign new growth. It also occurs as an end-result of various ulcerative processes, such as those occasioned by trauma, pus infections, tuberculosis, syphilis and leprosy; and of late years we have had abundant reason to dread the irritant action

of the x-ray in determining the occurrence of malignant cutaneous degeneration. In rare instances cancer has occurred at the site of psoriatic lesions, or on areas affected with lichen planus, lupus erythematosus and other comparatively innocent affections; and some relationship between the two sets of phenomena has necessarily been assumed. Ignorant though we still are of the etiology of cancer, experience has demonstrated beyond cavil that there are certain factors that favor its development. Undoubtedly the most common of

these is irritation; overstimulation, chemical or mechanical, as from inefficient cauterization, curetting or scratching, or from the presence of extraneous matter, necrotic tissue, or decomposing secretions, the noxae of pus organism and other superinfections, the disturbing action of sunlight and the various new therapeutic rays—all these promote the progress of cancer if they do not directly occasion its advent. Of late years I have come to realize the importance of these factors as I never did before, and to pay the most scrupulous attention to the dressing and care of ulcerations of all kinds. And under such care and cleanliness alone I have several times seen indubitably carcinomatous ulceration of considerable extent heal up entirely; I have seen them "cured" in the same sense that I have seen numerous epitheliomas cured by the x-ray, and even one or two by that latest fad in skin cancer therapy, Thoremedin. In

the specifically treated cases as in those subjected to care and cleanliness only, it seems a mistake to talk of cure at all; the abnormal epithelial proliferation is checked in its advance, the ulceration may epidermidalize completely and the result, in the special case and under the special circumstances, may be satisfactory; but the tumor remains, and may at any time show signs of renewed growth. In both sets of cases also a not inconsiderable part of the therapeutic effect, and possibly almost the whole of it, has been due to the scrupulous cleanliness and the avoidance of the pus infections and other irritations that play so considerable a part in determining the progress of carcinomatous infiltration and breaking down.

Now in none of the more common ulcerative skin affections would the conditions for the development of cancer seem to be more favorable than in chronic dermatitis with ulceration, the neglected and despised varicose ulcer of the leg. The extreme chronicity of the inflammatory process, often lasting for many years; the age of the patients, which is usually advanced; the almost inconceivable neglect of their lesion in many cases, so that the persistent presence of foul and decomposing secretion and of the products of tissue necrosis is common; the frequent absence of even an attempt at



Fig. 1.—Carcinomatous degeneration of ulcer on right leg of woman aged 76 (Case 1).



Fig. 2.—Carcinomatous degeneration of ulcer on right leg of woman aged 50 (Case 2).

rational treatment; the usual presence of vascular and lymphatic conditions in the skin of the part affected that entirely prevent any spontaneous attempt at cure; the fact that most of these patients are compelled to be on their feet all day and thus to keep up and increase the unfavorable vascular conditions, and finally the circumstances that in many of them the added noxae of alcoholism, of renal or cardiac disabilities, or of other chronic affections are also present, all these would lead to the presumption that in this ulcerative lesion of all others carcinomatous degeneration would be most common. Yet the very reverse is the fact.

Common experience, in so far as it has fallen to my lot personally, and as I have been able to ascertain it from inquiry among those whose work in the large metropolitan surgical and dermatological clinics leads them to see multitudes of these cases, is to the effect that the secondary development of cancer is so rare as to be practically unknown. In the City Hospital, where there is a ward in the dermatological division devoted exclusively to these cases, the record is the same. A search of the literature made for me by Dr. Satenstein has resulted in the finding of only ten recorded cases,

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

three reported by Nobl,¹ two by DaCosta,² and one each by Kaposi,³ Neumann,⁴ Gant,⁵ Woolsey⁶ and Morestier. Nevertheless, while so few cases of cancer secondary to varicose ulceration have been reported, and while many of the text-books do not even mention the possibility of its occurrence, some of these latter refer to it in quite a casual way, as if it were an occurrence so common and of such little consequence as to barely merit notice, impressing one with the idea that a venerable surgical tradition rather than actual experience on the writer's part is its source. Thus Bryant and Buck say that chronic ulcers in elderly people and lupus patches may at times undergo epitheliomatous transformation,⁷ and, again, they describe cursorily the superficial signs of this change;⁸ yet they make no mention of it when discussing the varicose ulcer itself.⁹ Tillman¹⁰ merely says in small print that epitheliomas sometimes develop in old ulcers of the leg of large size among people advanced in years. An occasional reference is made, as in DaCosta,² to "Marjolin's ulcer," which is apparently an old name for the lesion under consideration; but of



Fig. 3. — Carcinomatous degeneration of ulcer on left leg of woman aged 60 (Case 3).

Marjolin himself, and of the case or cases on which his observations were founded, I have found no trace. Nobl,¹ in his very exhaustive monograph on the varicose condition, devotes three pages to cancer, mostly occupied, however, with an account of his three cases. Regarding the frequency of its occurrence, he says that the very scanty data give us no indication at all. In a number of Viennese clinics, where numerous leg ulcers were constantly being treated, not a single case of the kind had been seen during the last few years. In a very large institution with more than 4,000 patients, and where about 200 leg ulcerations were under treatment, he found only one case of cancer, which he includes in the three new ones that he records. The complication is one of the very rarest.

To the eight cases above mentioned I add three. I do not propose to detail their histories, which differ in no respect from those of thousands of others in which cancerous degeneration does not take place. In two of them the ulcerations were extensive, but by no means remarkably so; in the third case the area affected was comparatively small. All three cases had been more or less neglected, and were in bad condition from retained and decomposing secretions and necrotic tissue when first seen; but here again the local conditions were no worse than is commonly seen. The chief objective sign that differentiated these cases from others was the pres-

ence of tumors or tumor masses, either in the shape of prominent tuberos and curled edges to the ulceration, with masses of hypertrophic tissue in the adjacent base of the lesion, or a general elevation of the entire denuded area, so that it projected a centimeter or more above the level of the surrounding skin. A description of the three cases when first seen will suffice.

CASE 1.—This patient, a woman, aged 76, in the City Hospital, had suffered from the dermatitis since the menopause many years ago. Her right leg was the seat of an old inflammatory process, chronic in type, of moderate extent, and non-ulcerated, though the scar tissue present showed that that process had been present in the past. Her right leg showed the carcinomatous changes. From the knee down to the beginning of the middle third of the limb, extensive areas of



Fig. 4.—Microscopic view of the indurated margin of ulcer from Case 1.

scar tissue and deep pigmentation showed the former ravages of her affection. The entire lower half of the leg was occupied by a deep ulceration extending almost around its circumference; it spread over one-third of the dorsum of the foot below, and below the malleoli on either side. The entire ulceration, save at its upper margin, was bordered with immensely hypertrophied, rolled and convoluted edges, which were quite hard and fairly sensitive. Isolated and confluent tumor masses of a consistence and appearance very similar to the edges were scattered over the base of the ulceration, chiefly in the neighborhood of the margins. I was unable to obtain from the senile patient any definite statement as to how long the hypertrophic masses had been present.

CASE 2.—This patient, a man, aged 50, in the Lebanon Hospital, had had ulceration of the right leg for fifteen years; the left was unaffected. The entire middle third of the leg was occupied by the ulceration; for about a year, the patient said,

1. Nobl: *Der Varicose Symptomcomplex (Phlebectasie, Stauungsdermatose, Ulcus Cruris)*, Berlin, 1910, p. 143.
2. DaCosta: *Ann. Surg.*, xxxvii, 496.
3. Kaposi: *Arch. f. Dermat. u. Syph.*, lvi, 429.
4. Neumann: *Ann. de dermat. et de syph.*, 1898, ii, 1058.
5. Gant: *Lancet*, London, 1889, p. 699.
6. Woolsey: *Ann. Surg.*, xliii, 610.
7. Bryant and Buck: *The American Practice of Surgery*, i, 231.
8. Bryant and Buck, ii, 185.
9. Bryant and Buck, ii, 178.
10. Tillman: *Tillman's Surgery*, iii, 824.

"proud flesh" had been appearing in it, and increasing. Here the margins of the ulceration were not much involved; they were flat and sloping. But a large portion of the area of the base of the lesion was studded with exuberant, fleshy, tumor masses, so that its general surface was distinctly raised above that of the unaffected skin.

CASE 3.—This patient, a woman, aged 60, was received in the City Hospital. Her left leg had been ulcerated for many years, and showed over most of its surface the scars and pigmentations of an old chronic dermatitis. On its lower third, just above the ankle, was an irregular, band-like, ulcerated area, almost entirely occupied by a hypertrophic tumor mass raised from 2 to 3 cm. above the general level. Its color was pale red; it was glistening and dry, and it could be separated at the margins from the edges of the ulceration which it almost entirely occupied. The anterior portion of the ulceration, alone, was not filled with the mass; and here it presented the appearance of an ordinary dermatitic ulceration, though nodular excrescences similar to the main tumor were beginning to appear in its base.

These cases were observed several years ago, before the advent of the Wassermann test; but in all of them syphilis was excluded both by their appearance and by the absence of results from a vigorous mercurial and iodine treatment. A microscopic examination showed all three to be cancerous; and as the findings in each case were typical and practically identical, I shall content myself with demonstrating a single photomicrograph of a section from the first one (Fig. 4).

In all three cases radical surgical interference was advised. The first patient was transferred to the surgical service, where an amputation was successfully performed. The other two refused treatment as advised, and were lost sight of.

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ABSTRACT OF DISCUSSION

DR. H. H. HAZEN, Washington, D. C.: Dr. Gottheil's paper reminds me of a case which was recently observed in my service. The patient was a negress, 47 years old, who for the past fifteen years had suffered from varicose veins and an ulcer on the lower part of the calf of the left leg. An operation was done on the veins, and shortly after this operation an eczema set up around the ulcer, which was only about 2 cm. in diameter. With the onset of the eczema, however, it immediately began to enlarge, and when I first saw her it was about 15 cm. in diameter, and was undoubtedly cancerous, with an ulcerating center. On biopsy, a typical epithelioma was demonstrated, with large masses of fibrous tissue. The patient refused an amputation, and after an unsuccessful attempt to excise the ulcer, it was treated with the curet and the application of acid nitrate of mercury. The central portion of the lesion could be scraped off, but no impression could be made on the hard, surrounding tissue, which resembled a scirrhous carcinoma.

DR. M. L. HEIDINGSFELD, Cincinnati: It seems remarkable that chronic, persistent inflammations of the leg which are exposed to prolonged and severe irritation should remain simple in character, when a much lesser degree of similar influence is promptly followed by malignancy over a more predisposed area, as, for example, that of the face. A very large part of our lying-in patients on the dermatologic service of the Cincinnati General Hospital have chronic ulcerations of the leg. Recently I have had occasion to try out with rather remarkable success a new form of basic fuchsin ointment. In establishing the history of some of these cases, I was surprised to learn that the majority had been inmates of the institution, off and on, for periods ranging from six to sixteen years. The duration of the ulcers was in some cases much longer and the average case was well over six years. Among the many cases of leg ulcer which I have seen on this service, only two, to my recollection, showed distinct evidences of malignancy. One of

these cases, a carcinoma epitheliale cicatrisans, was included in the paper which I have presented to this Section.

DR. A. RAVOGLI, Cincinnati: I do not see anything extraordinary in the observation made by Dr. Gottheil that long-standing ulcers of the leg may at times show malignant changes. In these cases we have to deal first with an impaired nutrition of the tissues, which renders them more susceptible to an external infection, malignant or otherwise, and we have, moreover, changes in the epithelium, with more or less constant irritation, and in consequence of this the connective-tissue cells become enlarged and hypertrophied, and the ultimate result is formation of a chronic proliferation which we call carcinoma, when it assumes malignant tendency to destruction and to infection.

DR. L. DUNCAN BULKLEY, New York: I did not think there was very much doubt among dermatologists about the question raised in Dr. Gottheil's paper. I have seen a number of these chronic leg ulcers followed by cancerous degeneration, and I believe if they were more carefully observed and more frequent biopsy examinations were made, the presence of malignant changes in these lesions would be much more frequently demonstrated than is now generally supposed to exist.

DR. WILLIAM S. GOTTHEIL, New York: Dr. Ravogli apparently misunderstood the purport of my paper, which was to emphasize the fact that in spite of all the conditions favoring the development of cancer in these cases of chronic leg ulcer, only ten cases could be found recorded in the literature, in addition to the two cases reported by myself. It was to the infrequency of the cases rather than to the apparent causes favorable to its development that I wished to direct attention.

SUCCESSIVE COW-POX VACCINATION

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The subject of cow-pox vaccination was first studied by Jenner, in 1798. Following his work numerous other investigators took up the problem and many valuable additions were made to the earlier findings.

The work of Jenner and his contemporaries was so complete and thorough that practically no clinical additions were made to their findings until the question was made the subject of an exhaustive study by von Pirquet, entitled, "Klinische Studien über Vakzination und Vakzinale Allergie" (1907). By means of exact measurements of the local lesions, associated with studies of the general reaction, and comparative tabulation of results, this author placed the entire subject on an exact scientific foundation which will serve as the basis for future work.

The following work deals with a continuation of investigations in vaccinations based on the experiments performed by von Pirquet.

METHOD OF VACCINATION

The technic employed in the vaccination of this series of cases was briefly as follows:

The skin on the lateral surface of the upper arm was washed clean with ether. A small amount of vaccine was taken on the end of a von Pirquet scarifier. By a rotary, boring motion the platinum edge was pressed on the skin firmly enough to denude only the superficial epithelium, care being taken that no appreciable amount of blood be drawn. In all cases a control point was similarly made with the scarifier.

The surface denuded by such a method was circular in outline and measured approximately 1 mm. in diameter. In the first series of cases six points of vaccination were made simultaneously, three on each upper arm. Precautions were taken that the vaccinated areas should

neither be bandaged nor treated in any manner, in order that the course of development could be followed under as favorable conditions as possible.

MACROSCOPIC APPEARANCE OF VACCINE SPOTS

The first local phenomenon to draw one's attention following inoculation was that directly due to trauma. Within a few minutes after completion of the vaccination the skin immediately surrounding the point of inoculation assumed a reddish hue which varied more or less in intensity according to the sensitiveness of the individual, the amount of pressure employed, the area of skin chosen, etc. In a few hours this redness due to trauma diminished in intensity and within forty hours the remaining hyperemia had disappeared. Within the first few hours the hyperemic area reached a diameter of 5 mm. on an average, and then completely disappeared on the day following. All that was noticeable thereafter was a brownish crust or scab surrounded by normal skin. The traumatic reactions of both control and vaccine points were identical in all respects with the exception of color which was slightly more yellowish in the case of the vaccine spots.

SPECIFIC REACTION

1. *Development of the Papule.*—Following the reaction due to trauma a period of latency intervened averaging three days in duration, during which no changes were observed in any of the points, that is, approximately from the middle of the second day to the middle of the fifth. The first evidences of specific reaction in the points of inoculation appeared on the sixth day, or approximately 120 hours after inoculation. By this time all evidences of traumatic reaction in the control points had entirely disappeared.

The first change noticed around the points of inoculation following the period of latency was a redness. The region was vaguely palpable. On the succeeding day the area of redness had increased in size and intensity and the papule formation had begun. The area of redness was definitely raised above the skin and distinctly palpable on the seventh day. The redness disappeared on pressure leaving a dim yellowish hue.

2. *Differentiation of Papilla and Aula.*—On the eighth day another decided change occurred. The summit of the papule had become flattened, plateau-like and showed a precipitous edge, well defined from the surrounding skin, which may be termed the papilla.

Coincident with the development of the papilla was the formation of the aula, a term applied to the sharply delineated hyperemic zone surrounding the papilla. It appeared at this stage that the papilla was formed from the concentration of the exudate, which before had been evenly distributed throughout the hyperemic area.

3. *Development of Area.*—The papilla and aula showed a fairly parallel growth for about forty-eight hours. On the tenth day another striking phenomenon occurred. The zone of hyperemia showed an increase in growth out of all proportion to that of the papilla. Within four days the extent of this hyperemia reached its maximum of 56 mm. in diameter. The papilla had also, during the same period, attained its maximum development of 10.5 mm. in diameter.

This hyperemia, or area accompanied by an infiltration of the underlying tissues, was the most striking feature of the vaccination process. The area formation was sudden in onset and rapid in development.

4. *Further Stage of Papilla Development.*—Directly following the maximum development of area and papilla the process of involution began.

In its onset the papilla presented a pale pinkish-gray color. This took on a more yellowish-gray hue as growth proceeded. The time of the most intense yellowish color was displayed at the height of development. After this point was reached observation of the color-changes were disturbed by the rather rapid drying out of the central region and the formation of a crust. The onset of the drying-out process in the papilla was the surest indication of the maturity of the process.

Throughout the entire development of the papule a small central crust could be observed. This had its origin in the primary traumatism. It appeared to be the starting-point of the final drying-out process which led to the formation of the large crust.

After fourteen days all that remained of the papilla was a thick, brown crust or "scab" surrounded by a pigmented skin which had taken the place of the area. If the scab was removed by scratching, a roughly circular ulcer remained with grayish-white base and rough edges. A fresh scab was rapidly formed which was thinner and of lighter brown hue.

The scar following involution was in the first few weeks of a pinkish hue with an even surface. This gradually was superseded by the usual whitish, smooth, glistening scar with fairly well-defined edges which persisted in most cases throughout life.

DEVELOPMENT OF PAPILLA AND AREA IN SUCCESSIVE VACCINATION

The technique employed in these vaccinations was similar to that already described. Instead, however, of making all vaccinations at the same time, single inoculations were performed on successive days for two weeks or more. After three or four points of inoculation had been made on either upper arm, further inoculations were performed on right and left backs.

A series of five subjects, varying in age from 3 months to 2½ years, was subjected to this method of vaccination. Daily observations were made at the same hour during the process of development. Measurements were made of the diameters of the hyperemic areas—and, after differentiation, of the papillae, areas and infiltrations. The main features in the development were quite similar to those of the first series of cases with several simultaneous inoculations.

Our attention was principally directed to the relation of time of development of papilla to that of area, and to the influence of previous vaccinations on the successive ones.

REPORTS OF CASES

CASE 1.—Hannah B., 3 months. In this case sixteen vaccinations were performed on successive days. Four points reacted, namely, those of the first, third, sixth and eighth days. In the case of the first point, papilla formation began on the fifth day after inoculation, in the third point on the sixth day, in the sixth point on the fifth day, and in the eighth point on the fifth day. These figures show rather conclusively that approximately equal periods of time elapsed in each point following inoculation before papule formation became evident, a fact which speaks for the local nature of the papule formation.

Another feature of interest was that the maximum points in the development of the individual papillae fell approximately on the same day and, following this, involution in all points set in. Closer observation showed that the maximum diameter was less in each point than that preceding. The figures of diameters in this case were 9.5, 7.5, 7 and 7 mm. One may conclude from this phenomenon that changes of a general nature occurred in the organism which retarded the further development of the papule.

With reference to the time of differentiation of papilla and area in successive inoculations the following phenomena were noted: In all four points reacting positively the onset of area formation was practically simultaneous and occurred between the ninth and tenth days following the first inoculation. That is, the earlier the inoculation, the longer the period which elapsed before the onset of area formation was observed. Thus, in the first point nine days intervened between time of inoculation and time of onset of area formation, seven days in the second point, five days in the third point and three days in the fourth point. From these observations one may reasonably conclude that the area formation is a general reaction on the part of the organism and that it is not influenced by the local reaction. It was also observed that the diameter of each area was less than the diameter of that preceding.

CASE 2.—Berta G., 1 $\frac{3}{4}$ years (anemia, gastro-enteritis). In this case eighteen successive vaccinations were performed at daily intervals. Those of the third, fourth, fifth, sixth, seventh and ninth days resulted in positive reactions. The same phenomena as noted in the previous case were also present in this one. The simultaneous development of the areas was even more strikingly shown, i. e., the later the inoculation, the less the time which elapsed before the area formation began.

The formation of the areas in all points was simultaneous, the differentiation of area and papilla taking place independently as a local phenomenon.

CASE 3.—Gertrude D., 10 weeks, healthy. In this case nine successive inoculations were performed. Just preceding these six simultaneous inoculations had resulted negatively. Development of areas occurred on the same day as in previous cases, in the positive points. No new phenomena were noted.

CASE 4.—Hedwig B., 3 days old. Out of nine successive vaccinations only two points resulted positively, offering insufficient data for definite conclusions.

CASE 5.—W. H., 2 $\frac{1}{2}$ years; hereditary lues, anemia. This case illustrates probably more clearly than those described the relative developmental phenomena of area and papilla. Nineteen successive vaccinations were performed of which those of the first, second, third, fourth, fifth, sixth and ninth days resulted positively with formation of papilla and area.

A noticeable feature in the reaction was the absence of the area in all points. In all other cases this preceded the formation of area. The severe anemia present in this case was doubtless the causative factor of this condition. This state of affairs made all the more striking the simultaneous appearance of the area formation in each positive point.

In points 1, 2, 3, 4 and 6 the area formation began on the tenth day following the first inoculation and reached its maximum extent within twenty-four hours. This showed again how much earlier the area formation occurs in the later inoculated points.

We conclude that at this point the maximum reaction on the part of the organism has been attained. The antibodies, specific for the vaccine microorganisms, have gained the upper hand and immediately following this, the process of involution sets in. As noted before, the later inoculation called forth a less intense reaction as illustrated in the gradual diminution in the diameter of the areas formed. In this case the infiltration was especially well marked and corresponded closely in extent with that of the area.

The curve shows the maximum points of area and papilla formation to coincide approximately. The later the formation of the papilla, the less its extent of development. The attainment of the maximal reaction on part of the organism as illustrated in the area curves, also has a local effect, in that it hinders or aborts the further development of the papillary reaction.

CONCLUSIONS

In confirmation of the results obtained by von Pirquet, we found the papilla formation in cow-pox vaccination to be a local phenomenon. The independent development of each infected point as evidenced by the time of onset, the duration and other local manifestations bear out this point. It is a local reaction, however, only until the maximum of development is attained.

Involution begins simultaneously in all points in whatever stage of local development they may happen to be. Therefore, the involution may be regarded as due to a general reaction or change in the organism.

The area formation is undoubtedly a general reaction on the part of the organism. This is clearly portrayed in the simultaneous formation of area in all points in successive vaccinations at the same time with a rise in body temperature and other signs of constitutional disturbances which are in general corresponding in degree to the extent and intensity of area formation.

TRANSPLANTATION OF THE HUMAN CORNEA PREVIOUSLY PRESERVED IN AN ANTISEPTIC FLUID

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The idea of replacing by transplantation, in cases of leukoma, the opacified part by a graft of transparent cornea, is one which has occupied the energies of ophthalmologists for a long time. It is now nearly a century since Riesinger first undertook this task. Without entering into historical details, it will be sufficient to mention that the corneas of animals, as well as various transparent substances, from small round pieces of glass or celluloid to membranes of fowls' eggs, have been tried.

Numerous difficulties and disappointments have cooled the ardor of experimenters and finally it was found that inert substances always acted as foreign bodies and were eliminated more or less rapidly.

On the other hand, trials of heteroplasty, that is to say, of lower-animal tissues transplanted on man, had no better success in the cornea than the transplantation of glands or the transfusion of blood. The progress of modern biology has taught us that cytolytins are formed in the organism, this result being the process of defense against these heterogeneous elements borrowed from other species.

The only human transplantation that has given encouraging results is homoplasty, i. e., transplantation from man to man, of which there are in the annals of surgery half a dozen successful examples. In these cases there is no question of different species, but of similar species, in which favorable biologic conditions are better observed. It is, however, difficult to realize two essential factors that are required for success in this operation; on the one hand, healthy tissue for grafting; on the other, two different patients whose presence may be had without waiting. I have, in consequence of these difficulties, endeavored to avoid one drawback, but to accomplish this it is necessary to preserve and keep on hand healthy cornea. As a matter of fact, it does happen occasionally that one has the good fortune to enucleate intact an adult eyeball—intact, at least, so far as its anterior segment is concerned—or (often a better source of supply) one may take advantage of material from maternity hospitals and utilize the corneas of still-born children. Unfortunately, this material is often far from

the operating-room and it is very important to be able to collect and preserve it for use at an opportune moment.

We all know with what rapidity the cornea loses its transparency and how quickly its epithelium desquamates after death. The problem, therefore, is how to keep in a living state for a reasonable length of time the cornea of an eye separated from the rest of the organism.

This problem is, properly speaking, one in general biology. It was stated in a practical fashion for the first time by Carrel in 1909, in connection with his experiments on blood-vessels. This author, inspired by the previous researches of Ranvier, Ljungren and Jolly, endeavored to reunite the peripheric and central ends of veins by means of sections of similar organs kept in a state of preservation for several weeks. These experiments, which caused a great deal of comment at the time on account of their novelty and practical interest, appear to Fleig to have been based on an erroneous biologic interpretation.

The survival of histologic elements is, however, possible. Renewing the experiments of Ranvier and Jolly, in 1903 and 1910, showed that the leukocytes of the frog and the triton may resume their ameboid movements and their phagocytic power after having been preserved at 0° C. for several weeks in the blood of the animal. These animals are, however, cold blooded.

Much more interesting is the recent experience of Fleig with the spermatozoa of the rabbit. Having preserved a certain number of these elements in blood-serum placed in an ice-box, he found that, at the end of ten or twelve days, on being gently heated, they performed their well-known undulatory movements.

Spermatozoa and leukocytes, however, are self-sufficient cells which do not form tissue. Can the same result be obtained in the case of a membrane as complex and delicate as the cornea? This is the question that I in my turn have endeavored to answer.

When I began my researches (about three years ago) by experimenting on rabbits, I was desirous of imitating Carrel, and, following his example, placed the cornea in sealed tubes and in a moist atmosphere; but this method, which is satisfactory for blood-vessel surgery, did not prevent the rapid desquamation of the corneal epithelium and deterioration of the corneal tissues. On removal from the medium, the eye was found to be decidedly hypotonic, and the corneal epithelium came off in the form of a syrupy coating. It was evident, therefore, that the outcome of the treatment was merely the aseptic preservation, with the exclusion of air, of a dead tissue.

Ringer's solution, and above all, Locke's, were the first artificial mediums that gave me encouraging results. I was able to graft corneas which had been kept by these means for two days, but this period seemed to be the maximum. On the other hand, the defibrinated blood of an animal of the same species (especially its serum) gave me a cornea in a remarkable state of preservation. The mixture of Locke's liquid and serum, which Fleig found superior to pure serum for the preservation of muscle tissue, proved to be distinctly inferior to blood alone, a fact that suggests the hypothesis that its preservative action is due to bodies that are antagonistic to autolytic enzymes. This may be possible, but it seems to possess, in addition, certain vital properties, particularly when it contains hemoglobin in solution.

At present I am endeavoring to obtain, without injecting a foreign substance into the system, serum hemo-

lyzed as far as possible, as, I believe, that, if the tissues are to remain vital, it is necessary to furnish them with a medium in which osmotic exchanges are possible.

The preserving serum is accordingly taken, not from the blood of the animal which has furnished the cornea, but from one of the same species. Every aseptic precaution being regarded, the ocular bulbs are immersed in this liquid and immediately placed in an apparatus which keeps them at a certain temperature.

The question of temperature is very important. I have found that the cornea when kept at a few degrees below 0° C. rapidly loses its transparency. It quickly becomes translucent and in spite of every care taken to warm it up, the opalescence remains; the cold seems to produce certain histologic changes in the organ which are incompatible with life.

On the other hand, when the cornea is kept at the temperature of melting ice it remains remarkably clear for some days, although it afterward loses its transparency in places and its epithelium desquamates at the slightest touch.

I am of the opinion that a temperature effective for practical work is between 5° C. and 8° C. In any case, eyeballs preserved in this manner are so firm and their mediums are so clear that it is extremely easy to distinguish by transillumination the optic papilla—as easily as one can generally see it in a recently enucleated globe.

I have in this way been able to obtain perfect preservation of enucleated eyes for from twelve to fourteen days. I believe, however, that this period can be increased. On one occasion I was able to reach the twenty-fifth day by renewing the liquid medium every five days.

The cornea is not the only portion of the globe that appears to retain its vitality when preserved in this fashion. In these preserved eyes I have been able to obtain, by faradic excitation, a dilatation of the pupil; a slow movement it is true, but experimenters know how feeble, even on the fresh eyeball of the rabbit, this reaction is and how the pupil nearly always expands, and rarely contracts.

But, however satisfactory these results may be, it is necessary to prove, particularly in the case of the cornea, that there is a genuine prolongation of vital processes. For the solution of the problem there are two methods: (a) simple histologic sections, and (b) experimentation.

The first method, though it may show us apparently normal elements can yet only afford indications of an anatomy rather than of vital preservation. On the other hand, keratic transplantation can tell us whether or not a segment of preserved cornea implanted on a living animal of the same species continues to live. Histologic sections of the graft made at varying periods after the operation serve as a control test.

I perform this transplantation by removing from a living animal a corneal parallelogram of about 6 mm. in length by 5 mm. in breadth, so as to leave a depression reaching to Descemet's membrane, but without injuring it. It is in this cavity that I place a section of equal size (the epithelium on the outside) taken from the cornea of a preserved eye.

The results have been as follows:

Macroscopically, when the grafted cornea has preserved its vitality and when coaptation is good, the segment, if examined after the twentieth hour, is found to have adhered entirely to the subjacent tissue; the fluorescein test shows no loss of epithelium and the transparency remains unaltered, except for a very slight and unimportant cloudiness which disappears on

the following day. On a histologic section the following facts will appear: the conjunctival cells of the grafted cornea, subjacent to the epithelium, join themselves to those of the patient; they exhibit normal appearances when stained, although there may be slight differences in the nuclei. If aseptic precautions have been rigorously carried out, there is no leukocyte infiltration.

A disappearance of certain elements of the transplanted tissue will be noticed quite early and this absorption of waste tissue continues for several days. I have found traces of it on the seventh day, but none on the fifteenth. It amounts to about one-fifth of the epithelial fibers of the graft, so that a slight settling or, rather, thinning of the transplanted fragment (whose transparency remains perfect) is produced.

What happens to the epithelium? This is of capital importance, as we know, since Ranvier's time, with what rapidity it is able to reproduce itself. Does the epithelium of the patient cover that of the graft or is the graft sufficiently alive to proliferate and place itself in close juxtaposition to the patient's epithelium?

On eyes examined at the twentieth hour, it is clearly seen that the epithelium of the graft is well in place. The epithelium of the patient has also descended into the linear depression which marks the edges of the cavity (into which the graft has been inserted) and produces there a cellular proliferation which fills up this cavity. Union then takes place without any overlapping.

When the graft is not of good quality the foregoing phenomena are very different. The graft, although it is seen to have lost its epithelium, (examined also at the twentieth hour), seems to be attached to the subjacent tissue. It is, however, swollen and in several places is slightly raised above the surrounding tissues. The conjunctival cells are edematous, their nuclei have become oval and they do not readily take the usual stains. One can, nevertheless, see that efforts have been made by the epithelium of the patient to cover the dead tissue. In one instance, a small epithelial tongue about 0.5 mm. in length was projected but the constant elimination of minute portions of the graft had arrested the process of repair.

When the corneal graft is in a healthy state its epithelium appears of normal thickness the day after the operation. Furthermore, it is possible, after the twentieth hour, to see fairly numerous nuclear divisions in its germinating layer. These, in conformity with what Salzer has stated concerning the normal cornea, seem to me to proceed by one of the two usual methods of division, direct or indirect.

Later on, the superficial cells exfoliate, to be replaced by others that are younger and grow from the interior tissues, because on the seventh day the epithelium is less thick than on the second and fourth days.

On the eighth day the graft is distinctly transparent, and histologic examination shows it to be adherent and to be affected by the same stains as the surrounding tissue. The epithelial layer does not lie above the surrounding parts.

At the end of two months, the histologic characteristics of the graft are the same as those of the surrounding corneal tissues, while its epithelium has a tendency to increase its deepest layer by a row of flat cells.

Macroscopically, the graft is scarcely perceptible; it is necessary to make use of a powerful focal illumination to distinguish the edges of the wound, which are barely indicated by a small, white line. This condition appears to be permanent, for in animals operated on eighteen months ago, a slight irregular astigmatism is the only indication of the place at which the transplantation was made.

DEFERRED KERATOPLASTY OF PRESERVED MATERIAL IN THE HUMAN SUBJECT

Experiments on animals having given me every satisfaction I resolved to attempt it on man. I wished to apply previously solved biologic problems of a general order to the much-disputed question of human keratoplasty.

The opportunity presented itself at the end of May, 1911.

The patient selected was a boy 14 years of age, who consulted me for a large cicatricial pterygium which had appeared several years before as the result of a burn from quicklime. The entire cornea with the exception of a small upper-inner area was quite opaque. Even this small region was faintly nebulous. A colleague had made behind this zone an optical iridectomy; through the resulting coloboma the patient had acquired 1/17 of normal vision.

The indispensable material for the graft which I decided to implant was furnished as follows:

In the beginning of June, 1911, a man suffering from absolute glaucoma presented himself at the Lariboisière Hospital. The sight of one eye had been lost several months before and in spite of two operations the patient still suffered so much pain that enucleation was necessary. The eyeball was extremely hard and the cornea, as a consequence of the extreme hypertension, was opalescent and insensible.

The excised globe was first washed successively in ten tubes containing Locke's solution at room temperature and was finally immersed in a hemolyzed blood-serum taken from a person in whom the Wassermann reaction was negative. This container-tube was sealed and placed in an ice-box at a temperature maintained at 5 C.

The hardness of this eye and the opalescent appearance of its cornea made me fear a failure. On making an examination of the globe after twenty-four hours, however, I found that the cornea was quite clear, probably as a result of the disappearance of the plus tension.

The eye was kept in this state for a week.

At the end of eight days, Dr. Morax and I performed the transplantation.

The pterygium was first of all completely dissected off. Then a rectangle, about 4 mm. in height by 6 mm. in length, was excised from the center of the opaque cornea. At this stage of the operation we discovered behind the leukoma several blood-vessels from which the blood oozed abundantly and threatened to prevent the coaptation of the graft. By the use of epinephrin, however, this inconvenient hemorrhage was arrested and the operation was successfully terminated. It must be added that the cavity was made as deep as possible without perforating Descemet's membrane and in such a fashion that the edges of the wound were perpendicular and without defects. Finally, a piece of the same size and of the same thickness was cut from the preserved cornea and applied (without suturing) to the prepared surface of the patient's cornea.

The results of this transplantation were as follows: The binocular bandage was removed on the third day when it was seen that the graft was perfectly in place and completely transparent. Fluorescein did not stain at any point. Eight days afterward (the patient no longer having the eye covered), the red reflex was easily seen through the pupil.

At the end of three weeks the dissected pterygium began to reproduce itself. It brought with it numerous capillary blood-vessels, two of which, larger than the rest, encircled the graft and clouded its edges, the center remaining perfectly transparent. At the end of three months this process of vascularization began to decrease, although the pterygium had completely reformed and encircled the edges of the keratoplasty. With the atrophy of the capillary vessels, however, the edges of the graft little by little recovered their transparency.

It is now nearly a year since the operation was performed. The graft persists and is still perfectly clear. This transparency is much greater than that of the small corneal area that remained on the eye of the patient after his accident. The graft has the appearance of a pane of glass or of a small window in an opaque wall.

The irregular astigmatism which inevitably follows any form of keratoplasty has greatly diminished. The visual acuity, through the graft, reached 1/7, that is to say, a degree of vision which is more than sufficient for the patient to find his way about and which permits him to read printed characters of a fairly large type.

I am, consequently, convinced that for the first time a successful transplantation has been done by the aid of corneal tissue preserved for several days in a state of vitality. I believe that I have obtained as good a result as if I had made use of fresh material. Cases of immediate keratoplasty are not numerous (Zirm, Fuchs, Löhlein, Clausen, Fox), and my method encourages the hope that this useful operation will soon be generally employed.

The proof of the vital condition of the preserved and transplanted cornea lies in the fact that although the pterygium returned after removal it grew only to the edges of the graft, whose tissues must have had sufficient vitality to defend themselves.

It must, finally, be noticed that the eye which furnished the graft was in a state of hypertension, the cornea being anesthetized and cloudy. The cloudiness disappeared after being a few hours in the preserving liquid. Eyeballs affected by absolute glaucoma may, therefore, be utilized for this operation.

So far as concerns the technic of the operation, I still believe that partial keratoplasty is the best method and that it is not necessary to make a large opening in the opaque cornea. No suture is necessary; the operation must be performed at the center of the cornea and one need not have the incisions extend into the conjunctiva.

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MODERN OBSTETRICS, WITH RELATION TO THE GENERAL PRACTITIONER, THE STUDENT, THE MIDWIFE AND THE SPECIALIST*

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Recent advances in medical science have so changed the scope of obstetrics that the term "modern" may appropriately be applied to this branch of medicine at present. To the obstetrician belongs the field comprising the physiology and pathology of pregnancy, with the complicated pathologic problems presented by toxemia and the surgical procedures required by placenta prævia and other forms of ectopic gestation. His, too, are labor and its complications with the complex condition known as physiologic incompetence, and the surgical procedures made necessary by deficient development or abnormal expulsive forces.

In the puerperal period the obstetrician is especially engaged with the prevention or treatment of hemorrhage and septic infection, and with that important subject, the repair of injury received during labor, and the restoration of the mother to health through involution. Injuries to the new-born, asphyxia, inspiration pneumonia and infections acquired during labor must receive attention from the obstetrician. In no branch of medicine are more important pathologic conditions present for study, and to no one but the obstetrician is given the responsibility of operating for the saving of two human lives. It is not strange that the slow development of medicine before the advent of asepsis left obstetrics in an imperfect and unsatisfactory condition. The same methods of diagnosis and treatment which have brought modern surgery to its present development are now applied to obstetrics with equal success.

THE GENERAL PRACTITIONER

No more important question can engage the attention of the profession to-day than the relation borne by the general practitioner of medicine to obstetrics. Many of these cases inevitably come first to him when under conditions most unfavorable. Without previously seeing the patient, and without warning, he may be confronted by the most dangerous complications of parturition. Unaided he must perform difficult operations under the pressure of necessity. In no other branch of medicine is the general practitioner placed at such disadvantage.

General practitioners may be divided into two classes as regards obstetrics. The larger number are those who do obstetric work because thereby they hold the medical practice of the family. A much smaller number have natural surgical instincts, are interested in the pathology and surgery of obstetrics, and do this practice with interest and pleasure. Successful general practitioners have repeatedly told me that they would gladly avoid this branch of medicine, and that the outlay of time and effort was far greater than the remuneration; and that only the necessity for keeping the family practice unbroken led them to take these cases. This applies, however, only to those men who are successful as practitioners of internal medicine and who have no especial ambition in surgery. A considerable number of general practitioners, however, are beginning professional life, but have not as yet achieved success and are dependent for a living on all cases whose management they dare attempt. These men must do obstetrics to live, and yet have no intention or possibility of doing such work well.

Under these circumstances, how can obstetric practice be conducted in such a manner as to do justice to the general practitioner, and how can the general practitioner of medicine do justice to his obstetric patients?

The specialty of the general practitioner should be diagnosis. His opportunities for attaining skill in this branch of medicine are the best. His success as a practitioner is entirely dependent on his diagnostic power, for often he cannot avail himself of laboratory methods and must depend on his powers of observation. The success or failure of the general practitioner as an obstetrician will depend on his ability to diagnose conditions which make pregnancy dangerous and threaten difficult or disastrous labor. A thorough knowledge of the signs and symptoms of the toxemia of pregnancy, the ability to diagnose contracted pelvis, disproportion between mother and child, and abnormal positions or presentation, should be within his grasp. If to this he adds the antiseptic habit, most difficult to acquire by those not trained as hospital residents, he can successfully meet many of the conditions of obstetric practice. Under these circumstances the conduct of normal labor becomes a matter of no especial difficulty, because a man so equipped will recognize abnormality and secure in such cases the service which he himself may not be able to render.

The multiplication of hospitals throughout the country and the development of obstetrics as a specialty have placed at the disposal of the general practitioner the conditions necessary for the management of complicated cases. When the diagnosis of abnormality has been made, such cases should be referred by the general practitioner to the hospital where especial skill can be procured for their management. A successful general practitioner can better afford to send his complicated obstetric cases to a hospital than to have them do poorly in their own houses. In a case of appendicitis or ovarian

* Read before the Academy of Medicine, Buffalo, N. Y., March 13, 1912.

tumor he does his duty to the patient when he makes a diagnosis, afterward confirmed as correct, and puts the patient in the way of securing proper treatment. In a complicated case of parturition the same is true. No successful general practitioner can afford to do that which he cannot do well.

The ambition of every successful practitioner of internal medicine is to limit himself to the field of internal medicine, and under these circumstances such a man attending a family naturally refers obstetric cases to obstetricians.

The general practitioner who is not yet successful, and who must take everything which comes in his way is driven to attempt the management of complicated and dangerous parturition under the most adverse circumstances. A medical reputation can be made among the poor as well as among the rich. It is difficult to persuade him that it is better to lose \$10 or \$15 by transferring a complicated obstetric case to a hospital than to hold on to the case, although it terminates in the death of the fetus and the prolonged illness of the mother by septic infection. Abundant observation shows, however, that as it would not pay him to retain a case of appendicitis or ovarian tumor with twisted pedicle in the patient's tenement, under his care, so it will not pay him to act in a similar manner with a case of complicated parturition.

Outside of cities one finds within a radius of perhaps 100 or more miles, one or two general practitioners so-called, with a marked taste for surgery and often for obstetrics. These men may have no hospital positions, but from long experience and honest effort have attained ability in the domestic management of complicated labor. They practice asepsis; they have the necessary instruments and appliances, and abundant experience and observation. Such men, although not common, do excellent work in spite of unfavorable surroundings, and in any but the most difficult complications of obstetric practice are competent and successful.

When one considers the fact that the general practitioner is the one person to whom come the acute contagious diseases, we wonder that the parturient woman, so susceptible to infection, should so long have remained under his care.

THE STUDENT

Recent advances in medical science have greatly changed the field of instruction in obstetrics. All properly equipped medical schools now teach biology and embryology in the first two years of a four-year course. Anatomy, general and regional, is so thoroughly covered that the anatomy of the female body is well taught. The physiologist teaches the facts concerning impregnation. The teacher of obstetrics is thus relieved from the necessity of including these branches in his instruction because it is better done by his colleagues. On the other hand, the widened scope of obstetrics in the pathology of pregnancy, and the greatly increased field of modern obstetric surgery give to the obstetric teacher as much as he can possibly cover in the ordinary course. Obstetrics is best appreciated by junior and senior students who have had a good groundwork in anatomy, physiology, biology and embryology, in the first two years.

In common with a number of obstetric teachers in this country, I am accustomed to divide our class at Jefferson into men midwives and obstetricians. Both receive as good instruction as can be given concerning pregnancy and its complications, spontaneous parturition, the low application of forceps, version and extraction, the treatment of post-partum hemorrhage, the prevention and

management of septic infection and the immediate closure of ordinary lacerations.

This teaching is reinforced by a thorough drill by competent demonstrators, with the use of charts and manikins, and also by observation on the living patient; especial attention is paid to obstetric diagnosis, and students are warned that this is of primary importance. Major obstetric surgery is taught only in the senior year. The effort is commonly made to place this on the same level as the major operations of general surgery. The class is advised to master thoroughly the groundwork of obstetrics, to obtain hospital experience after graduation in a fifth additional year, and then to take at least several years in general practice. During this time they are advised to study their natural bent and inclination, and also the circumstances under which they are placed. If they have early formed the ambition to do good surgical work, and are also so circumstanced that they have opportunity to learn it practically, and if they have the means to obtain the necessary equipment for asepsis, they are then advised, in common with work in abdominal surgery, to undertake the major obstetric operations. They are urged to connect themselves with the nearest available hospital, or to obtain the privilege of taking complicated cases to hospital. Those, on the other hand, who find themselves drawn more strongly to medicine or to the non-surgical branches of medicine, are advised by no means to undertake the management of complicated parturition. Diagnosis they should and must know, and in recognizing difficulties which they are not competent to overcome they are urged to send their patients to hospital as soon as possible.

In dealing with the complications of parturition which may suddenly confront the general practitioner, two courses of action are placed before the senior student: He is urged, if possible, immediately to transfer the case to a hospital. When this is impossible, he is taught the simplest methods of treatment available in private houses. The comparative mortality and morbidity of complicated cases properly handled in hospital, and those in which the best possible is done under adverse circumstances is placed clearly before him, and the effort is made to show him how great is the advantage of modern obstetric surgery.

While it is too soon to judge extensively of the result of such teaching, I have been gratified to know that some of our comparatively recent graduates developing in surgery have successfully performed the major operations of obstetric surgery.

A most important element in the development of the obstetric surgeon is hospital experience. In 1910 the obstetric teachers of the leading American colleges met and agreed on a concerted effort to improve clinical teaching. It seemed to us at that time that each student should at least have conducted six cases of parturition before graduation. While this may be taken as a minimum, our constant effort is to urge men who find themselves fond of obstetric work to take as much clinical experience as possible. Opportunities are given to the students of the Jefferson Medical College to do additional clinical work during vacation time, and they are urged to take special courses in the various obstetric hospitals of the country. A number of them go to the New York Lying-In Charity, where, I am glad to say, their record is a good one. These are the men who afterward should develop into competent obstetricians.

I believe that polyclinic teaching in all branches of operative work may have advantages, but that it also has a distinct disadvantage. Men ambitious to operate see

difficult operations performed with accuracy and apparent ease by experienced operators. After a brief course of study they return to their homes and attempt the same procedures — not always successfully. In postgraduate teaching as in undergraduate teaching, I believe that the best service which the postgraduate school can render the general practitioner is to give him opportunities for improving his ability in diagnosis. If a man wishes to become proficient in any branch of operative work, he must learn this as an assistant to a good operator, and not in the brief period of a course in which operations are demonstrated, but in which he has comparatively little actual part.

I am well aware that the trend of this method of obstetric teaching will be to produce a comparatively small number of competent obstetricians, and I hope that such will be the result. Obstetrics, like other branches of surgery, is difficult and arduous, and a comparatively small number of medical graduates have the ability, the patience and the endurance to do it well. I believe in the interests of humanity that it would be better to have a small number of good men than a large number of indifferently prepared men doing this work.

In out-patient medical teaching the superstition has long prevailed that the best way to teach a student obstetrics is to send him without instruction, and formerly without instruments or apparatus, to meet the accidents and emergencies of labor. This curious fallacy existed in no other branch of medical teaching. At present, out-patient obstetric teaching is conducted in the best colleges by instructors, and often with the assistance of trained nurses, as well as in the houses of the poor. A man does not learn best by making mistakes, but by avoiding them, and the antiseptic habit cannot be gained by seeing it practiced in hospital and neglecting it in out-patient service. Much useful material for teaching has been wasted by the mistaken notion that out-patient obstetric service should be conducted in a careless and slipshod manner.

THE MIDWIFE

Of late considerable attention has been devoted to the question of midwives, their training, supervision and function in America.

To understand this condition clearly, one must recall the conditions under which the European midwife exists. She is trained in hospital schools maintained by the government, and is taught under regulations prepared by the best authorities in her country and by some of its most competent teachers. She is strictly limited and licensed by government regulations, and these regulations apply equally in all parts of her country, and are void in any other country. Her license is immediately revoked if she does not obey the regulations. Under no circumstances is she allowed to interfere with labor or to attempt the repair of lacerations. There is throughout her country one uniform method of medical control.

In contrast to this in the United States but little instruction is given to midwives. Their licenses are municipal and are used in the careless manner in which much of our municipal work is done. They are under no direct supervision and soon learn to evade the lax regulations under which they practice. It is my belief that they are a menace to the health of the community, an unnecessary evil, and a nuisance. It is true that they furnish interesting pathologic cases, but this is no excuse for their existence.

If midwives are to practice properly in the United States they must be under national supervision, so that a

uniform system of regulation and education may prevail throughout the entire country. They should be educated as carefully, and watched as strictly as in Europe, and none but licenses from the best European schools should be recognized by our government. Without a national board of health, and a secretary of hygiene, this is impossible.

In our great cities the plea is often raised that the midwife greatly helps the family of the poor by caring for other children and acting as housekeeper as well as nurse. Few do this and those who attempt it do not always do it wisely or well. The visiting obstetric nurse and the sociologic worker in our large cities do the work of the midwife far better. The maternity department of the Jefferson Hospital employs two visiting nurses for its out-patient work, with most gratifying results. Senior students under instructors are safer persons to deliver normal cases than are midwives, and complicated cases are brought to hospital.

It may be said that in small villages and towns and in the country the midwife would prove a great help; but again we can obtain no competent midwives without proper education and regulation, and the absence from medical supervision, the infrequent visits of the doctor in sparsely settled districts make the midwife doubly dangerous.

A recent interesting paper by Baker¹ sets forth the present status of the midwife in the United States in a most clear and interesting manner, but this able presentation of the subject does not alter my belief in this matter.

THE OBSTETRIC SPECIALIST

Obstetrics shares with other branches of medicine in the development of the obstetric specialist. The tendency to specialism is so strong in medicine that the general practitioner may well ask, "What is left for me?" and many cling to obstetric practice as the last resort. The general practitioner of medicine must deal with contagious diseases, with the great infectious disorders like typhoid and pneumonia, and must, as we have already remarked, be especially proficient in diagnosis. A thorough knowledge of preventive medicine is urgently needed in his case. His diagnostic ability must include obstetrics.

There have always been among general practitioners men operating from time to time, of such native wisdom and insight that they have, unaided, grasped the great principles, and alone performed deeds of actual valor. The early history of cesarean section affords examples of this, but these men are exceptions to the rule; and if the surgeon to-day is a specialist, so must the obstetrician be to obtain the greatest success.

Williams,² in his recent interesting paper, has drawn attention to the imperfect obstetric education in America to-day, and especially to the inability of many obstetric teachers. I agree with him in his conclusions and in the accuracy of his observations. When one considers what is embraced in modern obstetrics, the large and interesting field of the pathology of pregnancy, and the necessity for thorough knowledge, skill and experience in obstetric surgery, one can see that this field can be adequately covered by no one who does not give to it a thorough preliminary education and his undivided strength and attention.

A substantial reduction in the mortality of parturient women from puerperal septic infection will not take place in general practice until complicated parturition

1. Baker: *Am. Jour. Obst.*, February, 1912.

2. Williams: *THE JOURNAL A. M. A.*, Jan. 6, 1912, p. 1.

receives the same special attention now given to appendicitis and abdominal tumors. The septic mortality rate of puerperal hospitals under the care of obstetricians has been reduced to less than 1 per cent., but the septic mortality of general practice has never been accurately obtained, and never can be.

Among the advances in the saving of life and health due to the work of obstetric specialists, we may instance the treatment of contracted pelvis, which has ceased to be a source of great mortality and morbidity, and is a complication which now gives the operator little anxiety. The treatment of ectopic gestation by abdominal section has acquired a new meaning, when we remember that we have ectopic gestation outside the uterus and ectopic gestation in placenta prævia outside the usual zone of ovular attachment, but within the uterus. The application of surgical principles to both these conditions is a distinct advance. The enlargement of the field of cesarean section to cover cases of physiologic incompetence for labor, and cesarean section without waiting for labor, are distinct advances. While these seem radical measures and indicate an increased tendency to operation, we may point, on the other hand, to the treatment of puerperal septic infection by obstetricians, which now rarely calls for surgical operation. We have learned that here is a field for wise conservatism and application of a recent discovery in pathology—the use of vaccines. Rupture of the uterus and accidental separation of the placenta receiving surgical treatment show improved results. The repair of lacerations by the obstetrician has greatly lessened the field of secondary operation. An obstetric surgeon must be competent to deal with the results of parturition at any period in the life of the individual. The surgery of the new-born in the treatment of depressed fracture of the cranium shows a notable advancement.

As the population of this country increases, and the struggle for existence grows more difficult, the burden of life will fall more heavily on those who earn the smallest wage and on the very poor. Most helpless of all these is the parturient woman. Unfortunately in the past she has often had little or no skilled attention. Has not this been wrong and can it not be made better?

Too often, among the rich, conditions have been overlooked or recognized too late which brought about a tragedy during parturition. The life of the child has been lost which might have been preserved and whose continuation might have meant great happiness, and even the success of a family. Why should such patients demand the best skill for other complicated situations and be satisfied with less because labor is supposed to be a physiologic process? There is nothing so dangerous as a half-truth, and the statement that labor is a physiologic process has done more to retard the development of obstetrics than any other one thing. Labor is a physiologic process in physiologic individuals, but not in pathologic specimens. On the one hand, poverty and vice weaken and depress the poor, stunt the skeleton, and sap nervous and muscular energy. On the other hand, luxury, dissipation and degeneration, with the results of excessive development of the nervous system, enfeeble the rich, and in both of these parturition becomes from start to finish a pathologic process. Much is often paid for the successful removal of abdominal tumors of an undesirable nature. Is not the successful removal of a living child in sound condition of equal importance?

I remember distinctly the great disadvantage in which I found myself in my first efforts at obstetric practice

before I had acquired special education and surgical training. I realize fully the very unfavorable and unjust position in which the general practitioner is placed in attempting, without sufficient assistance and favorable surroundings, to deal with the dangerous complications of obstetric practice. It is my hope and purpose not only to secure better care for parturient women, but to place the general practitioner in a proper and just position amid his professional brethren and before the public.

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READING A BOOK-PAGE INSTANTANEOUSLY: A CASE OF UNIQUE VISUAL POWER

GEORGE M. GOULD, M.D.

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Mr. C. had the power of reading a page of an ordinary book, duodecimo or octavo at a glance. His eyes and attention were fixed on the page for but a second or two, and it was read, its statements or contents so fixed in memory that they could be brought forth from that "vast deep" whenever in after-years desired. Page after page was thus read; and book after book, year following year. Several volumes might thus be gleaned in an evening. It scarcely needs the saying that it was necessary that the book should be "easy reading," its English of good style, the subject treated not essentially unfamiliar, recondite, or philosophic, but within the easy grasp of the man's intellect, such as well-written novels, narrative, history, essays, poetry, the magazines, etc. In reading poetry, of which he was extremely fond, he could by a glance store his memory with the line or stanza of a page or poem which to his critical judgment stood out with superior excellence.

This ability began to show itself in late midlife, growing more and more perfect in his later years. It was often put to the test by his assistants or secretaries, and more frequently he vainly tried to prove that they possessed the same celerity of reading as himself. Not one could even remotely rival him. In directing such tests by others he persistently urged that they could carry them out as speedily and correctly as himself, if they followed his own rule and habit, namely, fixing the gaze and attention on the center of the page, thus causing at once the entire page to swim into view, to be perceived and to be photographed in memory. He was scornful of the ordinary fashion of reading line after line, or sentence after sentence. Of course none ever succeeded in reading as did he, and he could not understand it; he was even vexed by it, and bluntly said that their inability was due to mental causes or lack of exercise. He never dreamed that his ability in the act of reading so rapidly sprang from a strange peculiarity of disease in his own eyes.

Every student of vision knows that, as a general fact, it is optically impossible for the two normal and immobile eyes to look intently on a small object such as a word or two in the center of a page, and, at the identical instant, see and understand all the sentences at the limits of the page above, below, etc. The structure of the human retina and the history of its function absolutely forbid that. The "field of vision," it is true, may be thus mapped, and its widest boundaries localized by means of the mere existence of illuminated objects placed at the periphery, i. e., by the perimeter—but that is not intellectual vision, and memory is not called in.

Mr. C. was a man of exceptional learning, his mind being highly trained in literary criticism and creation. It was because of his marvelous celerity in acquiring knowledge that he seemed to his associates to do far less reading than men of vastly inferior erudition. His memory was almost faultless, and he was famous for his unerring judgments and epitomes of literary history and productions, all drawn from his own personal reading and research; and, if desired, or desirable, illustrated, also, by accurate quotations.

Optically considered, it all appeared primarily to be the result of a marvelous, even an impossible, perfection of the visual mechanism, united, of course, to a mental outfitting of exquisite sensitiveness, infallible memory and extraordinary intellect. No question may be raised as to these last-named endowments of his mind, but pertaining to the very large and primary part played by the eyes themselves, the phenomenon was based solely on a pathologic lesion—it was due to disease. It was, in truth, a rare but not the first instance of physiologic function perfected through Life's splendid ingenuity and repair, even re-creation, out of the mangled left-overs of morbidity and disorganization.

There have been many reported instances of clairvoyant knowledge—flawless reading, for instance, of any closed book chosen. The case in question was not of this sort. But it is rationally and scientifically explainable when all the facts are known and intelligently studied.

The strictly normal but extremely high and perfect mental functions of the man being given as prerequisites of his power of seeing and memorizing the printed page, there is still necessary a fundamental, and seemingly unique peculiarity of the merely ocular act. Without it there is no scientific explanation of the completed result. Accurate knowledge of the physiology of binocular or two-eyed vision, and an intimate understanding of the peculiar ocular disease of this man are required to solve the mystery.

He was right-handed, and therefore in early life he was, of course, right-eyed. (Right-eyedness is the cause of right-handedness.) Sometime during the middle years of his life the central part of the retina, the "macular" region of the right eye, was destroyed by an inflammation (chorioiditis), caused by eye-strain. The "fixing" part of the retina was obliterated, leaving there a blind, black, round, disorganized, pigmented space or hole. The left eye was not diseased and continued the usual perfection of macular or central vision. By long, unconscious and forced exercise, the healthy zone of the normal right retina surrounding the macula was educated to such a degree and so widely that it could, when unmoved, receive and transmit to the brain the image of the entire page, except that part falling on the central portion which had been destroyed. This was naturally supplied in perfection by the macula of the left eye. If, like two cups or saucers, one retina were placed within the concavity of the other, the "identical points" superposed, it would be seen that the size of the normal zone of retinal macular or central fixation of the sound left eye would exactly cover and complete the pattern, and act for that space destroyed by disease in the right eye. The right eye could not fix on and see the center of the field or object; it could only be held on this unseen point by the left eye, could only stare at it, if one may so speak. The cerebral visual center thus received the entire photograph of the object seen, made complete by the complementing interaction and unitizing function of the two eyes.

That the visual axis of the left eye acted on a healthy macula, and "fixed" the usual extent of the picture there, supplementing the coextensive blindness of the right eye, is thus explained: and one understands how, with both eyes, there was no failure or imperfection of the photograph. There remains the lesser mystery of a large extension of the sensitive and reacting retina of the right eye toward its borders or periphery.

This is more readily explained. In the common eye of mankind the accuracy and perfection of imaging in the more outlying retinal regions lessens with every degree traveled toward the periphery. But some relative accuracy is retained in all parts, and this, beyond doubt, is capable of increased education. It is a well-known fact that the creation, functionally, of a new macula frequently takes place at some distance away, when the original macula has been destroyed. Some birds have two normal maculas. In the present peculiar case the striving after a new macula would be, and certainly was, replaced by exceptional sensitizing, enlarging and educating of the greater zone surrounding the lost macula. This trend or necessity was aided by the fact that being originally right-eyed, this man's right eye, after the loss of its central vision, held, in part at least, to its natural right and habit of dominancy; and thus, while its axis of vision remained immobile, there came an increased and widened power of synchronous response to the picture-stimulus in the more outlying zones. Neurology readily understands and explains how the cerebral centers of vision united the two fields, unmarred, into one sensational photograph. The extremely sensitive and highly endowed brain thus seized on the disadvantages of disease and turned them into a superbly valuable excellence. This anomalous acquirement of synchronous large-space reading was a great aid to the man as student and master of literature.

It may be added that a normal pair of eyes, without any lateral motion, is able to read printed lines at 15 inches distance, only when such lines are from about $\frac{1}{2}$ to 1 inch long. To extend this length of line to 3 or 4 inches, as in the present case, and synchronously to visualize intelligently thirty or forty lines, is beyond question impossible for the normal visual mechanism. But to such eyes as those of Mr. C. it would not only be possible, but, well considered, natural. That the extramacular zones of the eyes are capable of increased and heightened susceptibility and education is well illustrated by the fact that a child learning to read can fix on only one letter at a time; by and by he acquires the ability to take in a word; then, later, several words, and in adult life, perhaps a sentence. But there is then more than a suspicion of some unperceived lateral motion of the axes of vision. Narrow columns, and white instead of black letters, would surely add to this larger oversight. But all such acquirement differs in fundamental mechanics—or neurology—from that of Mr. C.

It appears clear to me that so long as the two eyes retain the habitual functions of the two normal macular regions there can never be such a marvelous extension of synchronous and perfect peripheral vision as was illustrated in Mr. C.'s case. That is possible only when one macula is destroyed, with retention of the perfect peripheral portions.

The Hysterical Symptom.—Just as soon as the hysterical symptom attracts no attention, elicits no sympathy . . . it dies for want of nourishment, and a real, basic and indisputably lasting cure is obtained. Caused and nourished by suggestion, it perishes for lack of it.—Eugene Bondurant in *Medical Record*.

FACTORS OF SAFETY IN OPERATING FOR
EXOPHTHALMIC GOITERCHARLES H. MAYO, M.D.
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The remarkable progress which has been made during the past twenty years in the surgical treatment of Graves' disease is worthy of comment. This progress is due to a greatly increased knowledge of the disease, and has resulted in a reduction of the mortality, in a greater number of cures, or in greatly lessened disability.

In the early nineties the disease was considered from a purely medical point of view, and very often patients were nearly moribund before surgical aid was given. It has been shown, however, that the disease is chronic and that there are conditions and periods of activity peculiar to it which should be treated medically in preparation for an operation later, unless the improvement be continuous and the recovery complete.

DIAGNOSIS

Because of the severe symptoms which present themselves the majority of cases of exophthalmic goiter can be readily diagnosed as such, but there may be a small number in which the diagnosis is made with difficulty. Most cases in which there is doubt are, in all probability, not true cases of Graves' disease, the symptoms being due to myocarditis, certain forms of nephritis and some obscure nervous manifestations, the causes of which are, as yet, unknown.

Kocher believes that cases of Graves' disease which are difficult to diagnose should be accepted as such only if they show the blood-changes commonly found in acute or active Graves' disease. From an observation of several hundred cases of exophthalmic goiter, Plummer has shown that the disease runs a fairly regular course.

If the average course of the disease be represented by a curve, the greatest height of the intoxication is found to be reached during the latter half of the first year and then rapidly drops to the twelfth month. In many instances it reaches the normal base-line during the next six months, more often it fluctuates with periods of exacerbation for the next two to four years. Secondary symptoms and exophthalmos may remain, but the active course rarely continues over four years without distinct intermissions. The ascent may be gradual, sudden, or irregularly marked by many secondary curves.

There is usually more dilatation of the heart and the symptoms are more acute in the first period; they assume a chronic type in the second. It is well known, however, that a few cases run their course to death within a few weeks, while others have only the most temporary remission, growing progressively worse for a few years, ending in death as a rule. It must be recognized, also, that cases of single or multiple adenomata of the thyroid may undergo a degeneration which acts on the system somewhat like the acute toxemia of hyperthyroidism, causing dilatation of the heart, nephritis and general anasarca. Nervousness, tremor and tachycardia may be present. Protrusion of the eyes does not occur in these cases, but the myocardial change may cause a widening of the palpebral fissure, or Dalrymple's sign. These cases, often called Graves' disease, should be classed as complicated simple goiter, the mortality of operation being fully equal to that of operations in the active and severe types of Graves' disease.

The mortality from operations performed during this early period by surgeons of considerable experience was from 20 to 30 per cent. Our mortality (W. J. and C. H.

Mayo) in the first sixteen cases was 25 per cent. Many of these patients were suffering from advanced myocardial changes, degeneration of the liver and kidneys, so that cure was out of the question, and checking the toxemia with relief of symptoms was all that could be hoped for. The relief of those who survived the operation, however, was so immediate and remarkable that the new patients were often advised to operation by the old. The high mortality, which should and would have been medical with a little more delay, was shifted on to the surgical side, and, like a vicious circle, the higher the mortality the greater the delay, and *vice versa*.

It was not until the beginning of the present century that the experience gained by the early workers in this field bore fruit. The disease became rather generally considered as surgical even by some physicians with a large experience in the medical treatment of simple goiters.

That factors of safety are gradually becoming recognized is proved by the present mortality following surgical operations, which is a varying one, from 1 to 4 per cent. The estimated proportion of cures, based on the examination of patients operated on and from letters and reports, is about 75 per cent. These patients have been restored to usefulness, resuming former occupations, and are free from nearly all former symptoms. Some of the patients with extreme and long-continued exophthalmos may still show symptoms of this condition, but which cause no discomfort; others may occasionally have tachycardia, and a few may have an occasional relapse of the general nervousness. It must be admitted, too, that, if there be an increase in the size of the remaining portion of the gland, a small number of patients will have a partial relapse of all symptoms after being practically well for a long period of time. Should a patient under medical treatment relapse after a period of improvement, the treatment is renewed. Should there be a relapse after surgical treatment, because of too little gland removed, or an increase of the remaining portion, it does not indicate a failure in the surgical principle, but calls for further operation.

Within the past year we have operated, between deaths, on a consecutive series of 278 cases of exophthalmic goiter, without a death. This is a decidedly marked gain over our early work, and I believe it has been caused by taking advantage of the so-called "factors of safety" in the treatment, preparation and operation of these patients.

1. As regards operating during periods of exacerbation or excessive activity of the disease: The mortality in these cases is frequently high, and it is such we would choose for medical treatment, i. e., rest, x-ray, etc., with attention to the heart, stomach and intestines according to the indications presented by the individual case, until the exacerbation of symptoms subsides.

2. Gastric crises and acute delirium are serious manifestations and operation should not be done until the conditions have subsided; the cases, until then, remain medical.

3. Dilatation of the heart which exceeds 1 inch is a serious condition, while that of an inch and a half will give a percentage of unavoidable mortality for the radical operation of thyroidectomy. The line of treatment is, therefore, indicated.

4. Ligation as a method of surgical treatment was practiced in the early part of the last century and again recommended by Wolfier and others in the latter part of the same century. The method now has an accredited

position in the treatment of exophthalmic goiter. Patients seen in the early stages are sometimes wonderfully improved by the simple operation of double ligation. These cases are, however, comparatively few in number, and, since it is this type which may possibly abort, it is difficult to say that the improvement in all cases necessarily comes from the operation.

5. Serious risks are treated by a single ligation of the vessels at the upper left pole. The reaction is about three-fourths as severe as from a double ligation, but the missing one-fourth is an element of safety. If the reaction be very severe, a second ligation of the right upper pole is made a week later. As compared with the first ligation, the reaction following this one is slight. If the reaction be not severe, at the second operation the right lobe, isthmus and possibly a portion of the left lobe is removed. In some cases of extreme emaciation, yet with a temporary fair or improved condition, a double ligation is made at the one operation. In several hundred patients the average gain in those who were below weight at the time of ligation was 22 pounds within four months. At this time a thyroidectomy of one-half or three-fourths of the gland can be made with small risk.

Ligation of vessels should be made close to, or should include some of, the pole itself, so that a reversal of circulation in anastomotic branches with the inferior artery may not occur. Thyroidectomy of three-fifths or more of the gland is indicated in most of the chronic cases in which dilatation of the heart does not exceed one inch and there are not complications—ascites or mental changes.

The small percentage of patients with exophthalmic goiter who relapse in from one to several years after partial thyroidectomy, with an increase in the size of the remaining lobe, should have the benefit of further surgical aid. Unless medical treatment be rapidly beneficial in such cases, the primary procedure should be ligation of the vessels at the superior pole, leaving only the inferior artery and the lateral and inferior veins. Should this operation not restore these individuals to their former improved condition, a part of the gland can be excised at a later period with but little risk.

Ether, preceded by atropin and morphin, is the anesthetic of choice for double ligations and thyroidectomy. If there be extreme nervousness, scopolamin is used, and the worst type of cases with affections of the heart and kidneys are operated by local anesthesia or receive the benefit of Crile's anocia preparation—injecting local anesthesia into the field of operation in addition to the other preparations before ether is administered.

Ligations, both single and double, in the worst types of Graves' disease have been followed by a mortality which has fully equaled or exceeded the mortality of thyroidectomy. In the 278 operations there were 105 single and thirteen double ligations.

EXOPHTHALMIC GOITER

Single ligation	105
Double ligation	13
Single ligation followed by thyroidectomy.....	30
Two single ligations followed by thyroidectomy.....	21
Double ligation followed by thyroidectomy.....	26
Thyroidectomy	78
Thyroidectomy followed by ligation.....	4
Thyroidectomy followed by ligation followed by thyroidectomy	1
Total	278

SOME OBSERVATIONS ON CATHARSIS

E. P. QUAIN, M.D.

BISMARCK, N. DAK.

Observations on the movements of the gastro-intestinal contents by means of bismuth and x-ray were begun by Cannon about ten years ago.¹ For some unaccountable reason the subject did not receive the attention it deserved until several years later. Among important recent publications on the subject is that of Satterlee and Lewald,² who last year recorded the results of their observations on the passage of food from the stomach through the small and large intestine. Many other roentgenographers have verified their findings.^{3, 4, 5, 6}

In a normal individual the liquid stomach-contents begin to pass at once into the duodenum. The rate of outflow is governed by the pylorus, which relaxes and allows the gastric contents to pass through as fast as they are neutralized in the duodenum, but no faster.^{7, 8} Through the small intestine there is a steady forward flow toward the cecum. If a pint of bismuth soup be swallowed it takes ordinarily about six hours for all of it to pass into the cecum. But here rapid progress stops. In the cecum the mass remains for from twelve to twenty-four hours, or even longer, before there is much sign of passing on through the transverse colon. During the stay in the cecum and proximal part of the colon the mass becomes smaller and more dense from the absorption of water.

Peristalsis in the jejunum and ileum is continuous as long as there is anything solid touching and stimulating the mucous membrane. The peristaltic waves are short, worm-like and follow closely one after the other. The "rhythmic segmentation," described by Cannon,⁸ is a feature of intestinal digestion and absorption, and not a part of the propulsive force. In the large bowel, on the other hand, peristaltic movement is intermittent and powerful, and may involve a long segment at one time. In the transverse colon the contractions begin with a few short to-and-fro cradle-like movements,^{6, 9} which are probably caused by the longitudinal muscle-bands and are assumed to serve for mixing and lubricating purposes. These side to side movements are immediately followed by a series of ring-like contractions on which the fecal mass may pass rapidly over the splenic flexure and to the sigmoid. After such a functional effort the colon may rest for many hours before its next cycle of peristalsis begins.⁴ Reflex stimulation below the sigmoid causes evacuation.

A so-called antiperistalsis has been noted in the transverse colon,^{6, 9} the peristaltic waves passing for a few moments from left to right. Bloch,³ who claims to have been the first to demonstrate it in the human, thinks it is of rare occurrence, but cannot say whether it is a physiologic or a pathologic phenomenon. Short, on the other hand, thinks antiperistalsis the rule in the first half of the colon.¹⁰

The complicated physiology of digestion and absorption is as yet far from final solution and comprehension. In the upper part of the digestive tract physiologic

1. Cannon: *Am. Jour. Physiol.*, 1902, vi, No. 5.2. Satterlee and Lewald: *THE JOURNAL A. M. A.*, Oct. 14, 1911, p. 1255.3. Bloch: *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1911, xvii, 121.4. Holzknecht: *München. med. Wchnschr.*, 1909, No. 47.5. Fischl: *München. med. Wchnschr.*, 1911, No. 36.6. Schwarz: *München. med. Wchnschr.*, 1911, No. 39.7. Abderhalden: *Physiol. Chemie.*8. Cannon: *The Mechanical Factors of Digestion.*9. Bergmann and Lentz: *Deutsch. med. Wchnschr.*, 1911, No. 31.10. Short: *The New Physiology in Surgical and General Practice.*

chemistry explains more or less successfully the processes involved in digestion. But the exact manner in which the intestinal mucous-membrane cell takes up many of the products of digestion from the intestine and passes them into the circulation is not well determined.^{11, 12} The mucous membrane seems to be a most wonderfully appointed living chemical laboratory. Some of its cells are capable of producing ferments which subdivide and chemically prepare food-substances so that other cells may absorb them, reunite elements and form new chemical compounds which pass on into the capillaries and lymphatics. The small intestine also produces a ferment which destroys bacteria, as shown by Fleiner.¹³

In the ileocecal region a most varied bacterial flora complicates still further these physiologic problems. The activity of these bacteria on the various food-elements, on the digestive ferments, on the cells of the mucous membranes and on the bacteria themselves is far from being fully understood. In the cecum certain varieties destroy the digestive ferments, thereby ending digestion, while others cause fermentation and putrefaction of unabsorbed products of carbohydrate and proteid foods, respectively.¹⁴ Still other bacteria seem to have a mission of regulating the number and life-history of the former varieties. The *Bacillus coli communis* group probably belongs to this class. After the fluids have been absorbed from the bowel-contents in the colon and the fecal masses are hardened, the bacteria are found to be mostly dead. Dead bacteria make up one-third of the volume of hard feces.¹⁵

The interrelationship between the various bacterial groups, and between them and the food-products and the physiologic elements of the intestine must be at a certain equilibrium.¹⁴ This interdependence between the elements involved may be quite individual. The life-history of the majority of these bacteria is short, lasting but a few hours. Before meals the small intestine is nearly if not quite sterile and in the large bowel the bacteria are dying off rapidly, owing to autotoxic activity. After a full meal the bacteria again proliferate with astonishing rapidity throughout the intestinal tract. When generations follow one another in such rapidity, evolutionary changes may be possible within the space of a few months or years. It is reasonable, therefore, to think that each individual may have his own peculiarly developed type of a given bacterium (*Bacillus coli communis*, for instance), which in the course of time and development has become necessary in this particular intestine to balance and check up the activity of the other bacteria and ferments. According to Kendall,¹⁴ the greatest interdependence among fecal bacteria exists between the fermentative and the putrefactive types—the former decomposing the carbohydrates and the latter the proteids. A marked disturbance of their relative activities will cause excessive gas formation and perhaps diarrhea, the symptoms of so-called “intestinal fermentation.”

An individual who eats habitually a varied diet, who secretes normal gastric, pancreatic and intestinal juices, who has a properly functioning neuromuscular apparatus for peristalsis, and who has an evenly balanced colonic bacterial flora—such an individual enjoys intestinal comfort. Whenever any one of these factors is deficient or excessive in its activity, the intestinal balance

is upset and the individual suffers discomfort and symptoms in proportion to the derangement.¹³

We are apt to think of the function of peristalsis as being limited to the propulsion of intestinal contents. It is easily conceived, however, that the successive contractions and relaxations of the intestines also cause alternately an ischemia and a hyperemia of the intestinal wall. These circulatory changes aid absorption from the mucosa and cause a more rapid dissemination of absorbed substances into blood-vessels and lymphatics.¹⁶

From this fact we should deduce a lesson in pathology. If pathologic products exist in or about the intestine, increased peristalsis may cause an increased toxemia. Increased peristalsis also means a mechanical spreading of infection on the peritoneum and a delay in the formation of protective adhesions.

In acute inflammations within the abdomen, Nature's first effort is to subdue peristalsis about the region of infection.¹⁷ Her next effort is to confine the infection within the smallest possible area by means of peritoneal adhesions.

Here we find another lesson. This is one in therapy and reads plainly as follows: In acute intra-abdominal infections do nothing to increase peristalsis.¹⁸

When we desire to evacuate the bowel rapidly it is a time-worn custom to give a saline purgative. In the small intestine a concentrated saline solution causes a profuse transudation of fluids into the intestine. The colon loses its absorptive power from the presence of the salt and its contents are expelled in liquid form. Peristalsis is increased most markedly in the large bowel. This transudative effect on the mucosa of the small intestine interferes with the formation of ferments. The zymogen-carrying cells become depleted of the necessary fluid. But the greatest factor in this derangement of intestinal balance is, perhaps, the destruction of the bactericidal principle.¹³ The food therefore passes into the cecum unabsorbed and in a state of but partial digestion. The fermentative and putrefactive bacteria find the best possible conditions for their existence and proliferation. That they improve their opportunity is shown not only by the fact that the diarrheal stool is teeming with living bacteria, but also by the gas distention of the colon experienced by most individuals as an after-effect of a dose of salts.

It may seem almost a sacrilege, but we cannot except even calomel from our criticism of salines in general. Calomel was formerly thought to be both a biliary stimulant and an efficient intestinal antiseptic. Schütz¹⁹ has shown it to be neither, but quite the contrary. According to this and other authorities,^{13, 20} the action of calomel on the intestinal mucosa is harmful and in favor of bacterial growth.

When a cathartic is necessary, oil is probably the least harmful to the intestinal mucosa. Oil does not destroy the disinfecting property of the succus entericus and it forms a good lubricant for the colon. Oil surrounds and impregnates the food particles. This retards bacterial activity, and thereby reduces gas formation.

A high rectal enema reaches and flushes the whole length of the colon. This can be proved to any doubter by giving it to a patient while the abdomen is opened so that the large bowel can be seen. A salt solution, stronger than normal saline, or practically any other

11. Howell: Text-Book of Physiology.

12. Hammersten: Lehrbuch. d. Physiol. Chemie.

13. Fleiner: Jahresb. f. Aerztl. Fortbild., 1911, No. 3.

14. Kendall: Jour. Med. Research, 1912, xxv, 117.

15. Strasburger: Ztschr. f. klin. Med., 1902, xlv, 415.

16. Mall: Johns Hopkins Hosp. Rep., 1896, No. 1.

17. Strümpell: Pathologie und Therapie.

18. Ochsner and Percy: A New Clinical Surgery.

19. Schütz: Arch. f. Verdauungskrankh., vii.

20. Nickels: Reference Handbook Medical Science.

irritant in an enema reaching beyond the splenic flexure will often cause immediate evacuation. Cannon observed increased peristalsis even in the ileum as a result of the stimulus from an enema of soapsuds.⁸ Should the enema fail, an irrigation of the colon is possible.

An internal secretion which stimulates peristalsis has been obtained from the gastric mucosa and from the spleen. The experiments of Dohrn, Marxer and Zuelzer^{21, 22} showed that this is a constant hormone in animal organisms regulating the function of peristalsis. Therapeutically it has been used to some extent, but will need further experimentation and use before definite indications for its employment can be established. When this is done it promises to become a physiologically ideal intestinal evacuant.

After this brief review over several facts concerned in the functions of the bowels, and over the action of some of the common cathartics, let us see what clinical observation teaches in regard to the use and non-use of cathartics, especially in certain surgical conditions.

I have searched my clinical records and experiences with respect to this question and found that the patients with acute appendicitis whom I have seen die from local extension of the disease, or from general sepsis, either with or without surgical intervention, had without an exception received and retained some active cathartic at the beginning of the disease. The patients with diseases of similar nature who have barely escaped death, but who have developed the worst postoperative complications, advancing peritonitis, bowel paresis, distention, fecal fistulas and misere, had nearly all been given a dose of salts as a passport to prolonged suffering, tedious and expensive stay in the hospital, and finally months or years of reduced vitality and usefulness. On the other hand, the cases of acute intra-abdominal inflammation which had an equally stormy onset and which apparently promised fully as grave complications as those already mentioned, but into which the element of purgation had not entered—in these cases the patients had in comparison a surprisingly easy and quick recovery.

Descriptions in detail of illustrative cases as well as a classification of all such patients would be of interest, but time-limit forbids. I feel, however, that my experience along this line has been great enough to warrant the greatest possible attention to the facts stated. The country practitioner has here a grave responsibility. Beyond his duty to each individual patient, he should be a missionary among the uninformed. It has become a custom whenever a patient with acute appendicitis or other acute inflammation about the movable viscera is brought to me, to inquire at once: "Have you taken a physic?" If this question is answered in the affirmative, the next question is whether the stomach resented the insult with free emesis, or whether the cathartic were retained to perform its malicious work. This knowledge is of importance in prognosis. Sad experience has been my teacher.

About two years ago my attention was drawn to the fact that most patients who were subjected to abdominal operations immediately on their admittance to the hospital, on account of strangulated hernia, acute appendicitis or other abdominal emergency, recovered with but slight discomfort from gas distention. During the same time other patients who had been deliberately prepared for operation and who had received fully as careful and

delicate handling of peritoneum and viscera as the former patients, suffered relatively much more from meteorism and pain and had a more serious time in getting the bowels opened after the operation, than had the emergency cases. The relation between operative trauma and postoperative gas pain was decidedly in favor of the "unprepared cases."

A closer study about these circumstances led me to believe that this difference in results must have its cause in some step in the preparation of the patient before the operation. That the operative technic was a radical factor could not be assumed, for several reasons. In a strangulated hernia, for instance, the intestine would be handled and rubbed with fingers, gauze and instruments, and perhaps resected, and yet the intestinal contents would not be materially hindered in their transit. Comparatively little gas would be formed in the bowel. In immediate operations for acute appendicitis, the peritoneum would be opened freely, gauze pads would be laid over omentum and numerous loops of intestine and held firmly against the peritoneum by intra-abdominal pressure. Many such patients recovered with a surprisingly small amount of meteorism. On the other hand, an interval appendectomy, a gall-bladder incision, a pelvic operation would at times be followed by two or three days of distention and distress before the bowel could be induced to functionate properly. And this would sometimes happen after the most painstaking preparation of the patient, including a liberal use of cathartics a day or two before the operation with the erroneous idea that this would remove all gas-producing materials.

It was evident that the greatest difference in the preparation of the two classes of patients lay in the non-administration of cathartics in the emergency cases. I concluded therefore to leave out, by way of experiment, this feature of the preliminaries in ordinary laparotomies. This was done tentatively at first, but as experience made me bolder and more confident I discontinued all use of purgatives before operations, except in rare instances and for special reasons. Instead of the classical dose of calomel and salts, two or three high enemas were given to flush out the colon.

I have followed this practice now for over a year to the great satisfaction of patients, nurses and surgeons. It includes operations on the stomach, gall-bladder and ducts, intestine, uterus, tubes and ovaries.

A bowel that has not been vitiated by a saline scouring is in condition, physiologically and bacteriologically, to prevent the excess formation of gases, and to expel those that do form. It is the gas distention which causes the bulk of the postoperative distress. This complication being reduced to a minimum, fecal contents are taken care of by normal peristalsis or by enemas if required.

The following are the most important conclusions which I have reached after a study of this subject:

The food normally passes rapidly from the stomach and through the small intestine. The small intestine is practically empty six hours after an average meal. In the cecum and colon the bowel-contents remain for from twenty-four to forty-eight hours.

The maintenance of a certain equilibrium between the physiologic and bacterial processes in the intestine is necessary for normal bowel function.

Saline cathartics disturb this poise to a marked degree, making their use a matter of grave consideration.

After the intestinal mucosa has been depleted and exhausted by any powerful cathartic, it takes some time

21. Dohrn, Marxer and Zuelzer: Berl. klin. Wchnschr., 1908, No. 46.

22. Zuelzer: Internat. Zentralorgan f. Blut u. Serumforsch., 1910, vi.

to recover its energy. During this time bacteria flourish unmolested by intestinal ferments.

Intestinal antiseptics is at best of unknown and doubtful efficacy; a comparative asepsis is practical.

An artificial evacuation of the large bowel, satisfactory for most surgical and many other purposes, does not require the ingestion of any drug acting on the small intestine. High rectal injections are efficient and cause less damage and discomfort.

A cathartic given in the beginning of an acute intra-abdominal infection is a dangerous practice and contrary to modern scientific knowledge and experience. Numberless gravestones mark the disregard of this principle.

Patients who are prepared for laparotomies by a restricted diet and rectal injections have a much more pleasant postoperative recovery than have the patients who have been purged.

INTRA-ABDOMINAL PRESSURE

ITS IMPORTANCE IN MAINTAINING STATIC EQUILIBRIUM AND THE NECESSITY OF CONFORMING TO ITS LAWS IN THE RESTORATION OF ORGANS TO THEIR NORMAL POSITIONS*

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As the Roman gladiators in the days of old entered the arena to meet each other in deadly combat or to be torn to pieces by the fierce Numidian lions, it was their custom to greet their audience with the expression *Morituri salutamus!* "We who are about to die salute you!" Conscious of the wide divergence of opinion on this subject of intra-abdominal pressure and knowing the powers and skill of the many gladiators who enter this arena, to whom the Numidian lion is but a toy, I can only exclaim in the language of the ancients, "I who am about to die salute you." Despite this depression of the hour I am buoyed up by the thought that out of the contest there may perhaps come some slight illumination on the subject or at least some inspiration for further investigation.

The universal application of abdominal section which has come into vogue during the past quarter century for the relief of positive pathologic conditions in the abdominal cavity has brought to light a startling frequency of ptosis, sometimes of one organ, sometimes of another, and occasionally of all. Many and various surgical procedures have been instituted for relief of these conditions but with varying and uncertain success. Failure to obtain satisfactory results has led certain investigators to inquire into the causes of ptosis. And these wise men tell us that ptosis is due to "abdominal static conditions," that these conditions are produced by "aberrant intra-abdominal pressure," which, in turn, is produced by "faulty postures," that "faulty postures" of the body come from "lack of physical vigor and vitality," "that ptosis interferes with digestion and assimilation" and hence the lack of vitality. And so we go around in this vicious circle, like a dog chasing his own tail.

We can understand faulty postures; lack of vitality is comprehensible; ptosis we recognize when we see it; static conditions are explicable, but the one link in the chain that eludes us is intra-abdominal pressure. What is intra-abdominal pressure? Breathe softly now, for we are on sacred ground. Intra-abdominal pressure is a great mystery.

At the meeting of the British Medical Association, Sheffield, England, in 1909, I had the honor of being invited, as the American representative, to open the discussion on displacements of the uterus and operative procedures for their relief. In these remarks I presented my conviction regarding the importance of ligaments in maintaining the normal position of the uterus. In the general discussion which followed I was informed by one of my British confrères that this matter had all been settled in previous discussions on this subject; that ligaments had nothing to do with the case; that abdominal and pelvic organs, as was well known, were held in place by intra-abdominal pressure and the floor of the pelvis; that the liver, which had many square inches of space on the lower surface, was lifted up by an intra-abdominal pressure many times its weight.

It has interested me to discover what was being taught the present generation of medical students in regard to this matter, by putting to the applicants who apply for positions as interns in the various hospitals with which I am connected the question: "How are the kidneys and the liver kept in place?" The common reply is, "The ligaments may have something to do with it but the chief support is negative pressure." When I inquire, "What is negative pressure?" the universal response is, "I don't know what it means, but that is what I was taught."

Let us revert again to the question, What is abdominal pressure? Intra-abdominal pressure may be defined as pressure within the abdomen due to external atmospheric pressure, to gravity, to muscular contraction of its walls and to intravisceral pressure. The first two, atmospheric pressure and gravity, are constant; the latter two, i. e., muscular contraction and intravisceral pressure, are variable and therefore constantly modifying the intensity of the pressure. The intensity of intra-abdominal pressure at any time and in any place is the resultant of all these forces working together at the specified place and specified instant of time. Muscular contraction has reference not only to the abdominal walls, but also to the diaphragm, which forms the upper wall of the abdomen and modifies intra-abdominal pressure with every breath. By intravisceral pressure is meant the pressure produced by a full stomach in filling the abdominal cavity and thereby increasing the pressure. The stomach contents may be solid, liquid or gas. This applies equally to the intestines. To a minor degree a full gall-bladder or an enlarged liver may increase intra-abdominal pressure, and likewise any pathologic tumor.

We all recognize that the specific gravity of the organs and other contents of the abdomen do not vary much from that of fluids, and consequently, intra-abdominal pressure corresponds closely but not absolutely to hydrostatic laws. If we press the abdominal wall with the hand, the pressure is communicated in all directions till it meets with organs or tissues that are of greater density. These cannot transmit the force with equal facility and consequently they reflect what they cannot readily transmit, but finally are pushed before it till the force has been equally distributed and equilibrium has been attained. This moving force would be felt least by the

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912

intestines if they are filled with fluid contents, more, if the contents be solid and still more if they are gaseous. The kidneys and liver, being closely attached to the diaphragm, would be pushed up against the diaphragm and the uterus would be pushed down.

If a vessel is filled with fluids of different specific gravities, the contents will be subjected to the laws of gravity and the heavier fluids will go to the lowest level; they will arrange themselves according to their relative specific gravities.

Likewise in the abdomen, were there no ligaments, the various organs would arrange themselves according to the same law and the weightiest ones would go to the lowest level. The support each organ receives from its ligaments, therefore, must, at least, be equal to its excess of specific gravity over the specific gravity of water. The ligaments of the abdominal organs are therefore the determining factor in maintaining them in their relatively fixed position. We know, moreover, that the strength of the ligaments supporting the intra-abdominal organs is far greater than this, as is illustrated by the resistance they offer to displacement even after air has been admitted. We all know, for instance, how difficult it is at operation, even after air has been admitted between it and the diaphragm, to drag the liver down to a position of accessibility.

Granting, then, that the ligaments are the factors that suspend the organs and determine their fixed relative positions, it is interesting to note how the intra-abdominal pressure adds its influence to the same end. As the abdominal muscles contract, intra-abdominal pressure pressing in all directions, though unequally, and being reflected from the posterior bony wall of the abdomen, must impinge on the under surface of the liver and force it up against the diaphragm. So my English friend was partially right, but wrong in his insistence that intra-abdominal pressure was the whole thing.

The laws of hydrostatic pressure have been accepted by some as the key to the problem, and on these laws have been constructed complete and elaborate theories which, at first blush, seem to be quite convincing. In the elaboration of the details of intra-abdominal pressure, however, they fail to answer satisfactorily many important questions and we are driven to the conclusion that fluids either in equilibrium or under active pressure do not tell the whole story. Careful investigation reveals many reasons for this. In reviewing this subject, we must take into consideration the following facts:

1. Abdominal and pelvic cavities, whether considered individually or as one continuous chamber, have both elastic and inelastic walls.

2. The interior conformation is most irregular and made up of reflecting planes of pressure at various and varying angles to each other.

3. Within these cavities are many organs of various shapes and density which transmit and reflect pressure with varying degrees of facility and speed.

4. Some of these very organs at successive and alternating periods contain solids, liquids and gases.

5. These tissues are all vital tissues acting under physiologic laws.

The dynamics, therefore, of the abdominal and pelvic cavities are not restricted to hydraulics, and we must follow the ramifications of pressure when applied on any part of the surface of the cavities guided by the laws of reflection and deflection, of transmission through vital tissue, and all constantly modified by physiologic action.

Without dwelling on pressure as relating to the abdominal cavity our interest is more directly concerned in this discussion with conditions in the pelvis. In this cavity the application of pressure is physiologically directed toward expulsion of the contents, either of the uterus, the bladder or the bowel. Here is where we have the most striking illustration of the importance of deflecting planes in directing expulsive force into the axis of the pelvic outlet. This mechanism of deflection and the importance of understanding the action of the deflecting planes is pronouncedly exemplified in the progress of the fetal head through the various straits of the pelvis. In this the bony planes play the most conspicuous part. In the evacuation of the bowels, however, we have the intra-abdominal pressure coming down into the pelvis which, to accomplish its desired result, must likewise be deflected into the axis of the pelvic outlet. Under these circumstances the resultant of these forces, which finally determines their ultimate effect and which we must follow if we wish to determine their action, exerts itself most directly on the posterior face of the uterus and its broad ligaments. This plane of tissue is thereby forced down to a lower level in the pelvis till its progress is interrupted by the resistance of its ligaments, more especially the cardinal ligaments, and in extreme instances by the crest of the perineum. At this stage the longer arm of the uterine lever (i. e., the fundus) is arrested by this resistance, while the posterior free pole of the uterus (i. e., the cervix) is forced farther down, thus tilting up the fundus and thereby deflecting the pressure backward and downward on the rectum in the axis of the outlet. As Sturmdorf says:

Were this pressure to continue without deflection, this upward tilt of the anterior arm of the uterus must continue and, extending beyond the perpendicular, would retrovert the uterus and force its long axis into line with that of the vaginal outlet. The uterus in this position would fall into the direct axis of the expulsive planes where it is subjected to such irresistible pressure that the ligaments give way and prolapsus uteri ensues with its accompanying complications of rectocele and cystocele.

To my mind, the importance of this deflecting plane of tissue represented by the uterus and its broad ligaments, in deflecting intra-abdominal pressure, cannot be overestimated. It is undoubtedly true that the ligaments of the uterus would be incapable of resisting normal intra-abdominal pressure were it continuously applied in the direction in which it first impinges on it. By the resilience of its ligaments and their muscular contractions this force is deflected, and the uterus, when relieved of this pressure, is elevated to its normal topographic position by the uterosacral and round ligaments. Says Sturmdorf:

It is a gross misconception of function to attribute visceral support to textural strength of ligament or muscle; the muscle or ligament is not created that can permanently withstand the continuous force of intra-abdominal pressure. These muscular and ligamentous elements serve to support the pelvic contents, not by virtue of their textural resistance to displacement, but by deflecting the displacing force of intra-abdominal pressure.

The failure of procedures for displacement of the uterus which involve fixation of that organ to the abdominal wall tends to confirm this principle and is a pertinent demonstration of the fallacy of substituting artificial for normal physiologic support. The normal physiologic support of the uterus resides in its ligaments. They are therefore the proper tissue to utilize in any

operation for the restoration of the uterus to its normal position and physiologic function as a deflecting plane.

The one new feature then to which I am directing attention in this discussion of intra-abdominal pressure is that of the reflecting and deflecting planes which determine the direction that shall be taken by the resultant of all these component forces. For many years I have been teaching the action of the posterior wall of the uterus and the broad ligaments as a deflecting plane of intra-abdominal pressure, as it enters the pelvis. I have also emphasized the importance of the uterine ligaments in their function of restoring equilibrium, after it has been upset by these expulsive forces. It was not till I read Dr. Sturmdorf's paper that I realized the wide application of this principle of reflecting and deflecting planes both as retentive and expulsive elements.

What about the floor of the pelvis? "The stimulus which excites the abdominal muscles into activity induces a simultaneous contraction in the perineal musculature. The elements of this musculature are so arranged that their contraction elevates the perineal plane; this elevation carries the perineal fulcrum up to the uterine lever, raises the depressed posterior arm of this lever to the level of its anterior arm, thus restoring anteversion; at the same time, this elevation of the perineal plane narrows the essential uterovaginal angle, preserves the potentiality of the vagina by converting its actual canal into a valvular slit and practically closes the pelvic cavity."

This last paragraph explains fully the physiologic action of the floor of the pelvis when great effort is being made. We must bear in mind that there are two conditions under which intra-abdominal pressure acts as revealed in the pelvis: first, when the patient is making great physical effort, as in lifting heavy weights, and second, when straining at stool, in parturition or in micturition. Now let us see how the floor of the pelvis acts under each of these two conditions. When great effort is to be made the first act is the drawing of a long breath to fill the lungs; this contracts and sets the diaphragm, which in turn fixes the position of the sternum and the ribs. This gives a fixed point of support to all the muscles of the abdomen and thereby makes rigid the entire trunk of the body. This naturally increases intra-abdominal pressure and would tend of course to drive out the contents of the bladder and the rectum.

This would be unfortunate and naturally is to be avoided. This is prevented by an interdependent, and correlated nervous control which induces a simultaneous contraction in the perineal musculature, as Sturmdorf has explained, and so maintains the integrity of the pelvic outlet. This closes the pelvic cavity and adds its musculature to that of the abdominal walls in sustaining the integrity of the trunk while the musculature of the arms and legs is being brought into play with full force.

In the second condition, in which expulsion of the contents of the rectum and bladder is to be accomplished, the floor of the pelvis, by the same reciprocally acting nervous force, is relaxed and forced down by the intra-abdominal pressure, till it reaches a point at which the overstretched levator muscles react and the pelvic outlet is lifted over the mass to be expelled, as the finger of a glove is lifted over the end of a finger. This process is conspicuously seen in the two processes of parturition and defecation. I yield to no one in emphasizing the importance of restoring the levator ani muscles to their physiologic functions in repairing the floor of the pelvis.

The purpose and the physiologic function of the many muscular ligaments which the uterus possesses had long been a conundrum to me, but in the light of their function in regulating the angle of the deflecting plane of the uterus and its broad ligaments, the whole subject becomes clear. The uterus is successively lifted up by the bladder and twisted about on its longitudinal axis by a full sigmoid either to the right or left and therefore keeps its ligaments busy maintaining a proper face or plane to intra-abdominal pressure which expands itself on this surface, not only in extreme effort, but with the frequency and force of every respiration.

In all operations for the restoration of the uterus to its normal position, in cases of displacement, attention must be given at all times to the restoration of this deflecting plane in order to restore physiologic function and thereby permanency of result. To my mind this is best accomplished by utilizing both the round and the uterosacral ligaments.

In the use of the pessary the same principle is involved; the retroversion pessary, in order to be efficient, must reach up sufficiently high above the cervix to take in the slack in the uterosacral ligaments as well as the posterior fornix vaginae. At the same time, it must not be so long that it cannot yield to intra-abdominal pressure sufficiently to permit the uterus to tilt up and deflect the pressure back into the axis of the pelvic outlet.

The importance of restoring this physiologic deflecting plane of the uterus and broad ligaments is most conspicuous in operations for the relief of procidentia with its accompanying complications of rectocele and cystocele. Where the uterus is retained, this is accomplished, as has been said, by shortening the round and uterosacral ligaments. In extreme cases of procidentia in which the uterus is removed, the same deflecting plane is reconstructed by stitching together the broad ligaments across the pelvis from side to side. By including in this suture the infundibulopelvic and round ligaments as well as the uterosacral and the cardinal ligaments, at the base of the broad ligaments, we restore function as completely as if the uterus had not been removed.

In all plastic operations of this character, the object of the procedures should be reconstruction of anatomic structure and restoration of physiologic function and support. Too often in the past, and, indeed, in many of the procedures of the present, the result of the operation eventuates in uniting dissimilar tissues and building up a pathologic obstruction represented by a cicatricial plug.

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ABSTRACT OF DISCUSSION

DR. A. STURMDORF, New York: Dr. Goffe has struck a keynote. For years we have floundered in a maze of academic controversy as to the nature and influence of intra-abdominal pressure on visceral support. Thus it is generally assumed that the subdiaphragmatic and pelvic viscera are subjected to different, and opposite effects of tension termed respectively "negative" and "positive" pressure; negative defining a pressure less than atmospheric and positive a pressure more than atmospheric or 15 pounds to the square inch. Accordingly, negative pressure implies the existence of a partial vacuum in the upper abdominal space, an obviously inconceivable state, which would necessarily produce a pneumatic compression and immobilization of the hollow viscera placed under the dome of the diaphragm, such as the stomach, intestine and vena cava, in addition to all of which respiration would be seriously involved.

Furthermore, the unfortunate misapplication of hydrostatic principles to the solution of our problem presents another will o' the wisp that lures to error. These laws, when applied to homogeneous fluids under pressure in a rigid retainer of uniform outline and resistance, permit exact calculation, but unfortunately, the abdomen is uniform neither in outline nor in resistance. Its walls are bony here and muscular there, while its contents are not homogeneous, but solid, semi-solid, fluid and gaseous.

One familiar principle in dynamics illuminates this complex subject, namely: The direction of any given force impinging against a resistant plane becomes definitely deflected, the degree of deflection being governed by the axis of the deflecting plane's surface. This finds familiar exemplification in our daily experience. The abdominal cavity presents a compound deflecting mechanism for intra-abdominal pressure and every phase of normal and abnormal visceral support is dominated by intra-abdominal pressure under normal or abnormal deflection. The injured pelvic floor distorts deflection with resulting visceral displacement, and so on, throughout the whole range of visceral ptoses we will find ourselves confronted with the great question of perverted intra-abdominal pressure from misdirected planes.

DR. CHARLES P. NOBLE, Philadelphia: In the general principles Dr. Goffe has left out the factor of the patient's energies. When one has full vital energy ptosis does not occur because the vital energies so energize the patient's tissues that they have full tonicity and the patient is a physiologic organism. On the other hand, with lowered vitality there is diminution in the amount of energy and malasymmetry in its distribution. Hence, we never have ptosis in one who is fully developed, unless the individual becomes sick, when he acquires what the other individual always has, namely: lack of energy. Then the tissues become atonic and the forces are asymmetrically distributed with the result that the intra-abdominal pressure is relaxed, bringing about abdominal ptosis.

DR. A. GOLDSPOHN, Chicago: I think Dr. Goffe is correct in regard to the four different contributing factors to that which we call "intra-abdominal pressure." The direct result to us, however, is what does it do in the woman's pelvis, and are ligatures necessary or not? It is the predominating feature in defecation and urination. We know that when we defecate or urinate we have no power over the bladder or the rectum to make them contract beyond simply releasing the sphincters of those organs to empty them. We force out their contents by applying intra-abdominal pressure in the pelvis, not by a liquid, not by a gas. If that were so, it would not make much difference so far as the position of the uterus is concerned. But intra-abdominal pressure is conveyed by solid organs, or partly solid organs. A mass of small intestines is sent as a more or less solid mass down into the pelvis, and the question of importance is whether this mass goes in front of or behind the uterus. If it goes behind the uterus, the uterus will be tilted forward. The ligaments holding it forward will not be injured but, if this mass descends in front of the uterus, all the ligamentary attachments of the uterus are viciously acted on and if this vicious action is repeated or continued, as Dr. Goffe has said, there is no muscle that can stand it. Therefore, it is necessary that there be ligaments not simply to suspend it, but also to stand on guard and guide its body forward when it has been temporarily displaced backward by a full bladder or rectum or both.

DR. J. RIDDLE GOFFE, New York: The practical conclusion to be drawn from my paper—at least that which I draw—is that the ligaments are the important factor in maintaining this plane of tissue that I have described in the pelvis, which deflects intra-abdominal pressure as it comes down from the abdominal cavity. So long as those ligaments do their work, normal equilibrium is secured and the uterus remains in place. The multiplicity of ligaments of which the uterus is possessed was for a long time a puzzle to me. They were said to be guy-ropes; and so they are, turning the uterus in every direction to meet the intra-abdominal pressure which strikes it at various angles and would drive it down into the

perineum and out of the body were it not for the fact that these ligaments enable it to deflect the resultant of these forces from its direct line of impact and divert it into the axis of the outlet. Therefore, I say that in all operations for the relief of displacement of the uterus the indication is to utilize the ligaments, to restore normal position and at the same time to restore the function of deflecting intra-abdominal pressure.

A PLEA FOR AN EARLIER DIAGNOSIS OF PELLAGRA*

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LOUISVILLE, KY.

That pellagra is going to be one of the most serious problems with which we will have to deal in the next few years nobody can deny. It is certainly assuming alarming proportions and is slowly but surely pressing its way into the middle and northern states. It looks as if it were going to become endemic all over the United States, and at present it is almost epidemic in the south.

One who has followed the history of etiology of pellagra cannot help being conservative in adapting a certain theory. So many theories have been brought forward, adapted, rejected and then again adapted, that one cannot blame the "doubting Thomases" among the medical profession. Some of the theories were very attractive, but lacked scientific corroborations. Some thought this disease to be a phase of syphilis and leprosy, while others attributed it to incomplete metabolism, causing a symptom-complex known as pellagra.

The following agents were believed to be the cause of pellagra: sunshine, corn, poverty, cottonseed oil, the sand-fly, a water-worm, the buffalo-gnat and ameba. The corn theory is the most attractive.

I have studied my cases of pellagra on Kentucky ground. We have in Kentucky over one thousand known, and as many unknown, cases of pellagra. Though "the sun shines bright in my old Kentucky home," and the corn is not only consumed, but also the "corn-juice" imbibed a great deal, yet I do not believe that sunshine and corn are the real causes of pellagra any more than grape-seeds are the cause of appendicitis. If corn had been responsible for the disease, why did we not have pellagra in the south long ago? Corn has been grown largely in the south and has been one of the chief articles of diet, and no mention of the disease was ever made during the period of rebellion. Historical records speak of malaria and other diseases, but not a word of pellagra or a similar disease, though hygiene, food, and storing and handling of the corn products must have been very bad.

Spoiled corn is eaten in all seasons. Why, then, does the disease show a decided seasonal incidence? I do not believe in Sandwith's assertion that well-to-do people in pellagra districts, living on a varied diet and consuming maize as an occasional and not a staple cereal, usually escape pellagra. Of late many cases of pellagra were reported among well-to-do people, who partook not at all or very little of corn. In some instances no history of the consumption of corn in any form could be obtained.

The zeists' claim, that a certain toxin may be formed in the cereal and not a living bacterium, and that the said toxin may be purely chemical and of an alkaloidal nature, cannot be substantiated. Had the toxin been

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

of a chemical nature, why, then, does this disease appear only at certain seasons with intervening periods of quiescence almost like malaria and other diseases of bacterial nature?

I do not believe in Mizell's cottonseed oil theory as the cause of pellagra. Cottonseed oil is consumed in large cities and very few, if any, cases of pellagra are reported. In Russia where sunflower-seed oil and also imported cottonseed oil are consumed by the peasantry and city dwellers in large amount, particularly during Lent, pellagra is unknown.

The morbus miseriæ theory of the old authors is also absurd. The absurdity of this theory is at once apparent when we consider that poverty is as old as the human race, whereas pellagra is a disease of the last 200 years, and that in Russia, Ireland, Galicia, Poland and a great many other quarters of morbus miseriæ, pellagra is unknown.

Deficiency of sodium chlorid in the food is declared by some to be the cause of pellagra. It is asserted that pellagra is more prevalent in Italy where polenta and corn-pone are made without salt and that since the peasants were advised to add salt, pellagra has diminished. But all such reports lack confirmation.

I don't want to pose as a dissenter and as an antagonist to the views of scientific workers; I simply want to state that the more I see pellagra cases, the more I get into their history, surroundings and possible causes, the more difficult it is for me to convince myself that the disease can be attributed to corn.

In science, as in religion, it is often hard to get rid of fostered dogmas or theories. Fostered dogmas or theories often become a habit. If it had not been for the fostered theories of Ballandini, Lambrose, Marie and others, independent ideas might have developed and the true causes have been sought. It is from the individual, uninfluenced researches that we may find the real cause of pellagra.

What is, then, the real etiology of pellagra? A great many theories have been advanced, but all of them proved wanting in actual corroboration. Though the actual cause of pellagra is still unknown and though many theories have been advanced by earnest investigators, the most plausible theory is a specific infection by a protozoan.

After a careful study of locations of pellagrins, I believe that Sambon's sand-fly theory does not hold good. I have found a great many cases of pellagra in locations where flowing streams and the sand-fly were absent. We also know that in the last two years quite a number of cases have developed in cities.

Alessandrini's latest theory that pellagra is caused by a water-borne "nematode worm" is rather speculative. He claims to have constantly found in the shallow wells and small flowing streams numerous larvæ of the family *Filiariidæ*. The absence of pellagra in localities abundant in flowing and wet-weather streams, and in shallow wells dotted with numerous springs contradicts his theory.

Professor Garman, of the Kentucky Experiment Station, attributed the cause of pellagra to the buffalo-gnat, but his theory courts the same contradictions as Sambon's.¹

The amebic theory of pellagra has attracted many followers. We have amebiasis in countries where pellagra

is unknown. Hardly ever are amebas found in the stools of pellagrins. Skin manifestations due to amebic conditions are entirely different from pellagic skin lesions. In amebiasis urticarial eruption, scarlatiniform erythema and pustulation are found, and the areas of eruption are more extensive and static. Such skin manifestations are never seen in pellagra.

The most probable cause, to my mind, is the transmission of pathogenic trypanosomes by the migratory birds, particularly blackbirds. Maybe my theory does not solve the problem any more than those of other investigators and will need further corroboration, yet I firmly believe in it and am entitled to a hearing.

I wish to disclaim entire originality of this theory. I am grateful to Dr. Eisenman, the Kentucky state veterinarian, and his collaborator, Dr. Purdy, who rendered me assistance in my investigations, and who came to the same conclusion as I did.

Last August there were many endemic cases of pellagra-like diseases among horses and cattle in certain localities. In a great many instances, human pellagrins came from the same localities. Drs. Purdy and Eisenman kindly made investigations and from their reports I have found the following:

A number of horses, having partaken of supposedly spoiled corn in shucks, developed meningeal symptoms similar to blind staggers. Only two or three of the number were affected. The disease did not resemble the symptoms that horses usually develop from eating spoiled grain. Horses that partake of spoiled grain usually develop acute and severe meningeal symptoms, and either die immediately or recover; they quit eating, and the loss of power of deglutition is the prominent symptom. It usually affects all the horses that have eaten of the spoiled corn, while in the pellagra-like disease, only a small number of the horses were affected, and they never lost the power of deglutition, and continued to eat and drink until they died; none recovered.

The conclusion which we reached was that these horses had died from a disease similar to that caused by *Trypanosoma equinum* found in South America and other tropical countries, and that the blackbirds might have been responsible for it. In the last few years, certain localities, where pellagra prevailed extensively, have been infested by the migratory birds (particularly blackbirds) in very large quantities on their way from tropical countries. On their way northward, they make their stopping-places in the south. Seasonal incidence of pellagra, spring and autumn, coincide with the coming and leaving of blackbirds and other migratory birds. In their work on trypanosomiasis, Novy and McNeal state that they have found trypanosomes in the blood of migratory birds and that the blackbird came first on the list. Since our knowledge of trypanosomes is not yet exact, we can hardly draw the line between the different species. The difficulty in classifying the different species arises from the fact that the same species in the same animal presents so many changes that, should the different forms of one species be found in the different animals, they would be assigned to different species without hesitation.

Whether the trypanosomes undergo a developmental cycle in the blood-sucking insects by biting the blackbirds, we do not know. To my mind, insects like flies and mosquitoes are simply passive carriers of trypanosomes. For the last few years there was prevalent an unusual number of mosquitoes and flies in localities where pellagra and that strange disease among horses raged the most. In the districts where people took little

1. Since the article was written a bulletin has been issued by Professor Garman in which he confesses himself to be yet unable to state the cause of this disease, and further investigations seem to have shaken his confidence in the buffalo-gnat theory.

precaution against mosquitoes and flies, cases of pellagra were found in greater numbers.

The conclusion reached by me from investigations into the cause of pellagra and the pellagra-like disease among horses is that the blackbird and a few other species of the migratory birds are responsible for this disease. The transmission of this disease to human beings and animals is probably accomplished by two methods: bites of preying mosquitoes and flies; accidental ingestion of the cysts, deposited with the feces of insects, on the surface of plants, thus causing the infection.

Though at present no trypanosomes have been found in the blood of human pellagrins and the pellagra-like diseased animals, the indications are that some species of trypanosomes will be isolated in the near future. Experiments are being conducted in a good many places with far more scientific earnestness than ever before.

I will not repeat the symptomatology of pellagra; it has been thoroughly covered in text-books, articles and essays. I only want to repeat that the disease has the appearance of a trophoneurosis, superinduced by some specific germ. The early involvement of certain areas of the skin, especially such exposed places as the hands, neck and feet, suggests leprosy; in pellagra, as in leprosy, hyperesthesia and then loss of sensibility are found, with, sometimes, thickening or rough surface and discoloration. The most prominent feature in pellagra is the onset at the beginning of each successive spring and the subsidence toward autumn. As in leprosy, the cutaneous disorder is apt to come and go at first, reappearing at the same spots and gradually becoming fixed.

I have seen some cases of pellagra with deep discoloration of the skin, with bronze-like spots, resembling Addison's disease; then, again, some cases have initial bright erythemata of the dorsum of both hands, neck and forehead, changing to copper-colored spots as in syphilis; I have seen some cases in which the erythema began to desquamate as in psoriasis, and even ulcerate; I have seen bleb formations in old as well as new cases; hands keratosed and fissured.

But in all cases one is certain to find prominent demarcation of the skin lesions, fiery-red tongue, slimy and divested of epithelia as often seen in purpuric and scorbutic conditions, and, in about 75 per cent. of the cases, diarrhea.

In the majority of cases, the blood-picture was similar to that in malaria and anemia. Nervous and mental symptoms appeared in highly developed cases and became more severe with each successive year.

I have seen some patients who resembled mummies with shriveled sallow skin, movements slow and languid, sensibility diminished.

The histopathology of pellagra presents no extraordinary changes. We find parakeratosis as the result of erythema and edema; some skin acanthosis or multiplication of the prickle cells of the malpighian layer, resulting in great thickness, especially of the interpapillary processes.

The post-mortem pathology resembles that of mycosis fungoides. The prominent features are cachexia, wasting of the fat and muscle atrophy, fatty degeneration of the liver, kidney and heart, pigmentary deposits in various tissues, edema of meninges and chromatolysis of the cells of the anterior horn of the cord. Such is the biopsy and autopsy of pellagra.

Did any one ever diagnose a case of pellagra without the skin lesions? I do not believe so, for the skin lesions are really the most important symptoms of pellagra. The

very name "pellagra" means "rough or diseased skin." Thus, to my mind, the early diagnosis of pellagra rests with the dermatologist. I have seen some cases of pellagra diagnosed as erythema and eczema, and, again, cases of erythema caloricum, urticaria and eczemas diagnosed as pellagra. Any suspicious case that baffles the general practitioner should be referred to the dermatologist. Neurologic symptoms alone are not sufficient, since many of them are due to syphilis. Mouth symptoms also cannot be depended on, since stomatitis is due to many other causes. Intestinal troubles are not to be entirely relied on, since tuberculous enteritis and amebic dysentery may be the causes. So, it is the skin first and the skin last that we may count on as the chief diagnostic symptom, while the other symptoms, even more important, are, as a matter of diagnosis, secondary. Thus, we see that with the dermatologist, who must also be a good internist, rests the early diagnosis of pellagra. The skin symptoms may change from a vivid red to dark red, pale red to bronze color, at times hardly noticeable, but the trained eye of the dermatologist will detect pellagic skin even when the skin lesions have almost disappeared and only slight traces are left.

I do believe in prophylaxis of pellagra, but very little in treatment. Arsenic and urotropin (hexamethylen-amin) may be tried, but we cannot vouch for their efficacy. The very fact that arsenic is seemingly exerting a curative effect on pellagra would itself indicate that the disease is of protozoan nature.

I do hope that the time is not distant when a serum diagnosis of pellagra will be found, a serum which will solve the burning question of to-day. I do not care whether it comes from the north, south, east or west; it may come from darkest Russia, but it will be hailed with delight.

In conclusion, I want to thank Dr. Gardner, of the Kentucky Central Asylum; Dr. Nevitt of the Eastern Kentucky Asylum; Dr. Frank Clark, of Lexington, who has made a special study of pellagra, for the courtesies extended to me; and also the hard-working country physicians who were kind enough to refer to me cases for diagnosis.

ABSTRACT OF DISCUSSION

DR. HOWARD FOX, New York: It seems extraordinary that any disease on which so much time, money and research have been expended for the past 150 years should have led to such barren results as has been the case with pellagra. We know absolutely nothing regarding its cause or rational treatment. The latter, thus far, is simply symptomatic. About two years ago I made an effort to see whether there was any possibility of curing patients suffering from pellagra with the serum of animals suffering from epizootic. I found a mule suffering from this disease, and, after bleeding him, had the serum put into sterile bottles. Dr. Babcock agreed to use it in some of his cases of pellagra, but was unable to do so. Subsequently, I tried it in New York on a patient from Georgia, but was not able to report any definite results.

DR. A. RAVOGLI, Cincinnati: While the etiology of pellagra is still obscure, I have always been inclined to the theory that it was due to the use of spoiled corn, and I still cling to that idea. At the last International Dermatologic Congress in Rome I saw a number of patients with pellagra who had eaten nothing but corn-meal, among whom were children 2 and 3 years old. In this disease we have a toxic erythema affecting the skin and mucous membranes, including that of the pharynx, causing difficulty in swallowing and burning sensations in the palate, and later on, gastric disturbances and diarrhea. In Italy, the disease is divided into three stages: in the first, the symptoms are confined to the skin and mucous membranes; following this we have the diarrhea, and finally the mental symptoms—dementia and delirium. In connection with the

eases occurring in this country we should bear in mind that in Kentucky and other southern states, corn is one of the staple articles of diet.

DR. G. W. MURRELL, Richmond, Va.: I was with Dr. Howard Fox in Columbia, S. C., where we had an opportunity to examine Dr. Babcock's cases, and in addition to those I have seen cases in the asylum near Richmond and about twenty cases in private practice. In the region of the south where I live, and where corn has been a staple article of diet for generations among the natives—less so among the more recent immigrants in that section—I think we should have seen pellagra long ago if the disease was due to that article of diet. Be that as it may, we have become convinced that pellagra is rapidly on the increase, and has become a serious menace in our state. Formerly, we associated pellagra with poverty, but during the past year I have seen in private practice, patients afflicted with this disease who belonged to the better classes.

DR. E. S. LAIN, Oklahoma City: Dr. Griffin, who is a student of the disease and superintendent of our state sanitarium for the insane, in which we always have pellagra, is inclined to believe that it is a secondary disease, as he so frequently finds it complicating carcinoma, tuberculosis and other chronic affections. I have observed it in a case of carcinoma of the vulva, which was the immediate cause of the death of the patient, and I have also seen it in tuberculosis. I am inclined to agree with Dr. Murrell that the popular belief that pellagra is a disease of the poor is not well founded, as I have seen cases in some of the best families in our city. Four years ago I saw the wife of a physician die from a typical case of pellagra, and last year I saw a druggist living among the best surroundings and boarding in one of our best hotels, who succumbed to the disease. I have never been able to accept the corn theory as the cause of pellagra, nor am I so strong an advocate of Sambon's sand-fly theory now as when it was first suggested. Thus far I have not been able to find a single case of pellagra among the Indians in Oklahoma, where, especially in the western section of the state, raw meat and the very cheapest kind of corn are the staple articles of diet. Here, the Indian pitches his tepee alongside of the running streams, an ideal location for the infection claimed by Sambon. He lives there and is exposed to all kinds of flies and insects, and although he becomes infected with many diseases, pellagra, thus far, is not among them.

DR. MARCUS HAASE, Memphis: My experience with cases of pellagra, both in hospital and private practice, would lead me to coincide with the views expressed by Drs. Murrell and Lain, that the use of corn as an article of diet cannot be regarded as an etiologic factor. I saw Professor Sambon last summer, and he stated that he was fully convinced that corn had nothing to do with this disease. Within the past year I have seen three cases in children—4 weeks, 6 weeks and 8 weeks old, respectively—in which corn could be absolutely ruled out, and while I am not prepared to accept the Sambon theory *in toto*, I agree with him that corn is not the causative factor in these cases. I have had no success with any method of treatment thus far, and would be pleased to give the mule serum a trial.

DR. H. H. HAZEN, Washington, D. C.: I spent a day with Sambon, and heard him report several cases in which young men visiting in pellagra districts developed the disease in the course of from four to six weeks. I have also seen some cases in young children, and in one of those cases the mother of the child did not have pellagra. In an autopsy recently performed by Sambon, he found a parasite in smears made from the brain. I tried to confirm his findings, but was unable to do so. I think the discovery of a pseudoparasite in the brain in these cases is well worthy of further investigation.

DR. M. L. RAVITCH, Louisville: I am glad to hear that the consensus of opinion, as expressed here to-day, is against the corn theory. I can readily understand how Dr. Ravogli has become imbued with this theory in Italy, and it is hard for him to get away from it, but I am sure that after he sees as many cases in the south as we have seen, he will be ready to agree with us that corn cannot be regarded as the causative factor of pellagra.

REPORT OF A CASE OF GONORRHEAL PYELITIS

LOUIS C. LEHR, M.D., WASHINGTON, D. C.

The literature on this subject is slight, embracing in all about twenty cases. In five the gonococcus was obtained only from the voided specimen; in two the pyelitis was due to a mixed infection; in four no cultures were obtained; in one a nephrectomy was done and the diagnosis made from the specimen; in four the disease was only recognized at autopsy. In only four were cultures obtained from the kidney during the course of the disease.

There are certain features about my case that are of special interest; it shows the possibility that this complication of gonorrhea may be more common than the comparative scarcity of the literature would indicate.

The report of my own case is as follows:

History.—The patient, a man, aged 27, came under treatment Nov. 6, 1911, complaining of a urethral discharge and painful micturition. He had had two previous attacks of gonorrhea in 1903 and 1905, but as far as could be ascertained these attacks were confined to the anterior urethra, recovery being prompt and without complication. Otherwise his genito-urinary history was negative. He had never had typhoid, Bright's disease or any other disease that would favor such a condition.

Present Trouble.—The present attack, which began on October 5 while returning from Europe, was treated by the ship's doctor by internal medication only. Marked improvement took place and the patient thought he was well. November 3 the discharge reappeared with marked frequency of micturition. He was referred to me November 6 by Dr. S. Logan Owen.

Examination.—A scanty purulent discharge was present, and smears showed pus cells and numerous Gram-negative diplococci. Urine, voided in three glasses, contained pus and diplococci. Albumin was present, but in no greater quantity than could be accounted for by the presence of pus. No casts were present. Terminal hematuria was marked. External genitalia were normal. On rectal examination the prostate and seminal vesicles seemed normal; no enlargement or tenderness were present. Carrying the index-finger beyond the prostatic notch no induration or tenderness could be made out. Temperature was 100, pulse 84.

Treatment.—The patient was put to bed, potassium citrate and tincture of hyoscyamus prescribed, hot sitz baths given and the frequency of and pain on micturition controlled by rectal suppositories. This condition persisted for about two weeks, after which the hematuria and pain gradually subsided. The patient was then put on deep injections of argyrol, 10 per cent. Improvement was steady, although the urine still contained pus with diplococci. The patient left town for three days, and while away indulged in alcohol, resulting in an acute exacerbation, accompanied by hematuria and great frequency of urination.

This acute condition lasted for about one week, and the patient was again put on deep injections of argyrol and later on posterior irrigations. Rectal examination showed no apparent involvement of the prostate or seminal vesicles. After the subsidence of the acute symptoms the patient declared that he suffered no pain or inconvenience at any time, although the urine continued to contain a large amount of pus and diplococci. Temperature and pulse were normal.

The patient remained in this condition until January 20. Two days before that time the bladder was washed out with a strong solution of silver nitrate, which produced little or no pain, and no change in the character of the urine. From this it seemed probable that the pus had its origin from some other source than the bladder, prostate or posterior urethra.

A cystoscopic examination was made on January 20. The instrument was introduced without difficulty or pain, and the following picture observed: The mucous membrane of the bladder showed signs of inflammation over its entire surface. The capillaries were slightly dilated, and the membrane appeared yellowish-red in color. This inflammation was possibly more marked about the region of the trigone. The ureteral orifices appeared normal. No redness or signs of

inflammation surrounded them. The prostatic edge showed no inflammatory changes. From the left ureteral orifice pus and urine were seen escaping with each contraction of the ureter, while from the right ureteral orifice apparently normal urine was expelled. The left ureter was catheterized and cultures made on two tubes of serum agar.

January 22 two tubes of serum agar, made of one part filtered ascitic fluid and three parts beef infusion agar with a reaction of +1, were used. After the cultures were made the tubes were incubated over night, and the next morning the surfaces were covered with fine dew-drop-like colonies. Incubation was continued another day, and there was no change in the general appearance of the growth, except that the colonies became larger. Transplants were then made to ordinary beef infusion agar and serum agar. No growth of any kind occurred on the plain agar, while the serum agar showed again the characteristic appearance. Smears stained by Gram showed a pure culture of a Gram-negative diplococcus.

January 24 the patient was injected with 50 million of a stock vaccine. On the 25th, 20 c.c. of a 10 per cent. solution of argyrol were injected into the pelvis of the kidney, 20 c.c. being about the capacity of the left pelvis. The next day the urine was markedly improved, although it continued to contain much pus and many diplococci. An autogenous vaccine was prepared at the U. S. Army Medical Laboratory, and 75 million dead organisms injected. At the same time 20 c.c. of a 30 per cent. solution of argyrol were injected. No improvement followed, and on February 5, six days later, the patient was given 100 million organisms from the autogenous vaccine. No reaction followed the injection of the vaccine, and no improvement of the urine was observed. The patient was now left alone for eight days, with the exception of vesical irrigations, and any change in his condition observed. During this time the amount of pus and the number of organisms present in the urine steadily increased.

February 15 the patient was cystoscoped and the same condition of subacute cystitis and purulent urine escaping from the left ureteral orifice was observed. The ureter was catheterized and 20 c.c. of a 1 to 3,000 solution of silver nitrate injected. There was slight improvement.

February 20, five days later, pelvic lavage was given, a small ureteral catheter being used (No. 5 French), and 200 c.c. of a 1 to 5,000 silver nitrate solution injected. Owing to the small size of the catheter used, the solution could easily be returned along the side of the catheter, and by leaving one cock of the cystoscope open (a Brown-Buerger catheterizing cystoscope being used), the nitrate solution was allowed to escape from the bladder. The next day the urine was macroscopically clear, but still contained some pus.

February 23 pelvic lavage was again performed with a solution of 1 to 3,000 silver nitrate, and again on February 26, three days later, with a solution of 1 to 2,500. February 28 the urine was examined, and except for a few small shreds in the first glass—which contained pus but no organisms—was clear. The left ureter was catheterized, and cultures taken on two tubes of ascitic fluid agar and two of plain agar. All four tubes remained entirely sterile. The treatment was discontinued, and the patient was observed until March 12, when he had to leave for his home in the West, at which time the urine still remained clear and free from pus or organisms.

I think we are justified in looking on this case as a pure pyelitis, with little or no involvement of the kidney structure, because of complete and rapid recovery and the absence of any kidney elements in the urine.

The path of infection in this case was most probably by continuity or by means of the lymphatics, or both, the lack of all complications and systemic symptoms indicating the absence of any general infection. Most authors hold that in infection of the kidney by means of the blood-current the cortex would be primarily involved.

The interesting features in this case are:

The insidious onset of the disease, without any symptoms referable to the kidney.

The severity and duration of the posterior urethritis and cystitis, and the lack of fever and toxic symptoms.

The fact that the infection, though severe, was confined to the mucous membrane of the urinary system and involved none of the deeper structures.

The lack of effect of vaccine therapy. This may be due to the fact that the infection was limited to the surface of the mucous membrane of the pelvis where the vascular supply is slight. Better results might be expected where the infection involved the cortex of the kidney with its rich vascular supply. This form of therapy was not continued longer, as gonococcus vaccine acts quickly or not at all.

The slight effect obtained by injecting argyrol or silver nitrate into the pelvis of the kidney in small quantities, and the excellent results of large quantities of a comparatively weak solution of silver nitrate injected, accompanied as it is by the least possible chemical and mechanical irritation.

1737 H Street N.W.

CESAREAN SECTION UNDER DIFFICULTIES

TILLSON L. HARRISON, M.D., DREWSEY, ORE.

Past History.—The patient, a multipara, is a short, heavy-set, stocky-built, muscular woman, aged 24, who has been subject to epileptic seizures since childhood. There is a history of epilepsy in her mother's family also. Eighteen months previously she had been delivered of a child by a high instrumental delivery. The child is epileptic. The patient was seven months pregnant. She had been having eclampsia for seventy-two hours, the attacks varying from fifteen to forty-five minutes and increasing in severity. Examination failed to show any dilatation of the external os, although there was spurious labor. The ranch-house was small, crowded with cow-men, and in a filthy condition, apparently not having been cleaned for months; moreover, there wasn't a clean towel in the place and the light from a dirty smoky oil lamp was poor; nurses and assistants were unknown.

Operation.—The patient was chloroformed in bed and then carried out to the kitchen and placed on the table without any previous bathing or preparation. I had the druggist from the town, who was with me, give the chloroform. An incision was made from the tip of the sternum down to the navel in the median line, using a fine eataract knife. The uterus was forced into the abdominal incision by a ranchman who pressed down on both sides of the abdominal walls; then, using the light eataract (Graefe's) knife, I cut open the uterus from the fundus to the neck in the median line, at the same time taking particular care not to cut through the membranes—the light knife allowing for this. Now with my two hands, palms downward, one on each side, I gently forced them like an entering wedge between the bag of membranes and the uterine wall, and in a few seconds, shelled the whole contents, child, placenta and membranes intact, out, without rupturing the bag, and handed the mass to a woman who was waiting, and who quickly opened the membranes with scissors, and extracted a living child.

Postoperative History.—I made no attempt whatever to control any hemorrhage, but sewed up the uterine incision in three layers, and the abdominal incision in the usual way. I did not wash off the abdominal incision, but allowed the blood to clot and merely put on a dry dressing. Fourteen days later the woman was up and made a 40-mile trip over rough mountain roads in a buggy.

The Psychic Control of the Patient.—The control of one mind over another requires the confidence of the patient in the physician, and the ability of that physician to inspire more confidence in his patient than that patient himself possesses. It is a curious fact of the human mind that those who are weak and are struggling upward are never able to be any better than they think the man who is helping them expects them to be. When once they have gained their self-respect and have regained their former pride and vigor so that they can stand on their own individuality alone, then will they go to any limit of which they are individually capable.—Lambert in *Boston Med. and Surg. Jour.*

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[For other information see second page following reading matter]

SATURDAY, JULY 6, 1912

THE CONDITIONS FOR THE EFFECTIVE ACTION OF URINARY ANTISEPTICS

An accurate knowledge of the exact pharmacologic behavior of the drugs employed is a fundamental requisite of the best type of therapeutics. A considerable number of drugs are given as urinary antiseptics by way of the mouth. The urine is an excellent nutrient medium for microorganisms when once they are established therein; but further than this, its reaction is variable through a considerable range of mild acidity to distinct alkalinity, so that the effect of any chemical compound therein may be modified from time to time by the prevailing reaction of the secretion. The usefulness of hexamethylenamin, sold under a variety of trade names, as a urinary antiseptic is established by the consensus of a wide clinical use. The theory of its action centers in the liberation of formaldehyd from the compound on treatment with acid. The object in giving hexamethylenamin is to administer formaldehyd.

Dr. Jordan¹ has reported experiments in England which bear on this question. He observed the growth of familiar bacteria in urine in which the reaction was experimentally modified. The degree of acidity of the urine is an all-important factor in the efficiency of urinary antiseptics. The antiseptic power does not pertain to urines of low acidity or to those which are alkaline. If a urine is normal or infected with an organism which does not produce alkaline fermentation, it can readily be made more acid by giving acid sodium phosphate, until the amount of formaldehyd produced from the hexamethylenamin in conjunction with this reaction is sufficient to inhibit completely the growth of any organism in the urine.

Unfortunately only a limited number of the conditions in which it is desired to accomplish such antiseptics are attended by the excretion of acid urines. Ammoniacal urines may prevail, as in cystitis. Investigation of other drugs which are mildly antiseptic, notably salicylic acid, the benzoates and sandalwood oil, indicates that the last alone promises successful application in those cases in which they are most needed, namely, with an alkaline urine. The chief treatment of

such cases must probably for the present consist of local measures, with the possible employment of sandalwood oil by the mouth. For the benefit of our pharmacologic colleagues we may repeat one statement by Jordan: that the discovery of a substance which would, in alkaline urine, exert something approaching the antiseptic power of hexamethylenamin in acid urine would be an immense advance in therapeutics.

THE LAXATIVE ACTION OF EPSOM SALTS

It is a strange and striking fact in medical practice that some of our most widely used drugs and remedies having a long history of therapeutic usefulness have been surprisingly slow to receive an adequate explanation of their mode of action. This is especially true of such familiar agents as the purgatives and laxatives which form a part of the daily routine of treatment of every practitioner. With regard to the saline laxatives such as Epsom salts (magnesium sulphate) and Glauber's salts (sodium sulphate) the current theory of their efficacy rests on the assumption of their poor absorption from the alimentary canal. Inasmuch as salt solutions within the bowel tend to approach the molecular concentration of the blood-plasma, the presence within its lumen of salts which are absorbable with difficulty will tend to cause a retention of water along with them until the solution approaches a condition of isotonicity with the blood. Thus it happens that the contents of the large intestine become distinctly watery and stools of semifluid consistency ensue. The speedy emptying of the bowel is accordingly explained by the presence of an abundant partly liquid content therein.

Some years ago, however, J. B. MacCallum¹ ventured to revive a distinctly different explanation based on the supposed stimulating effect exerted on the peristaltic functions of the intestine by the saline cathartics. According to the one view the emptying of the bowel is associated with its distention by bulky semiliquid contents; the other theory postulates an irritant action of a salt like magnesium sulphate, for example, initiating increased movements through impulses to the motor elements.

These conflicting views have been contrasted repeatedly in recent literature.² The technic applied to solve the problem has been varied by the different investigators. Direct observations on the exposed intestine, x-ray examinations and experiments with excised loops of intestine have all contributed their evidence in the matter. The latest report, by De Heer, at the Pharmacologic Institute at Utrecht from which the excellent studies of Magnus have come, speaks against any specific stimulating effect of magnesium sulphate on intes-

1. MacCallum, J. B.: The Mechanism of the Physiologic Action of Cathartics, Univ. California Publications, Physiology, 1904, iii.

2. Meltzer, S. J., and Auer, J.: Physiologic and Pharmacologic Studies of Magnesium Salts, Am. Jour. Physiol., 1906, xvii, 313. Tyrode, M. V.: The Mode of Action of Some Purgative Salts, Arch. internat. de Pharmacodyn. et de Thérap., 1910, xx, Nos. 3-4.

1. Jordan, A. R.: Urinary Antiseptics: An Experimental Investigation, Proc. Roy. Soc. Med., 1911, v, No. 2.

tinal movement. The muscular response of isolated stretches of intestine suspended in solutions of various salts, including the cathartic Epsom salts, showed no preponderant influence of the magnesium sulphate over that of sodium chlorid of comparable concentration, in so far as muscular movement was concerned. The unique laxative property of certain of the salts presumably cannot be explained on the basis of any exceptional effect on peristalsis. For the present, therefore, Glauber's and Epsom salts may remain in the group of the saline purgatives which owe their efficiency to the difficulty which they present to the processes of absorption.

THE PUBLIC HEALTH SERVICE PERSONNEL BILL

We have frequently called attention to the legislation pending in Congress which has for its purpose the placing of the pay of the physicians of the Public Health Service more nearly on an equality with that of the other government medical services. Recently¹ we recounted the vicissitudes which this legislation has met during the last few years, how at different times it has been passed, in one form or another, by one house of congress, always, however, to be lost in the other house, or in conference. After its passage in the House of Representatives last year, with an overwhelming majority, it was prevented from coming to a vote in the Senate, although a large majority of the latter body was favorable to it; the only objection offered was that the measure contained provisions for enlarging the functions of the service, a feature which some stated might delay the establishment of a new Department of Health (although the measure contained neither of the distinctive features of the bills introduced for the latter purpose: a service independent of any existing department and the consolidation of certain bureaus).

At the recent meeting at Atlantic City the Committee on National Legislation presented a report (adopted by the House of Delegates) endorsing the present personnel bill providing it "be enacted in a form not calculated to prevent or delay the proper coordination and the independence of the public health work of the national government."

Notwithstanding the practical unanimity of opinion both in Congress and out of it, not only as to the justice but as to the necessity of this legislation—provided our only distinctly national public health service is to be maintained at its present degree of efficiency—difficulties are still being placed in the way of its passage. As was stated a few weeks ago the measure (S. 2117) has for the third time unanimously passed the Senate. It was brought up in the House of Representatives a short time ago under the "unanimous consent rule"; and the only objection raised to its passage was in relation to function. Messrs. Foster and Mann insisting that the bill should contain the same provisions for enlarging the

functions of the service as were contained in the Mann bill, which passed the House last year—the very feature which caused the failure of the measure in the Senate.

Thus between those in the House who oppose increased pay without increased function, and those in the Senate who oppose increased pay with the only form of increased function which Congress has shown a willingness to grant, the Public Health and Marine-Hospital Service, with its splendid possibilities for further development, is being seriously hampered in carrying on its work—a work which is of most vital importance to the people of the whole country, and of which those who are interested in the nation's health may well feel proud.

THE BACTERIAL CONTAMINATION OF BREAD

For a practically universal article of diet, bread seems to have received little attention from bacteriologists. Usually handled by several persons, often exposed to flies and street dust, sometimes tossed about under very uncleanly conditions, baker's bread is obviously liable to pick up dangerous bacterial contamination. If it is handled by a typhoid carrier it is possible for typhoid bacilli to be smeared on the outside of the loaf, and since bread as a rule is eaten without heating and very soon after it reaches the consumer, it may readily be the means of conveying infection.

Lumsden¹ in fact has traced cases of typhoid fever in the Government Hospital for the Insane at Washington, D. C., to the handling of bread by an attendant who had been caring for a typhoid patient at his home. Hinton² has recently described a similar occurrence in the Elgin State Hospital where seven cases of typhoid fever developed within a few months. These were all in patients using the general dining-room for females. On investigation it was found that a female attendant whose duty it was to slice all the bread used in this dining-room had had typhoid fever three years previously and was a carrier, discharging typhoid bacilli in the urine. On December 20 this attendant was transferred to another department where she did not handle uncooked food, and no further cases of typhoid fever occurred.

It is rarely possible to determine with such precision as in the cases cited the articles of uncooked food that probably served as the vehicle of infection, and we can hardly doubt that contaminated bread is responsible for scattered cases of typhoid more frequently than is recognized. For obvious reasons evidence is more difficult to secure than in the case of milk and water. It is worth noting that Kayser³ in his observations on the occupational incidence of typhoid fever in Strasburg found a particularly high typhoid mortality among bakers, possibly due to their exposure to milk infection.

1. Lumsden: Bull. 78, Hyg. Lab. U. S. P. H. and M.-H. S., p. 165.

2. Hinton: Institution Quarterly, 1912, iii, 18.

3. Kayser: Münch. med. Wochenschr., 1909, lvi, 1066.

In view of such observations as those cited, a recent paper on the bacterial contamination of bread⁴ is a timely contribution. The writer shows that under some conditions the bacterial smearing of loaves of bread may be very considerable, reaching, in the case of unwrapped loaves kept under uncleanly conditions, hundreds of thousands of germs. Out of a hundred loaves purchased from as many different shops in the city of Chicago, 14 per cent. were each coated with more than ten thousand bacteria. As might be expected, loaves obtained from clean shops, where all the surroundings are favorable, have not nearly so many germs clinging to them as loaves kept under generally dirty conditions. The difference between the bacterial coating of wrapped and unwrapped bread is particularly suggestive. In no case did the bacterial contamination of wrapped bread reach a high figure. None was smeared with as many as ten thousand bacteria and 85 per cent. had less than a thousand. On the other hand, more than half of the unwrapped loaves (62 per cent.) were coated with over a thousand bacteria. Eleven wrapped loaves obtained from clean shops bore on the average only 371 bacteria each.

It is said to be difficult to obtain a sale for wrapped loaves in certain city districts, where the prospective purchasers insist on testing the quality of the bread by pinching the loaf with thumb and finger! In the article referred to it is shown that seventeen out of eighty unwrapped loaves yielded gas-producing bacilli, typical *B. coli* being present in three cases, while in twenty wrapped samples no gas-producing organisms were found. Unpleasant possibilities are suggested by such findings. Is it not worth while to take some pains to prevent the contamination of bread with intestinal bacteria?

MEDICAL EDUCATION IN EUROPE

The Carnegie Foundation for the Advancement of Teaching has just issued its second bulletin on medical education,¹ this time dealing with conditions found in Europe. This report, similar to the one issued two years ago, is based on investigations made by Mr. Abraham Flexner for the foundation. The report confirms the statements made by the Council on Medical Education four years ago,² that the medical schools in this country are backward not only in the matter of preliminary education but also in the length of the medical course. It also supports the Council's statement that this is the only civilized country which does not require of every medical student a preliminary education in physics, chemistry and biology either prior to or at the beginning of the medical course.

In the introduction to the report, President Pritchett emphasizes several facts which are of extreme impor-

tance. In the first place, no other country was found to have conditions so bad as those found in the United States, or as President Pritchett expresses it, "scandals in medical education exist in America alone." Again, "no medical school that lacks proper facilities has any other motive than the selfish advantage of those that carry it on; and no civilized country except America at this day allows such enterprises to impose on the public." Another point which is distinctly brought out in this report is the close relationship existing between the hospitals of Europe and the medical schools—a marked contrast to conditions in America. Well-trained young physicians in Germany find no difficulty in attaching themselves to the retinue of hospital staff physicians and surgeons and thus procuring for themselves active, scientific work, while in America this is practically impossible. In support of a statement so frequently repeated of late by those striving for higher educational standards in this country, President Pritchett says that no hospital can suffer by giving teaching privileges to a rightly conducted university medical school. The report shows that in Europe the trustees of hospitals freely open their wards to students and that the hospitals realize that such relationship is advantageous not only to medical science but also to the patients in the hospitals.

The report again furnishes a definite reply to the worn-out argument that cheap schools are needed to furnish doctors for sparsely settled districts of the country. It is stated that no physician, whether he be poorly equipped or well equipped, will seek a location where a livelihood cannot be gained. On the other hand, it was shown that well-educated physicians will often prefer the sparsely settled districts if the means of a livelihood are to be obtained there. In other words, the experience of Germany shows that the distribution of physicians does not depend on a low standard of education. The report brings out the fact also that sectarian medicine is practically unknown in Europe and that this is the only country in which educational institutions professing to teach sectarian medicine are to be found.

President Pritchett concludes his introduction to the report with the plea not only for the giving of larger sums to medical education in this country but also for the use of a proper discrimination in such giving. He shows that the problem in America will be more quickly solved if donations are given to the medical schools which deserve to exist and not to the undeserving. In contrast with conditions in this country, it is shown that in Germany all medical schools are supported by the government, with the result that in that country medical training, medical laboratories and teaching facilities in all the medical schools are on a uniformly high plane.

The report has apparently been widely circulated and already much attention has been given to it by the newspapers of the country. This is as it should be. Although there are those who deplore the publicity being given to the shortcomings of medical education in this country,

4. Howell, Katharine: Am. Jour. Pub. Health, 1912, ii, 321.

1. Flexner, Abraham: Medical Education in Europe, Bull. No. 6, Carnegie Foundation, 576 Fifth Avenue, New York.

2. American Medical Association Bulletin, May 15, 1908, p. 234; THE JOURNAL A. M. A., Aug. 20, 1910, p. 680.

nevertheless it is that very publicity which will the sooner bring about a removal of the disgrace and the establishment of better conditions.

This report on medical education abroad comes at a very opportune time. We are already in the midst of a rapid development of medical education and this report, based on the investigation of European medical schools, made at first hand, will be a great help in the solution of many of our problems. Although, by contrast with medical education abroad, many defects are seen in conditions in this country, the many improvements already brought about leave no ground for discouragement. It must not be forgotten that although the determined movement for better medical education in this country began only about eight years ago, astonishing progress has been made since that time. Our vast oversupply of inferior medical schools is rapidly being reduced. Where there were 166 medical schools in the United States in 1904 — nearly half of the world's supply — now there are only 118. On the other hand, the number of colleges which have high standards for admission and which are equipped to do good work is rapidly increasing. Instead of only three in 1904 there are now forty-six which are requiring one or more years of collegiate work for admission. Again, state licensing boards are rapidly improving their standards and strengthening their examinations, which is helping to solve the problem. From present indications, therefore, it will need only a few more years to bring the majority of our medical schools both in their requirements of preliminary education and in the quality of their teaching up to a point that will compare quite favorably with the standards upheld in other civilized countries.

KEEPING TRACK OF COMMUNICABLE DISEASES

At the tenth annual conference of the state and territorial health authorities with the Public Health and Marine-Hospital Service recently held in Washington, a resolution¹ was adopted which, if carried out, should become an important factor in the future development of public health work in the United States. The object of the action taken is to develop a plan by which the state health authorities can keep currently informed of the prevalence and geographic distribution of communicable diseases throughout the country as a whole, and by which they can also be promptly notified of the occurrence of epidemics in states other than their own. In these days of rapid transit in which the railroad has made as close neighbors of the Atlantic and Pacific coast states as were New York and Pennsylvania a century ago, every state should for its proper protection have knowledge of the sanitary conditions in other states, and as to the communicable diseases every state is certainly entitled to full information regarding their prevalence in every other state.

1. The resolution, together with other action of the conference, will be found in *Pub. Health Rep.*, June 7, 1912, p. 895

The resolution asks the health departments of the several states to report by telegraph to the Public Health Service whenever cases of cholera, yellow fever, typhus fever, plague or Rocky Mountain spotted or tick fever occur within their respective jurisdictions. The Service is then to notify all the states of the occurrence of such cases and where necessary measures can be taken to control the disease and prevent its spread into uninfected territory. The health departments are also asked to make a monthly report of all the diseases that are notifiable in their respective states. These will be published in the *Public Health Reports* and in this manner reach all health authorities without delay. The effect will be that the health departments of the states will make the Public Health Service Bureau through the medium of the *Public Health Reports* a clearing-house for current information of the prevalence of the communicable diseases. The advantage of such a plan is apparent when it is considered that by far the larger part of public health work consists in the control of these diseases, and that the first essential for the control or prevention of any disease is a knowledge of where and how frequently it occurs.

At the present time there are, unfortunately, a considerable number of states that will be unable to furnish the reports above outlined, either because the diseases are not notifiable within these states, or because the laws and regulations regarding their notification are not enforced. It may properly be assumed, however, that the advantages to be gained by the carrying on of this work, as well as the futility of attempting to do public health work without a knowledge of the distribution and prevalence of disease, will be so evident that all states not now so provided will make the necessary effort to secure the notification of at least the more common communicable diseases.

While the action taken by the conference is with a view to the necessity to state health authorities of information regarding the occurrence of disease in territory associated geographically or by intercourse, such information must have its source in the notification of cases locally by the practicing physician. To the local health officer having immediate jurisdiction, these reports are a *sine qua non* to efficient work, and practicing physicians for this reason are an essential factor in preventive medicine and necessarily constitute the picket-line from which the community, the state and the nation must receive their information regarding the occurrence of disease.

Current Comment

POPULAR PAMPHLETS ON HEALTH TOPICS

The necessity of giving people information on the questions relating to health and prevention of disease has evidently been accepted by the various organizations working for the public good. The practical and concrete

character of most of the material for public distribution is noticeable and commendable. Two excellent examples have recently been issued. One, "What Children Should Eat," is issued in the cause of child welfare. It is an attractively arranged and well-printed little pamphlet of twenty-four pages, containing information for the mother or nurse on "Why Children Should Eat," "How Children Should Eat," "What Children Should Eat," "What Children Should Not Eat," "When Children Should Eat" and "How Much Children Should Eat." It also contains chapters on "How to Choose Food for Children," "How to Prepare Food for Children," "How to Prepare Food for Illness," "What Food Children Should Eat When Ill," "What Food is Needed in Special Diseases," etc. The paragraphs are short and concise and the directions are easily understood. Another is an artistic pamphlet entitled "The Child," printed and distributed by the Metropolitan Life-Insurance Company for the use of its policy-holders. It contains chapters on "The Home," "Preparing for the Baby," "The Baby Up to One Year," "The Run-About Baby," "The Child of School Age," "The Sick Child" and a final chapter on "Emergencies." The preparation and distribution of these two pamphlets, and of similar educational material is most commendable. The present tendency toward wider knowledge on health matters cannot fail to produce a marked effect in a few years.

AN APPROPRIATE APPELLATION SUGGESTED

This suggestion comes from the *Oregonian* of Portland, Ore.: "A marked copy of *Medical Freedom* which has been received at this office seems to justify the rumor that the cause it stands for is financed by quack doctors and patent-medicine fakers. The 'League for Medical Freedom' opposes the establishment of a national board of health. It fights vaccination. Some of its leaders oppose antiseptic surgery. In view of these facts, we suggest a slight change to make its name more consonant with its objects. Why not call it the 'League for the Propagation of Death?'"

PULLING TOGETHER IN KANSAS

The Kansas State Board of Health and the College of Medicine of the University of Kansas held a summer school at the university, from June 10 to 15, for physicians and health officers. The program for the first day included demonstrations in the technic of water examination, lectures on water-borne diseases, sources of water supply and water purification. The second day's program contained a two-hour period on laboratory diagnosis of epidemic meningitis followed by lectures and demonstrations. The third day was devoted to a study of disinfection, ventilation and drug adulterations, and the fourth to laboratory technic on food adulteration and antitoxins, serums and vaccines. Saturday was given up entirely to clinics. The time allowed for this work permitted only the most general instruction, but even this is of value. Kansas has set a splendid example to her sister states in close cooperation between the state health authorities and the state university. The day has passed for standing aloof or for arguments over

jurisdiction and authority. The spirit of the times is that of cooperation and mutual helpfulness. All the state agencies should work for the common good, and there is no work of greater importance than that for public health. If our state boards of health, state medical societies, state universities and educational institutions everywhere could be induced to cooperate in the education of the public in sanitary matters, the results would redound to the credit of all concerned and would be especially marked in improved health conditions.

POLISHED RICE, BERIBERI AND THE NERVOUS SYSTEM

Some time ago we referred to the interesting experimental production of polyneuritis in pigeons by feeding them a diet largely composed of polished rice; and we compared this condition to the problems associated with the etiology of beriberi in man. The small amount of substance derived from the polishings which is sufficient to cure affected animals has suggested that the effective material may act as a hormone.¹ On the other hand, the severity of nervous symptoms in beriberi and the increased excretion of both nitrogen and phosphorus in the urine of beriberi patients have made it seem probable that the symptoms may be due to a destruction of lipoids in the body, especially in the nervous tissues, which are particularly rich in phosphorized nitrogenous compounds. Dr. Casimir Funk of the Lister Institute of Preventive Medicine in London has lately concluded that there may be some breakdown of the lipid substances in the brain. The analysis of brains of birds subjected to a diet of polished rice shows a sensible diminution from the normal of nitrogen and phosphorus content,² perhaps due to the lack of a substance essential for the normal metabolism of the nervous tissues. The lipoids of the medullary sheath within and without the central nervous system are more or less disintegrated. Underfeeding alone does not produce these consequences. It is interesting to know that cures could be effected, not only by the use of rice-polishings, but also by lipid fractions from milk or yeast and by lime-juice. These facts at once suggest other related therapeutic questions.

THE PROVISIONAL PROGRAM OF THE CONGRESS ON HYGIENE AND DEMOGRAPHY

The provisional program of the coming International Congress on Hygiene and Demography to convene in Washington next September, recently issued, is a pamphlet of 100 pages, printed in French, English and German, and contains, in addition to the program of papers and addresses, a list of the officers and the committees of the various states and countries. The program in the two divisions of hygiene and demography contains papers by distinguished men from all parts of the world, covering in a most comprehensive way the progress of these two departments of sanitary science. In the few days in which the congress is to continue, of course it would be impossible for any individual to hear

1. Schaumann: Tr. Soc. Trop. Med., 1911, v, 59.

2. Funk, C.: The Effect of a Diet of Polished Rice on the Nitrogen and Phosphorus of the Brain, Jour. Physiol., 1912, xlv, 50.

more than a small fraction of the papers, addresses and discussions; but the printed transactions of the congress will constitute a most comprehensive and valuable source of information concerning all aspects of domestic, municipal and national sanitation. Hence these transactions will be well worth the cost of membership—five dollars. Occurring at the seat of our government, the proceedings of the congress may open the eyes of some of the benighted congressmen who oppose the establishment of a national department of public health. With the eyes of the world focused on this meeting, these men may realize the tremendous importance of national and international health questions and the necessity of establishing adequate administrative machinery for carrying out the measures which sanitary science has determined are absolutely necessary for the improvement and preservation of public health.

EXAGGERATED REPORTS OF MULTIPLE BIRTHS

Ocasional newspaper reports of the birth of triplets or even of quadruplets attract a great deal of attention. In many cases the reports are exaggerated or wholly untrue. Recently a paper in Indiana reported the birth of a quintette of children to a farmer's wife, 30 years old. It was stated that the children were perfectly formed and that the mother had two years previously given birth to triplets. The family in question was greatly annoyed by the receipt of numerous inquiries and letters from curious people concerning the unusual occurrence. Inquiry made by us of a local physician proved that no such multiple birth had occurred. Such cases, if authenticated, would be of considerable medical interest; but investigation usually proves the reports to be without foundation.

TWO PICTURES—A CONTRAST

In the news columns of *THE JOURNAL*, June 15, appeared an item regarding health conditions in Guayaquil, Ecuador, which has acquired the unenviable title of "the pesthole of the Pacific." According to the Public Health Reports for June 7, in the five months from Jan. 1, 1912, to June 1, 1912, Guayaquil has had 147 cases of yellow fever and 124 cases of bubonic plague. A recent number of a local medical journal contains a report by the physician in charge of the isolation hospital, of 300 yellow fever patients whom he has recently attended. On the day the above item appeared in *THE JOURNAL*, the report of the Department of Sanitation of the Isthmian Canal Commission for April, 1912, was received. This report shows that during April among 12,824 white employees, there were four deaths from disease and five from accident: that there were on the Canal Zone in April, 11,846 American men, women and children; that only two deaths occurred in April among this entire number, one a man of 60, who was killed by a machine accident, and one an infant of 6 months, who died of malarial fever. This is equivalent to a total annual death-rate, for nearly 12,000 people, of only 2.02 per thousand, or a total disease death-rate of only 1.01 per thousand. The report closes with the stereotyped sentence which has been repeated so often that its presence is hardly noted: "No cases of

yellow fever, small-pox or plague reported on or were brought to the Isthmus during the month." What is the difference between the "pesthole of the Pacific," with its 147 cases of yellow fever and 124 cases of bubonic plague in five months, and the Canal Zone, with only a single death from disease among nearly 12,000 persons in a month? In Guayaquil, as in most cities, epidemics are regarded as unavoidable and disease as beyond the control of man. In the Canal Zone, formerly as noted for its enormous death-rate as Guayaquil is to-day, an enlightened and progressive administration is using all of the modern, scientific knowledge available for the prevention of disease and the protection of human life. In Guayaquil, medieval ignorance and death. In the Canal Zone, scientific knowledge and safety. Every American city and community can have its choice. Which one will your city take?

SIMPLER PHRASEOLOGY

It is with rejoicing that one notes the tendency toward simpler language and phraseology in recent scientific literature. It is to be regretted that some of the texts and treatises on medical and surgical subjects show a less noticeable degree of improvement than do scientific periodicals and research publications. Probably there was a time when the use of cumbersome and sonorous phrases lent a sort of dignity to medical literature, particularly in the estimation of the general public. Recently, however, many writers are acting on the theory that no need exists for borrowing dignity from so doubtful a source, and that the simpler the language, the more accurately and readily it will convey the intended meaning. Some medical authors find occasions when "cause" expresses their meaning as well as "etiological factor," and when it is as easy to have the patient "lie down" as to make him "assume a recumbent posture." We welcome the time when any work which defines a fracture as "a traumatic or pathological solution of the continuity of osseous structure," or abounds in verbiage equally atrocious, will be preserved and read only as a curiosity.

Medical News

ALABAMA

New Hospital for Antituberculosis Camp.—An eleventh cottage for white patients is in course of construction at the camp of the Montgomery Antituberculosis League. The cottage was donated by the heirs of Dr. and Mrs. Jackson, and will be known as the Jackson Memorial Cottage.

New City Hospital for Mobile.—The city council of Mobile has undertaken to renovate and enlarge the City Hospital. Three new wards will be added and the old building will be remodeled throughout. Accommodation will be provided for two hundred patients and special provisions will be made for communicable diseases and for patients suffering from acute mental and nervous diseases. The medical direction of the hospital is to be in charge of the faculty of the University of Alabama and the patients will be available for clinical teaching.

ARIZONA

New Medical Board Officers.—At the meeting for organization of the Arizona Board of Medical Examiners, Dr. Wm. A. Holt, Globe, was elected president; Dr. R. M. Tafel, Phoenix, vice-president, and Dr. John Wix Thomas, Phoenix, secretary-treasurer.

Personal.—The Pennsylvania Society of Arizona tendered a farewell reception to Dr. Ferdinand Gicler Angeny and family, Phoenix, May 25.—Dr. Ancil J. Martin, Phoenix, has been elected president and Dr. John Dennett, Jr., Phoenix, vice-president, of the Maricopa County Board of Trade.

ARKANSAS

Health of Children.—Dr. C. W. Garrison, Little Rock, director of sanitation and his field staff consisting of Drs. T. B. Bradförd, T. M. Fly and E. A. Campbell are making an effort to visit all schools in the city and confer with the health committees and teachers regarding sanitation with special reference to the establishment of sanitary toilets to prevent the spread of typhoid fever, hookworm disease, etc.—Dr. O. K. Judd, formerly city physician of Little Rock, has been appointed health officer.—Dr. Verne R. Stover, Little Rock, has been appointed superintendent of the city hospital and Drs. E. E. Hodges and A. K. Wayman have been appointed district physicians.—Dr. W. T. Lowe, Pine Bluff, has been elected vice-president of the Jefferson Anti-Tuberculosis Society.

ILLINOIS

Chicago

Rovsing in Chicago.—Prof. Dr. Thorkild Rovsing, Copenhagen, president of the Danish Surgical Society, paid a visit to Chicago on his way to Rochester, Minn., June 26, and was entertained by the local profession and the Danish-American Association.

State Takes Over Dunning.—On June 29, the Cook County Institutions, Dunning, was formally transferred from Cook County to the State of Illinois. The superintendent, Dr. Stephen R. Pietrowicz, has agreed to remain until his successor has been appointed.

INDIANA

State Districted for International Congress.—The state has been divided into five districts in order to secure exhibition and arouse interest in the International Congress of Hygiene and Demography to be held in Washington this fall. The districts have been placed in charge of the following chairmen: First district, Dr. H. H. Sutton, Aurora; second district, Dr. James Morrison, Hartsville; third district, Dr. S. Edgar Bond, Richmond; fourth district, Dr. James Boyers, Decatur, and fifth district, Dr. J. B. Berteling, South Bend.

IOWA

Des Moines Valley Physicians Meet.—At the forty-first annual meeting of the Des Moines Valley Medical Association, held in Ottumwa, June 20, the following officers were elected: president, Dr. J. N. Osborn, Des Moines; vice presidents, Drs. C. A. Henry, Farson, and E. B. Howell, Ottumwa, and secretary-treasurer, Dr. F. W. Bowles, Ottumwa (reelected).

MARYLAND

School for Feeble-Minded Opened.—The new building of the Maryland Asylum and Training School for the Feeble-Minded at Rosewood, near Owings Mills, was inspected and opened, June 28. The building is a stone edifice and one of three which have been erected at the cost of \$75,000. It contains appliances for teaching manual training, several school rooms and an assembly hall seating 500 persons.

Baltimore

Personal.—Dr. Hugh H. Young, president of the Medical and Chirurgical Faculty of Maryland and Dr. C. R. Ahroon have sailed for Europe.—Dr. Haughton Baxley is reported to be seriously ill with erysipelas.—The University of Michigan has conferred the degree of Doctor of Science on Dr. John J. Abel and that of Doctor of Laws on Dr. William H. Howell.—Dr. Joseph Bloodgood was operated on for appendicitis, June 27.—Dr. Howard A. Kelly gave a dinner, June 20, to a number who are interested in wiping out the social evil in the city. Plans were made whereby reforms are to be made in the Western Police District.

MASSACHUSETTS

Appendicitis Hospital.—A hospital devoted exclusively to the treatment of appendicitis is to be opened in Boston in October. A site has been donated on Beacon Street together with a building sufficiently large for the care of both ward and private patients.

Psychopathic Hospital Opens.—The Psychopathic Hospital, Fenwood Road, Brookline, was opened for public inspection, June 21, and received its first patients two days later. The

institution is under the charge of Dr. Henry P. Frost, superintendent of the Boston State Hospital and Dr. L. Marie Sutherland, pathologist to the State Board of Insanity, is director; and Dr. Stephen E. Vosburg is executive head of the institution. The hospital contains 102 beds and is divided into two departments, the first accommodating acute and excitable cases and cases for first observation, and the other containing two wards where border-line cases which require observation and quiet, will be treated. The primary object of the hospital is the early treatment and investigation of the insane.

MICHIGAN

Societies Approve Owen Bill.—The Oakland County Medical Society at its June meeting unanimously endorsed the provisions of the Owen bill and criticized Senator Townsend for his opposition.—Ionia County Medical Society at its meeting, June 27, adopted resolutions asking the congressman and senator from the district to endorse the Owen bill.

NEW YORK

Guard Against Tetanus Infection.—The State Department of Health has again sent out its warning against tetanus infection. It urges all health officers in the state to get a supply of tetanus antitoxin. This is furnished free. In this state during 1911 there were about 100 deaths from tetanus as the result of Fourth of July celebrations.

The Records of Matteawan.—Dr. James V. May, medical superintendent of the Matteawan State Hospital, in the last annual report of that institution, states that of twenty-six inmates who were examined for their sanity, and obtained writs of habeas corpus during the year, four were indicted for murder, seven for assault, and one for manslaughter. Several of these showed unmistakable evidences of insanity, while others had committed criminal acts since their release. Twenty-four of those released were diagnosed as unrecovered by the hospital authorities. Dr. May concludes that a determination of the mental condition of a patient by habeas corpus proceedings is highly unsatisfactory.

New York City

Suspected Cholera on Liner.—The Hamburg-American steamer *Hamburg* which arrived on June 18 from Mediterranean ports was detained at quarantine because of a death of one of the steerage passengers which the ship's surgeon believed to be due to cholera. All of the steerage passengers are being detained until cultures of specimens retained by the surgeon have been made.

Policemen to Fight Flies.—A squad of policemen are to be assigned to the Health Department to assist in making war on the fly. It is a violation of the sanitary code to leave a garbage can uncovered and the policemen are to see that this section of the code is obeyed; if it is too frequently disobeyed arrests are to be made. It is pointed out very emphatically that the cooperation of the public is desired in fighting the fly nuisance.

Guarding Against Bubonic Plague.—After a conference with Surgeon General Blue of the United States Public Health and Marine-Hospital Service and his advisory board, Dr. Joseph O'Connell, health officer of the port of New York, has issued an order compelling all vessels entering the port to show certificates that their holds have been fumigated before lading in the last port of departure for the purpose of exterminating plague infected rats and vermin. This order is to apply to vessels coming from all South American ports, Trinidad, Africa, Asia and European Turkey.

Series of Health Articles.—The Department of Health has begun the publication of a series of paper-covered books. Each book is to consider one disease and to show what the Health Department has done to lessen or abolish it. The first book is on pulmonary tuberculosis and makes a strong personal appeal demonstrating that every one has a personal interest and responsibility in this subject. The book not only gives rules for the care of those suffering from the disease, but considers the subject of prevention and brings the factor of dust and the responsibility of housekeepers to the front.

NORTH CAROLINA

New Officers of State Society.—The fifty-ninth annual meeting of the Medical Society of the State of North Carolina was held in Hendersonville, June 18-20 with more than 300 members in attendance. Governor W. W. Kitchen was present at the meeting of the public health section and addressed the association on the "Importance of Public Health." The report of the secretary-treasurer showed a membership of a little

more than 1,200 and the balance in the treasury of more than \$1,600, and the House of Delegates seemed averse to modifying a constitution under which the society has been so prosperous. A committee consisting of Drs. J. Howell Way, Waynesville, Lewis and Henry T. Balmsen, Winston-Salem, was appointed to have painted and presented to the State Library a portrait of the late Dr. P. L. Murphy, a noted alienist of the state and superintendent of the State Hospital for the Insane, Morgantown, for twenty-eight years. The entertainments of the session included a smoker, the annual banquet, automobile rides and a number of private receptions, luncheons and dinners. Morehead City was selected as the place and the third Tuesday in June as the date of meeting. The following officers were elected: president, Dr. John P. Munroe, Charlotte; vice-presidents, Drs. F. R. Harris, Henderson, E. S. Bullock, Wilmington, and L. B. Morse, Hendersonville; secretary (for 3 years), Dr. John Ferrell, Raleigh; treasurer (for 3 years), Dr. H. D. Walker, Elizabeth City; orator, Dr. H. D. Stewart, Monroe; essayist, Dr. John T. Buerns, High Point; delegates to the American Medical Association, Drs. J. Howell Way, Waynesville, Hubert G. Royster, Raleigh, and alternates, Drs. W. L. Dunn, Asheville and R. D. Jones, Newbern.

OHIO

Tuberculosis Hospital Approved.—Formal approval has been given by the State Board of Charities and the State Board of Health for the erection of a bi-county tuberculosis hospital for Montgomery and Preble counties, near Dayton. The site is to cost \$8,750 and the cost of the buildings will probably be about \$100,000.

New Hospital Opened.—The Samaritan Hospital, Ashland, which was given to the county by J. L. Clark of that city, was formally presented to the county, May 28. The building is three stories high and on the first floor are six private rooms for patients, two wards, six private rooms, a children's department and a maternity ward on the second floor. The third floor is chiefly devoted to living rooms for nurses.

PENNSYLVANIA

Hospital Addition Completed.—The addition to the Bloomsburg Hospital is now completed and ready for occupancy, and patients have been moved from the old into the new building.

Hydro-Therapy Buildings to be Erected.—The trustees of the State Hospital for the Insane, Norristown, have planned two hydro-therapy buildings which will cost \$10,000 and an administration building to cost \$20,000.

Dr. Donaldson Dead.—Notice has been received of the death, on June 29, of Dr. John Boyce Donaldson, Canonsburg, late president of the Medical Society of the State of Pennsylvania; for many years secretary of the Washington County Medical Society; prominent in the work of medical organization in the state, and editor of the pioneer county medical society bulletin, the *Medical Program of the Medical Organization of Washington County, Pa.* A more complete obituary notice will appear in THE JOURNAL, July 13.

Philadelphia

Personal.—Dr. Charles A. O'Reilly will sail for Europe, July 9.—Dr. James M. Anders was slightly injured in a collision between his automobile and a trolley car near the Jewish Hospital, June 23.—Dr. Abraham Bowker, physician at the Moyamensing prison, was painfully injured by one of the pedals of his motorcycle, June 23, and was obliged to go to St. Agnes Hospital for treatment.

Women's Medical Alumnae Meeting.—The annual two days session of the Alumnae Association of the Women's Medical College of Pennsylvania was held in the college buildings, May 31 and June 1. Dr. Eleanor C. Jones was reelected president for the ensuing year; \$12,000 was pledged for the endowment fund. A fellowship of \$500 was given to Dr. Berta M. Meine for research work in pathology, the amount being raised during the past session of college.

Ship Brought Small-Pox.—The health bureau has been tracing immigrant passengers who came here on the steamship *Haverford*, June 4, with a view to preventing the spread of small-pox, brought to this port by the liner. Seven cases have been traced to the *Haverford*, all of them in widely separated parts of the city. On June 20, 1,900 persons were vaccinated in a residential and factory district in the northwest section. Discovery of a case at the Falls of Schuylkill led to the vaccination of 2,300 people and to the quarantining of eight blocks on June 21; twenty-eight families in Wissinoming were quarantined. Every person who arrived on the *Haverford* will be kept under observation by the medical inspectors.

RHODE ISLAND

State Society Meeting.—The one-hundredth annual meeting of the Rhode Island Medical Society was held in Providence, June 12-13, under the presidency of Dr. F. T. Rogers, Providence. After the dedicatory exercises of the Rhode Island Medical Library, the new quarters of the society, which has been described in another part of this issue, a reception to invited guests was held. On the second day the following officers were elected: president, Dr. Alexander B. Briggs, Ashaway; vice-presidents, Drs. John W. Keefe, Providence and Stephen A. Welch; secretary, Dr. Jay Perkins, Providence; treasurer, Dr. Winthrop A. Risk, Providence, and curator, Dr. W. J. McCow, Providence. The Cable Fiske prize of \$250 was given to Dr. Allen G. Rice for his essay on "Medical Inspection of Schools." A \$1,500 fund donated by Ruth Ely and Dr. F. Ely in memory of the late Dr. J. W. C. Ely, was accepted with a vote of thanks. It will be designated as the J. W. C. Ely fund and will be used for the purchase of medical periodicals for the library. The entertainments for the delegates and guests included an outing at Rocky Point, a yacht trip on June 12 with a shore dinner, a luncheon to the visiting ladies on the second day and the annual banquet on the society in the evening, over which Dr. John Champlin presided as toastmaster and at which addresses were made by S. H. Davis, Esq., on "Expert Testimony," Rev. Willard Scott on "Pills," and Hon. George H. Utter on "The Owen Bill."

TENNESSEE

Honor Dr. Witherspoon.—The Academy of Medicine and the Board of Trade of Nashville gave a dinner in honor of Dr. John A. Witherspoon, president-elect of the American Medical Association, at the Hotel Hermitage, Nashville, July 3.

Medical Board Officers Reelected.—The annual meeting of the State Board of Medical Examiners at Nashville, June 5. Dr. E. E. Hunter, Elizabethtown, was reelected president; Dr. W. H. Halbert, Nashville, vice-president, and Dr. C. A. Abernathy, Pulaski, secretary-treasurer.

TEXAS

Tuberculosis Colony Opened.—The State Tuberculosis Sanatorium and Colony, Carlsbad, which have been established at a cost of \$70,000, were formally dedicated, June 27.

Personal.—Dr. Samuel Webb, Waco, has been appointed assistant chief surgeon of the Missouri, Kansas and Texas railroad in charge of all patients in the state. He will probably have his headquarters at Dallas.—Dr. J. H. Traylor has been appointed health officer of Cuero.—Dr. Ray McCombs, Pearsall, was seriously injured in an automobile accident near Hempstead, N. Y., June 20.—Dr. John S. Turner, Dallas, the newly-elected president of the State Medical Society of Texas, was the guest of honor at a banquet in Dallas, June 14.—Dr. T. K. Proctor, San Angelo, has been appointed secretary of the Fourth District Medical Association, vice Dr. J. E. Robinson, removed from jurisdiction.—Dr. R. J. Gauldin, Dallas, has gone abroad.—Dr. J. R. Smith, Mundy, was attacked by a tenant with a knife, June 6, and seriously injured.—Dr. Charles M. Hendricks, El Paso, has returned from Europe.—Dr. Bascom Lynn, San Angelo, has been appointed superintendent of the State Tuberculosis Sanatorium and Colony, Carlsbad.—Dr. J. H. Reuss, Cuero, has been appointed medical director of the San Angelo and Aransas Pass, vice Dr. Amos Groves, deceased.

GENERAL

Knapp Testimonial Fund.—The bound transactions of the Section on Ophthalmology and the Ophthalmic Year-Book are to be furnished to all contributors of \$5 or more to the Knapp Testimonial Fund, as set forth in the minutes of the Section printed in THE JOURNAL June 22, page 1998. Dr. A. E. Bulson, Jr., Fort Wayne, Ind., treasurer of the fund, desires that all subscriptions be in before Aug. 1, 1912.

American Heads Leper Republic.—The first president of the first leper republic in the world is an American named Michael Whallen, who is said to be the only American leper on the island of Culion, P. I., and, who, on June 18, was elected chief executive of the republic which the government has organized to manage the affairs of the colony.

Booklet on the Home of the Association.—The description of the new building of the American Medical Association, which was published in THE JOURNAL some months ago with illustrations, has been issued in handsome pamphlet form. Copies of this can be had by visitors at the Association building, or a copy will be sent to any member or subscriber on a written request. Ask for "The Home of the Association."

The Plague Situation in Porto Rico.—Surgeon Grubbs, U. S. P. H. & M.-H. Service, on duty at San Juan, Porto Rico, reports regarding the plague situation that rat examinations indicate that a mile of the water front is infected. Measures are being taken to limit the infection to the island of the old city. The worst houses of the infected area are being destroyed after first being surrounded by a wire fence. Systematic catching and laboratory work of rats and daily house inspections are being carried on. Observation and detention camps have been provided. Three deaths have occurred in the suburbs and Dr. Grubbs advises the catching and detention of rats there.

FOREIGN

Honors for Professor Dor.—The friends, the pupils and ophthalmologists of many countries united recently in celebrating the seventy-seventh birthday of Professor Henri Dor, by presenting him with a portrait medal. The reverse of the medal typifies Dor's life-work; as it represents Science pushing back the clouds that the light can fall on the child beside it. The background shows Dor's home on the banks of the Rhone at Lyons where he has been professor of ophthalmology since 1876. He was a pupil of both Graefe and Donders, and founded thirty years ago the *Revue Générale d'Ophthalmologie*. He is at home in seven or eight living languages and several dead ones, but, despairing of acquiring all the five hundred European dialects, compromised recently on Esperanto which he soon mastered and was elected president of the Esperanto federation, two of the addresses being made in the new language.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, June 15, 1912.

\$10,000 Damages for Libel Obtained Against the British Medical Journal and Dr. Bashford, Director of the Imperial Cancer Research

Surprise and indignation are generally felt in the profession at a verdict for \$10,000 damages against the British Medical Association and Dr. E. F. Bashford, Director of the Imperial Cancer Research Fund Laboratories. The action was brought by Dr. Robert Bell, formerly physician of the Woman's Hospital, Glasgow, who has abandoned orthodox practice in regard to cancer, and by his writing, has come prominently before the public as an exponent of views on the pathology and treatment of cancer which cannot be taken seriously. His theory is that cancer is essentially a disease of the blood and is due to impurities in it which are the result of the ordinary diet, and particularly of cooked food. He asserts that by a diet consisting of cheese, milk, uncooked vegetables, nuts, etc., by securing an evacuation of the bowels once a day and plenty of fresh air the disease may be prevented and that, but with less success, it may be treated by the same means. In the *British Medical Journal*, May 27, 1911, appeared an article headed "Cancer, Credulity and Quackery," by Dr. E. F. Bashford. He stated that there was an astonishing amount of credulity on the part of the public toward cancer cures and, what is much more serious, "A few members of the medical profession screen or countenance the rankest forms of quackery. To-day, in London and elsewhere throughout the country, members of the profession, practicing as cancer curers, knowingly and deliberately trade on the anxieties and credulity of the public." He then went on to quote from a lecture delivered by Sir Spencer Wells in 1857, two stories of cancer quacks, one of whom killed his patient by destroying the coats of a large artery with caustic, while the other was so ignorant that he did not know the signs of life and was found applying a poultice to the breast of a dead woman. He quoted from a booklet by Dr. Bell the following: "Consider the various effects of a contaminated blood-stream on the epithelial cell, the culminating point of the pollution resulting in cancer. It is of no more avail to excise the local manifestation of blood contamination which cancer undoubtedly is than to cut out a piece of dry rot in a ham without adopting means to remove the cause of the mischief." "This," commented Dr. Bashford, "is avowedly intended to divert the cancer sufferer from the assistance of surgery." He went on to describe Dr. Bell as the modern representative of the quacks described by Sir Spencer Wells. In an editorial in the same number of the *British Medical Journal*, entitled "Quackery and the Medical Profession," Dr. Bashford's paper is described as "the most damning exposure of the vilest and most cruel form of quackery that has appeared since Spencer Wells' 'Cancer and Cancer-Curers.'" For the plaintiff, several doctors of no eminence whatever, who

held similar erratic and unfounded views, were called. For the defense Sir Felix Semon, who has had a large experience in operating for cancer, was called. He had operated in twenty-five cases of cancer of the larynx in which the diagnosis was proved beyond doubt by examination of the tissues. Eighty per cent. were successful. Cancer was certainly not a primary blood-disease. Dr. Bashford gave evidence that he was appointed director of the Imperial Cancer Institute in 1902. The object was to search for a cure of cancer without the use of the knife. The theory that cancer was a disease of the blood used to be held but had been abandoned since 1880. It was disproved by the enormous improvement from excision and investigation of the minute areas in which cancer arose. Dr. Lazarus Barlow, director of the Cancer Research Laboratories at the Middlesex Hospital, and Sir Alfred Pearce Gould, deposed that the only cure for cancer was operation. Dr. Bullock, pathologist to the London Hospital, and Dr. Boycott, of Guy's Hospital, gave evidence as to the untenability of the plaintiff's views. The Lord Chief Justice in summing up said that it had been argued that Dr. Bashford was honest in criticisms, but that that was not the sole question. If he had described Dr. Bell's action as quackery, and the jury decided that it was not fair comment, although he believed what he wrote, it was a libel. "It would be a lamentable thing if any attempt or research to find a cure for this scourge should be checked by unjust criticism and comment." The jury quickly gave the verdict stated above. It is evident that the judge and jury did not properly grasp the issue and regarded the plaintiff as simply the exponent of views unpopular with the majority of the profession which possibly might some day be proved correct. This was partly due to the difficulty of presenting the question properly to the lay mind and partly to defective presentation.

Conviction of Cruelty Against a Parent for Declining to Submit His Child to Operation

A very unusual case has occurred in which a man was convicted of cruelty for declining to allow his child to undergo operation. A girl, aged 5, the daughter of a quarryman in Northamptonshire, was noticed at school to be unable to articulate. The school medical officer found that she was suffering from cleft palate and recommended an operation. He urged the father to allow this, but the latter persistently refused. The matter was brought before the Society for the Prevention of Cruelty to Children, who prosecuted the man with a view to testing the legality of his refusal and procuring surgical treatment for the child. The father was convicted. This appears to be the first case in this country in which a parent has been convicted for refusing to allow an operation on his child. As a general rule, when the question of operation on a child arises a father has the undisputed right of declining.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, June 14, 1912.

Three New Professors at the Paris Medical School

For the clinic of urinary diseases at the Faculté de médecine de Paris, to succeed the late Professor Albarran, Dr. Leguen, *agrégé* at the school and surgeon of the hospitals, was chosen. Dr. Leguen has written numerous articles on general surgery, on diseases of the kidney, the bladder, etc., and, in 1910, published a treatise of surgical urology. For the chair of external pathology, in place of the late Professor Lannelongue, Dr. Lejars, *agrégé* at the Faculté and surgeon of the hospitals, was selected. Dr. Lejars is the author of a notable treatise on emergency surgery, which has been translated into many foreign languages and has made his name known to the scientific world. For the chair of medical chemistry, to succeed Prof. Armand Gautier, who has reached the age limit, the choice fell on Dr. Desgrez, *agrégé* at the school, and for many years a co-worker with his instructors, Professors Bouchard and Armand Gautier.

The MacLaughlin Electric Belt

On March 3, 1910, the court for the trial of misdemeanors, called to decide on a prosecution for swindling and the illegal practice of medicine, relative to the MacLaughlin electric belt (THE JOURNAL A. M. A., March 19, 1910, p. 980) gave judgment, dismissing the charge of swindling, and, under the crimination of illegal practice, or complicity in the illegal practice of medicine, fined the prisoners, Henri Zoock, Cooley, Cooper and Drs. Jean Dumoret and Jacques Ficatier, \$100 (500 francs) each and \$200 (1,000 francs) damages for each of the

three medical *syndicats*, civil parties in the suit. The case did not stop there, but was taken before the Court of Appeals, which, after the address of the attorney-general, rendered the following judgment: Henri Zoock (by default), two years' imprisonment and a fine of 1,000 francs; Cooley and Cooper, each one year imprisonment and a fine of 1,000 francs; Drs. Jean Dumoret and Jacques Ficatier, each six months' imprisonment. The five prisoners, moreover, were fined, conjointly, the total sum of 30,000 francs damages for the medical syndicates, civil parties, and for fifty notices of the judgment in the newspapers.

Homage to Dr. Lucas-Championnière

In the surgical amphitheater of the Hôtel Dieu, on June 9, a ceremony in honor of Dr. Lucas-Championnière, who introduced surgical antisepsis in France and who was recently elected to the Academy of Sciences, was given. The ceremony was presided over by Professor Guyon. A commemorative medal, designed by Dr. Paul Richer, was presented to Dr. Lucas-Championnière. Addresses were given by M. Mesureur, Director of Public Charities, who earnestly thanked Lucas-Championnière for his forty years of hospital service, by Professor Guyon, etc.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, June 14, 1912.

Personal

Professor Lichtheim, director of the university medical clinic of Königsberg, will resign his position at the end of the summer semester on account of his age, which is now 67.

Professor Kraus, the pupil of the lately deceased Professor Bach, has been entrusted temporarily with the direction of Bach's eye clinic at Marburg.

Ehrlich on Laboratory Experiments and Clinical Trials of Drugs

At the recent annual meeting of German chemists at Freiburg this year, Ehrlich delivered an address on the discovery of new remedies and testing of them in pharmacologic laboratories. He pointed out that it is the task of chemotherapy to test a series of homologous compounds by animal experiments to determine which will accomplish a definite object, such as the destruction of parasites, and which is the most suitable among these compounds. For the transference of these experiments to man, which as a rule is beset with the greatest difficulties, the first task is to determine carefully the toxic coefficient of the medicines to be tested. If a certain by-effect occurs frequently at a few places and is not observed at others, according to his opinion, this is evidence that the injury observed does not inhere in the remedy itself, but that there must be some fault in the technique. The determination of such relations is possible only when a large number of single observations on man have been made. Ehrlich referred to salvarsan as an illustration. He discussed first the diseases in which salvarsan exerts an unquestionable curative action, and then those in which it fails, as for instance, sleeping-sickness. He expressed the hope that by the combination of several remedies—none individually curative—an effective preparation might yet be secured. A trypanosome infection of goats, for instance, is only slightly affected by arsenic preparations, but almost moribund animals are cured by a combination of trypanosan and antimonial wine. He also referred to the investigations of Professor Morgenroth, who has succeeded in finding in the quinin series substances which cure the fatal pneumococic infection of mice, and to the experiments of Wassermann in removing malignant growths in mice by chemotherapeutic means.

Prevention of Middle-Class Tuberculosis

Institutions for the cure and prevention of tuberculosis among the laboring classes are now successfully under way, and the attempt is now being made to bring to the so-called middle class (composed of teachers, artisans, retail merchants, etc.) the benefits of the measures for the prevention of tuberculosis. For this purpose the German central committee for the campaign against tuberculosis has appointed a sub-committee to provide sanatorium treatment and employ in prophylaxis the already existing sanitary stations for tuberculosis. The sanatorium association of the Red Cross has already undertaken to build a model sanatorium for the middle class. Further investigation is being made as to the available beds in private sanatoriums for the middle class. All the associations which have made the care for people of moderate means their object, will be brought into cooperation.

Marriages

KENT C. MELHORN, M.D., M. C., U. S. Navy, Newport, R. I., to Miss Jeanne J. Andrews, of Kenton, O., in Philadelphia, June 19.

ROBERT BERTINE HAMMOND, M.D., Milbourne, N. Y., to Miss Harriett Ellard Frank, of Great Neck, L. I., N. Y., June 20.

GEORGE STEWART BOWER, M.D., Galesburg, Ill., to Miss Katherine Barkmann, of Junction City, Kan., June 12.

GEORGE ORVILLE SCOTT, M.D., Ottawa, Ont., to Miss Helen Burnet Gilhooly, of Elizabeth, N. J., June 12.

SAMUEL MILBANK, M.D., New York City, to Miss May A. Weatherbee, of Mamaroneck, N. Y., June 15.

MICHAEL JOSEPH HORAN, M.D., New York City, to Miss Agnes Cecilia Dee, of Yonkers, N. Y., June 15.

CLINTON MAUPIN FARIS, M.D., Sacramento, Cal., to Miss Ethel Pippy, of Marysville, Cal., June 3.

PETER L. DAHL, M.D., Devil's Lake, N. Dak., to Miss Vera Lewis, of Canton, S. Dak., June 11.

AARON V. WENGER, M.D., Grand Rapids, Mich., to Miss Fanny L. Roth, of Lowell, Mich., June 20.

MERRILL JAMES HIDE, M.D., Brandon, Ia., to Mrs. Jennie Pierce, of Rochelle, Ill., recently.

MALCOM M'BURNEY, M.D., to Miss Helen Dorothy Moran, both of New York City, June 19.

JULIAN J. MEYER, M.D., to Miss Grace Hofheimer, both of New York City, June 16.

GEORGE W. BARNETT, M.D., to Miss Anna Strauss, both of Johnstown, Pa., June 12.

ERNEST C. LEVY, M.D., to Miss Elizabeth Detwiler, both of Richmond, Va., June 20.

PAUL WILLIS BROWN, M.D., to Miss Elizabeth Lake, both of Springfield, O., June 20.

GEORGE KISSICK WILSON, M.D., to Miss Nellie Dixon, both of Streator, Ill., June 20.

CARL J. MULLER, M.D., to Miss Antoinette K. Camien, both of St. Louis, June 20.

EDWARD J. DICK, M.D., to Miss A. Bertha Dias, both of Syracuse, N. Y., June 18.

JAY C. BOOHER, M.D., to Miss Jennie Carrier, both of Falls Creek, Pa., June 12.

Deaths

William Simpson Walker, M.D. Medical College of Indiana, Indianapolis, 1887; a member of the American Medical Association and Mississippi Valley Medical Association; once president of the district branch of the Indiana State Medical Association; a trustee of his alma mater; physician-in-chief to the St. Joseph Orphan Asylum; twice a member of the LaFayette city council and a member of the school board; died at his home, June 17, from tuberculosis, aged 65. The Tippecanoe County Medical Society and other physicians of the city and county met in LaFayette, June 18, and adopted resolutions of eulogy and regret.

George P. Hanawalt, M.D. Georgetown University, Washington, D. C., 1864; a member of the American Medical Association; corresponding secretary of the State Medical Society in 1869; secretary in 1871 and president in 1880; a hospital steward in the army during the Civil War and thereafter an acting assistant surgeon for three years; for many years surgeon to the railroads centering in Des Moines; surgeon general of Iowa from 1877 to 1893 with the rank of brigadier-general; died at his home in Des Moines, June 19, from senile debility, aged 75.

James Root Fairbanks, M.D. Berkshire Medical College, Pittsfield, Mass., 1863; a member of the American Medical Association and American Association for the Advancement of Science; hospital steward and assistant surgeon of the Thirty-Fourth Massachusetts Volunteer Infantry during the Civil War; trustee of the Home for Elderly Women of Amsterdam, N. Y., and consulting surgeon to the Amsterdam Hospital; died at his home, June 14, from pneumonia, aged 69.

William Wilson Walter, M.D. University of Pennsylvania, Philadelphia, 1883; a member of the Kansas State Medical Society and a practitioner of Leavenworth since 1883; for twenty years local surgeon of the Missouri Pacific, Union Pacific, Santa Fe and Burlington systems; for many years president of the Nurses' Training School of Cushing Hospital; died at his home, June 18, from arteriosclerosis and chronic nephritis, aged 52.

William Addison Phillips, M.D. University of Michigan, Ann Arbor, 1883; of Cookville, Mo.; president of the Central Kansas District Medical Society in 1889; formerly local surgeon at Salina, Kan., for the Santa Fe, Missouri Pacific, Union Pacific and Rock Island systems, and associate editor of the *Kansas Medical Journal*; died at his home in Cookville, June 10, from spinal meningitis, aged 50.

Adam A. Franke, M.D. Kentucky School of Medicine, Louisville, 1887; formerly a member of the Jasper County (Ill.) Medical Society and a member of the American Association of Railway Surgeons; local surgeon for the Illinois Central Railroad at Newton; died at his home in Newton, June 12, from cerebral hemorrhage, aged 59.

R. Bruce Burns, M.D. University of Pennsylvania, Philadelphia, 1871; formerly a member of the Medical Society of the State of Pennsylvania and a practitioner of Philadelphia, but for the last two years a resident of Atlantic City, N. J., died at his home in that place, June 14, from cerebral hemorrhage, aged 65.

Charles C. O'Donnell for sixty-two years a practitioner of California; founder of the public morgue; a veteran of the Mexican War; prominent in the Anti-Chinese agitation of 1867; coroner of San Francisco County in 1885; died at his home in San Francisco, May 27, from cerebral hemorrhage, aged 80.

Henry Martin Hitchcock, M.D. College of Physicians and Surgeons, New York City, 1861; proprietor of the Great View Sanatorium, Greenwich, Conn.; a representative in the Connecticut legislature; died at his home in Greenwich, June 19, from septicemia due to an infected wound of the foot, aged 70.

Henry B. Deale, M.D. George Washington University, Washington, D. C., 1887; a member of the American Medical Association, and one of the best known practitioners of Washington; a member of the surgical staff of Garfield Hospital; died at his home, June 19, from angina pectoris, aged 50.

William Lipscomb Dickson, M.D. Bellevue Hospital Medical College, 1881; a member of the American Medical Association; one of the foremost practitioners of Shreveport, La., and formerly president of the Shreveport State Charity Hospital; died at his home, June 18, from nephritis, aged 54.

Eberhard Wilhelm Dittrich, M.D. Bellevue Hospital Medical College, 1894; a member of the American Medical Association and professor of diseases of the skin in the Post-Graduate College, New York City; died at his home in New York, June 16, from heart disease, aged 51.

Homer V. Reynolds, M.D. Jefferson Medical College, 1869; a Confederate veteran; a member of the American Medical Association and a member of the board of education of Marietta, Ga., from the time of its organization; died in a sanitarium in Atlanta, June 18, aged 64.

Samuel George McClellan Snyder, M.D. Baltimore University, 1888; a member of the Medical Society of the State of Pennsylvania and formerly vice-president of the Huntington County Medical Association; died at his home in Altoona, June 12, from nephritis, aged 49.

Edmund Carleton, M.D. New York Homeopathic Medical College, New York City, 1871; a member of the faculty of his alma mater; consulting surgeon to several New York hospitals; a veteran of the Civil War; died at his home in New York City, June 15, aged 72.

Louis Mortimer Early, M.D. Jefferson Medical College, 1881; one of the early experimenters with, and students of, the roentgen ray; died at his home in Columbus, O., June 13, from cancer, for which successive operations had been performed without avail, aged 52.

John M. Rice, M.D. Beaumont Hospital Medical College, St. Louis, 1893; of Kansas City; a member of the American Medical Association; formerly of Warrensburg, Mo.; died in the Planters Hotel in Kansas City, March 29, from cerebral hemorrhage, aged 40.

William F. Hannan, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1869; a veteran of the Civil War; for 22 years a resident of California; died in the Jones Hospital, Grass Valley, April 29, from carcinoma of the larynx, aged 72.

Melchior B. Strickler, M.D. University of Pennsylvania, Philadelphia, 1861; formerly surgeon in the fire and police departments of Washington, D. C.; died recently at his home in Washington, and was buried June 20, aged 78.

Lewis T. Trumbower, M.D. Bellevue Hospital Medical College, 1862; for many years a practitioner of Norristown, Pa.; died at the home of his son in Swarthmore, Pa., June 17, from cerebral hemorrhage, aged 75.

George Pell Carman, M.D. United States Medical College, New York City, 1879; formerly president of the Brooklyn Academy of Medicine; died at his home in Brooklyn, June 8, from diabetes, aged 72.

Leonard F. Allen, M.D. Albany (N. Y.) Medical College, about 1850; for many years local surgeon for the St. Paul System, at Tama, Ia.; died at his home, May 26, from chronic myocarditis, aged 85.

John Franklin Hudson, M.D. Western Reserve University, Cleveland, 1882; a member of the American Medical Association; died at his home in Canton, O., April 24, from carcinoma of the liver, aged 59.

George Sullivan Gove, M.D. Dartmouth Medical School, Hanover, N. H., 1859; a member of the New Hampshire Medical Society; died at his home in Whitefield, June 14, from senile debility, aged 83.

William H. Boggs, M.D. Baltimore University, 1892; a member of the Medical Society of the State of Pennsylvania; died at his home in Huntingdon, June 8, from nephritis, aged 45.

Bert Ketchum Van Naten, M.D. University of Michigan, Ann Arbor, 1900; of South Sharon, Pa.; died recently at Farrell, Pa., aged 35, and was buried at Franklin, Pa., June 4.

Mortimer Howard Farmer, M.D. University of Nebraska, Eclectic Department, Lincoln, 1885; formerly of Virden, Ill., died at his home in Springfield, Ill., June 9, aged 49.

Newton N. Gober, M.D. Reform Medical College of Georgia, Macon, 1860; of Atlanta, Ga.; a Confederate veteran; died in St. Joseph Infirmary, Atlanta, May 25, aged 75.

Benjamin F. Johnson, M.D. Eclectic Medical Institute, Cincinnati, 1883; of Pontiac, Ill.; died in a hospital at Chicago, April 26, after an operation for gall-stones, aged 54.

John Brown Foss, M.D. Hahnemann Medical College, Chicago, 1883; died at his home in Crete, Neb., March 30, from cerebral abscess, following influenza, aged 59.

Samuel W. Field, M.D. Tulane University, New Orleans, 1862; of Dallas, Tex.; died in the Baptist Memorial Sanitarium in that city, May 16, aged 73.

Peter Frank Bellamy, M.D. Botanic Medical College, Memphis, Tenn., 1857; died at his home in Oakwood, Tenn., April 12, from chronic bronchitis, aged 76.

Robert Lee Moore, M.D. Beaumont Hospital Medical College, St. Louis, 1888; formerly city physician of St. Louis; died in his home in that city, June 10.

James Valatine Cornish, M.D. Rush Medical College, Chicago, 1881; of Quincy, Ill.; died in the Jacksonville State Hospital, June 16, aged 63.

Lewis C. Stewart, M.D. Indiana Eclectic College, Indianapolis, 1886; died at his home in Muncie, Ind., June 12, from cerebral hemorrhage, aged 52.

Eben R. Stoner, M.D. University of Missouri, Columbia, 1854; died at his home in Griggsville, Ill., June 17, from senile debility, aged 86.

Milton M. Rowley, M.D. Chicago Medical College, 1887; died at his home in Berkeley, Cal., June 4, from cardiac asthma, aged 61.

William C. Lewis (license, years of practice, Ohio, 1896); died at his home in Rushville, June 5, from heart disease, aged 78.

John A. McNeeley, M.D. University of Tennessee, Nashville, 1889; a Confederate veteran; died at his home in Wingo, Ky., June 8.

Thomas Jefferson Satcher, M.D. University of Louisville (Ky.) 1887; of Columbus, La.; died suddenly in Many, La., June 5.

Oscar Frank Pierce, M.D. Hahnemann Medical College, Chicago, 1890; died at his home in that city, June 23, aged 55.

Joseph H. Evans (license, Tenn., 1889); died recently at his home in Jackson and was buried May 12, aged 78.

Charles W. Downs, M.D. Bennett Medical College, Chicago, 1888; died at his home in Omaha, June 2, aged 54.

J. B. Robinson, M.D. Hahnemann Medical College, Chicago, 1879; died at his home in Evanston, Ill., April 21.

Miscellany

A Notable Centennial

The one hundredth anniversary meeting of the Rhode Island Medical Society, June 12-13, was marked by the formal opening of the new Rhode Island Medical Library on Francis Street, Providence. This building, in addition to its use as a library, is also the headquarters of the State Society. Its corner-stone was laid with appropriate ceremonies, June 1, 1911, and in the corner-stone were deposited the first and last numbers of the transactions of the Rhode Island Medical Society, its charter, constitution and by-laws; the *Providence Medical Journal* for May, 1911; a monthly bulletin of the Rhode Island State Board of Health for January, 1911; the annual reports of the Rhode Island Hospital, St. Joseph's Hospital, Newport Hospital, Memorial Pawtucket, Woonsocket Hospital, Butler Hospital, Providence Lying-In Hospital and Providence Hospital; copies of the local papers for June 1, coins of the year 1911 and a program of the proceedings.

At the first meeting of the Rhode Island Medical Society in 1812, a librarian was elected. For several years thereafter the society appointed two librarians, one for the southern section with headquarters in Newport, and the other for the northern section, located in Providence.

In 1835 Dr. Caleb Fiske, Scituate, gave his library to the society. A little later the library sections were consolidated in Providence, and in 1868 the books were deposited in the Rhode Island Hospital for safe-keeping. In 1879 the library project

At the ceremonies attending the opening of the building, June 12, addresses were made by Dr. Abraham Jacobi, president of the American Medical Association, and by Dr. F. T. Rogers, president of the society, in the new building. The first official exercise of the society in its new quarters was the induction of the newly-elected officers into their positions.

Work of Health Officers.—Among the many vexatious things with which every health officer has to contend, no one thing so tries his patience as does the misunderstanding of the general public as to the real work of a modern department of health. It is safe to say that the vast majority of the citizens in any community know absolutely nothing of the real work in which their health officer, if he is doing his duty, is engaged—the scientific studies of a general and local character which he conducts; the correlation of the work of all his subordinates and the interpretation of results; the outlining of new policies and the successful execution of those for which he is fortunate enough to secure the necessary support; the decisions as to how his meager appropriations had best be employed; the meeting of threatened dangers before they have become a real menace; the daily work for limiting all preventable diseases; the discipline of his department; the educational efforts which he must make; the keeping in constant touch with the leaders in his profession . . . the constant attention which he must give to keeping his work before the public in such a way as to help his community; the cooperation which he must aim always to secure from leading citizens and their business organizations; the inevitable controversies which arise from selfish



RHODE ISLAND MEDICAL LIBRARY BUILDING

PANORAMIC VIEW SHOWING RHODE ISLAND MEDICAL SOCIETY BUILDING AND CAPITOL

was revived and in the first year \$600 was collected for this purpose. In 1880 the secretary of the society wrote to the various medical societies of America asking exchange of transactions and this has resulted in securing for the society, a collection of medical society transactions equaled by few libraries in the country. Many of the local practitioners generously donated books and journals to the library and other medical libraries also gave of their abundance to the library.

The library was first housed in the rooms of the Providence Franklin Society but in 1900 the Providence Public Library devoted the top floor of its recently completed building, with book stacks and a reading room to the use of the profession.

The new building is located at the corner of Francis and Hayes streets, opposite the state capitol. It is of granite and dark red brick and classic in design. The principal entrance is on Francis Street and to the left of this entrance is the reading room which is about thirty-six feet square and occupies the southern part of the building. The Horace G. Miller room and coat and toilet rooms are also on this floor. The entire second floor is occupied by the assembly hall which is seventy-six feet long by thirty-six feet wide and nineteen feet high with a vaulted ceiling. The lunch room is situated in the basement and the stack room occupies the entire ell above the basement. It is fitted with metal book shelves arranged in three tiers with a capacity of 40,000 volumes. The tiers are connected by an iron stairway and there is a book-lift from the upper story to the basement.

The library stands as a memorial to the concerted work of the devoted members of the Rhode Island Medical Society.

interests and in which he must successfully maintain his points against all attacks—these are a few of the matters, set down almost at random, which engage the best thought of a real health officer.—Levy in *Am. Jour. Public Health*, January, 1912.

The Fifth International Sanitary Conference of American Republics.—At the Fifth International Sanitary Conference held at Santiago, Chile, in November, 1911, a number of resolutions were adopted by the conference which are of interest. Among them were resolutions that the different governments be requested to organize complete and practical courses of education of hygienists and that in future they insist on special requirements (diplomas, etc.) for those to be employed in sanitary work; that death certificates be executed by physicians only, especially in cities and ports, with the object of improving the reports of vital statistics; that countries where leprosy exists make a study of the number of lepers and establish colonies for their isolation; that prostitution in cities, and especially in seaports, be regulated, said regulation to be in the hands of physicians especially prepared for this kind of work; that permanent tuberculosis commissions be created in their respective countries; that in order to consider an individual immune to yellow fever, he must have had an attack of that disease; the enactment of laws relating to obligatory vaccination and revaccination against small-pox; that all passengers from cholera-infected districts, or who may have been in contact with those infected with cholera, shall be subject to a bacteriologic examination of their stools.—*Public Health Rep.*

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

TAKA-DIASTASE AND LIQUID TAKA-DIASTASE

Report of the Council on Pharmacy and Chemistry

Some time ago it was decided that a reexamination should be made of Taka-Diastase and Liquid Taka-Diastase, both of which had previously been rejected, to ascertain whether or not the preparations were in accord with the claims made for them by the manufacturers. Accordingly, the matter was referred to a committee of the Council, and an examination of specimens of these two preparations bought in the market was made. The referee's report, which appears below, according to the usual procedure, and before final confirmation by the Council, was first submitted to the manufacturers of Taka-Diastase for comment. The report recommends that the rejection of Taka-Diastase and Liquid Taka-Diastase be allowed to stand, and that the report be published. Parke, Davis & Co., in their reply, which is given in full below, claim that the report is unjust concerning Liquid Taka-Diastase, because the period of activity of the preparation has been greatly prolonged by reducing the amount of alcohol from 18 per cent. to 10 per cent. and by adding glycerin. They reiterate their claims for the digestive power of Taka-Diastase, but admit that it will not reduce the stated amount of starch to the colorless end-point in ten minutes (the standard method for the valuation of diastase). They further state that they would change the word "digest" on the label to "liquefy."

The conclusion of the report having been questioned, the entire matter was referred to a member of the Council's staff of clinical consultants. His report, which, also, is given in full below, states that the material before him was sufficient to decide the matter, and no further tests were necessary. He concludes that the claims of the manufacturers regarding the strength and properties of the material are erroneous and exaggerated; that the literature still sent out by Parke, Davis & Co. is misleading; and that if substitution of the word "liquefy" for "digest" were endorsed by the Council confusion would result which would give an exaggerated and false value to Taka-Diastase. He therefore recommends that the report of the reinvestigation of Taka-Diastase be accepted by the Council and published.

This report of the second referee was referred to Parke, Davis & Co. with the request that they state more definitely the actual amylolytic strength of their preparations. To this they replied that they had no desire to discuss the subject further, or to make any additional statements.

In accordance with the second referee's recommendations, the Council confirmed its provisional action and voted that the rejection of Taka-Diastase and Liquid Taka-Diastase be allowed to stand, and that the report which appears below be authorized for publication.

W. A. PUCKNER, Secretary.

Referee's Report on Taka-Diastase and Liquid Taka-Diastase

Following is the report of the committee to which was referred the reexamination of Taka-Diastase and Liquid Taka-Diastase:

Some time ago a comparison was made of the various methods proposed for the valuation of preparations claimed to have amylolytic power. This work was reported in *THE JOURNAL*,¹ and the method proposed for the testing of diastase preparations now appears in *New and Nonofficial Remedies*.² In view of the incorrect and exaggerated claims made for Taka-Diastase, the Council in 1908 was obliged to rescind its acceptance and to direct its omission from *New and Nonofficial Remedies*. The report contained the following reference to Taka-Diastase (Parke, Davis and Company), a product that had been accepted for inclusion with *New and Nonofficial Remedies*:

"The widest discrepancy between the values as claimed by the manufacturer and those found by actual tests seems to be shown in the case of Taka-Diastase. The liquid prepara-

tion has been tested a number of times in different samples and has always been found weak. Some samples, in fact, were quite inert. This ferment appears to lose strength very rapidly in solution, as the manufacturers now concede. The stability of the solid product is also far from satisfactory, and appears to be less than that of the ferment as marketed some years ago. The two samples examined recently were weak."

More than three years have now elapsed since the publication of the Council's findings regarding Taka-Diastase—sufficient time, it is believed, for the manufacturers either to modify their claims or the product itself, and thus again make it eligible for inclusion with *New and Nonofficial Remedies*. With this idea in mind new specimens of Taka-Diastase and Liquid Taka-Diastase were purchased from a Chicago drug house and the preparations reinvestigated. The following is the report of this reinvestigation.

REPORT OF THE REEXAMINATION

In our report on the diastase preparations three years ago, it was recommended that Taka-Diastase be removed from *New and Nonofficial Remedies* because the examinations showed that it did not have the digestive strength claimed for it. This was true both for Taka-Diastase itself and for Liquid Taka-Diastase. So far as the latter was concerned, the starch converting power was practically *nil* in those preparations which had been in the drug stores for some months.

During the last few weeks new tests have been carried out with several samples of the Taka-Diastase preparations and the results obtained are essentially the same as those obtained in the former examinations. The liquid preparation is still extremely weak in starch-converting power, while we found that Taka-Diastase itself would convert only 16.6 parts of pure anhydrous starch to the colorless end-point in ten minutes, as explained below.

In our method of experimentation we determine the weight of the diastase in question which will convert a given weight of starch in uniform paste to the so-called colorless end-point in ten minutes, that is to the point where it will no longer give any color reaction with a standard iodine solution. The standard starch weight in 50 c.c. always is 1 gm. or 1,000 mg. and to a series of flasks containing this amount of starch, maintained at a constant temperature of 40 C., the diastase dilutions are added. These diastase dilutions are made by dissolving small, accurately weighed amounts of the sample in some small, constant volume of water, usually 5 or 10 c.c. and they are then poured into the starch flasks at the right temperature, and agitated regularly.

Tests are made by taking a few drops from each flask and mixing with the iodine solution. The end-point is reached when a dilution is found which, at ten minutes from the mixing time, gives no color with the iodine reagent. The first set of tests is taken as a general guide, and quite accurate results may be obtained in a second set of dilutions.

We first used a sample of Taka-Diastase bought in the open market. It was found that 140 mg. were required to convert the gram of starch as explained. This is equivalent to a conversion of 7.14 parts of starch by 1 part of the Taka-Diastase.

A new, and possibly fresher, sample was then obtained and the test repeated. With this new sample it was found that 60 mg. were necessary to convert the gram of starch to the colorless end-point in ten minutes, from which it follows that 1 part of the ferment will convert 16.6 parts of starch to the colorless end-point in the same time. With a new sample of Liquid Taka-Diastase obtained simultaneously it was found that 3.5 c.c. were necessary to convert 1 gram of starch to the colorless end-point in ten minutes. As a fluidounce of this liquid is said to contain 20 grains of the solid it will be seen that the results approximately agree with those of the first sample of the solid, and that they are both very low.

In the earlier tests 16 parts of starch converted by 1 part of the ferment was the value found. These results are in close agreement with values reported by Sherman (*Jour. Am. Chem. Soc.*, xxxii, 1073) for a sample of recent purchase. He found a conversion of 51 parts of starch to the colorless end-point in *thirty* minutes for one sample, while for another he found 66 parts, in the same time. It will be noted that our time limit is *ten* minutes. It is worthy of note that for a perfectly fresh and specially prepared sample furnished by Dr. Takamine, a conversion of 278 parts in *thirty* minutes was found by Sherman. Taking the time into consideration it will be seen that the results are about the same for the market samples as those found by us and much lower than claimed, as well as much lower than for other makes of sim-

1. *THE JOURNAL A. M. A.*, July 11, 1908, p. 140.

2. *New and Nonofficial Remedies*, 1912, p. 68; also *THE JOURNAL A. M. A.*, April 15, 1911, Part 2, p. 18.

ilar products. The difference in the behavior of fresh specially prepared Taka-Diastase and the market sample is very clearly shown. No one questions the fact that fresh laboratory samples of Taka-Diastase may show a moderate converting power on starch. But we have to deal with the *activity of market samples only*, and Sherman's work and our own show the low digesting power of the product as physicians may secure it on the market.

The marked difference in activity between perfectly fresh and ordinary market samples of Taka-Diastase is very clearly shown also in a recent paper published by Wohlgemuth.³ In the digestion of starch paste to the "dextrine" stage Wohlgemuth found in the commercial sample a strength approximately a hundred times less than that observed in a fresh sample sent him by Dr. Takamine.

Wohlgemuth's results were obtained by a method not essentially different from ours, with this difference, however, that he digested through 24 hours in the cases reported, and carried the reaction to the "dextrine" stage only, in place of to a colorless end-point. Making the proper reductions it is evident that the actual values found by him for the market samples bought in Germany are not greater than those reported by us.

The reference to the work of Sherman is made because, in a following paper in the same journal, he recommends the use of salt as an activator in finding the strength of certain diastase preparations. It is well known that dialyzed diastase preparations and starch of highest purity have but slight action on each other; a little salt increases the activity greatly, and also increases the activity of commercial diastase preparations. These facts Sherman utilizes in working out a method for valuation of commercial diastases. The facts were well known to us at the time of our former report, but it was not thought best to depart from the general method which had been in use by all analysts following the general scheme of Roberts. Quite recently, I. Bang has published a paper on the investigation of diastase (*Biochem. Ztschr.*, xxxii, 417) in which he studies the behavior of sodium chlorid and other salts on the rapidity of starch conversion, and finds that a much smaller amount of salt than Sherman recommends brings the maximum increase.

The method employed in our former tests is a good comparative method, and that is all that may be claimed at present for any method. By adding salt to our starch solution the activity of Panase and other ferments is likewise greatly increased. For Panase, a preparation possessing rather high starch converting power, we have recently found an increase of about 30 per cent. in the converting power, with salt present. Working to loss of blue color, merely, it is possible in this way to get a higher value than that claimed by the manufacturer. There is no practical gain in using the salt for our purpose as the methods are at best arbitrary, and the results only comparative.

Taking all the facts into consideration it is recommended that the rejection of Taka-Diastase and Liquid Taka-Diastase be allowed to stand and that, in view of their extensive exploitation, this report be authorized for publication so that physicians may know the facts.

This report was referred to Parke, Davis & Co., and they made the following reply:

"The report submitted in your letter of the 23d is, we contend, erroneous and unjust: first, to our Liquid Taka-Diastase, because over three years ago we changed our formula reducing the alcohol from 18 per cent. to 10 per cent., increasing the glycerin and thus prolonging greatly the period of activity.

"As for our regular Taka-Diastase, our claim is and has been for years simply that Taka-Diastase will digest or hydrolyze 150 times its weight of starch in ten minutes, under proper conditions. We do not claim, we do not permit our representatives to claim, that Taka-Diastase will completely transform starch, to the colorless end-point, into sugars. Taka-Diastase is used to supplement a deficiency of ptyalin and converts the starch into soluble material with great rapidity, thus giving the gastric fluid immediate access to the proteids.

"If in the enclosed labels the word 'digest' were replaced with the word 'liquefy,' the claim could not be assailed by the most carping critic. To save any possible question, we shall therefore make this change in our label, having it read: 'Taka-Diastase will liquefy 150 times its weight of starch in ten minutes, under proper conditions.' Is there the slightest question in your mind that this statement as just quoted is entirely correct and entirely supported by clinical experience?

"It is our conviction that Taka-Diastase has a very remarkable power to hydrolize starch either in the test-tube or in the

stomach, and that this property is of great utility in clinical work. We do not claim that its conversion of the starch into sugars is complete, to the colorless end-point of the Johnson test; and on this point we have been perfectly frank with the Council, as well as with every physician who has taken sufficient interest to inquire."

In view of the above protest, the matter was submitted to a second referee, who reported as follows:

"Your referee on the matter of Taka-Diastase has made a careful investigation of the reports and correspondence submitted, and begs to make the following report:

"The question at issue, viz., whether Taka-Diastase should be included in New and Nonofficial Remedies, I believe, can be determined by the material before me, and further tests of the material are not necessary.

"The letter of the makers of Taka-Diastase admits that the early claims regarding the strength and properties of the material were erroneous and exaggerated. Since the product was once admitted to New and Nonofficial Remedies, it may be claimed that as the Council on Pharmacy and Chemistry must have been in error then, it may be now. Your referee does not consider this supposition worth discussing. The conclusion he draws is that the Council was too hasty in accepting the preparation, and that the incident shows how much better it would be in all cases to accept no remedy until sufficient time has been given for conclusive tests.

"The literature still sent out by Parke, Davis & Co. regarding Taka-Diastase is misleading and of a kind more appropriate for a nostrum than a standard chemical substance. What would we think if morphin, quinin or even heroin were advertised in the same way? I cite the statement, 'Taka-Diastase digests starchy food with vigor and directness.' It seems to the referee that the proposition to modify the label to indicate the amount of starch which is liquefied rather than the amount which is saccharified, in accordance with the Council's standard, is bound to lead to confusion and to give an exaggerated and false value to Taka-Diastase.

"Your referee recommends that the report of the reinvestigation of Taka-Diastase which has been submitted to me, be made available to the medical profession, and that the rejection of Taka-Diastase and Liquid Taka-Diastase be allowed to stand."

This report of the second referee was submitted to Parke, Davis & Co., with the request that they state more explicitly their claims regarding the activity of Taka-Diastase and Liquid Taka-Diastase, in order that, if they decided to revise their claims for the preparations, such revision of claims might be published along with the reports of the Council. They replied:

"Answering your note of the 15th instant: We have no desire to discuss further the subject of your letter of February 24, or to make any statement beyond that set forth in our letter to you of Dec. 27, 1911."

Association News

What the Newspapers Said About the Association Meeting

Following the Atlantic City session, all newspaper comments regarding the meeting were carefully preserved, with the intention of selecting the most representative paragraphs of criticism and commendation for the "knocks and boosts" column. A large number of editorial comments on the Association and its work have appeared in the newspapers during the last few weeks, probably more than have followed any other session of the Association. Much to our surprise, however, when the clippings were carefully examined, it was found that not a single unfavorable criticism of the Association or its work had been received. The changing attitude of the newspapers of the country toward the American Medical Association and its work has been apparent for some time past. We did not, however, anticipate such a general approval. The following extracts are a few of the editorial comments which appeared:

Philadelphia *Ledger*, June 4: The American Medical Association convenes at Atlantic City for a more serious purpose than that of a holiday in a salubrious environment. This Association upholds the highest standards of professional ethics. . . . It is clear that doctors do not point out the

3. Wohlgemuth: *Biochem. Ztschr.*, March 18, 1912.

straight and narrow way to the laity without indicating for themselves the pathway that every reputable physician ought to take. The Association is a court of final appeal. . . . This is indeed a grave responsibility and invests the profession with a dignity that in certain instances amounts almost to sanctity. . . . The generality of physicians are high-minded men of conscientious sobriety, fidelity to duty and unremitting industry, and this is the type that is most largely represented in the membership of the American Medical Association.

Atlantic City Press, June 4: The American Medical Association has many active enemies. They are relentless in their anxiety to besmirch the name of the organization and falsify the underlying and fundamental motives of organization in medical circles. But the American Medical Association continues to grow and prosper just the same. Even if the Association had done nothing else but expose and eliminate medical quacks who prey on the ills and pocketbooks of the people, it must be admitted that it would accomplish much for humanity.

Wilkes-Barre (Pa.) Record, June 2: The annual convention of the American Medical Association at Atlantic City directs attention to a profession that has advanced more rapidly toward the ultimate goal than any other. Perfection in the healing art will perhaps never be attained, but when one compares the efficiency of medical and surgical treatment of the present with that of half a century ago, there is cause for profound satisfaction. The physician has come into a new sphere of usefulness as praiseworthy in a personal sense as it is beneficial to humanity. He makes his living from the physical distress of human beings, yet everywhere physicians are leading in the effort to control and eradicate disease, thus reducing the opportunities of professional employment. Preventive effort is enlisting the interest of the medical men almost as much as curative effort. . . . Along this line the work of the physician, unremunerative and self-sacrificing, is of the highest value.

New York Herald, June 6: The American Medical Association, the representative organization of the physicians of this country, is in session at Atlantic City. . . . The noteworthy feature of its program is the number of papers on the prevention of disease and on the care for the ailing poor. . . . It is interesting to realize that much of this discussion and consequent development of medical knowledge tends to lessen the number of patients and consequently to diminish the need for physicians' services. Physicians as a profession are actually engaged in minimizing their own usefulness—an example of unselfishness that may well be commended to the emulation of all the professions.

Chicago Journal, June 19: One of the striking and noteworthy features of the proceedings of the Atlantic City convention of the American Medical Association was the attention given to means of preventing disease and to methods of caring for the sick poor. . . . No other men in these modern days manifest so deep and well-directed an interest in the prevention of disease and physical suffering as the doctors. . . . Few persons outside of the profession have any adequate idea of the drafts made on the time and services of doctors for labor and skill for which they never receive any financial consideration. The charity work of physicians amounts to proportions simply enormous. In the great majority of cases they enter on that work with perfect understanding that they can have no expectation or hope of pay. To them it is especially and emphatically true that "the poor ye have always with you." . . . On the whole, medical men constitute a class worthy of special recognition and unmeasured tribute because of their interest in the very matters which must reduce their range of employment and their devotion to the care of the poor.

Philadelphia Evening Bulletin, June 5: The greatest movement the world has ever known toward saving workers of the country from disease and death from dangerous occupations was started toward assured success this morning by coalition of the Public Health Section of the American Medical Association and the American Association for Labor Legislation.

Correspondence

Prenatal Impressions

To the Editor:—The reason for the absence of any of the extremities or parts of a newly born infant has for a long time been a matter of speculation, and from what I have been

able to read there is little definite knowledge relative to the cause of deformities. The fact remains that prenatal influence has its advocates.

A recent experience has led me to favor the prenatal impression theory, and I give it to you for what it may be worth.

Both parents are healthy and have had very little sickness; their ages respectively are 35 and 32 years. The presentation and delivery were normal, but the child lacked both ears, only a roughening of the skin and a pin-point concavity being present at the usual site. The inferior maxilla receded an inch and a half, missing the bite that distance. The tongue was bifid, the left portion being adherent to the buccal mucous membrane.

The only light I have to throw on the cause is that last May, 1911, the mother visited her mother, who had at that time a carcinoma of the face, the process extending almost entirely over one side and involving the ear.

The child at this time (June, 1912) is well and healthy, and apparently suffers no inconvenience other than inability to nurse satisfactorily.

J. C. ARNOUT, M.D., Downey, Ida.

An Antiseptic Thermometer Case

To the Editor:—The articles on thermometer disinfection by Drs. Beasley and Gros (THE JOURNAL, Oct. 21, 1911, p. 1357, and June 8, 1912, p. 1756) have been of much interest. Most of us would prefer a clean thermometer, if any, in our own mouths. And this is easily obtained by washing with plain water, immediately after use, to remove the saliva, and then dropping into an ordinary thermometer case filled with alcohol. The action of alcohol is positive, not irritating to the mouth and the device is handy. In regard to the bactericidal action of alcohol on moist organisms, Harrington reported (Boston Med. and Surg. Jour., May 21, 1903) that 90 and 99 per cent. alcohol, i. e., "commercial," is effective against *Staphylococcus pyogenes aureus*, *B. typhosus*, *B. diphtheriae* and *B. coli communis* in five minutes. Few of us can make calls quicker than that.

L. B. REED, M.D., Plymouth, Mass.

The "Drs. Mixer" Fraud and Congressman Hamilton

To the Editor:—Under the head of "Current Comment," in an article called "Politics and Quackery," you use my name in commenting on the Mixer fraud order case by saying:

"At the time the Post-Office investigated this fraud C. W. Mixer called on his friend, Congressman E. L. Hamilton, to use what influence he could in preventing the postal authorities interfering with this lucrative but villainous business."

I write to request you to correct this misstatement, which I assume to be entirely unintentional.

Mr. Mixer resides in the district which I represent. A fraud order was issued against him and he came to Washington with his attorney to present his defense in the Post-Office Department. He and his attorney asked me to introduce them to Judge Goodwin, the Assistant Attorney General of the Post-Office Department. This I did.

After a hearing the fraud order was continued in force. I was performing only an ordinary act of courtesy in introducing him and his attorney, and was not called on in any way to pass on the merits of the case.

Men who know Mr. Mixer in the community where he lives speak in high terms of him.

E. L. HAMILTON,

Member of Committee on Interstate and Foreign Commerce.

[COMMENT: We are pleased to learn that the interpretation put on Mr. Hamilton's actions in the Mixer case, which was based on official reports, was erroneous and that he does not stand sponsor for Mixer's cruel fraud. The episode should make clear how undesirable it is for members of Congress to appear in their official capacity in cases of this sort. When the public reads in the official records of fraud orders that a certain congressman "made some remarks in behalf of the defendant" it is likely to place a sinister interpretation on

such reports. Mixer, it will be remembered, sold his worthless nostrums under the claim, inferentially made, that he was a physician. Mixer advertised that his father had been cured "over forty years ago and he has never suffered a day since." As Mixer, senior, had been dead for many years, the statement that he was not suffering, while technically correct, was inferentially misleading. In selling his cancer cure, Mixer published an article said to be a reprint "from one of the leading journals of the country." As a matter of fact, the article was written for and sold to Mixer for five or ten dollars, the arrangement being that he was to pay the money for a certain number of copies of the issue containing this write-up. Nor was the Post-Office fraud order the only evidence of Mixer's charlatanism. He was also prosecuted under the Food and Drugs Act and he pleaded guilty to the charge that his claims for the curative effects of his nostrums were false. Those of our readers who are interested in learning how big a fraud Mixer was, are referred to our pamphlet "Drs. Mixer."

As to the claim that Mixer is spoken of "in high terms" by those who live in the same community, the argument leaves us unimpressed. The same thing has been found true of most of the prosperous quacks whose business has been investigated. They make money easily; they spend it freely; they donate liberally to local enterprises; in most cases, they wield no small amount of political influence—in the Mixer case, to the extent of receiving an official appointment to a national convention. Unfortunately, to a large proportion of the public, wealth is a synonym for respectability, and a man's liberality with the money that he may have obtained ever so fraudulently is made to cover a multitude of sins.—Ed.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MASCOT COPPER COMPANY

To the Editor:—Having read with interest your articles on Propaganda for Reform, I should be pleased to know if you could supply information on other lines. Could you inform me about the Mascot Copper Company? Their agents are particularly active among the profession at present. I. H. E., Chicago.

ANSWER:—The Mascot Copper Company was organized in June, 1907, under the laws of Arizona with a capitalization of \$10,000,000, of which \$1,000,000 is preferred stock and \$9,000,000 common. Its mines are said to be located on thirty-seven claims in Cochise County, Arizona.

The above information is taken from the "Copper Handbook" for 1911, which is said to be a reliable publication. The handbook further says:

"The mine has been estimated to have in sight 500,000 tons of ore, averaging 4.75 per cent. copper, 14 oz. silver and \$3.00 gold per ton, which figures are considered excessive. . . . The company has taken excursion parties of investors to its mines. The methods of promotion employed by this company are not liked and the claims of a large tonnage of rich ore developed would be more impressive if backed by more detailed figures. Is not regarded favorably."

Inquiry of a Chicago firm of stock-brokers elicits the following information: "We know of no market for the stock of this company, nor have we ever heard it mentioned as being in the class of a real investment stock."

SWIMMERS' CRAMP

To the Editor:—What is meant by the term "cramp" as popularly used relative to swimming persons? What are the causes of their production and in what way are they able to produce death? I am unable to find any explanation in what literature I have access to. I. G. W.

ANSWER:—"Cramp" is a name popularly applied to a painful spasm of a muscle or part of a muscle. Death from drowning, of course, is the result of the individual's inability to move his limbs properly. It has been suggested that the spasm of the muscle may be due to ischemia produced by the cold water and the exercise. Another explanation of many drownings on account of alleged cramps is that the person has what is called water-choke, a reflex spasm of the larynx caused by water accidentally entering between the true and the false vocal

cords, interfering with breathing, frightening the person and rendering him unable to call for assistance. As the choking person makes no outcry, it is not noticed by his companions, if he has any, that he is in distress. In case spasm attacks the swimmer's legs, the suggestion to sit in the water, making a "tub" as it is called, and supporting oneself by the use of the hands, is a good one. In view of the scanty literature on the subject and of the practical importance of the matter, especially as the swimming season is now at hand, we invite experiences or suggestions from our readers with reference to the nature of the affection and its prevention.

THE DIRECTORY: SHALL IT CONTAIN TWO ADDRESSES AND OFFICE HOURS?

To the Editor:—After a careful examination of the 1912 (third edition) Directory, I wish to compliment you on the publication of this exceedingly valuable and instructive book. In my opinion, however, there is one criticism that may be made—as many others have—namely, the bulky and unwieldy form. To remedy this, objection I should suggest the elimination, in the fourth and succeeding editions, of (a) the residence address and (b) the office hours. These two items, recorded in the tabulation of each physician, add greatly to the space used, at the same time being of practically no value whatever in such a work. The first is of no value whatever; the second of very little. Sound the profession at large and see if the majority do not agree with these views. This letter is confidential. A. C.

[COMMENT.—While the above letter is confidential, we publish it for the reason that possibly others feel the same as does our correspondent. We shall be glad to hear from others on the subject.—Ed.]

ALBUMINURIA: A CASE FOR DIAGNOSIS

To the Editor:—I have a patient for whom I would like some suggestion as to treatment. He is white, aged 18, born of healthy parents. He had measles and diphtheria without complication several years ago. At present he is healthy, has a good appetite, and the excretions are normal in amount. About three months ago I made an examination for life-insurance and found the specific gravity of the urine 1020. The urine constantly shows albumin, except that it has been absent once from first urine in the morning. Very few casts (hyalin and fine granular). I tried him on the fluidextract ergot and alkaline waters about two months. I saw him again a few days ago. The pulse was 100 (previously 72), albumin was present and the specific gravity 1014. The patient smokes a great deal. The heart sounds are normal as well as the lungs. I gave him elix. buchu, juniper and potassium acetate and digitalis as an experiment. What would you advise doing with the patient? Please omit my name and address. N. Y. Z.

ANSWER:—Our first advice would be to make a diagnosis. It is not scientific to make therapeutic experiments, as our correspondent has done, until it is fairly well known what is the matter. It is in just such cases as this that drugs should not be given, unless to meet definite indications; faithful, earnest endeavors should first be made to arrive at the diagnosis. The main question that arises is, is there an organic affection of the kidney, or is the disease due to general conditions which affect the functions of that organ? One of the functional conditions that has attracted considerable attention is orthostatic albuminuria. In this condition the albumin is absent from the urine while the patient is in a recumbent position, but appears after rising. The statement that albumin has been absent once from the first urine in the morning would indicate the possibility that this condition is present. The urine should be repeatedly tested while the patient is in a recumbent position and if albumin is found only in the upright position we may assume that there is no organic disease of the kidneys. The occurrence of casts in the urine used to be taken as evidence of nephritis, but recent investigations have shown that they may occur in some normal cases. Their presence, however, if in any way constant, indicates an irritated condition of the kidneys and it must be admitted that casts and albumin usually justify the diagnosis of nephritis. In such cases the condition of the cardiovascular apparatus should be very carefully determined. The blood-pressure should be estimated and the attempt made to determine the functional power of the heart. Also the urine should be examined for indican, the presence of which may point to putrefactive processes in the intestines as the source of a toxemia which causes the albuminuria. If there is any indication of disease of the bladder it would be well also to examine that organ with the cystoscope, although this usually will not be necessary.

In case indican is found in the urine, a diet which will prevent putrefaction in the intestines should at once be instituted. Such a diet involves the exclusion of eggs and meat and the use of a considerable amount of carbohydrate food. Fortunately this is the diet that is advisable for most cases of nephritis. Other hygienic measures such as proper clothing, avoidance of colds, care of the skin, etc., which are calculated to shield the kidneys from irritation, should be carried out.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

HOMEOPATHIC PHYSICIANS ENDORSE OWEN BILL

The following letter has been sent to Senators Works and Perkins by Dr. William Simpson of San Jose, Cal.:

Dear Sir:—As a member of the Medical Library Club, an association of physicians of all schools, as a homeopathic physician who has been twice president of the California State Homeopathic Medical Society, I wish most respectfully, but most earnestly to ask your support for the Owen bill, No. 1, to establish a public health service, believing it will help greatly in preserving the health, and promoting good sanitary conditions, and will in no way limit the rights of any one to practice medicine as he believes for the best interests of his patients.

I am not a member of the American Medical Association, but have been for many years interested in sanitary matters and was president of the California Public Health Association in 1905.

Yours respectfully,

WM. SIMPSON, M.D.

The following has also been sent to Senators Perkins and Works:

Believing that Senate Bill No. 1 creates a public health service for the best interests of the country, and that public health should be in some measure a public charge, we, the undersigned homeopathic physicians, respectfully request you to support and vote for this bill.

Signed by Drs. Wayland, Helen Lee, Greenwood, Goodridge, W. S. and S. B. Van Dalsem, Loehr, Park, Kapp, Walter and Coleman, all in active practice.

According to the Dayton, Ohio, *Herald*, the Dayton Homeopathic Medical Society, at its recent meeting, endorsed the Owen bill and asked the American Institute of Homeopathy to support this measure.

MEDICAL ECONOMICS

A. H. Madry, M.D.

AURORA, MO.

Medical economics is not "a set of rules to be observed in the practice of medicine." Old rules and idolized conceptions had to be broken before a foundation for the new science could be laid. Many truths and much information of incalculable value to the profession and the people have been wasted through our failure to recognize and apply properly the laws of exchange. When these laws have been properly studied and applied, both medicine and sociology will be greatly benefited. All who teach medicine should now give to economics the attention its importance demands.

Medical economics is the division of and contribution to political economy made by and resulting from the practice of modern medicine. Political economy has been defined as that branch of political science or philosophy which treats of the sources and methods of production, preservation and distribution of the material wealth and prosperity of nations.

The professional and industrial life of the ancient Greek, ethics and the untrained mind prevented the evolution of economics into a science. Plato, Xenophon and Aristotle were the only economic writers of ancient Greece, and they were of little moment. The influence of Christianity under the narrow interpretation of a much later period added, rather than removed, obstructions.

Medical economics may be considered under two heads: (1) the physician and his collaborators; (2) the benefits of their collaboration on commerce and the distribution of those benefits. The qualities of mind and actuating principles of the student of medicine are of first consideration, and preparation is necessary to make him a perfected part of the organization before he is ready to enter the practice of medicine.

The correct purposes of organization are stated in the constitution of our state association. If the state association is to render the best services the individual members must be prepared to perform duties harmoniously. If members, through our failure to teach economics, become a disgrace and a burden, the state and the nation lose and we ourselves are to blame. The healthy, happy, intelligent citizen whose physical as well as financial interests have been properly safeguarded by his state or national government is the real unit of value in the assets of that government.

We must learn the economics of our profession and how to practice it before we can teach our governments true conservation, and influence them to overturn the false theories now entertained. We must learn it in order to value our own services and be prepared to ask and receive the financial support our duties and our lives demand. We must learn it in order that, when our government turns from the false theory of economics that has developed only a few pseudophilanthropists, we may present a vast army of the true variety.

We must learn medical finance and how to apply it, medical waste and how to avoid it, that we may grow to our full professional stature, promote the interest and magnify the beneficence of our organization, and render to the state and nation, through the conservation of the lives, health, happiness and prosperity of its people, the thousandfold reward that it will be our delightful mission to give.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Capitol, Montgomery, July 9. Chairman, Dr. W. H. Sanders.

CONNECTICUT: Regular, City Hall, New Haven, July 9-10. Sec., Dr. Charles A. Tuttle, 196 York Street; Homeopathic, Grace Hospital, New Haven, July 9. Sec., Dr. Edwin C. M. Hall, 82 Grand Avenue; Eclectic, Hotel Garde, New Haven, July 9. Sec., Dr. T. S. Hodge, 19 Main Street, Torrington.

INDIANA: Room 57, State House, Indianapolis, July 9-11. Sec., Dr. W. T. Gott.

MAINE: State House, Augusta, July 16-17. Sec., Dr. Frank W. Searle, 776 Congress Street, Portland.

MASSACHUSETTS: State House, Boston, July 9-11. Sec., Dr. Edwin B. Harvey, Room 159, State House.

NEW HAMPSHIRE: State House, Concord, July 9-10. Regent, Mr. H. C. Morrison, State Library.

NEW MEXICO: The Capitol, Santa Fé, July 8-9. Sec., Dr. J. A. Massie.

OKLAHOMA: Oklahoma City, July 9. Sec., Dr. J. W. Duke, Guthrie.

RHODE ISLAND: State House, Providence, July 11. Sec., Dr. Gardner T. Swarts.

SOUTH DAKOTA: Deadwood, July 10. Sec., Dr. L. G. Hill, Watertown.

VERMONT: Burlington, July 9-11. Sec., Dr. W. Scott Nay, Underhill.

WEST VIRGINIA: Capitol Bldg., Charleston, July 8-10. Sec., Dr. H. A. Barbee, Point Pleasant.

WISCONSIN: Madison, July 9-11. Sec., Dr. John M. Bessel, 3200 Clybourn Street, Milwaukee.

Florida May Report

Dr. J. D. Fernandez, secretary of the Florida Board of Medical Examiners, reports the written examination held at Jacksonville, May 6-7, 1912. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 68, of whom 54 passed and 14 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University, Washington, D. C.	(1911)		88
Atlanta School of Medicine	(1909) 75; (1912) 76, 78, 82		
Atlanta College of Physicians and Surgeons	(1911) 81; (1912) 75, 75, 75, 77, 89, 94, 94		
Southern College of Medicine and Surgery	(1912) 75, 88, 96		
Rush Medical College	(1910) 91; (1912)		92
Habnemann Med. College and Hospital, Chicago	(1888)		75
Bennett Medical College	(1880) 75; (1912)		93
University of Louisville	(1911)		75, 81
Hospital College of Med., Louisville	(1897) 75; (1905)		73
Louisville National Medical College	(1912)		75
Tulane University of Louisiana	(1910) 90; (1911)		85
University of Maryland	(1866)		75
Baltimore Medical College	(1892)		75
College of Physicians and Surgeons, Baltimore	(1911)		91
College of Physicians and Surgeons, Boston	(1906)		79
University of Michigan, Dept. of Med. and Surg.	(1868)		75

Missouri Medical College.....	(1876)	75
Barnes Medical College.....	(1911)	75
University of Nebraska, College of Medicine.....	(1889)	75
University of Buffalo.....	(1866)	75
Cincinnati College of Medicine and Surgery.....	(1905)	75
Jefferson Medical College.....	(1910)	80
University of Pittsburgh.....	(1910)	82
Medical Coll. of the State of South Carolina.....	(1911) 75; (1912) 75	
Meharry Medical College.....	(1912)	82, 84
University of West Tennessee.....	(1912)	75
Vanderbilt University.....	(1889) 75; (1911)	82
Lincoln Memorial University, Knoxville.....	(1910)	82
University of Nashville.....	(1903) 82; (1907)	77
Chattanooga Medical College.....	(1896)	84
University of Toronto, Ontario.....	(1892)	92
University of Palermo, Italy.....	(1900)	75

FAILED

Atlanta College of Physicians and Surgeons.....	(1911)	57
Atlanta School of Medicine.....	(1912)	67
Louisville National Medical College.....	(1910)	41
Hospital College of Medicine, Louisville.....	(1890)*	
Barnes Medical College.....	(1898) 51; (1903)	48
Missouri Medical College.....	(1880)	56
Leonard School of Medicine.....	(1910)	60
Ohio-Miami Medical College.....	(1910)	60
Knoxville Medical College.....	(1909)	46
Univ. of West Tennessee.....	(1910) 44; (1911) 58; (1912)	58
University of Tennessee.....	(1909)	54

* Withdrew after the first paper.

The following questions were asked:

ANATOMY

1. Locate the fascia lata. 2. Name the bones of the wrist. 3. Name the bones of the larynx. 4. Describe the portal circulation. 5. Describe the chambers of the eye. 6. Name all the organs in the peritoneal cavity. 7. Define articulation. Symphysis synchondrosis. 8. Name and locate the ductless glands of the body. 9. What is the prostate gland, Cowper's gland, Bartholin's gland, caruncula myriformes? 10. What structures would be divided in a cross-section of the body at the seventh cervical vertebra? At the sacrococcygeal juncture?

PHYSIOLOGY

1. What is the difference between anabolic metabolism and katabolic metabolism? 2. What are fats and how are they digested and carried into the circulation of the blood? 3. What are the chief constituents of normal fresh urine? 4. Describe the locations at which the different sounds of the heart can be heard the plainest, and what produces each sound. 5. What is meant by normal blood-pressure and how is it ascertained? 6. Why does the normal temperature of the body remain the same in hot weather as it does in cold weather? 7. What are the functions of the liver? 8. What are proteids and which of the digestive ferments act on them? 9. Describe the respiration and what keeps it going? 10. What are leukocytes? Their composition, and describe their functions and actions in the living body.

SURGERY

1. Give etiology, symptoms and treatment of cholelithiasis. 2. Give etiology, diagnosis, symptoms and treatment of abscess of liver. 3. Differential diagnosis of carcinoma from sarcoma of mammary gland. 4. Symptoms and treatment of laceration from the middle meningeal artery. 5. Give etiology and treatment of torticollis. 6. Give varieties of hip-joint dislocation. 7. Give classification and treatment of fistula in ano. 8. Give symptoms of floating kidney and describe *in toto* the radical operation. 9. What is known as fracture by "Contre Coup"? 10. Give symptoms and treatment of floating semilunar cartilage of the knee-joint.

GYNECOLOGY

1. Describe the Sims' position. 2. What is meant by the term menstruation, and what are the two theories as to its relationship to ovulation? 3. Name the two general classes of amenorrhea, and give some of the causes under each class. 4. Give causes, symptoms and treatment of metrorrhagia. 5. Give symptoms and treatment of vaginismus. 6. Name the most frequent of the uterine displacements. Give treatment of such displacement. 7. Give diagnostic points in small uterine fibroids. 8. What three lines of investigation must be considered in making diagnosis of uterine cancer? 9. Give causes, diagnosis and treatment of cystitis. 10. Give symptoms and treatment of movable kidney.

MATERIA MEDICA—THERAPEUTICS

1. Mention three classes of evils which may result from chemical incompatibilities in prescriptions. Write such a prescription. 2. How does cold reduce temperature, and how best applied? 3. Name four classes of medicines, with an example of each class, and give dose of example. 4. Name five antiseptics and tell in what proportion each should be diluted for surgical purposes. 5. Name the mineral tonics. Write a prescription containing the most useful. 6. An anesthetic being indicated, state the conditions that render either preferable and those that render chloroform preferable. 7. Mention some of the indications and contra-indications in your use of ergot. 8. Where is the habitat and what are the physiologic effects of digitalis? 9. Name three drugs used in the treatment of malarial fever. State how each controls this disease. 10. Give the theory of the alkaloid treatment of rheumatism.

OBSTETRICS

1. Give diagnosis of pregnancy. 2. Describe the fetal circulation. 3. Describe pelvimetry and give the normal pelvic measurements. 4. How would you treat a case of placenta prævia? 5. Give etiology, pathology and treatment of puerperal eclampsia. 6. Give etiology, prophylaxis and treatment of ophthalmia neonatorum. 7. Describe the care of a new-born babe. 8. Give treatment of post-partum hemorrhage. 9. Define involution and give causes for subinvolution. 10. Describe the menopause and give some conditions peculiar to that period.

CHEMISTRY

1. What use is made of the syllables *ous* and *ic*, *ite* and *ate* in distinguishing compounds from each other? 2. Express the chemical equation resulting from a mixture, in solution, of sodium carbonate and calcium chlorid. 3. Describe the flame test for potassium, sodium and cuprum (except cupric and cuprous compounds). 4. Give treatment, in detail, for acute phenol (carbolic-acid) poisoning. 5. Describe symptoms of acute belladonna poisoning and give treatment. 6. Describe symptoms of acute cocaine poisoning and give treatment. 7. Describe chyluria and how recognized. 8. Describe the metallic copper test for arsenic. 9. What are the physical properties of phosphorus?

Massachusetts May Report

Dr. Edwin B. Harvey, secretary of the Massachusetts Board of Registration in Medicine, reports the written, practical and oral examination held at Boston, May 14-16, 1912. The number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 40, of whom 20 passed, including 1 osteopath and 1 non-graduate, and 20 failed, including 6 osteopaths and 4 non-graduates. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery.....	(1912)		75
College of Physicians and Surgeons, Baltimore.....	(1911)		75.7
University of Michigan, Dept. of Med. and Surg., (1901)			80
Harvard Medical School (1908) 77.6; (1910) 79.2, 81.8; (1911) 76.4, 85.7.			
College of Physicians and Surgeons, Boston.....	(1911)		75, 75
University Medical College, Kansas City.....	(1907)		75
Dartmouth Medical School.....	(1912)		78.2
Columbia University, Coll. of P. and S.....	(1902)		79.8
New York Homeopathic Med. Coll. and Hospital.....	(1905)		78.9
Hahnemann Med. Coll. and Hospital, Philadelphia.....	(1909)		75
Jefferson Medical College.....	(1911)		79.2
Balhousie Medical College, Halifax.....	(1911)		75.3
McGill University, Quebec.....	(1873)		80

FAILED

Harvard Medical School.....	(1911)	67.7
College of Physicians and Surgeons, Boston (1907) 66.2; (1908) 61.3.		
Dartmouth Medical School.....	(1912)	58.4
University of Vermont.....	(1911)	70.6
University College of Medicine, Richmond.....	(1907)	65.7
Laval University, Quebec.....	(1911)	60.8, 72
University of Naples, Italy.....	(1910)	67.9
University of Athens, Greece.....	(1898)*	

* Did not complete examination.

Book Notices

LATERAL CURVATURE OF THE SPINE AND ROUND SHOULDERS. By Robert W. Lovett, M.D., Assistant Professor of Orthopedic Surgery, Harvard Medical School. Second Edition. Cloth. Price, \$1.75. Pp. 192, with 171 illustrations. Philadelphia: P. Blakiston's Son & Co., 1912.

This is a second edition, the first having been published in 1907. In addition to revising the material contained in the first volume, a chapter on school life and scoliosis has been added. Those familiar with Dr. Lovett's book will need no further endorsement of the second edition. The mechanical preparation of the book is better than the average, being well printed on good paper, copiously illustrated and firmly bound.

WHO'S WHO IN AMERICA. A Biographic Dictionary of the Notable Living Men and Women of the United States. Edited by Albert Nelson Marquis, Volume 7, 1912-1913. Cloth. Price, \$5 net. Pp. 2640. Chicago: A. N. Marquis & Company.

In the seventh edition of this standard biographic dictionary, the same high grade of work is continued. The data have been thoroughly revised and brought down to date. The publishers state that 2,928 new sketches have been added. New features of the work are the geographic index which occupies 151 pages and an index of educational announcements which takes up four pages, both of which are valuable additions.

HEALTH AND MEDICAL INSPECTION OF SCHOOL CHILDREN. By Walter S. Cornell, M.D., Director of Medical Inspection of Public Schools, Philadelphia. Cloth. Price, \$3. Pp. 614, with 200 illustrations. Philadelphia: F. A. Davis Company, 1912.

Systematic inspection of school children and organized efforts on the part of the state or the municipality to improve the physical condition of pupils in the public schools have developed so rapidly in the last few years as to outstrip the preparation of scientific text-books on the subject. In fact,

text-books would not be possible until experiments, observation and experience had furnished material on which to base them. Summaries of the work already done have been issued by governmental bureaus and philanthropic organizations. These, however, are reports of progress in legislation and organization rather than text-books which can be followed by those lacking in experience and wishing to take up this work. Dr. Cornell's book is based on practical experience as a school medical inspector. Its contents are divided into three parts, viz., "Medical Inspection," "Hygiene" and "Defects and Disease."

Under the first heading, administration questions are discussed, such as the selection of inspectors, frequency of visits, the methods of systematic examinations, keeping of records, correction of defects, cooperation of teacher and parent, the school nurse, school meals and lunches, open-air schools and schools for special classes of pupils. The final sections of this first division deal with the results of medical inspection, and with the present status of medical inspection in the United States.

The second section of the book is devoted to hygiene, which is naturally divided into school hygiene and personal hygiene. In the third part of the book, defects and diseases are taken up under the following headings: the eye, the nose and throat, the ear, the teeth, the nervous system, mental deficiency, the skeleton, nutrition, the skin, the speech, and contagious diseases. A chapter on the prevalence of defects and diseases contains a large amount of valuable statistical matter. Dr. Cornell has made an important contribution to the literature of school inspection. His book cannot be overlooked by anyone interested in medical inspection of schools.

Medicolegal

Employer Liable Under Contract for Expenses of Medical Treatment

(*Jackson vs. Pacific Coast Condensed Milk Co. (Ore.)*, 120 Pac. R. 1)

The Supreme Court of Oregon affirms a judgment for the plaintiff for expenses of medical or surgical treatment and of x-ray photographs. It appeared that the plaintiff, on June 28, 1908, broke his left leg, while he was in the employ of the defendant. He, however, did not realize that there was a fracture, although it caused him great suffering, and continued at his work for several days, complaining at different times to the boss. He consulted a man whom he understood to be the company's physician, and was given some liniment for external application. He also reported to the book-keeper that he had consulted him, and was told that it was all right. But his condition continued to grow worse, and, in August, 1908, being unable to work, he consulted another physician, who pronounced the injury a fracture and set it in splints. Still there was not much improvement until May, 1909, when he consulted a third physician, who operated on the bone to induce it to unite. The plaintiff's contract of employment provided for a deduction of 50 cents per month for a hospital fund, as it was termed, and the company paid all bills incurred by him for medical treatment prior to Nov. 27, 1908, but refused to pay the bills which he subsequently incurred, and sued for, contending that he chose his own physician and that it should not be held liable as he did not apply to it for treatment.

The court holds that the employment of the plaintiff and the payment from his wages of 50 cents per month, together with a stipulation in the by-laws of the hospital fund association, as it was called, that all employees of the company, at its factory, should be considered members, etc., made a complete contract whereby the company undertook to furnish him medical attendance and drugs without expense to him in case of sickness or injury, the company having admitted that the hospital fund was not a separate fund or organization, but was in its hands. In this case there was a contract and sufficient money available in the hospital fund, but no hospital

and no medical attendant offered or available, and the plaintiff was justified in seeking the necessary medical attention. It was true that the plaintiff did not say that he gave the company formal notice of the injury or asked for a physician, but his superiors knew of the injury at the time it was received, and that it was serious, on account of which he was unable to perform regular work, and that he was receiving medical treatment. The company had no hospital and did nothing toward furnishing him needed attention, and he was justified in seeking proper medical aid, the expense of which should have been paid out of the hospital fund. The company recognized this fact in paying the first bills for medical service and the expense of three x-ray photographs of the fracture, thus approving of the plaintiff's act in choosing his own physician.

Physicians Appointed to Make Physical Examinations Cannot be Compelled to Report to Court—Restrictions on Appointing Power—Position of Physicians

(*Mizak vs. Carborundum Co. (N. Y.)*, 132 N. Y. S. 1104)

A special term of the Supreme Court of New York, Niagara County, holds that physicians appointed by order of the court to make a physical examination of the plaintiff before trial cannot be compelled to file a report of such examination, although the statute provides that the examination shall be had under such restrictions as to the court shall seem proper.

This examination, the court says, is not an absolute right. It must appear that the defendant is "ignorant of the nature and extent of the injuries complained of." The court must protect the plaintiff from disreputable or objectionable handling. A woman plaintiff may not be required to submit to an examination except by physicians and surgeons of her own sex. When the nature of the proposed examination, as by the administration of anesthetics or drops of atropin in the eye, might possibly endanger the plaintiff's health, the court will not require the hazard to be taken if the plaintiff objects. Other directions and restrictions as to the making of the examination may be imposed. But, subject to these qualifications, the defendant should be permitted to have his own physicians or surgeons, the persons he would rely on to aid him in the trial, make the examination, providing they are reputable and not personally objectionable to the plaintiff.

The plaintiff's physicians file no report, are subject to no examination before trial, do not disclose their knowledge or information to the defendant without the plaintiff's consent. They give their evidence in court on the trial. A defendant in a negligence case may not be compelled to disclose before trial what the physical examination of the plaintiff by his physicians reveals, any more than the defendant may be compelled to disclose what he expects to prove by his other witnesses. Equality in this respect is fair. The real purpose of the examination is to discover to the defendant the nature and extent of the injuries complained of.

Nor can the appointed physicians be compelled, as officers of the court, to make a report to the court. They take no oath of office and have no statutory fees. While the court may, in its discretion, designate physicians and surgeons not nominated by the defendant, they are under no duty or obligation to act until the defendant employs them to make the examination. Thus they necessarily become the employees of the defendant before the act, and, when they act, it is in that capacity. As the very object of the statute would be defeated if they did not thoroughly make the examination and freely and fully impart to the defendant the results thereof, they should be satisfactory to the defendant, provided always that there are no objections to their personal character or professional standing or to their availability in a given case.

Under the terms of the statute the experts are not required to reduce anything to writing. No provision is made for a record by any one. Common practice in these cases seems to sustain the rule that the knowledge acquired by the physician during the examination is no different from that acquired by a physician who examines a patient under other circumstances, and any party can procure the testimony of this physician by calling him on the trial.

Society Proceedings

COMING MEETINGS

Michigan State Medical Society, Muskegon, July 10-11.
Minnesota State Medical Association, Duluth, Aug. 14-15.
Washington, Idaho and Oregon associations, Portland, July 5-8.
West Virginia State Medical Association, Webster Springs, July 10-12.

AMERICAN GYNECOLOGICAL SOCIETY

Thirty-Seventh Annual Meeting, held at Baltimore, May 28-30, 1912

The President, DR. HOWARD A. KELLY, Baltimore, in the Chair

A list of the new officers was published in *THE JOURNAL*, June 15, p. 1867.

Menstruation Without Ovaries

DR. PALMER FINDLEY, Omaha, Neb.: A woman had both ovaries removed; menstruation recurred at regular twenty-eight-day periods for one year and a half, at which time I opened the abdominal cavity and resected an adherent omentum from the fundus of the uterus and broke up numerous pelvic adhesions. I was unable to find any trace of ovarian tissue. Seven months have intervened since this operation, and the patient continues to menstruate at regular intervals of twenty-eight days, and in the usual amount. I am inclined to believe that there exist some undiscovered portions of ovarian tissue.

DISCUSSION

DR. J. CLARENCE WEBSTER, Chicago: All of us have had the experience of hemorrhage occurring after the removal of the ovaries; we have even had the experience of hemorrhage occurring from the cervix after the removal of the body of the uterus. I believe that a considerable percentage of these cases in which the hemorrhage is irregular, may be explained either by the vascular degenerations in the uterine or ovarian arteries or in both, or in varicose veins of the broad ligaments. I recall only one case in my experience in which a regular flow suggestive of menstruation occurred after castration. I do not believe that Gellhorn's suggestion of adhesions is explanatory of such cases. When one considers the course the ovary takes in its development, it is not surprising that there should be small portions, invisible, perhaps, to the naked eye, left along the tract, and therefore it is not surprising that the menstrual habit may be kept up for years where there was thought to be complete castration, or even pregnancy might occur.

DR. HENRY T. BYFORD, Chicago: I recall a patient from whom I removed the uterus and ovaries, and who said that she continued to menstruate. On careful examination I found it was not exactly every month that this discharge began. She would have a little discharge between times. I told her to lie down a good deal, and if the discharge continued she was to return to see me. She wrote me that she was menstruating; that she would have a discharge at one time at the end of three and a half weeks, at another time at the end of four weeks. I told her to pay little or no attention to the little flow between times. There are a great many cases that are not menstrual in type, that is, they have not the menstrual periodicity. Adhesions interfere with the circulation by increasing it or damming it up, thus producing a bloody flow from the uterus, but this is not menstruation.

DR. J. M. BALDY, Philadelphia: The doctor's as well as the patient's statement is unreliable as regards menstruation. A notable New York surgeon transplanted ovarian tissue and called the discharge that followed menstruation. It was a mere show of blood, which disappeared in a short time.

DR. EDWARD P. DAVIS, Philadelphia: Recent studies to settle the vexed question of the time of labor throw light on the subject under discussion. It is found that the physiologic life of woman consists in periods of accumulation of blood terminating in increased pulse tension and in hemorrhage; that this condition is independent of the presence of genital organs, that is, the genital organs may be removed, and this

established physiologic habit still continue. In some cases the persistence of this discharge and increased pulse tension is the result of disorder of the ductless glands, and some patients are improved by the administration of thyroid or pituitary extract or epinephrin. This will explain some of the cases in which the removal of genital organs has been followed by continued hemorrhage. The hemorrhage will occur from a physiologic standpoint in any organ lined by mucous surface and richly supplied by capillaries.

DR. CLEMENT CLEVELAND, New York: I had a case some years ago in which it was reported that both ovaries had been removed, and still the woman menstruated. The patient came into my service, and I looked up the history. There was a miscarriage at the fourth month. The history showed that both ovaries had been entirely removed. I have very little faith in the functional activity of supernumerary ovaries, and I came to the conclusion that in most cases the discharge is due to a small portion of the ovary having been left behind. I was very positive it was in this case.

In another case I removed two ovarian cysts of considerable size from a woman from whom I had removed the right ovary completely. I found I could leave a portion of the left ovary about the size of a pea. This woman had already borne several children. She had menstruated regularly, and if there is one period during the last two years which she has skipped for two months, that is all. She is now menstruating regularly. I have examined her from time to time. There has been no decrease in the size of the uterus; her menstrual function is apparently perfectly normal, and there is no indication of the menopause.

DR. SETH C. GORDON, Portland, Me.: I have reported two cases in which women bore one child each about a year and a half after as careful a removal of both ovaries as possible.

A Simple Method of Shortening the Uterosacral Ligaments

DR. GEORGE H. NOBLE, Atlanta, Ga.: To prevent retroversion the body of the uterus is held forward by shortening the round ligaments, and I prefer an extraperitoneal operation, imbedding the ligaments between the layers of the aponeurosis anterior to the recti muscles.

The Use of the Continuous, Fixed Laparotomy Sponge

DR. W. FRANCIS B. WAKEFIELD, San Francisco: A sufficient number of surgeons throughout the country have used the continuous laparotomy sponge a sufficient length of time to prove conclusively that abdominal operations can be efficiently performed without the use of the dangerous loose sponge.

DISCUSSION

DR. GEORGE GRAY WARD, New York: For the past five years I have been using a continuous sponge in the form of a roller bandage, about 3 yards long and about 6 inches wide, folded in four or five thicknesses of gauze.

DR. JOHN F. THOMPSON, Portland, Me.: At our hospital, the sponges are counted by two nurses before and after operation.

DR. J. WESLEY BOVEÉ, Washington, D. C.: The plan I follow is to have a tape attached to each sponge. If one uses five or six sponges in the abdomen with a tape on each, the tape being clamped with forceps, one knows how many are put in and when they come out. I would rather trust my own count than be responsible for the count of one or two nurses.

DR. BROOKS H. WELLS, New York: Even the tape may go astray. In the only case I recall in which a sponge was left inside the abdomen, the sponges were carefully counted before and after operation by a nurse, and they were all supposed to have tapes sewed on them with a weight on the end of the tape.

DR. GEORGE H. NOBLE, Atlanta, Ga.: Sometimes in appendicitis cases I use a long strip of gauze, but when it comes to the sponges I use one at a time, taking it out as soon as it is put in. There is a string attached to the sponge. This is the safest plan to follow in using sponges in the abdominal cavity.

DR. BENJAMIN R. SCHENCK, Detroit: The method we have followed at the Harper Hospital is to use large abdominal towels, using no sponges at all in abdominal operations. There is only one safe method, and this is the continuous attachment of the sponges, as described by Dr. Wakefield.

DR. FRANK T. ANDREWS, Chicago: I use small sponges, which are carefully counted and labeled. Sometimes I use a 6-foot strip with a nickel ring attached to the end of a 2-foot tape.

DR. BROOKE M. ANSPACH, Philadelphia: At the University Hospital, Philadelphia, we do all isolating by means of gauze taken from a long roll, using two or three thicknesses. The roll is probably 4 or 5 feet long, so that there is only one piece used to pack off the intestines and isolate the operative area. Twelve sponges are used for exposed bleeding points, and these are carefully counted, but as soon as bleeding ceases, they are removed.

Ptosis

DR. FRANKLIN H. MARTIN, Chicago: The treatment of ptosis which I employ consists of posture, temporary supports, exercise of the muscles and correction of postural habits, fresh air and feeding.

DISCUSSION

DR. W. FRANCIS B. WAKEFIELD, San Francisco: I have been using a course of treatment for the last two years almost identical with that described by Dr. Martin, and the results have been extremely satisfactory. Surgeons are short-sighted if they allow women who advertise physical culture treatment in the popular lay journals to treat such patients. One can take an intelligent nurse and train her to understand the principles of the application of such treatment and to make use of it intelligently, and it is better to take the necessary pains to do this and take these cases out of the hands of those outside of the profession. The means of cure will be found very useful.

DR. CLEMENT CLEVELAND, New York: The posture referred to by Dr. Martin is not the Trendelenburg, but merely an inclined posture with the head downward. The Trendelenburg posture requires relaxation not only of the abdominal muscles, but of the psoas muscles. In order to get this, it is necessary to flex the thighs on the pelvis with easy lifting. The only table which will do this is named after myself, and it has been in existence for years.

DR. RICHARD R. SMITH, Grand Rapids, Mich.: These women come to the gynecologist in the great majority of cases in a state of fatigue. A woman who is enteroptotic, who is leading a life within her strength, does not suffer at all, but goes about and does her work, and takes her part in society with other women. She has a certain amount of vitality, but she gives out more easily. The keynote of the situation is that she needs rest, both physical and mental. She needs to improve her nutrition, which means better food, fresh air, or whatever other means we may employ. Mechanical measures will help incidentally, and if one can employ them in conjunction with the other things, surprising results may be obtained.

DR. WILLIAM S. STONE, New York: I find walking to be one of the best forms of exercise. If the principles are carried out, it means exercise and rest. A specific way of doing that is to tell these patients to take a walk and walk a little further than they want to, and they should take the walk at such time, so that when they reach home, without doing any work, either physical or mental, they can lie down on the bed or sofa for the same length of time that is consumed in taking the walk. They should be trained to carry out regular exercises, which should be followed by rest. In addition to that, I rely on a good, brisk, careful rub.

The Torsion of Tubal Enlargements with Reference especially to Pyosalpinx

DR. BROOKE M. ANSPACH, Philadelphia: A woman, aged 26, entered the hospital with symptoms of acute appendicitis. Operation revealed torsion of the right tube and ovary. The

tube was distended and filled with pus. The ovary was closely applied to the tube. The mass was purplish-black in color, and almost entirely free of adhesions. Tuberculosis was suspected as the underlying cause of the pyosalpinx, but the histologic examination did not confirm the opinion. Two years later the patient returned for another operation and the left tube was found to be tuberculous. It was considerably enlarged and evidently represented the condition of the right tube before torsion had occurred. Histologic examination showed typical miliary tubercles.

The variety of tubal enlargement which most frequently undergoes torsion is a hydrosalpinx. Ectopic pregnancy and cysts originating in the tube itself and malignant tumors are other causes. There are twelve cases of twisted pyosalpinx reported in the literature. A considerable portion of these were proved to be tuberculous, and it is likely that tuberculosis is the cause of at least half of the reported cases.

(To be continued)

MISSOURI STATE MEDICAL ASSOCIATION

Fifty-Fifth Annual Meeting, held at Sedalia, May 21-23, 1912

The President, DR. ROBERT H. GOODIER, in the Chair

For a list of the officers elected see THE JOURNAL, June 8, p. 1763.

Recognition and Treatment of the Early Manifestations of Mental Diseases

DR. C. R. WOODSON, St. Joseph: If manifestations of mental diseases are recognized early the percentage of recoveries is increased, the mortality lessened, the cost of maintenance reduced and the terminal dements fewer. Preventive medicine is as applicable to mental diseases as it is to any branch of medicine. The use of hypnotics to produce sleep in insomnia should be condemned, as they tend to increase nervousness and do not produce natural sleep, nor have the same effect on the same person in consecutive doses. Rest, diversion and proper up-building will give far better results.

Fractures of the Larynx

DR. W. E. SAUER, St. Louis: A laryngofissure is superior to a tracheotomy, not only as an immediate measure for saving life, but in preventing adhesions between the walls of the larynx which may result in a permanent stenosis. A boy of 14 was kicked on the neck by a horse. At the time of the accident the patient coughed up large quantities of blood, and soon noticed a difficulty in breathing, with hoarseness. These symptoms grew gradually worse, until he could speak only in a whisper and could breathe with difficulty. I did not see this boy until six weeks after the injury. He had lost considerable weight and presented the general appearance of a tuberculous patient. There was a marked stridor and he was compelled to walk very slowly in order to get sufficient air. There was a marked flattening over the pomum Adami, and a distinct depression could be felt over the left thyroid cartilage. The patient was absolutely aphonic. Examination with the laryngeal mirror revealed the interior of the larynx almost closed, with the exception of a small opening through which a small probe could be passed. A tracheotomy was done. Owing to the run-down condition of the patient it was thought advisable to wait before doing a laryngofissure. The latter was done a few weeks later. In the interior of the larynx there was a mass of scar tissue. The vocal cords could not be distinguished; some of this tissue was removed, and the skin was stitched to the mucous membrane.

A soft rubber tube was inserted into the larynx and the wound was packed with gauze; the dressing was changed daily, inserting a larger tube each time; by this means a gradual dilatation of the larynx was effected. At the end of two months the external wound was closed. The largest size O'Dwyer intubation tube could be inserted into the larynx with ease. The patient was able to breathe normally and

was able to make himself understood, although his voice was hoarse. His voice has been gradually improving with no evidence of a return of the stenosis.

Multiple Primary Carcinomas of the Jejunum

DR. F. W. BAILEY, St. Louis: My patient, 53 years old, complained of attacks simulating stomach ulcer. He gave a history of indigestion extending over twenty years, alternating with constipation and diarrhea. Stools were black and tarry. There were attacks of slight jaundice on a few occasions; pain was always high in epigastrium. Diet was necessarily limited. The attacks became more severe and frequent. Physical findings were negative, except for dilated stomach. No mass was palpable. Exploration was refused. Patient returned to hospital Feb. 18, 1912, with symptoms of complete pyloric stenosis, extreme emaciation and continuous vomiting. No tumor was palpable until patient was anesthetized. A movable tumor to left of the median line, posterior to the stomach was detected. The exploratory incision revealed the stomach and gall-tract to be free from adhesions and no signs of tumor or ulceration. Stomach was greatly distended. The pylorus admitted three fingers. The duodenum was 3 inches in diameter, the walls greatly thickened. This dilatation led to a point 18 inches below the ligament of Treitz, where an orange-sized mass was found and delivered. The jejunum being still dilated, it was traced to another tumor, slightly smaller, 4 feet below the first. No palpable evidence of any other viscerai involvement. Rapid double resection was done using suture above and Murphy's button below, being careful to remove the large glands. Patient reacted nicely and left hospital in good condition twenty-two days later. Patient is steadily gaining, and is free from all intestinal symptoms. Pathologic diagnosis adenocarcinoma. Small intestine metastatic carcinoma.

Some Observations on Movable Kidney

DR. H. C. CROWELL, Kansas City: It is begging the question to attribute all the manifestations noted in connection with a movable kidney to neurasthenia, although most of these patients are neurasthenic, because of the disturbance produced by the position of the kidney, which can and should be corrected in the full confidence of very marked if not absolute relief of the symptoms, if no other agent is operating to defeat such a result. The claim that tight lacing acts to produce the condition is challenged as being far-fetched and incapable of demonstration. On the contrary, it can be demonstrated that properly fitted corsets serve better than bandages in holding the kidney in place, though I have no confidence in either as even a satisfactory factor in bringing relief. Neglect and temporizing treatment bring only reflection on those who employ either. Operative treatment by fixation has given reasonably satisfactory results. Patients so treated have regained their lost flesh, the thing most desired, but rarely realized, by those who palliate only. There are some patients who have not only a falling kidney, but a general enteroptosis. It must be admitted that in some of the long-standing cases the patients do not satisfactorily recover from the neurasthenic habit into which they have fallen, but so universally have I seen some benefit accruing that I have no apologies to offer for recommending a fixation.

Single Incisions in Vaccination

DR. GEORGE DICK, St. Louis: Single incisions are made either with a scalpel or with a vaccine point. The operation should be as aseptic as possible. Antiseptics are not necessary and are very likely to interfere with the "take." Protective dressings are not necessary, but if the clothing and habits are such as favor accidental infection, a thin, dry, sterile gauze may be used.

Empyema in Infancy

DR. JULES M. BRADY, St. Louis: Empyema in early life, owing to its frequency and to the fact that it is often not recognized, assumes very great importance. Next to exploratory puncture, the sense of marked resistance imparted to the percussing finger and the displacement of the heart are the most valuable signs. The fact that the recognition of

the true condition followed by proper treatment almost invariably rescues the child, if over 2 years of age, from almost certain death, demands that physicians caring for children be on the watch for this complication. In the case of a breast-fed baby, aged 6 months, it was learned that the baby had been well up to six weeks before. At that time it took sick suddenly with pneumonia. After a desperate illness of nine days the fever abated. Ever since the baby has been losing weight; at the time of examination it presented the picture of marasmus. Of special interest was the presence of Brudzinski's neck sign, which in an acute disease is strong evidence in favor of meningitis. The fontanelle was level and there was no other sign pointing to this complication. Under local anesthesia the seventh intercostal space was incised in the posterior axillary line and two rubber drainage-tubes were inserted. Six days after operation the neck sign of Brudzinski could not be elicited. After four weeks there was still a profuse discharge from the chest wound, and the nutrition had not improved. A resort was then made to pneumococcus vaccine, 400 million being injected every other day for five doses. The result was as prompt as that following the use of staphylococcus vaccine in furunculosis. The problem then was to cope with the nutritional disturbance now that the empyema had been cured. Two feedings of Keller's malt soup, prepared with extract of malt, flour, carbonate of potash and cow's milk were resorted to with prompt improvement; these were later increased to five. In the course of two months the baby had recovered completely.

Acidosis

DR. O. H. BROWN, St. Louis: One certain cause of acidosis is carbohydrate starvation. This causes the body to depend on fat for its energy, and in the course of fat catabolism there result certain fatty acids that are only slowly oxidized, and hence there may accumulate therefrom a harmful quantity of acids, chiefly beta-oxybutyric and diacetic acids. A second cause of acidosis, one recently brought forth by Fischer, is the group of conditions at the basis of nephritis. These may be bacterial toxins, other poisons, cardiovascular disorders, or excessive exercise. The final result is the same in that there is a general interference with the oxidative processes of the cells of the body and an accumulation of waste which, in the main, consists of harmful acid products. Fischer sustains this theory with most convincing experiments and argument. A third cause of acidosis seems possibly to be based on injury of the liver or a perversion of the function of the body ferments. This, however, is mere speculation. So far, the extent of treatment is an administration of sodium carbonate or other alkali and some carbohydrate, if the lack of this has been the cause. Prophylactic treatment is to be aimed for.

Auto-Intoxication

J. M. BELL, St. Joseph: This condition is more frequent than usually credited. It is a concomitant of almost all digestive disturbances, particularly those of impaired motility. It arises from decomposition of animal food and from bacterial activity in the intestine. Indican should serve as an index to the digestibility of meat. When this is present in the urine, animal foods should be reduced until it disappears. Its constant presence creates a condition frequently called chronic malaria. Eczema, psoriasis and acne, unless very chronic and of long standing, may be disposed of by a change from an animal to a fruit and vegetable diet, plus liberal quantities of cold water. When its existence is the result merely of deficient peristalsis, change of diet, with colon irrigation with ichthyol and abdominal massage will dispose of it. When the result of distinct pockets arising from adhesions or ptosis of the intestinal tract, surgery is indicated. The relation between such toxic absorption and thyroid disease and, in fact, that of all the ductless glands is becoming appreciated. While indicanuria is not *per se* a dangerous condition, its persistence indicates a process within the intestinal tract which tends toward invalidism rather than health; a lack of harmony between diet and digestion which lowers resistance and prepares a soil which invites disease.

Chronic Recurrent Septic Endocarditis

DR. L. H. HEMPELMANN, St. Louis: Chronic recurrent septic endocarditis is an affection which develops in persons who have old valvular lesions. The predominating symptom is fever, which persists in spite of all treatment for weeks and even for months, cases lasting four to six months being not unusual and one case of eleven and another of thirteen months being reported by Osler. The course of the fever is usually not quite as regular as we usually see it in typhoid, and there are often occasional chills and sweats. The heart may show absolutely no change for months, there being no demonstrable change in the old murmur and no increase in the dulness or change in the rate of beat that can not be accounted for by the temperature. Emboli frequently occur, their most usual sites being the kidney, spleen, lung, brain or extremities. There is often an early anemia which when taken with the enlargement of the spleen, which is usually present, may lead to the erroneous diagnosis of splenic anemia. Blood cultures are of great value, the organisms most frequently isolated being the pneumococcus, streptococcus and gonococcus. The prognosis is always very grave, fully two-thirds of the patients dying, although recovery, of course with a damaged heart, has been reported even after an illness of six months' duration.

The treatment is mainly hygienic and dietetic, a liberal diet being indicated rather than the liquid or semisolid typhoid diet. Hexamethylenamin, Credé's ointment, quinin, and the like, while worthy of a trial, have in the main been useless. The serums and the vaccines, too, both the autogenous and the stock vaccines, have not given uniform results, most authors reporting unfavorably their use. I have had three cases, one a gonorrheal case, terminating in recovery after an illness of six months, and two fatal cases, lasting three and six months, respectively. The former case was due to a streptococcus but the antistreptococcus serum did not seem to be of any benefit. The last case due to the *Staphylococcus albus* (?) showed no improvement after an autogenous vaccine. In this case, too, there was an embolus of the tibial arteries of the right leg which led to gangrene of the foot extending up to midway between the ankle and the knee.

Experimental Work on Anti-Rabic Immunization with Desiccated Virus

DR. D. L. HARRIS, St. Louis: Employing a modification of the method of desiccation described by Shackell, I have been able to dry fixed virus so that from 30 to 50 per cent. of the infectivity remains after complete desiccation. The essential feature of this method is the freezing of the "virus" with carbon dioxid snow and drying this *in vacuo*, in the presence of sulphuric acid at a temperature of -15°C . The dried material, when kept in a cool dark place, free from moisture, loses its infectivity very slowly. After five months it still shows a virulence greater than the two-day cord of Pasteur. The relative permanence of this material has led to an attempt to "standardize" the virus and to determine the amount of infective "units" which will immunize animals. Experiments have shown that rapid and complete immunity may be established in dogs and rabbits by the injection of this material.

The Value of Beginning Passive Motion Very Early Following Fractures In or Near Joints

DR. CARROLL SMITH and DR. H. S. MCKAY, St. Louis: The after-treatment of fractures is often more important than the primary treatment. A good functional result after a fracture, even with some anatomic defect, is better surgery than a perfect anatomic result with poor function. Immobilized joints may ankylose in a very short time, and since forcible movements cannot be employed to break up joint adhesions for from two to three months after the injury, it is important to prevent adhesions from forming. The early and intelligent use of massage and passive motion is the best way to accomplish this end. The time at which massage should be begun and the amount of motion must be determined by the conditions present. The measures should not be used until primary pain, muscular spasm and swelling have subsided, for if they are used too early, hemorrhage may be kept up, fragments dis-

placed, muscular spasm made worse or fat embolism caused. Too early and too much motion may cause excessive callus or lead to non-union. Massage, properly used, aids absorption of periarticular and joint effusions, prevents atrophy and weakness, hastens healing and lessens joint and tendon-sheath adhesions and ligament contractures. When Lane's bone-plates are used one should remember that softening occurs about the screws used in applying the plate between the fifth and tenth days and that callus does not form so early nor in such amounts as in the older methods of treatment. After about fourteen days, however, the screws are again held firmly and then more or less motion is permissible. Early, careful massage in such cases does no harm and its use is to be recommended.

Several cases are reported to illustrate what may be accomplished by careful, personal attention to the details of after-treatment in fractures.

Thoracentesis as an Aid in the Diagnosis of Pleural and Pulmonary Diseases

DR. W. P. ELMER, St. Louis: I have had four cases in which the diagnosis was facilitated by thoracentesis. 1. Putrid bronchitis with emphysema bronchiectasis and thickened pleura in a child which might have been diagnosed empyema. 2. Lung abscess following amebic dysentery and complicated by enlarged and tender liver, which was first explored for liver abscess; would have had a better chance for recovery had the abscess been drained when it was demonstrated by thoracentesis. 3. Putrid bronchitis with bronchiectasis and acute pleurisy with effusion; would have been operated for empyema but for the result of the thoracentesis. 4. Putrid bronchitis with pleural thickening in an adult; was rendered more confusing by the x-ray which showed a shadow resembling a cavity which, however, could not be located with the needle and which did not change with improvement of the patient. It may be contended that the thoracentesis was in itself a therapeutic procedure in some of these cases and that in reality empyema was present in these cases with thickened pleura. The therapeutic effect of thoracentesis cannot be denied, but the thoroughness with which the explorations were performed, reduces the chances of mistake though it does not eliminate them.

AMERICAN PEDIATRIC SOCIETY

Annual Meeting, held at Hot Springs, Va., May 29-31, 1912

(Continued from page 2047)

Inclusion Bodies in the Blood of Scarlet Fever as a Means of Differential Diagnosis

DR. MATTHIAS NICOLL, JR., New York: With the purpose of testing Dohle's findings, I have studied blood-smears from fifty-one scarlet fever patients, together with twenty-five controls, with the result that forty-five scarlet fever patients showed inclusion bodies such as Dohle has described, and six failed to do so. In the great majority of the positive cases the patients had been sick a week or less. The inclusion bodies were found chiefly in the polynuclear leukocytes and varied in size and shape from small coccus forms to large irregular masses one-fifth the size of a red blood-corpuscle. Bacillary forms were also seen. With Manson's stain the nuclei take on a deep blue color, the cytoplasm a faint blue, and the inclusions a tint between the two. With the Giemsa stain, the inclusions take on a clear delicate blue identical with that of plasmin, and the nuclei color magenta. For satisfactory examination it is essential to take a small drop of blood and spread it out evenly and thinly so that the leukocytes will not be distorted or cramped between red blood-cells or groups of other polymorphonuclears. The smear is fixed in methyl alcohol, thoroughly washed and stained with Manson's stain, for ten seconds to one-half a minute. It is then washed and examined with the oil immersion. It seems that we have in the blood examination of suspected scarlet fever patients an extremely valuable method of differential diagnosis between this disease and nearly all of the conditions which resemble it.

DR. CHARLES G. KERLEY, New York: Four years ago two children came down on the same day with a rash like that of scarlet fever but very atypical. I sent two slides to Dr. Nicoll with the request that he tell me whether they were cases of scarlet fever. One case was reported positive and the other negative. In the case reported positive the rash disappeared in several days and desquamation took place, while in the case reported negative there was no desquamation.

DR. MATTHIAS NICOLL, New York: We have made an attempt to see how long these bodies will last and find that they disappear in from five to twenty-eight days. I have had many very interesting experiences in the differentiation of scarlatiniform rashes. Many of the cases are not at all suspicious because the temperature is so low. The cases in which there is no desquamation are undoubtedly German measles.

Studies in Metabolism of Amaurotic Idiocy

DRS. HENRY HEIMAN, SAMUEL BOOKMAN and BURRILL B. CROHN, New York: In two cases of typical amaurotic family idiocy, the first patient, 15 months of age, and the second, 7 months, tables showing the daily averages of intake and output of nitrogen, sulphur, phosphorus and chlorine, and also tables showing the daily average percentage of intake and the absorption percentage of intake show the fact that absorption from the gastro-intestinal tract and retention within the body was normal or even better than normal. A close scrutiny of the figures for the intake and output of phosphorus and sulphur do not disclose a marked disturbance in the metabolism of these constituents. One can understand this when one takes into account the very slow process of degeneration and the small actual amount of phosphorus and sulphur in the entire cerebrospinal system. It is advisable, therefore, to study the disease at intervals during its course, both in its earlier stages, in which anabolic changes predominate, and in the later stages in which degenerative and catabolic processes play an important rôle.

Congenital Obstruction of the Posterior Urethra

DRS. J. H. MASON KNOX, JR. and THOMAS J. SPRUNT, Baltimore: The patient, a boy who had had difficulty in controlling micturition from infancy, died aged 5. At autopsy there was found an obstruction in the prostatic portion of the urethra, which was converted into a blind pouch by the fusion of its anterior and posterior walls, apparently because of an overdevelopment of folds normally present immediately distal to the veru montanum. A small triangular opening, whose sides measured 3 mm., situated in the floor of this pouch, was the only communication with the anterior urethra, and through this the urine had to pass. As a result of urinary stasis there had occurred marked dilatation and hypertrophy of the bladder, ureters, and kidney pelvises, with typical hydronephrosis terminating in uremia. We have found no other case of this kind reported in this country.

Typhoid in Infancy

DR. J. P. CROZER GRIFFITH, Philadelphia: I have analyzed seventy-three cases of typhoid in children under 2½, more than one-half of which have come under my own personal observation. This is the largest individual series yet published. The onset of typhoid in infancy is of decidedly shorter duration than later, the length averaging three to four days before evidence of a fully developed attack is present; only about one-third of the cases show a slower appearance of the symptoms. The temperature rises rapidly, diarrhea is more common than in childhood, vomiting decidedly more frequent than in older children. Prostration is seldom marked. Cough and pain are infrequent, and epistaxis is rare. The fully developed attack of typhoid in infancy shows many digestive symptoms. Abdominal distention is frequent, probably more so than at later periods, but is seldom distressing. Bronchitis is common. The heart and pulse are seldom much involved. The nervous symptoms, on the whole, are not marked. The course of the temperature is uncharacteristic. The complications most common are diphtheria, pneumonia, otitis, furunculosis and measles. A decided tend-

ency to suppurative processes was seen in eighteen cases. There were three relapses and possibly four.

DISCUSSION

DR. ALFRED HAND, JR., Philadelphia: The conclusions reached by Dr. Griffith bear out my own experience. The cases of longer duration are those with a lower temperature, from 101 to 102.5 F. The diagnosis of typhoid by the Widal test is as easy in infants as in adults. The test is more valuable in infants than in adults as there is less likelihood of their having had a previous attack of the disease. The test should be made more frequently, as typhoid in infants is not recognized as frequently as it should be.

DR. JOHN L. MORSE, Boston: I agree regarding the sudden onset of the disease. It seems to me that it does not require the Widal test in order to make a diagnosis. The existence of leukopenia is a diagnostic help in these cases.

DR. FRANK S. CHURCHILL, Chicago: I cannot agree that the diagnosis of typhoid in infants is easy; it is extremely difficult. An examination of a blood-culture is the only way to make sure that one is dealing with a case of typhoid. Dr. Griffith said that bronchitis occurred in 47 per cent. of his cases; I have found that it occurs in from 90 to 95 per cent. of the cases.

DR. CHARLES G. KERLEY, New York: In what way were these infants fed?

DR. J. CROZER GRIFFITH, Philadelphia: Mostly on a milk diet with sometimes broths added.

DR. KERLEY: That is the best way to run up a high mortality rate. In twenty-four years of active practice among children I have learned that milk is absolutely contra-indicated in typhoid.

DR. EDWIN E. GRAHAM, Philadelphia: My experience with typhoid has been largely as stated by Dr. Griffith, but I have always thought the mortality in early childhood was comparatively low, something below 16 per cent. I have recently seen three cases of typhoid in children due to a house infection and believe children should be more carefully guarded against infection from this source.

DR. FRITZ B. TALBOT, Boston: In a case in which the child was infected by breast-milk from a mother having typhoid, the milk showed the presence of living typhoid bacilli.

DR. HENRY HEIMAN, New York: I have found it rather difficult to make a diagnosis of typhoid in infants unless in the midst of an epidemic. It is my practice to have a Widal test made in suspicious cases. The blood-culture is extremely difficult to get in young children.

DR. SAMUEL S. ADAMS, Washington, D. C.: I have previously called attention to the fact that typhoid occurs among children more frequently than is supposed. I am glad to hear what Dr. Heiman says about the blood-cultures, as I tried to have them taken by the best assistants that I could procure and they would not take the chance in children under 7 months of age. It is not always difficult to make a diagnosis of typhoid during an epidemic or when it is due to a house infection. I have made diagnoses from very meager symptoms, from general appearance and from the histories furnished by the parents.

DR. HENRY C. COIT, Newark: Has it been Dr. Griffith's experience to receive positive Widal reports in cases presenting no acute symptoms? This has occurred in my experience, and it raises the question of the possibility of infants being typhoid carriers.

DR. J. P. CROZER GRIFFITH, Philadelphia: Of our babies, 60 per cent. were 2 years of age or less. The fever is long-continued much less frequently in infants than in older children. I said that bronchitis occurred at least in 47 per cent. of the cases; it occurs so commonly that it should be regarded as a symptom and not a complication. I do not think it necessary to take a blood-culture. The leukocyte count in children is higher than in adults. None of the children were breast-fed. I cannot agree with Dr. Kerley that milk is the cause of high mortality; it is more often due to complications. The disease could be traced to house infection in only sixteen of the seventy-five cases.

(To be continued)

FLORIDA MEDICAL ASSOCIATION

Thirty-Ninth Annual Session, held at Tampa, May 8-10, 1912

The President, DR. A. H. FREEMAN, in the Chair

Officers Elected

The officers elected for the new year are: President, Dr. John S. Helms, Tampa; vice-presidents, Drs. Graham E. Henson, Crescent City; J. G. DuPuis, Lemon City; M. L. Crum, Bowling Green; librarian, Dr. William S. Manning, Jacksonville.

Place and time of meeting, 1913, Miami, second Wednesday in May.

ADVANCES IN SURGERY

DR. RAYMOND C. TURCK, Jacksonville: In general there is a growing tendency to educate the public to the necessity of surgical intervention in the early stages of many diseases, not to consider surgery a last and often hopeless resort, but to have recourse to surgery at a time when it offers the greatest hope for the saving of life or the restoration of health. Greater stress should be laid on diagnosis, especially early diagnosis, and above all early diagnosis in malignant conditions. The physician should cast out of his mind the older text-book pictures of disease in its advanced, so-called typical stage, and should get the early picture. With a choice of a wealth of modern text-books, with a selection of good medical journals, with opportunities for postgraduate study and attendance on medical and surgical clinics, and above all, the opportunity to utilize the excellent laboratory and diagnostic facilities afforded by our efficient State Board of Health, any man may know the early picture of disease and may make an early and correct diagnosis in a great majority of cases. The profession and the laity should be made to realize that the medical man who studies his case, who makes a clean-cut diagnosis, who determines the necessity for an operation and assumes the responsibility of advising operative measures is deserving of and should be given adequate compensation. Conservatism in its truest sense means the restoration or preservation of health and function, or the saving of life. It does not mean the refusal to operate when an operation is indicated, nor does it mean work but partly done, nor the leaving in place of non-functioning or slightly diseased organs or parts of organs solely for the sake of leaving them. The surgeon's knife in its most radical work is often the greatest of conservative agents.

Clinical History

DR. U. S. BIRD, Tampa: Temperature, pulse, respiration and other facts promptly recorded are important to the point of necessity; the records are easily preserved, can be made available, and are absolutely reliable. But most important is the history of the patient as told on the first visit to the physician. It is well to let them tell their stories in their own way. In many cases such a plan will afflict us with much useless gossip. On the other hand, abrupt interruptions and an unsympathetic manner may deprive us of many facts vitally important to a proper diagnosis and treatment. Clinical histories are simply a detail, albeit an important one, in the practice of medicine, and no part of the practice of medicine is limited by any hard-and-fast rule. A knowledge of the previous course of a disease, is an important, almost necessary, aid in the diagnosis, treatment and prognosis.

DISCUSSION

DR. A. H. FREEMAN, Starke: We are often in too big a hurry to get the work on the case done, and in this way we fail to find out a great many features that afterward develop. We should make a greater effort than we usually do to get a history of the case.

DR. L. A. BIZE, Tampa: As a rule, I have a line of definite questions which I ask each patient in trying to get over such ground. In chronic conditions it has been my experience that patients often hesitate to tell their physician all necessary history.

Dysmenorrhea

DR. GERRY R. HOLDEN, Jacksonville: Dysmenorrhea may be divided into two great classes: (1) dysmenorrhea asso-

ciated with and apparently directly caused by some pathologic condition of the pelvic organs; (2) dysmenorrhea apparently independent of local pelvic conditions and caused entirely or in great part by general extragenital conditions. Pelvic inflammatory disease, backward displacements of the uterus, and myomas are responsible for 90 per cent. of dysmenorrheas caused directly by pathologic pelvic conditions. Dysmenorrhea of the second class is of many types. Some general symptoms are more or less common to all cases. Anemia, malnutrition, general poor development, and instability of the nervous system are frequent. Many deformities or so-called displacements are local expressions of general maldevelopment, e. g., antelexions and some retroflexions. Treatment of Class 1 is treatment of the lesion at fault. It is not necessarily operative and varies according to the degree of the lesion and severity of the symptoms. Double ovariectomy is never justifiable on account of dysmenorrhea alone. Treatment of Class 2 is in great part general and hygienic. Absolute rest at time of the periods is preferable to drugs and the results are frequently as good. Treatment by corpus luteum extract is of advantage in selected cases. Dilatation and curettage offers good results in selected cases.

DISCUSSION

DR. A. R. BOND, Tampa: The profession in general has been too free in prescribing operations in these cases. We can make no greater mistake than to inflict on a young girl or woman this operation, to unsex her for merely a local trouble that can be otherwise handled. I have treated some of these cases with ovarian extract. The results have been remarkable.

DR. J. G. DUPUIS, Lemon City: Another point of vital importance is the relation of the family physician to the developing girl when menstruation begins, especially as to proper instruction to the patient and the mother. Usually when a girl first menstruates, if there is some difficulty, when a physician is called on he will write a prescription of some sort and that is the end of it. The second time it is painful. A great percentage of our women seem to be growing up in the habit of dysmenorrhea.

DR. G. E. HENSON, Crescent City: No class of cases requires such careful handling as those of dysmenorrhea. In all warm countries we especially have dysmenorrhea from anemia, due to hookworm and malarial infections, and in these anemic girls, growing into womanhood, I would especially urge an examination of the stool for the ova of the hookworm and an examination of the blood for the malarial parasite. I have found very often if these infections are present, if they are put on proper treatment, the dysmenorrhea in many of these cases will disappear.

Pain in the Abdomen and Its Significance

DR. P. C. PERRY, Jacksonville: There are many failures associated with the treatment of pain in the abdomen and the pathologic conditions that are found there. Medical treatment, in but a limited number of cases, yields nothing and has for value only two points; making the patient-medical venter independently rich off the poor suffering individual, and bringing the family doctor into disrepute within individual families for such failures, when finally the case is referred to the surgeon, after the gross diagnostic points are so apparent that it is impossible for any one to fail to make the diagnosis. After failure to make proper and early diagnosis, the surgeon is confronted by Jackson's veil; Lane's kink; adhesions in and about the gall-bladder; old or latent adhesions, the result of perforative duodenal ulcers, and carcinomatous conditions. But that is a mechanical condition and has to be met by the average surgeon, and he takes all the blame for failure in making permanent cures, sharing more of the responsibility with the public, and taking more of the blame for the failure in these cases than the man who is primarily responsible for it, viz., the family practitioner. Therefore, I urge early diagnosis.

Not every case of pain in the abdomen calls for operative procedure, but cases that require operation should be diagnosed early, and not be allowed to continue for years.

Amebic Dysentery

DR. J. B. WALLACE, Tampa: For several years we have had occasional cases of liver abscess in this section, undoubtedly of amebic origin. These have been found largely among the foreign population, and of comparatively infrequent occurrence. Beginning about six months ago there has been a very marked increase in the prevalence of amebic infection; the diagnosis of amebic dysentery having been confirmed by the laboratory in about thirty-five cases. But more significant is the fact that during this period, in addition to the cases reported above, about forty cases of hepatic abscess have been found. The frequency of liver abscess, as a complication of amebic infection, is variously estimated as occurring in from 5 to 25 per cent. of the cases. It is apparent, therefore, that the larger part of our cases of amebic infection are not being recognized. Of the cases noted by far the most frequent complication has been abscess of the liver. This complication, so far as I know, has occurred only in cases in which no diagnosis of amebic infection had been made prior to the development of abscess, and were, consequently, untreated cases. Perforation with fatal peritonitis was a complication in four cases; in two cases death was apparently due to exhaustion consequent to repeated hemorrhages. The diagnosis depends on the discovery of the ameba. The sources of infection are contaminated water and food, most often uncooked vegetables. While definite proof is lacking, the consensus of opinion is that most of our cases have originated from contaminated lettuce or similar uncooked vegetables.

In the treatment of amebic dysentery here at the present time ipecac has practically supplanted all other measures. The method employed is that suggested by Dudley of Manila about two years ago. The patient is put on a milk diet and confined to bed; after 4 p. m. takes neither food nor water for four hours when he is given 30 grains of ipecac, in six salol-coated pills, swallowing these with as little water as possible. The patient takes no food or water during the night; the next day he takes water and milk liberally until 4 o'clock and after a four hours fast is given 25 grains of ipecac. The dose is reduced 5 grains daily, until the 5-grain dose is reached. Patient is then put on a light diet, and daily dose of 5 grains continued for a week or ten days. If the pills are properly prepared there is little or no nausea. This treatment has given excellent clinical results; as to whether they are permanently sufficient time must determine. The local treatment by irrigations with the various amebicidal solutions has failed.

DISCUSSION

DR. THOMAS TRUELSON, Tampa: We have an unenviable number of cases of amebic dysentery, and from all prospects we will have still more. The diagnosis is sometimes very easy. Many cases develop very mild dysentery, very small discharge, very little diarrhea, and some patients have evidently recovered within a week or ten days without any special treatment directed against the amebiasis. If they later develop abscesses, and if we suspect and bear in mind the possibility of amebic dysentery, we can make the necessary tests and make our diagnosis earlier and afford a better prognosis. There are a good many cases of chronic dysentery and repeated outbreaks which are hard to control. I think, as a general rule, the ipecac treatment is the most favorable. It must be borne in mind that some of the ipecac on the market is quite inactive. This may account for some of our failures. Then the method of coating it with salol may have something to do with failure in treatment. If the coating is not thick enough we will get irritation and subsequent vomiting. If the pills get to be too hard so they will not dissolve, we get no action from the ipecac. I think probably a systematic course of ipecac treatment is worth more to the patient than a systematic flushing of the bowels. There is no objection to the flushing of the bowels, and it should probably be recommended as a routine procedure.

DR. W. P. ADAMSON, Tampa: In one of my cases I gave salol-coated ipecac pills; the pills were all recovered from the bowel movements and this kept on happening until the coating had to be made so thin or so fragile that at times the ipecac produced vomiting. In one or two cases, when I have used

ready-made pills they would pass through undissolved; and I have observed that during eight to ten hours following the use of ipecac, some dysentery patients would have a number of liquid, yellowish stools. These cases, I think, give the best results.

A Vegetable-Borne Epidemic of Typhoid

DRS. HIRAM BYRD and CHAS. WM. BARTLETT, Jacksonville: The source of the typhoid infection in Tampa was likely polluted lettuce, the evidence of which is as follows: 1. Most of the lettuce consumed in Tampa is grown in Garytown valley. 2. Lettuce gradually found its way into the market from the latter days of September, the market being well opened by the middle of December. 3. On December 16-17 a rainfall of 1.95 inches occurred in twenty-four hours. 4. At this time 75 per cent. of the vegetable gardens in the Garytown valley were flooded. 5. Living on the watershed of this Garytown valley are approximately 1,500 people using surface closets. 6. Among these were sixteen cases of typhoid and three cases of amebic dysentery during 1911. 7. The flooding of the gardens from a polluted watershed would inevitably pollute the vegetables. 8. This is further substantiated by the fact that a sample of water taken from the creek even in a dry season (March 10) was sewage polluted. 9. Lettuce was the chief vegetable concerned because it was the only one to reach the market in any considerable quantity until several weeks had elapsed after the flood; and after the typhoid had been well established. 10. The people of Hyde Park (seat of epidemic) consume proportionately more lettuce than those of the rest of the city; and here both typhoid and amebic dysentery were chiefly established. 11. The people of East Tampa consume lettuce to some extent, but not to the extent that Hyde Park people do, and that here typhoid and amebic dysentery prevailed to some extent but not so much as in Hyde Park. 12. The people of West Tampa consume very little lettuce and here the typhoid and amebic prevalences showed no disturbance.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Journal of Pharmacology and Experimental Therapeutics,
Baltimore

May, III, No. 5, pp. 477-608

- 1 *Pharmacologic Action of Vanadium. D. E. Jackson, St. Louis.
- 2 Convulsive Reflex Produced by Strychnin: I. Habit. II. T. Mostrom and H. McGuigan, Chicago.
- 3 *Idem. II. As Modified by Epinephrin. H. T. Mostrom and H. McGuigan, Chicago.
- 4 Convulsant Action of Some Sulphonated Dyes. D. I. Mache, Baltimore.
- 5 *Seat of Emetic Action of Apomorphin. C. Eggleston and R. A. Hatcher, New York.
- 6 Action of Drugs and Function of Anterior Lymph Hearts in Cardiotomized Frogs. J. J. Abel, Baltimore.

1. **Pharmacologic Action of Vanadium.**—In the long list of diseases in which vanadium has been reported to do good, Jackson says one might search a long time before he could find any common factor, the correction of which might be expected to cure or greatly alleviate the malady. Among this list perhaps ought to be mentioned tuberculosis, anemia, chlorosis, lues, rheumatism, diabetes, arthritis deformans, "heart disease," cachexia, autointoxication, sciatica, dropsy, neurasthenia, myelitis, chorea, "dyspepsia," anorexia, bronchitis, skin affections, etc. In addition may be mentioned its use as a local antiseptic in skin and venereal diseases. So far as Jackson can deduce from the literature and from his own experiments, he says that probably the only actions of the metal which may be at all utilized in the treatment of pathologic conditions are those which are exerted on the abdominal organs. These consist of a marked localized peripheral constriction and perhaps toning up of the vessels of the splanchnic area; an increase in the peristaltic movements and apparently an increase in the urine flow. This latter is probably due mainly to the vascular action.

When administered intravenously the chief action of vanadium is expended on the vascular system. The central

nervous system has but little influence on this action, for the rise in blood-pressure produced by injection of vanadium into an animal whose head has been removed from the body is almost identical, both in character and extent, with the rise produced by injection of the metal into a normal (etherized) animal. With ordinary doses the mammalian heart is but little affected. The vagus endings in the heart remain active throughout the whole course of the intoxication in the intact animal. An intense peripheral vasoconstriction is produced by the metal in the spleen, kidneys and intestines. Jackson claims that the view held previously that the rise in general blood-pressure was due to a strong stimulation of the medullary vasoconstrictor center is wholly wrong. The peripheral constriction is due to a localized action within the organs themselves.

With repeated intravenous injections of the same sized doses into an intact animal the rise in blood-pressure following each injection regularly decreases until at length a fall will be produced by each injection. This is due first, to weakening and paralysis of the vasoconstrictor center, and second, to a direct depression of the heart. With a moderate dose the maximum rise in blood-pressure will be produced and a further increase in the size of the dose will not give any greater rise in the pressure. This seems due to the fact that a moderate dose gives the maximum contraction of the visceral vessels and a larger dose does not produce any corresponding constriction of the remaining vessels of the body. The peripheral action of vanadium on the visceral vessels is very much greater than that of barium. With doses of epinephrin and of vanadium so adjusted that each will give the same rise in general blood-pressure, the vasoconstriction in the kidney, spleen and intestine produced by vanadium will be very much greater in extent and duration than that produced by the epinephrin. On this basis, Jackson believes that vanadium may possibly prove of use in internal hemorrhages occurring in these organs.

With moderate (intravenous) injections the general blood-pressure usually returns approximately to its normal level (or even below) several minutes before the constriction in the abdominal organs disappears. There is an increase in the peristaltic movements of the intestines. But the local application of vanadium to a loop of intestine does not cause a local anemia or a contraction of the bowel wall as occurs with barium. These two elements also differ widely in their actions on the heart. Smooth muscle, except the vessels and alimentary canal (and perhaps certain nonstriated muscular elements in the spleen and kidney), does not seem to be affected by the metal. In toxic doses the substance acts on the kidneys and gastro-intestinal canal in a manner similar to that of other irritating metallic bodies.

3. Strychnin Reflex and Epinephrin.—The authors claim that epinephrin is antagonistic to the paralytic action of strong strychnin solutions on the heart. Epinephrin and strychnin have a synergistic action on the cord. Spasms develop more quickly when epinephrin is given with or previous to strychnin. Strychnin is antagonistic to the general depression produced by epinephrin, but this antagonism is not mutual. Epinephrin will not antagonize a strychnin spasm. There is then no indication that epinephrin can be applied with benefit in the treatment of strychnin convulsions.

5. Seat of Emetic Action of Apomorphin.—The evidence in favor of the existence of a central controlling mechanism for the act of vomiting, Eggleston and Hatcher say, is overwhelming. All of the evidence favors the view that apomorphin acts directly on such central mechanism; there is no valid evidence in favor of the local reflex action of apomorphin. Apomorphin acts solely by direct stimulation of the central vomiting mechanism in the dog and probably also in man.

Journal of Arkansas Medical Society, Little Rock

May, VIII, No. 12, pp. 317-342

- 7 Ectopic Pregnancy, with Clinical Report of Four Recent Cases. W. A. Snodgrass, Little Rock.
- 8 *Obstetrics and Gynecology in Country Practice. F. B. Young, Springdale.
- 9 Urinary Calculi. L. E. Willis, Newport.
- 10 Conjunctival Flap. R. H. T. Mann, Texarkana, Texas.

8. Abstracted in THE JOURNAL, July 8, 1911, p. 157.

Surgery, Gynecology and Obstetrics, Chicago

June, XIV, No. 6, pp. 537-670

- 11 Pyloroplasty. G. G. Turner, Newcastle-Upon-Tyne, England.
- 12 *Late Results of Operations for Perforation of Gastric or Duodenal Ulcer. G. Petren, Lund, Sweden.
- 13 *Histology and Nature of So-Called Foam-Cell Tumors. C. Smith, St. Louis.
- 14 *Autolytic Excision by Pentagonal Compression Suture. J. W. Draper and W. C. MacCarty, Rochester, Minn.
- 15 Study of Diseases of Accessory Sinuses in Relation to Diseases of Eye and Surgical Methods to be Adopted for Their Relief. J. H. Bryan, Washington, D. C.
- 16 Relation Between Otitic and Intracranial Diseases. G. Bacon, New York.
- 17 Origin of Epithelial New Growths of Ovary. J. R. Goodall, Montreal.
- 18 Chronic Visceral Pain in Relation to Surgery and Psychotherapy. T. A. Williams, Washington, D. C.
- 19 Newer Operations in Glaucoma. J. E. Weeks, New York.
- 20 Codivilla's Method of Lengthening Lower Extremity. A. H. Freiberg, Cincinnati.
- 21 Operation for Retrodisplacement of Uterus. A. M. Willis, Richmond, Va.
- 22 Removal of Sternum for Cancer with Suturing of Innominate Vein. E. Lanphear, St. Louis.
- 23 Prostatectomy To-Day. W. Van Hook, Chicago.
- 24 Cystoscopy in Gynecology and Obstetrics. G. B. Miller, Washington, D. C.
- 25 Vanadium Steel Bone Plates and Screws. W. O. Sherman, Pittsburgh.
- 26 Device in Suprapubic Openings. C. M. McKenna, Chicago.
- 27 Large Cysts of Urachus. J. F. Baldwin, Columbus, Ohio.

12. Perforation of Gastric or Duodenal Ulcer.—The investigations made by Petren of the after-histories of those who have survived operations for perforation show somewhat varied results; but they all indicate that the majority of ulcer cases have a favorable after-history, when operation for perforation has been performed successfully. The reports embrace 135 cases of perforated gastric or duodenal ulcer with acute peritonitis, which have all been operatively treated. Of the 135 cases of perforation, twenty-three were cases of perforated duodenal ulcer. Fifty-four patients, that is, 40 per cent., survived. Of the ninety-two cases in which the laparotomy resulted in effecting suture, fifty patients, that is 54 per cent., were saved, while only four patients, making 9 per cent., survived out of the forty-three cases in which suture was not effected at the operation but only the peritoneal cavity drained. During the first twelve hours after perforation fifty-seven patients were operated on, with recovery of thirty-two (56 per cent.); during the second twelve hours after perforation thirty-five patients were operated with recovery of fifteen (43 per cent.); after more than twenty-four hours after perforation forty-three patients were operated with recovery of seven (16 per cent.). Taking into account only the sutured perforations of forty-seven patients operated on during the first twelve hours, thirty-one survived (66 per cent.); of twenty-seven operated during the second twelve hours, fourteen survived (52 per cent.); of eighteen operated on within twenty-four to twenty-seven hours, five survived (28 per cent.). These figures confirm the fact maintained by many earlier writers that operation during the first twelve hours, possibly even during the second twelve hours, and complete suture of the perforation, are the chief conditions for a successful result of operations for perforated ulcer. Of patients thus operated, two-thirds recovered. The after-investigation shows that of the fifty-two patients concerning whose late history information could be obtained, all but two are still alive. One died sixteen months afterward of gangrene in the leg, while in the case of the other it is possible that the cause of death may have been connected with the gastric ulcer. In the fifty-two cases in question, two to nine years have elapsed since the operation in twenty-six cases; one to two years have elapsed since the operation in fifteen cases; and one-half to one year has elapsed since the operation in eleven cases. As regards the ulcer symptoms during the time that elapsed after perforation, it appears from the after-investigations that of fifty-one patients, thirty had very slight or no trouble from the ventricle; fourteen had slight or moderate trouble (in some cases only temporarily); and, finally, seven had considerable or severe ulcer troubles. Taking into account only the twenty-six patients who have had a period of observation since the perforation of at least two years, twelve were free from symptoms, ten had slight and four severe trouble. The results of these after-investigations thus show that about half the ulcer patients who have successfully gone through an operation

for perforation are after years quite well, fully capable of work, and practically free from gastric symptoms, and that only a small proportion of the remaining cases have later been subject to severe ulcer symptoms. An anamnesis without symptoms of ulcer gives a case of perforation a good prognosis for the future, while ulcer troubles of many years' standing in the anamnesis give a dubious prognosis. The after-results of suture of perforations situated in the neighborhood of the pylorus or in the duodenum are relatively favorable without gastro-enterostomy having been performed, save in a few cases.

13. Histology and Nature of Foam-Cell Tumors.—Neoplasms, which show cholesterol fat, may contain it under three different conditions. (a) The new growths may arise from organs, the cells of which normally contain cholesterol fat (suprarenal tumors). (b) Cholesterol fat may be set free in tumors by degeneration of the parenchyma cells with secondary local resorption in the stroma (pseudoxanthoma). (c) Tumor cells may contain cholesterol fat due to infiltration as a consequence of a special metabolism of the cell and persist as neoplastic cells. This third type, Smith says, appears under the characteristic form of a foam-cell tumor and may be a total foam-cell tumor or a partial type. All the foam-cell tumors known till now belong to the connective tissue-endothelial group and may appear with different ground characters (fibrosarcoma, lymphangio-endothelioma, etc.). The total or partial foam-cell quality Smith characterizes by the attribute *xanthomatosum*. (Fibrosarcoma, or endothelioma xanthomatosum, etc.). True foam-cell new growths occur in other places besides the skin, i. e., mucous membrane of the tongue, parotid gland, tendons, fascia and periosteal dura. The appearance of tumor cells as typical undegenerated foam-cells allows the conclusion that cholesterol fat was in the cells.

14. Autolytic Excision.—The authors emphasize the fact that from a practical standpoint the occasional adopter of autolytic excision must, in the case of ulcers, not be guided wholly by the character of the ulcer base or of the peritoneal involvement, but more particularly by the necessity of destroying a large portion of the mucosa beyond the ulcer border. The successful application of the autolytic method of excision, if employed in the treatment of gastric ulcer, rests, therefore, on the following cardinal principle. Carcinoma begins in the ulcer border and the comprehensive destruction of this must be the final object of operative intervention.

Journal of Medical Association of Georgia, Augusta

June, 11, No. 2, pp. 35-64

- 28 *Medical Society and Its Relation to Public Health. T. J. McArthur, Cordele.
- 29 *Eugenical Conservation of Man. A. L. R. Avant, Savannah.
- 30 Cerebrospinal Meningitis. W. D. Travis, Covington.
- 31 Deaf-Mute Children. R. C. Woodard, Adel.

28 and 29. Abstracted in THE JOURNAL, June 1, p. 1709.

Boston Medical and Surgical Journal

June 13, CLXVI, No. 24, pp. 875-910

- 32 Peter Bent Brigham Hospital. H. B. Howard, Boston.
- 33 Carnegie Nutrition Laboratory. F. G. Benedict, Boston.
- 34 Function of Experimental Method in Course in Pathology. H. T. Karsner, Boston.
- 35 New Children's Hospital. R. W. Lovett, Boston.
- 36 New Psychopathic Department of Boston State Hospital. E. E. Southard, Boston.
- 37 Department of Preventive Medicine and Hygiene and New Degree of Doctor of Public Health. M. J. Rosenau, Boston.
- 38 Huntington Hospital and Scope of Its Work. E. E. Tyzzer and T. Ordway, Boston.
- 39 *Anterior Metatarsalgia and Morton's Disease. A. M. Forbes, Montreal.
- 40 Abduction of Shoulder. Interesting Observation in Connection with Subacromial Bursitis and Rupture of Tendon of Supraspinatus. E. A. Codman, Boston.
- 41 *Hastening of Wound Healing by Means of Skin Grafting and Use of Certain Organic Coloring Matters. J. S. Davis, Baltimore.

June 20, CLXVI, No. 25, pp. 911-950

- 42 Annual Discourse: Burden of Feeble-Mindedness. W. E. Fernald, Waltham.
- 43 *Efficiency Tests of Out-Patient Work. M. M. Davis, Boston.
- 44 *Is Early Diagnosis of Pulmonary Tuberculosis Being Carried Too Far? J. B. Hawes, Boston.
- 45 A "Library-Museum" in Medicine. T. Ordway, Boston.
- 46 Dickens' Doctors. R. M. Green, Boston.
- 47 Two New Instruments for Nose and Throat. L. M. Freedman, Boston.
- 48 Two Cases Reinfected with Syphilis Following Treatment by Salvarsan. J. H. Cunningham, Boston.

39. Anterior Metatarsalgia and Morton's Disease.—Forbes believes that the term "anterior metatarsalgia" should not be taken to include Morton's disease, but, rather, that there are two distinct affections with probably a common etiological factor in the majority of cases, but with a distinctly different pathology and a more or less distinctive symptomatology. For nearly two years a physician has been under Forbes' observation. His principal complaint was not the dull, aching pain so constantly complained of by those suffering from anterior metatarsalgia, but, rather, the sharp, lancinating and occasional pain described by the earliest writers as characteristic symptoms of Morton's disease. The patient had been treated for more than one year with the ordinary methods applicable to anterior metatarsalgia, when he became the subject of special study because his symptoms were unrelieved and because he still complained of sharp, lancinating pains, pains which were described as peculiar to the member and part complained of.

An examination was made and it was found to be an easy matter to produce by lateral pressure, in the region of the heads of the metatarsals, not that characteristic pain of anterior metatarsalgia, but the sharp, lancinating pain which he had originally complained of, and, further, by such pressure coincidentally with the advent of the pain a distinct clicking noise was heard and a displacement of the fifth metatarsal was suggested. A skiagram of the foot while subject to this pressure demonstrated a very definite displacement. When the foot was released from pressure the pain ceased and the displaced fifth metatarsal seemed to slip back into place.

41. Wound Healing.—Scarlet red and amido-azotoluol Davis found will not heal every granulating wound, but in the majority of cases, when applied with the proper technic, they will cause epithelial stimulation in the edges of the most sluggish wounds and give a rapid healing which is stable and resistant, and which has the macroscopic and microscopic appearance of the normal skin. There is no tendency to subsequent contraction, and the skin becomes movable on the underlying tissues in a reasonable time. Any one of these characteristics would make the use of these substances well worth trying.

43. Efficiency Tests of Out-Patient Work.—The following summary is presented by Davis of the points made in his article:

1. The work of out-patient departments is of great public importance, but despite the large sums devoted to it annually, no systematic tests of its efficiency have been devised.
2. The ordinary method of judging out-patient and similar medical work is by the "method of adventitious memory;" e. g., telling about cases the results of which happen to be known.
3. The proper method of applying an efficiency test is the statistical method, by which a number of cases selected at random are studied as a whole in order to ascertain the different results achieved and the relative proportion of each type.
4. Out-patient departments must ask themselves two questions: first, results attained with relation to disease; second, those secured in improving the human beings who come for care.
5. An efficiency test based on these principles leads to the study of a group of patients selected at random, conducted partly by persons trained in social investigation and partly by examination of the medical data secured during visits to the clinic.
6. A study of this type conducted at the Boston Dispensary, on a group of 116 patients, reveals the social and economic classes to which they belong, their previous medical resources, their present medical and social problems and the medical results achieved.
7. The discussion of so-called dispensary "abuse" has suffered because of lack of social facts secured in this way; and because of consequent absence of recognized standards.
8. In determining the eligibility of patients for treatment, the character of the disease from which the patient is suffering and the provision of medical service in the community for that particular disorder must be considered as well as financial condition.
9. The study of the 116 patients of the Boston Dispensary indicates that in one-third of the cases no result was reached because of the failure of the patients to return for the treatment which the first visit had shown to be required. This is a minimum figure for the medical waste in this group.
10. An increase of efficiency (including the reduction of the percentage of medical waste) depends on various factors, particularly on clinical organization and on an organized follow-up system.
11. Follow-up work, to be most efficient and economical, must be based on social diagnosis and classification of the patients, and this must be done chiefly by specially trained social workers assigned to service in the clinics under the direction of the physicians.
12. Only by systematic efficiency tests, based on medical and social studies of groups of patients selected at random, is it possible for an out-patient department to organize its work on a basis of maximum efficiency and economy.

44. Early Diagnosis of Pulmonary Tuberculosis.—In summing up this subject it seems to Hawes that the evidence as he has been able to gather it from the best sources available

is strongly against any proposition that the early diagnosis of tuberculosis is being carried too far. Very few non-tuberculous patients are admitted to sanatoria; there is no evidence that any harm is done, or anything but good accomplished by admitting such patients; the "stigma of tuberculosis" is more a fiction than a fact; homes are not wrecked by sending away the breadwinner who has suspicious symptoms, but, on the other hand, tragedies of the most pathetic nature are daily being enacted on account of hyperconservatism and unwillingness on the part of the physician to make a definite diagnosis and to institute efficient treatment. Finally, he believes that while the diagnosis of "tuberculosis suspected" or "Ph?" is a perfectly proper and right one to make in many instances, it should be regarded as only a temporary or provisional one, and that the patient should be followed up until the diagnosis of his condition can be made definite one way or the other, while in the meantime he is given proper treatment and has the exact situation clearly explained to him.

New York Medical Journal

June 15, XCV, No. 24, pp. 1249-1300

- 49 Comments on Sex Issues from Freudian Standpoint. J. J. Putnam, Boston.
 - 50 Some Phases of Prostatic Disease. L. B. Bangs, New York.
 - 51 *Combined Use of Thyroparathyroid, Pituitary, Ovarian and Testicular Extracts. F. R. Starkey, Philadelphia.
 - 52 Two Cases of Large Ovarian Cystoma. J. A. McGlinn, Philadelphia.
 - 53 Some of Newer Uses of Calcium. T. Howard, Brooklyn.
 - 54 Conservation of Vision. A. Brav, Philadelphia.
 - 55 Effect of Infundibulin on Mammary Secretion. J. C. Scott, Philadelphia.
 - 56 Instruction of College Students in Regard to Reproduction and Maternity. E. B. Thelberg, Poughkeepsie, N. Y.
- June 22, XCV, No. 25, pp. 1301-1348
- 57 *Indications for Arthrodesis and Arthrolysis. A. Lorenz, Vienna, Austria.
 - 58 Sex Issues from Freudian Standpoint. J. J. Putnam, Boston.
 - 59 Causes and Results of Constipation in Relation to Pelvic Disorders of Women. G. G. Ward, New York.
 - 60 Dementia Paralytica. W. W. Richardson, Norristown, Pa.
 - 61 Dietetic Treatment of Cardiovascular Disease. E. E. Cornwall, New York.
 - 62 Pneumonia as a Complication. M. Girsdanský, New York.
 - 63 Rapidly Fatal Institutional Form of Acute Poliomyelitis. J. Van V. Manning, New York.
 - 64 Some Facts Suggested by Examination of Children of Tuberculous Patients. C. Blum, New York.

51. **Combined Opothrapy.**—It is claimed by Starkey that the polyglandular substance described by him has a marked stimulating effect, and that in acute asthenic conditions with low blood-pressure and suboxidation it activates the vital process and thus tides the patient over the most critical stages of the disease, while increasing the efficiency of his auto-protective resources. The same polyglandular solution he claims seems also to be almost a specific for neurasthenia. It has a marked stimulating effect on mental, nervous and muscular activity as well as general metabolism and oxidation in general. It augments powerfully the contractile power of the cardiovascular system, and is, therefore, contraindicated in cases of high blood-pressure. Finally, it increases the action of other drugs, arsenic, mercury, iodids and salicylates in particular, and their curative efficiency.

57. **Arthrodesis and Arthrolysis.**—If a healthy and painless, though paralytic joint, outvalues a stiff joint (especially in patients condemned to a sitting life), then Lorenz believes that arthrodesis is justified only at the paralytic shoulder and eventually at the contracted paralytic wrist; the static joints had better be left to mechanical fixation. If an ankylosed joint in favorable position is preferable to a mobile but sensitive and even painful joint without sufficient stability, then arthrolysis is justified only in the elbow joint and in the jaw. As to ankylosed joints, Lorenz clings to the standpoint of the late Hoffa: "Hands off an ankylosed knee-joint in good position." As to partially ankylosed knee-joints, especially ankylosis of the patella, he says there can be no question that a mobilizing operation is fully justified. In a word, there are in general no indications for operative mobilization of the joints of the lower extremity. At the upper extremity matters are somewhat different, though no operator can earnestly recommend to his patient mobilization of his stiff wrist joint, the final result being more than question-

able, though nearly the same must be said should the shoulder joint come in question (the inconvenience of shoulder ankylosis to the patient being too insignificant to justify a rather severe operation). Only one joint as far as orthopedic surgery commands the field, should be mobile, i. e., the elbow joint. There is still another joint whose disabilities are claimed by general surgery, which must be mobile under all conditions, i. e., the jaw.

Medical Record, New York

June 15, LXXXI, No. 24, pp. 1125-1170

- 65 *Management of Gonorrheal Rheumatism. E. Fuller, New York.
- 66 Facts of Modern Science and Their Value in Prevention and Cure of Disease. H. Hille, Chicago.
- 67 Practical Value of Wassermann Reaction. D. M. Kaplan, New York.
- 68 Mercury in Syphilis. W. S. Reynolds, New York.
- 69 Myositis Traumatica. M. I. Knapp, New York.
- 70 What Should General Practitioner Know About Disturbances of Motility of Eye? J. R. Hicks, New Brighton, Staten Island, N. Y.
- 71 Exophthalmic Goiter; Report of Case. M. B. Gordon, Brooklyn.

June 22, LXXXI, No. 25, pp. 1171-1216

- 72 Epidemic of Epithelioma (Molluscum) Contagiosum, with Some New Observations Concerning "Molluscum Bodies." M. B. Hartzell, Philadelphia.
- 73 Surgical Treatment of Oblique Inguinal Hernia. F. Torek, New York.
- 74 Transplantation of Rib for Depressed Deformity of Nose. H. Hays, New York.
- 75 Bone Syphilis Masquerading as Tuberculosis. L. W. Ely, Denver.
- 76 Non-Operative Treatment of Sterility. S. J. McNutt, New York.
- 77 Chest Index in Pulmonary Tuberculosis. W. Narins, New York.
- 78 Surgery from Pediatric Standpoint. L. Kerr, Brooklyn.
- 79 Dry Necrosis of Mastoid Cells. O. Wilkinson, Washington, D. C.

65. **Gonorrheal Rheumatism.**—In 1909 Fuller reported his first 126 cases of seminal vesiculotomy. Of these, thirty-five represented cases of rheumatism. Since then he has performed seminal vesiculotomy 125 more times, so that at present his total operative cases number 251. Of these last 125 cases eighty-seven represented rheumatism. With most of these the rheumatism, acute or chronic, was of a very severe grade, and it was for the relief of the rheumatism only that seminal vesiculotomy was performed. A minority of the patients had other clinical symptoms due to seminal vesiculitis coexisting with rheumatism as a reason for operation. In this last series a much larger proportion represented rheumatic conditions than pertained to the first series. This, Fuller says, is largely because rheumatism is the clinical symptom of seminal vesiculitis which usually, by incapacitating an individual, brings him to hospital, and in his experience at the City Hospital, when those suffering from rheumatism see the rapid cures resulting with little postoperative discomfort in those who have been subjected to seminal vesiculotomy, there is such a scramble for operation that no time has to be wasted in persuasion. Out of 251 cases there has been no mortality, so argument against the operation on that score cannot be very impressive. In his last series the results with rheumatic cases have been uniformly good. He attributes the better results in the second series to a more thorough performance of the operation and to improved post-operative details.

Texas Journal of Medicine, Fort Worth

June, VIII, No. 2, pp. 31-76

- 80 *Some Causes of Adulterated Food. J. S. Abbott, Austin.

80. **Adulterated Food.**—Do the consumers themselves take any interest in the pure-food movement? asks Abbott. Do we care whether a baker brings our bread to us in dust-proof paper, or whether he brings it unwrapped in the dirty hands which handle his dirty horses? Does the conscientious manufacturer receive the support of consumers in a way that makes him glad he is living? Does the consumer know, or does he care, whether his favorite soft drink is medicated or not with caffeine, cocaine, formic acid and the like? Does the housewife care whether or not her grocery man keeps her berries, grapes and the like out on the sidewalk, exposed, unprotected from flies, dogs and the manure dust of the

street? The religious press of our country, he continues, has been carrying rotten advertising matter of every kind, almost. It will not advertise alcoholic beverages, and very properly. But it has advertised quack doctors and quack cure-alls and quack cosmetics, and encouraged the public to diagnose its own ills, and on that diagnosis take the secret remedies of some self-designated master-specialist.

Lancet-Clinic, Cincinnati

June 8, CVII, No. 23, pp. 613-638

- 81 Etherization by Drop Method, with Rebreathing and Concomitant Oxygenation. F. H. McMechan, Cincinnati.
- 82 Nitrous-Oxide-Oxygen as Routine Anesthetic. M. Salzer, Cincinnati.
- 83 Syphilis of Aorta. A. D. Dunn, Omaha, Neb.
- 84 Oral Hygiene Movement. S. Iglaue and Others, Cincinnati.
June 15, CVII, No. 24, pp. 639-666
- 85 Grocco's Sign in Pleuritic Effusion. M. A. Brown, Cincinnati.
- 86 Principles Involved in Treatment of Superficial Surgical Lesions. J. L. Lohse, Oakland, Cal.
- 87 Complete Operation for Suppurative Appendicitis. G. A. Hendon, Louisville, Ky.
- 88 Some Inherited Eye Affections. F. Dowling, Cincinnati.

Annals of Surgery, Philadelphia

June, LV, No. 6, pp. 785-941

- 89 General Infection Following Acute Tonsillitis. W. J. Taylor, Philadelphia.
- 90 *Thoracic Aneurysm Treated with Gold Wire and Galvanism. W. C. Lusk, New York.
- 91 Adhesions of Upper Abdomen. R. T. Morris, New York.
- 92 *Involvement of Regional Lymph-Nodes in Carcinoma of Stomach. W. C. MacCarty and J. M. Blackford, Rochester, Minn.
- 93 Congenital Absence of Cecum and Ascending Colon. P. L. Mummery, London.
- 94 Prevascular Femoral Hernia. A. V. Moschowitz, New York.
- 95 Radical Cure of Hernia. C. F. Nassan, Philadelphia.
- 96 Value of Arteriovenous Anastomosis in Gangrene of Leg. H. M. Davies, London.
- 97 Fracture of Radius Above Attachment of Pronator Quadratus. E. G. Alexander, Philadelphia.

90. Thoracic Aneurysm Treated With Wire.—The following principles are formulated by Lusk as a result of observations on several cases of aneurysm, besides experimental work on 151 dogs. The wire should be one having the properties of the gold platinum "Clasp" alloy, viz., it should be resilient and it should not dissolve under the influence of the electrolysis. The resiliency enables the loops, with proper technic, to reform within the aneurysm, so that the disposition of the wire is more or less under the control of the operator. The wire should be made to come as extensively as possible into contact with the lining of the aneurysm, so that the electric current can injure the same, thereby producing areas for the adhesion and organization of the fibrinous clot deposited by the electrolysis along the contiguous portion of the wire, as well as for the deposit and organization of laminated fibrin.

The introduced extremity of the wire should be spirally shaped. Unless the insulated gold needle be known to be made of an alloy which is not decomposed by electrolysis, it would be as well to test it in a dog before use on a patient. In case the needle is likely to have to make a deep puncture to reach the interior of the aneurysm, it can, before its introduction, be pricked through a little square of rubber dam, which will insulate its outer extremity should the latter come into contact with the superficial wound. The needle and wire should be boiled in distilled water. The negative electrode should be placed against the back directly over the area corresponding to the aneurysm and should more than cover this area. It is as well, says Lusk, that the external portion of the wire during the passage of the current should trail over a piece of rubber dam.

The principle in the use of the current as here set forth is to begin with a high current (100 ma. for fifteen minutes, raised to this point at the start in two minutes' time), which will to a sufficient degree injure the intima at the sites of contact of the wire, and then lower the current to the strengths successively (50 ma., 40 ma., 30 ma. each for fifteen minutes) which were found in the experimental work to be the combination most favorable for the production of a firm fibrin deposit that would become adherent to the sites of trauma during the passage of the current. In the experiments in which the 100 ma. current was used at the start, it was found that the fibrin deposit on the wire at the sites of

trauma of the intima would be greater in amount than that in the intervals. The site of puncture should be at a thickened portion of the aneurysmal wall rather than at a thinned portion. The needle should be of a caliber just enough larger than the wire to allow the free passage of the latter without friction, which relation in sizes enables the hemorrhage through the needle on its introduction to be arrested by the passage of the wire.

On the withdrawal of the needle, when the puncture has been made through a thickened portion of the sac wall, the hemorrhage seems to become easily self-arrested, particularly if the wire be pulled gently outward until the fibrin-covered portion within the sac, just beyond that which has been sheathed by the needle, is felt to have been drawn firmly against the interior aspect of the puncture. In case, for any reason, on withdrawal of the needle a free hemorrhage should arise which would seem unlikely to be controlled by ordinary measures, Lusk suggests before cutting the wire off, the starting up of the electrical current again at 50 ma. In most of the animal experiments the needle was withdrawn from the aorta immediately after passing the wire, with resulting free hemorrhage from the puncture, which, temporarily arrested by the gloved finger, could invariably be controlled by a 50 ma. current, usually within three minutes' time and rarely in longer than nine minutes.

In four recovery experiments in which this technic was employed (the puncture being unprotected by any insulation throughout the electrical seance), and the wire was left protruding through the puncture at the end of the operation, the puncture was found at autopsy to be tight. One of these animals (highest strength of current, 50 ma.) was autopsied on the fifth day after operation, another (highest strength of current, 75 ma.) on the fourth day, and two (highest strength of current, 100 ma.) after ten and twelve weeks, respectively. In both of the latter the wires had shifted from their original positions each having worked back through the puncture for about 2 inches into the subperitoneal tissues, where the extruded portion was found encased in scar tissue. It is a well-established principle that the positive pole should be attached to the gold wire and the negative pole to the electrode against the back. In a dog with the current reversed, the negative pole being attached to the wire in the aorta and the positive pole to the electrode against the back, neither trauma of the intima nor the deposit of any fibrin along the wire took place.

92. Lymph-Nodes in Stomach Cancer.—The negative conclusions are summarized by MacCarty and Blackford as follows: The size of regional lymph-nodes bears no apparent relation to the size of the primary lesion in the stomach. The size of a lymph-node is no criterion of the presence or absence of carcinoma. Gross diagnoses of lymph-nodes are of no value except in advanced carcinoma. The duration of symptoms bears no apparent relation to the size and extent of involvement in the lymph-nodes. The average age at operation and sex bear no direct relation to the glandular involvement. The positive conclusions are summarized as follows: The average loss of weight increases with the increase in extent of glandular involvement. The immediate hospital postoperative mortality is in direct proportion to the amount of glandular involvement. The subsequent mortality is in direct proportion to the amount of glandular involvement. Carcinomatous glandular involvement is very often microscopic. The surgeon who desires to treat early carcinoma must depend on the microscope in the hands of an experienced pathologist for early carcinomatous lymphatic involvement. The diagnosis of early carcinomatous involvement requires extensive experience in the study of the so-called precarcinomatous reaction of lymph-nodes.

American Medicine, Burlington, Vt.

May, VII, No. 5, pp. 234-292

- 98 Diphtheria Epidemics and Public School. A. W. Colcord, Clairton, Pa.
- 99 Inefficient Disinfectants. J. T. A. Walker, New York.
- 100 Sphygmomanometer: Its Place in Diagnosis; Significance of Blood-Pressure. H. E. Rogers, Brooklyn.
- 101 Attempt to Cope with Economic Problem Within Practice of Medicine. O. Rotter, New York.

- 102 Place of Antitoxin and Intubation in Treatment of Diphtheria. E. R. Bedford, Brooklyn.
 103 Wreck of the Titanic. H. W. Franenthal, New York.
 104 Case of Achondroplasia. L. C. Ager, Brooklyn.
 105 Treatment of Measles and Scarlet Fever. J. L. Marbourg, Seattle, Wash.
 106 Permanent Mounts of Microscopic Preparations. G. R. Williams, Paris, Ill.

American Journal of Medical Sciences, Philadelphia

June, CXLIII, No. 483, pp. 781-936

- 107 *Surgery of Bile Ducts. J. B. Deaver.
 108 Critical Study of Oxyuris and Trichocephalus Appendicitis. R. L. Cecil and K. Bulkeley, New York.
 109 *Treatment of Exophthalmic Goiter. J. H. Musser, Philadelphia.
 110 Thyroid Disease Complicating Pregnancy and Parturition. E. P. Davis, Philadelphia.
 111 Functional Test for Hepatic Cirrhosis. N. B. Foster, New York.
 112 *Management of Asthma in Children. H. M. McClanahan, Omaha, Neb.
 113 Treatment of Fractures of Forearm, End Results of Fifty-Two Patients Treated Without Operation. A. P. C. Ashurst and R. L. John, Philadelphia.
 114 Further Evidence in Support of Toxic Pathogenesis of Bronchial Asthma, Based on Experimental Research. A. Eustis, New Orleans.
 115 Recurrent Disease of Skin Associated with High Winds and Cold Weather, for Which the Name Dermatitis Hiemalis Has Been Proposed. W. T. Corlett and H. N. Cole, Cleveland.
 116 *Experimental Study of Effects of Ureteral Obstruction on Kidney Function and Structure. E. Beer, New York.
 117 Use of Crchore Micrograph in Clinical and Experimental Study of Cardiovascular Physiology. J. H. Austin and G. M. Piersol, Philadelphia.

107. **Surgery of Bile-Ducts.**—Deaver urges the danger of procrastination and too much deliberation. It is well known, he says, that he who deliberates is lost, but under these circumstances it may be the unhappy lot of the patient to be numbered among the lost. It should be mortifying to the physician to see the disastrous results of infection laid bare, to say nothing about the mortification of the patient. The full story of the autopsy *in vivo* has not yet been told. The new pathology is now being written. The dawdling with duodenal buckets, fallacious laboratory methods, etc., he deplors, and could patients be educated to their uselessness, he believes they, too, would despair. The resources of surgery are rarely successful when practiced on the dying, nor are they so uniformly successful when pathology is advanced as when it is in its incipency. At least nine-tenths of the mortality of operation so-called is in reality the mortality of delay. Bearing this in mind, we must place the problem of the reduction of invalidism and death due to biliary infections in the hands of him who sees the patient first, namely, the family physician.

109. **Treatment of Exophthalmic Goiter.**—It was Musser's belief that endemic goiter should not be treated surgically until proper general treatment has been employed for a long period. Surgical intervention should not be advised in cases of goiter associated with functional or organic disturbances of other secretory organs until the associated disorders are removed or relieved. If relapse occurs in spite of general treatment, or in spite of treatment directed against the disorders of other organs, a goiter should then be treated surgically. Medical treatment should be continued from six to twenty-four months. Favorable results should not be promised unless the patient is under the absolute control of a physician so that treatment by rest, diet, bathing, physical therapy, and so forth may be carried out with precision and continuity. Surgical intervention requires the same rigid and prolonged after-treatment to give permanent results. Finally, he thought that the surgeon does too much and the internist too little in the treatment of goiter.

112. **Management of Asthma in Children.**—It has been McClanahan's experience that one drug will not relieve all cases. In two cases, he has given adrenalin solution hypodermically. In both cases the relief was so prompt as to leave no doubt as to the value of the remedy. On the other hand, he has seen it utterly fail. The dose for infants is from 3 to 5 minims of the 1/100 solution of adrenalin chlorid. He has attended one little patient a number of times, without any remedy giving relief, until morphin sulphate, 1/30 grain, was tried. Then in subsequent paroxysms this drug gave relief each time it was given. In another case chloral

hydrate gave prompt relief. Other remedies had been given by him in previous attacks. In that case, 3 grains were given and the dose repeated in an hour. After the second dose this child was enabled to lie down and breathe with comfort. In one of the most severe cases he has ever seen the inhalation of nascent oxygen gave quick relief. This child was cyanotic, with cold, clammy skin, and short, panting breathing. The attacks came on without any preceding evidence of bronchitis. The oxygen was administered during three separate paroxysms, and always with prompt relief. In this particular case the attacks ceased at the age of 5 years and only recurred in a lighter form at the age of 18 years. At the time this patient was under McClanahan's care a local druggist had an apparatus for the extemporaneous preparation of oxygen, so that it was possible to apply the remedy promptly.

Basing his experience on the study of twenty cases, McClanahan affirms that the majority of infants and children suffering from asthma, ultimately recover. He has recently received reports from ten patients who had been under his care in past years. In eight cases there had been no return of asthma, and in the other two the paroxysms were lighter than in former years. The frequency and severity of the paroxysms can in a large measure be controlled by proper care and treatment. A limited number develop an emphysema, and as a result their general growth is permanently impaired. This is the most serious sequel of asthma, and because of this, all cases should receive prompt treatment, with a view of lessening the severity and frequency of the paroxysms. The general care of asthmatic children is important, because in most cases a careful study will reveal some exciting cause that can be removed, or some morbid condition, as constipation or indicanuria, that can be corrected. Attention to these suggestions with diligence in discovering and removing other possible causes, will enable many asthmatic children to enjoy comparative freedom from attacks, and to develop into happy, useful citizens.

116. **Effects of Ureteral Obstruction on Kidney.**—From the work done in connection with this subject, Beer draws the following conclusions: 1. Infection of a non-stenosed ureter may lead to a hydronephrosis. Perhaps this explains some of the cases of hydronephrosis in which no mechanical cause is found. 2. Infection of the ureter rarely leads to abscess formation, or to multiple abscesses of the kidney, unless the ureter is stenosed, and then only when the injected organisms are virulent. 3. Aseptic ligation of the ureter leads regularly to a primary hydro-ureter and at about three weeks atrophy and shrinkage of the hydronephrotic sac begins. 4. The idea that the use of catgut ligature material in pelvic work will not cause a permanent ureteral stenosis, if this organ is tied off, is erroneous. 5. Three to four months after ligation of the ureter the kidney is represented by a small fibrous mass, provided infection is not present. If infection is introduced a huge hydronephrotic sac without vestige of parenchyma results. 6. In face of infection, stones readily form both in the pelvis and bladder. 7. After three weeks' exclusion sufficient parenchyma persists to warrant an attempt at secondary implantation of the ureter into the bladder.

Virginia Medical Semi-Monthly, Richmond

June 7, XVII, No. 389-132

- 118 Use of Iodin in Conservative Surgery of Uterine Appendages. I. S. Stone, Washington, D. C.
 119 Heart Tonics, Their Value and Limitations. W. P. Beall, Greensboro, N. C.
 120 Salvarsan in Hereditary Syphilis. B. Lankford, Norfolk.
 121 Constipation: Its Causes, Consequences and Treatment. F. B. Bishop, Washington, D. C.
 122 Cystoscope, Technic in Examining Urinary Viscus. T. V. Williamson, Norfolk.

Journal-Lancet, Minneapolis

June 1, XXXII, No. 11, pp. 281-306

- 123 Suggestions to Medical Examiners for Life Insurance. H. W. Cook, Minneapolis.
 124 *Treatment of Scleritis with Tuberculin. C. N. Spratt, Minneapolis.
 125 Roentgen-Ray Notes. G. Earl, St. Paul.
 126 *Unusual Complication of Acute Otitis Media and Mastoiditis. C. L. Larsen, St. Paul.

124. **Treatment of Scleritis.**—During the past year Spratt has treated one case of episcleritis and six cases of kerato-scleritis with tuberculin. Five of the patients were women and two were men. The ages of the former were between 31 and 38 years. One man was 43, the other was 55 years of age. The right eye was the one affected five times and the left eye twice. Two of the patients had had previous attacks in the other eye. All were in good health except one, who had lost weight; another had had glands of the neck removed ten years previously. The location of the scleral infiltration was as follows: two on the temporal, two on the superior temporal, one on the nasal side, one above and one below the cornea. In three of the above cases the entire anterior portion of the sclera became involved later. All the patients gave a normal reaction to Koch's old tuberculin, one with 1.5 mg., two with 2 mg., three with 4 mg. and one with 10 mg. The lowest febrile reaction was 100.2 F., the highest 102.6 F., the control temperature before injection being normal in each. A local reaction was obtained in six cases. The maximum reaction was twelve hours after the injection in two cases, and thirty-six in another and an average of twenty-four in the others. One severe case was cured in six months after having had forty-five injections, the maximum dose being 20 mg. bouillon filtrate. A second severe case of ten months' duration was cured in three months after twenty-two injections, a maximum dose 150 mg. of bacillus emulsion. A third case of seven weeks' duration was cured in ten weeks after twenty injections, the maximum dose being 150 mg. A fourth patient under treatment with onset of trouble eight months previously and under treatment three months, has received twenty-six injections and is improving. A fifth patient, a case of five months' duration, treated with bacillus emulsion was cured in three months with eighteen injections, the maximum dose being 1/100 mg. A sixth patient, a case of eight months' duration, was much improved after the diagnostic dose of 10 mg. of old tuberculin. He was sent home to have the treatment continued by his physician. The seventh patient, a case of episcleritis of one month duration, is still under treatment and is improving.

126. **Complication of Acute Otitis Media and Mastoiditis.**—Larsen's case is interesting in that there was only one metastatic focus and that in a very unusual location, the sacroiliac joint.

Buffalo Medical Journal

June, LXVII, No. 11, pp. 601-662

- 127 Duties of Physicians in Regard to Insanity. F. E. Fronczak, Buffalo.
- 128 Unusual Case of Injury of Thorax. G. Foy, Dublin.
- 129 Traumatic Finger Amputations. A. H. Noehren, Buffalo.
- 130 Inflammation of Vermiform Appendix and Posterior Urethra with Presentation of an Instrument. J. A. Gardner, Buffalo.
- 131 Perforations in Duodenal Uleer. E. R. McGuire, Buffalo.
- 132 Typhoid Epidemic in Corning. F. S. Swain, Corning, N. Y.

American Journal of Urology, New York

June, VIII, No. 6, pp. 287-342

- 133 *Further Experience with Solution of Aluminum Acetate in Colon Bacillus Infection of Urinary Tract. I. S. Koll, Chicago.
- 134 Progress in Therapy of Gonorrhea. W. Karo, Berlin.
- 135 Postoperative Treatment Following Prostatectomy. L. W. Bremnerman, Chicago.
- 136 Case of Auto-Inoculation of Chancroid. W. S. Reynolds, New York.
- 137 Unilateral Renal Hematuria. K. H. Aynesworth, Waco, Texas.
- 138 Essentials of Freud's Theory of Psycho-Analysis. C. P. Oberndorf, New York.
- 139 Combination Catheter-Applicator. R. L. Dickinson, Brooklyn.
- 140 Ureteral Pain Associated with Sacroiliac Relaxation. A. E. Gallant, New York.

133. **Aluminum Acetate in B. Coli Infections.**—Forty-two patients suffering from colon infections of the urinary tract, Koll claims, have been absolutely cured by the local use of liquor aluminum acetate. He emphasizes that the preparation of the liquor is of great importance. The National Formulary should be followed very closely. After the full strength solution is prepared, he advises diluting each time the liquor is employed, because unless a very carefully distilled water is used the carbonates of the water will throw down a heavy gelatinous precipitate of the aluminum hydroxid, which will leave free acetic acid. A second suggestion he

makes, is to start with 1 per cent. in severely inflamed bladders and in each case control the irritation with opium suppositories.

Louisville (Ky.) Monthly Journal of Medicine and Surgery

June, XIX, No. 1, pp. 1-32

- 141 Value and Limitations of Vaccine Therapy. B. J. O'Connor, Louisville.
- 142 Acute Parenchymatous Hepatitis. J. G. Ceell, Louisville.
- 143 Drug Habits. W. F. Boggess, Louisville.
- 144 Infant Mortality and Midwife Problem. E. Shaver, Louisville.

Mississippi Medical Monthly, Vicksburg

June, XVII, No. 2, pp. 25-40

- 145 Rebate Evil in Medical Profession. A. G. Everett, Friars Point.
- 146 Practical Principles of Suggestion. S. T. Rucker, Memphis, Tenn.
- 147 Treatment of Eclampsia. S. E. Frierson, Lyon.
- 148 Surgery of Eyeball for Preservation and Restoration of Sight. A. C. Lewis, Memphis, Tenn.

Laryngoscope, St. Louis

April, XXII, No. 4, pp. 297-706

- 149 This Issue Contains a Complete Index-Medicus of Oto-Laryngology for 1911 and Abstracts of the Important Papers Published.

Bulletin of Manila (P. I.) Medical Society

April, IV, No. 4, pp. 67-95

- 150 Medical Conditions in Torrid Zone Collected by College of Medicine and Surgery, University of Philippines.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

June 1, I, No. 2683, pp. 1225-1276

- 1 *Duodenum and Appendix in Intestinal Stasis. A. C. Jordan.
- 2 *Auto-Inoculation Test in Tuberculosis. H. W. Crowe.
- 3 *Paths of Rheumatic Infection and Their Protection in Children. J. R. Mackenzie.
- 4 Standardization of Preparations of Indian Hemp. C. R. Marshall and J. K. Wood.
- 5 Bactericidal Action of the Cresols and Allied Bodies and Best Means of Employing Them. E. A. Cooper.

1. **Duodenum and Appendix in Intestinal Stasis.**—Intestinal stasis is held by Jordan to be responsible for many conditions. One of the most constant signs of intestinal stasis in women, Jordan says, is a nodular condition of the breasts, due to chronic mastitis; in more advanced cases the breasts become cystic and ultimately cancerous. A woman was sent into Guy's Hospital a few months ago for amputation of both breasts for supposed malignant disease. They were in a condition of advanced cystic disease. Mr. Arbuthnot Lane sent her to Jordan for Roentgen-ray examination of the intestines and he found that there was extreme intestinal stasis. Mr. Lane then treated the woman by the operation of "short-circuiting," that is, dividing the ileum near its lower end and suturing the divided end into the rectum. Within a week after the operation the breasts began to improve and at the end of three weeks they were practically normal, the only sign of disease now being a small nodule in one breast. The woman's general condition had improved greatly.

One result of stasis in the ileum is to allow bacteria to ascend from the large bowel, and to invade the upper reaches of the small intestine. Thus the duodenum is invaded by pathogenic bacteria, which ascend the common bile-duct and lead to cholecystitis and chronic pancreatitis. Gall-stones are then formed in many cases; if a gall-stone finds its way into the bile-duct an attack of acute biliary colic results and is diagnosed, though it is only a secondary result of intestinal stasis. The stasis in the ileum has another effect. The last coils of the ileum are normally placed above the pelvis; if there be any marked delay in the passage of the ileal contents into the cecum, these last coils of the ileum become overloaded and fall into the pelvis. In falling they drag on the mesentery; this drag is carried to the upper parts of the small intestine and pulls down the jejunum at its commencement. The third part of the duodenum being (normally) firmly fixed over a peritoneal band, while the jejunum is unsupported at its commencement, a kink is produced at the duodeno-jejunal junction and causes obstruction. The duodenum becomes distended and its mucous membrane congested. Pathogenic microbes act on

the congested mucous membrane and give rise to duodenal ulceration. The stomach also contracts very actively in these cases.

The appendix is the primary cause of intestinal stasis in a particular group of cases. In this group the proximal portion of the appendix is involved with the cecum in fibrous bands in such a way that the appendix actually controls, or even obstructs the end of the ileum while the patient is upright. Jordan says that intestinal stasis forms one of the most important and far-reaching branches of radiographic research and the systematic investigation of the alimentary tract by the Roentgen rays after a bismuth meal is rapidly becoming an essential preliminary to intestinal surgery, and, indeed, to medical treatment of the digestive system.

2. Autoinoculation Test in Tuberculosis.—An experience, drawn from some sixty odd tests, leads Crowe to form an extremely high opinion of the value of this method. He regards this test as so extraordinarily reliable that on its verdict alone treatment may be confidently applied or as confidently omitted, and he is convinced of its utility in directing the course of treatment and deciding the moment when cure is complete.

3. Paths of Rheumatic Infection.—The *Micrococcus rheumaticus* takes the path of least resistance. This may be an unhealthy throat, absorption from which frequently gives rise to general rheumatic infection, including peritonitis and appendicitis, directly through the vascular system. Or it may be localized in the bronchial tubes and give rise to pneumonia, with polyarthritis and endocarditis. An unhealthy condition of the intestinal wall may excite to activity the rheumatic agent, setting up acute rheumatic phenomena with peritonitis or appendicitis as part of a general infection. A mild catarrh is produced at the seat of inoculation, and one, or more, of three factors in each case are present and promote the inroads of the micrococcus. Either (a) the physical resistance, or (b) the protective properties of the local tissue, or (c) defensive agencies of the blood, are below par. The distinction between acute and subacute or latent rheumatism is mainly due to general infection with the actual rheumatic agent in the former and with the toxins only in the latter. Hypertrophied adenoid tissue in the throat and nasopharynx, Mackenzie says, should be removed in the quiescent stage. Simple congestion of the pharynx, palate and fauces in a child with a rheumatic family or previous history, or with a rheumatic facies, should always be looked on seriously, and met with local applications of salicylic acid preparations, together with sodium bicarbonate, sodium salicylate, potassium chlorate and aperients. A 5 per cent. to 10 per cent. solution of sodium salicylate applied to the tonsils, palate and pharynx gives a protective film from further contamination and does not impair the defensive action of the tissues; or a gargle containing 20 to 40 grains to the ounce is equally efficacious. Care should be taken that decayed teeth are stopped or extracted and the tooth-brush and antiseptic powder should be insisted on daily. Inhalation for half an hour, three times a day, of 10 min. of a solution of equal parts of creosote and phenol (carbolic acid), Mackenzie believes is the best method of protecting the pulmonary mucous membrane. His experience is that sodium salicylate combined with sodium bicarbonate and rhubarb powder is by far the best protective treatment in cases in which there is any indication of excess of mucus in the intestine, the alkali acting as a solvent, the rhubarb clearing the offending material away and the salicylate acting as a sedative and healing agent to the mucous membrane.

Australasian Medical Gazette, Sydney

April 20, XXXI, No. 16, pp. 405-430

- 6 Modern Treatment of Syphilis. R. B. Harrold.
- 7 Syphilis. C. T. Ch. de Crespigny.
- 8 Ophthalmic Aspect of School Medical Inspection. T. Smith.

April 27, XXXI, No. 17, pp. 431-460

- 9 Quarantine in Queensland. J. S. C. Elkington.
- 10 Etiology of Bovine Oncocerciasis. J. B. Cleland.
- 11 Surgical Equipment of Country Practitioner. G. S. Samuelson.

May 4, XXXI, No. 18, pp. 461-488

- 12 Gonorrhea and Salpingitis. J. K. Couch.
- 13 Torsion of Great Omentum. C. E. Corlette.
- 14 Case of Esophageal Stricture. A. G. Salter.
- 15 Plea for More Systematic Teaching of Anesthetic Administration. J. W. B. Bean.

Lancet, London

June 1, I, No. 22, pp. 1451-1514

- 16 *Relations Between Human and Bovine Tubercle Bacillus. G. S. Woodhead.
- 17 *Medical Treatment of Cholelithiasis. P. Mayer.
- 18 Improved Method for Opsonic Index Estimations Involving Separation of Red and White Human Blood Corpuscles. C. Russ.
- 19 *Case of General Infection by Influenza Bacillus. J. M. Clarke.
- 20 Operative Treatment of Concomitant Strabismus. E. K. Campbell and G. F. Alexander.
- 21 Two Cases of Mercurial Poisoning. A. J. Hall.
- 22 Acute Focal Encephalitis. G. W. Watson.

16. Human and Bovine Tubercle Bacillus.—Woodhead does not agree with those who maintain that bovine tuberculosis is a negligible quantity in respect to the spread of tuberculosis among human patients. He is of the opinion, rather, that as we go more deeply into the subject, and extend the scope of our inquiries, the bovine side of the question comes to take a larger and larger place in our scheme, especially, of course, in connection with surgical and abdominal tuberculosis, not only in the child, but even in the adult.

17. Medical Treatment of Cholelithiasis.—It is emphasized by Mayer that the guiding principles in the treatment of cholelithiasis are derived from the well-established facts that stagnation of the bile is the fundamental condition for the production of concretions, and that in chronic inflammatory cholelithiasis infection plays the most significant rôle, infection in its turn being favored by stasis of the bile. Since the formation of stones is always a secondary phenomenon, it would be irrational to direct treatment exclusively against the stones themselves, because, even after the expulsion of some of the stones, if the stasis and inflammation continue, stones still remaining behind may grow larger, and new stones may form. As a consequence the conviction becomes more and more firmly established that the object of medical treatment consists not in the expulsion of the stones, but in the prevention of the formation of new stones by combating stasis and inflammation, and in bringing stones already present to rest, thus inducing a latency of the disease, which is in effect almost a recovery, since stones often remain for years as harmless foreign bodies as soon as the flow of bile becomes normal and the inflammatory process ceases.

In his experience of all the substances recommended for this purpose Mayer attributes a genuine value to salicylic acid only. Salicylate of soda with extract of belladonna he has often found valuable in practice. Nevertheless, he does not at all believe that the salicylic acid exerts its effects on account of its cholagogue action, but is much more strongly of the opinion that its chief influence is on the inflammatory symptoms. Consequently he has seen the best results with salicylic acid in acute and chronic cholecystitis, especially with simultaneous rest in bed and the application of hot compresses. In such cases he gives from two to four times a day a powder of sodium salicylate 0.5 gm. (8 gr.), and extract belladonna 0.01-0.02 gm. ($\frac{1}{8}$ - $\frac{1}{4}$ gr.), dissolved in warm water. With all the other so-called cholagogue agents, which are always being vaunted as curative agents for cholelithiasis, he has never obtained definite results. In his experience the value of the oil cure has not proved very great. The oil can be useful only for the simultaneous colitis or spastic constipation which not infrequently complicates cholelithiasis.

19. Infection by Influenza Bacillus.—Clarke's case presents several points of interest. There had been a purulent discharge from the left ear at times for some years. The onset of fever was gradual, so that the precise day of onset could not be fixed, but it occurred between two and three weeks after an operation for removal of enlarged tonsils. After admission to the hospital the ear discharge yielded a pure culture of Pfeiffer's influenza bacillus. Cultures from the blood taken toward the end of the second week of the fever, and after the occurrence of two rigors, also gave a pure culture of the same bacillus. The inference would seem to be that the bacillus was present in the ear discharge and obtained entrance to the blood through the open wounds left by removal of the tonsils, and produced an acute septicemia. This appears to be a striking example of the tonsillar route for a general

infection. The resulting septicemia was of gradual onset and was a very severe one. For two or three weeks the prospect of recovery appeared dubious. A further point of interest was the intervention of a cardiac murmur during the course of the illness. The presence of this murmur, in conjunction with the severity of the general symptoms, gave the illness a close resemblance to malignant or ulcerative endocarditis. Some days before the advent of the murmur, an apical or mitral regurgitant one, soft in character, there was accentuation of the pulmonary second sound. The starting of the murmur coincided with signs of a moderate dilatation of the left ventricle; it subsequently disappeared, but a slight enlargement of the cardiac dulness remained. The murmur was not due to endocarditis, but to dilatation of the mitral valve due to a toxic myocarditis, and consequent relaxation of the mitral sphincter and of the wall of the left ventricle.

Australian Medical Journal, Melbourne

April 6, I, No. 38, pp. 417-428

- 23 Congenital Hypertrophic Pyloric Stenosis. A. A. London.
- 24 Color Blindness. I. J. C. Mitchell.
- 25 Case of Subacute Infective Arthritis (Still's Disease) Treated by Vaccines. A. V. M. Anderson.

April 20, I, No. 40, pp. 441-452

- 26 Etiology of Ectopic Gestation. F. Meyer.
- 27 Cardiac Irregularities in Childhood. H. H. Turnbull.

April 27, I, No. 41, pp. 453-464

- 28 Second Case of Complete Rupture of Uterus, Successfully Treated by Operation. A. W. D. Robertson.
- 29 Case of Hypertrophic Pyloric Stenosis, Successfully Operated on by New Method. W. H. Brown.

Annales de Gynécologie et d'Obstétrique, Paris

May, XXXIX, No. 5, pp. 257-320

- 30 *Serodiagnosis of Pregnancy. (Nouvelles recherches sur la présence des anticorps chorio-villoux chez la femme enceinte des premiers mois.) Fieux and P. Mauriac.
- 31 Cancer of the Clitoris. (Quelques recherches sur les lymphatiques du clitoris.) H. Rouvière. (Technique de l'ablation de l'épithéliome primitif du clitoris.) H. Hartman.
- 32 Abdominal Operation for Ovarian Tumors During Pregnancy. (Ablation par voie abdominale des tumeurs ovariennes pelviennes.) A. Couvelaire.
- 33 Treatment of Ovarian Cyst Interfering with Delivery. (Ponction vaginale dans le traitement des kystes de l'ovaire praevia au cours du travail.) E. Lepage. (Ablation des kystes ovariens praevia pendant le travail.) C. Sauvage.
- 34 Treatment of Torsion of Ovarian Cyst in the Puerperium. (Le moment opportun de l'ovariotomie dans la torsion pédiculaire des kystes ovariens pendant les suites de couches.) E. Mérieux.

30. **Serodiagnosis of Pregnancy.**—Fieux and Mauriac have examined 103 women and found their previous statements confirmed in regard to the fixation of complement as a constant phenomenon in the blood of women during the second and third month of pregnancy. It subsides entirely by the end of the fourth month. They explain it as the action of a specific antibody generated to protect against the toxic or destructive action of the young villi of the chorion. The findings with the hemolytic test are as pronounced, they say, as with the Wassermann test. The antigen used was the desiccated pulverized villous masses taken from living ova at the second or third month. The technic otherwise resembles that of the Wassermann test, as is described in detail, with the history of the most recent series of thirty-three cases. The reaction was never obtained with serum from non-pregnant women or women over five months pregnant.

Annales de l'Institut Pasteur, Paris

May, XXVI, No. 5, pp. 321-400

- 35 Hydrolysis of Saccharose. (Recherches sur l'hydrolyse comparée du saccharose par divers acides en présence de la sucrase de levure.) G. Bertrand and Rosenblatt.
- 36 *Experimental and Clinical Research on Exanthematous Typhus. III. C. Nicolle and E. Conseil.
- 37 *Trichinosis. M. Romanovitch.
- 38 Poisons Produced by the *Aspergillus Fumigatus*. E. Bodin and C. Leuormand.

36. **Typhus.**—In the research carried on during 1911 at the Pasteur Institute at Tunis, guinea-pigs proved susceptible to exanthematous typhus when inoculated in the peritoneum with 2 or 4 c.c. of blood from an infected patient or monkey, while sheep, goats, dogs, rabbits and hens proved refractory to experimental inoculation. No appreciable benefit was derived in clinical cases from therapeutic injection of serum from convalescents or salvarsan, while the latter was found dangerous.

Tartar emetic was also inactive, and epinephrin in twelve cases had no preventive influence on the drop in the arterial pressure, and no effect from it was apparent on the fever or duration of the disease. The virus of the disease does not seem to act specially on the adrenals. A fixation abscess seemed possibly to reduce the frequency of secondary complications.

37. **Trichinosis.**—Romanovitch's research has demonstrated anew that the trichina sows microbes along its way as it passes through the intestinal mucosa, and that the dominant character of the infections due to the trichina is polymicrobial. It is probable that the fever and septicemia are the result of this secondary inoculation. The larvae are deposited in or near the lymphatic vessels and getting into the lymph stream pass thence into the blood. Daily examination of the blood might thus reveal the trichinosis in its earliest incipency. One attack of trichinosis does not prevent future attacks, and he knows of no means to prevent or abort trichinosis. The evolution of the helminthiasis may sometimes be retarded by injections of tartar emetic, but salvarsan does not seem to display any action on the trichina larvae.

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

May, XVII, No. 5, pp. 401-496

- 39 The Corpus Luteum in Cholesterol Production. (Fonction cholestérinogénique du corps jaune.) A. Chauffard, G. Laroche and A. Grigaut.
- 40 Cervical Cesarean Section. (L'opération césarienne conservatrice cervicale transpéritonéale.) G. Heinrichs.
- 41 Retention of Nitrogen During Pregnancy. (L'élaboration des albumines de la ration chez la femme enceinte soumise au régime lacté et la nature de l'azote retenu par l'organisme gravis normal.) J. Lemelaud.

Bulletin de l'Académie de Médecine, Paris

May 14, LXXVI, No. 20, pp. 359-381

- 42 Vaccination Against Typhoid. (Remarques sur la vaccination antityphique. A propos de 5,000 cas d'immunisation par les vaccins polyvalents.) H. Vincent.

May 28, No. 22, pp. 391-401

- 43 Salvarsan in Syphilis. (Un an de pratique des injections intraveineuses de salvarsan dans le traitement de la syphilis.) E. Bodin and A. Netter.
- 44 *Improved Technic for the Wassermann Test. (Utilité, pour le diagnostic de la syphilis, d'adopter systématiquement à l'épreuve de la réaction de Wassermann proprement dite, une épreuve identique avec sérum non chauffé.) Hallion, Bauer and F. Balzer.

44. **Improved Technic for Wassermann Test.**—Hallion and Bauer state that it is very little more trouble to apply the Wassermann test with the usual technic and parallel it with the same test without heating the serum. This gives extreme accuracy in the findings and throws light on dubious cases.

Grèce Médicale, Syra, Greece

March 15, XIV, Nos. 5-6, pp. 9-12

- 45 Appendicitis Consecutive to Lesions in Ovaries or Fallopian Tubes. (Appendicite et annexite.) A. Rives and S. N. Oeconomos.
- 46 Experiences with Salvarsan in Syphilis. (Indications et résultats du "606.") P. N. Divaris.

April 15, Nos. 7-8, pp. 13-16

- 47 Post-Traumatic Glycosuria. (3 observations de glycosuries post-traumatiques.) S. N. Oeconomos and E. Chauvin.
- 48 Chemistry of the Respiration in Tuberculosis. (Chimisme respiratoire dans la tuberculose.) P. N. Divaris.

Journal de Médecine de Bordeaux

May 19, XLII, No. 20, pp. 305-320

- 49 *Abuse of Dietetic Treatment of Arteriosclerosis. (Les abus de régimes dans le traitement de l'artériosclérose.) Fraikin and G. de Cardenal.

49. **Abuse of Dietetic Restrictions in Arteriosclerosis.**—When patients are advised to restrict their diet in certain directions to keep arteriosclerosis under control, they are apt to go to extremes. The consequence is they suffer from inanition and lack of certain necessary elements in their food. The resulting disturbances they regard as part of their arteriosclerosis syndrome and resign themselves hopelessly to bear them, when, in reality, they are unnecessary and can be arrested at once by a more rational diet. The lassitude, loss of flesh, tendency to insomnia and headache of such patients are liable to be ascribed to the arteriosclerosis and the diet restricted still further. A more nourishing and varied diet sweeps away the clouds and the sun shines into their lives once more. The evils

of dietetic abuses are particularly serious in patients with high blood-pressure and neurasthenia, and it is possible that a mild arteriosclerosis may be aggravated by them. The restriction to "white meat" is bad; "red meat" is better digested and generates less toxins than young white meat, young lamb and veal. Milk should not be taken too exclusively or for too long a time. Salt is useful; it maintains the appetite and aids digestion and it should not be suppressed except when this is really necessary. Fraikin and Cardenal conclude these reflections with the statement that with arteriosclerosis moderation is the main thing. The patient should eat moderately, neither too much nor too little, more when exercising than with a sedentary occupation. The diet should be regulated, modified and changed to suit the individual patient and existing conditions at different periods.

Lyon Médical, Lyons

May 12, XLIV, No. 19, pp. 1005-1068

- 50 *Open Defect in Interventricular Septum. (Maladie de Roger avec cyanose par communication interventriculaire et phthisie fibreuse.) L. Gallavardin.
51 Syphilitic Pseudohypopyon. Rollet.

May 19, No. 20, pp. 1069-1128

- 52 *Determination of Ammonia in the Blood a Simple Test of Kidney Functioning. (Médecine expérimentale: Urémie et ammoniémie.) J. P. Morat.
53 Immunity and Anaphylaxis in Tuberculosis. P. Courmont.

50. Effects of Defect of the Septum of the Ventricles.—In 1879 H. Roger discovered a condition characterized by (1) an interventricular perforation without any other cardiac lesion; (2) a peculiar blowing murmur accompanied by a thrill; hence called Roger's murmur, and (3) the absence of any special clinical symptoms, such as cyanosis or shortness of breath. Gallavardin wishes to extend the name of "Roger's disease," as this condition is generally called, to cover cases having a similar cardiac lesion but accompanied by clinical symptoms, such as cyanosis, and by other pathological conditions, particularly tuberculosis. These cases he divides into four classes: (1) Roger's disease, badly borne but without cyanosis or tuberculosis; he cites two cases of infants dying at 9½ and 15 months; (2) Roger's disease with cyanosis but without tuberculosis, of which form he cites three cases; (3) Roger's disease with tuberculosis but without cyanosis; several cases; and (4) Roger's disease with tuberculosis and cyanosis, and he reports a case of this form. The patient was a girl 23 years old, presenting extreme cyanosis with the physical signs of interventricular communication and fibrous pulmonary tuberculosis which had been developing for eight years; pulmonary stenosis was suspected. Necropsy showed an opening between the ventricles nearly the size of a silver quarter, with no other cardiac malformation; very extreme degree of fibrous tuberculosis with tremendous hypertrophy of the right ventricle, and aortic aphasia. He thinks that the development of the tuberculosis was favored by the plethora and the hypertension brought about by the added amount of blood forced into the pulmonary artery. He concludes that the affection in question is not a disease but a lesion, and its clinical significance depends not alone on the size of the opening but also on its location and on the amount of strain to which the heart is subjected during life. A perforation which might have been insignificant in a normal heart would be badly borne in case of pulmonary disease, right-sided hypertrophy or other cardiac lesion. Though this is not a definite heart disease, it is at least an important factor in certain organic dystrophies, such as aortic aplasia and infantilism; it may create a predisposition to pulmonary tuberculosis, may modify the course of that disease, and add to the clinical picture an extreme cyanosis.

52. Ammonia in the Blood as Index of Kidney Functioning.—Morat found in his research that ammonia carbonate was present in the blood and intestines when the kidney functioning was impaired (ureters ligated in dogs). The ammonia carbonate is generated from the urea passing into the intestines and hydrolyzed by the action of the microbial flora. The proportion of ammonia carbonate in the blood is thus an index of the permeability of the kidneys for urea and, Morat adds, the determination of the carbonate in the blood is a much simpler and easier matter than dosage of the urea content.

Revue de Chirurgie, Paris

May, XXXII, No. 5, pp. 685-864

- 54 *Exclusion of the Duodenum in Treatment of Subpyloric Duodenal Ulcer. Vautrin.
55 *Membranous Pericollitis. (A propos de 2 cas de sténoses sus-cæcales avec péricollite membraneuse.) X. Delore and H. Alamartine.
56 Operative Measures Excluding All or Part of the Large Intestine. (Des exclusions ouvertes partielles et totales du gros intestin.) A. Marro.
57 *Camphorated Oil in Treatment of Peritonitis. (L'injection intrapéritoncale d'huile camphrée à 1 p. 100 dans le traitement des péritonites diffuses aiguës.) A. Vignard and L. Arnaud.
58 *Uterine Injections of Zinc Chlorid Solution in Treatment of Chronic Metritis. P. Mocquot and J. Mock.
59 Traumatic Lesions of Testicles and Epididymis; Five Cases. Barthelémy and M. de Laroquette.
60 *Operative Treatment of Primary Tumors in Lungs or Pleura. (Etude du traitement chirurgical des tumeurs primitives de la plèvre et du poumon.) J. Guyot and A. Parceller. Commenced in No. 1.

54. Treatment of Duodenal Ulcer.—Vautrin remarks that as a duodenal ulcer is of peptic origin, it follows that when the irritating hydrochloric acid can be kept away from it, the ulcer will heal. This is often possible by medical means, dieting to reduce production of acid, plus ingestion of alkalies to neutralize what is on hand. Under systematic perseverance with these measures he has cured patients with no sign of recurrence for eight or ten years to date. Old chronic ulceration with hard edges will never yield to medical measures alone, while it is a constant source of danger. The simplest, quickest and most effectual operative means to prevent further corrosion from the gastric juice is to shut off the duodenum entirely. A gastro-enterostomy alone does not answer the purpose unless the pylorus is already impermeable. The exclusion should be done 2 or 3 cm. above the tumor, in sound tissue. He throws a ligature around the trunk of the gastroduodenal artery to ensure against hemorrhage and does this also as a precautionary measure when only gastro-enterostomy is done. He reports a case of hemorrhagic duodenal ulcer with symptoms recurring during two years and during the following year there was severe hemorrhage from the ulcer on six occasions. The duodenum was severed close to the pylorus, the stumps were sutured separately, followed by gastro-enterostomy. The patient, a woman of 42, was thus cured at one stroke of all disturbances and has been in good health since. She still takes pains to conform to a diet that keeps the tendency to hyperchlorhydria under control.

55. Stenosis Above the Cecum with Membranous Pericollitis.—Many cases with symptoms simulating those of appendicitis are due to other lesions of the large intestine. Delore and Alamartine report two cases in both of which they found membranous pericollitis with a resultant stenosis of the intestine above the cecum. One was probably due to an old appendicitis, the other to a chronic enterocolitis. In the first case they performed an ileocolostomy and in the second a cecocolostomy with complete recovery in both cases. The inflammation which leads to the formation of a membrane may originate anywhere in the intestinal tract or even in the bladder or uterine adnexa. They think it is frequently tuberculous in character. In all operations for appendicitis, the ileum, the cecum and the ascending colon should be carefully examined for constriction. Intestinal anastomosis is preferable to simple breaking up of adhesions, as experience has shown that they are liable to recur. The appendix should be removed in all cases even if apparently normal.

57. Intrapéritoneal Injection of Camphorated Oil.—The use of 1 per cent. camphorated oil in acute peritoneal infections is increasing, and shows marked results. Its favorable action is due to the fact that it seems to prevent lymphatic absorption of bacteria and toxins and prevents the formation of adhesions, lubricating the loops of intestine so they do not stick together. Minor benefits are its tonic heart action and its antiseptic properties. Vignard and Arnaud report considerable experiences with it, injecting 200 or 300 c.c. in adults. They state that it is absolutely harmless.

58. Treatment of Chronic Metritis.—Mocquot and Mock here report the favorable experience in Delbet's service with uterine injections of a 30 or 40 per cent. solution of zinc chlorid, which Delbet has been applying since 1897. He regards it as decidedly superior in its results to curetting, while it is a far simpler

and less hazardous procedure and can easily be done by any practitioner, the patient having only to rest a few hours afterward and is up and about the next day. The best results can be counted on in hemorrhagic metritis, especially when consecutive to an abortion; a single injection will often cure in these cases. In the metritis of elderly women, or with sclerosis or myoma, more injections are necessary for the same result. In glandular and parenchymatous metritis the effect is most marked on the pain and enlargement of the uterus; these subside but the leukorrhea generally persists. In addition to chronic metritis, the method is applicable whenever curetting is indicated. A 40 per cent. solution is used in the hemorrhagic cases and 30 per cent. in others; 1 or 2 c.c. is sufficient and never more than 3 c.c. is used even when the uterine cavity is abnormally large. The cannula is introduced to the bottom of the uterus and the fluid injected without pressure as the cannula is withdrawn, twisting it around to irrigate the entire surface of the mucosa. The vagina must be carefully protected against any contact with the fluid, and afterward a vaginal douche is given. Pain from the injection is prevented by previous anesthesia of the uterine cavity, but occasionally there is tardy pain, uterine colic, suggesting labor pains, but they can be soothed by moist heat to the abdomen or laudanum enemata. It is impossible to foretell which patients will or will not have these pains. In some cases they are quite severe, with vomiting and a tendency to syncope. Cuche advocates a systematic injection of morphin after each cauterization. Delbet waits for the eschar to be thrown off before repeating the injection, if more than one is required; this usually occurs in six or seven days. After three injections he waits for the result; if not satisfactory he gives a new series. No mishaps have ever occurred from the method in Delbet's service, and scarcely a day passes in which it is not applied.

60. Primary Tumors of the Pleura or Lung.—Guyot and Parcelier state that in fifty-six cases on record of sarcoma of the lung, its removal was attempted in seventeen cases, including one here reported. Seven operative cases of carcinoma of the lung are on record; the liability to metastasis is exceptionally great with these growths, but one of these patients was known to be in good health a year after the operation. None of the sarcoma patients long survived. In the personal case reported, the patient gained thirteen pounds in four months but then the patient began to spit blood anew and a metastatic tumor in the old region gradually assumed large dimensions. The symptoms of a primary tumor in the lung closely resemble those of an incipient tuberculous process; hemoptysis coming on in apparent health without cough, dyspnea or fever, and spontaneously subsiding. There is generally local pain suggesting intercostal neuralgia. Differentiation is mainly by exclusion, with the aid of laboratory methods. Exploratory puncture is misleading and may be dangerous. Roentgenosecopy is the main reliance. An echinococcus cyst generally has a more rounding outline than a malignant growth. Primary cancer was operable in only 4 per cent. of the total cases reviewed. The details of thirty-nine operative cases of a primary tumor in the lungs or pleura are summarized.

Revue Mens. de Gynec., d'Obstetrique et de Pediatrie, Paris
April, VII, No. 4, pp. 225-303

- 61 Phlegmon in the Broad Ligament and Parametritis. (Perimetrosalpingite et phlegmon du ligament large.) S. Pozzl.
62 *Caesarean Section After Rupture of Membranes. (L'operation césarienne conservatrice exécutée tardivement après rupture des membranes.) A. Grosse.
63 *Oxygen as Adjuvant in Reviving Asphyxiated New-Born Infants. (Sur l'emploi de l'oxygène pur comme traitement de la mort apparente du nouveau-né.) P. and J. Delmas.

62. Caesarean Section After Rupture of the Membranes.—Grosse reports three cases which supplement nineteen previously reported by Le Lorier. They all confirm the advantages and harmlessness of the measure at need. In the three cases the bag of waters had been ruptured seven, twenty-nine or forty-two hours before the operative delivery, but none of the mothers or children succumbed in the total twenty-two cases. It was required on account of ovarian cyst or con-

tracted pelvis in two of the last series; in the latter cases the operation was done at the patient's home in the country.

63. Oxygen for the Asphyxiated Newly Born.—Delmas and Delmas have blown oxygen directly into the infant's lungs in three cases during the last year, rhythmically compressing the chest to promote the artificial respiration, the fingers under the child's back and the thumbs at the nipples, the elasticity of the walls of the chest causing inspiration as they spring back into place when the compression is relieved. In some severer cases they injected the oxygen subcutaneously into the cellular tissue of the chest until the skin was distended to the size of a mandarin orange. The oxygen was soon entirely absorbed, the pulse becoming regular, the heart beat stronger and the lungs soon breathing normally in the favorable cases. The method is thus useful not only in treatment but for the prognosis. They were able to generate oxygen for insufflation, when they had no tank, by moistening sodium peroxid. In contact with water, a piece weighing 10 gm. will generate 2 liters of nascent oxygen. The chemical is placed in a tumbler or vase covered with a funnel; a rubber tube over the mouth of the funnel conveys the oxygen to the child. The oxygen might possibly be introduced into the rectum, but they have had no experience with this method. The Delmas are the professor of obstetrics and the chief of the maternity connected with the university of Montpellier.

Semaine Médicale, Paris

June 5, XXXII, No. 23, pp. 265-276

64 *Hemolytic Splenomegaly. G. Banti.

64. Hemolytic Splenomegaly.—Banti calls attention to an affection which he thinks has never been described before, but which has not only much scientific interest but is remarkable, further, for the prompt cure by removal of the spleen. It resembles on one hand the primary splenomegaly known as Banti's disease, while on the other hand it resembles hemolytic jaundice. He tabulates the findings in detail from a typical case, the patient a young woman of 26, the reds dropping from nearly four million to 1,615,000 in four months. The spleen was then removed and the reds increased to over five million in less than three months and have persisted normal since. The necessity for and benefit from splenectomy was equally marked in a second case, the patient a man of 23, and Banti is convinced that certain cases published under other headings were in reality of this type. There was no history of malaria, jaundice or syphilis in his cases but progressive anemia developed in connection with enlargement of the spleen and jaundice without clay-colored stools, but with urobilin and bilirubin in the urine and a special reaction on the part of the blood marrow indicated by changes in the composition of the figured elements of the blood. The syndrome closely resembles that induced in animals by certain blood-destroying poisons.

Berliner klinische Wochenschrift

May 27, XLIX, No. 22, pp. 1021-1068

- 65 Phlegmon from Foreign Body in the Esophagus. (Retroösophageale Phlegmone durch Fremdkörper.) F. Karewski.
66 Splenic Anemia in Man of 36 Cured by Splenectomy. (Anaemia splenica, geheilt durch Milzexstirpation.) G. Klemperer and R. Mühsam.
67 Cancers in Lepers. (Weitere Untersuchungen über die Krebssterblichkeit unter den Leprakranken.) M. Soegaard.
68 Heredity and Sociology. (Vererbung und Soziologie.) W. Weinberg.
69 Production of Antibodies in Cultures of Living Body Cells. (Ueber Antikörperbildung in Kulturen lebender Körperzellen.) H. Lüdke.
70 Tartar on Teeth as Deposits of Lead in Lead Poisoning. (Zur Zahnpflege im Bleibetriebe.) V. Hinze.
71 Radium Emanation in Therapeutics. (Ueber den Emanationsgehalt des Blutes nach Trinken von Emanationswasser.) W. Engelmann.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena

May 23, XV, No. 4, pp. 219-346

- 72 *Early Diagnosis of Kidney Tumors. (Die Diagnose der Nierentumoren.) P. Frangenheim.
73 *Heart Disturbances with Uterine Myomas. (Herzstörungen bei Myoma uteri.) R. T. Jaschke.
74 *Swallowed Fruit Stones. (Die Folgen verschluckter Fruchtkerne—mit Mitteilung eines Falles.) J. Borggreve.
75 *Ultimate Results of Operative Treatment of Chronic Gastric Ulcer. (Zur chirurgischen Behandlung des chronischen Magengeschwürs.) E. Gressot.

72. Early Diagnosis of Kidney Tumors.—Frangenheim gives a critical oversight of 265 articles in international literature on the diagnosis of kidney disturbances, especially the early diagnosis of tumors in the kidneys, emphasizing the instructive features of each. None of the modern methods of investigation has equalled in diagnostic importance the classic triad, pain, hematuria and tumefaction, but many tumors in the kidney run a latent course. In adults hematuria is generally the earliest symptom, but it is rare in children. The bleeding usually continues through the entire micturition; it may begin without apparent cause or pain or may follow palpation or jar from any cause, driving or running. Blood-stained urine may alternate with normal urine. Generally the hematuria is of brief duration. Cystoscopy is important as even with a palpable tumor the blood may come from the other kidney. The pain with a kidney tumor is described as a dull ache, coming on spontaneously and not influenced by repose or exercise as a rule. The pain may radiate from the lumbar region to the liver, abdominal walls, bladder, anus, testicles or vulva, or into the hips, thighs, shoulders or breast, in the latter case suggesting intercostal neuralgia, or there may be reflex pain in the other kidney. Pasteau has called attention to some new remote tender points with kidney disease. They are along the course of nerves which issue from the spinal cord at the same point as those which innervate the kidneys. He lists the old and new as (1) the corner between the twelfth rib and the spine; (2) the tip of the angle formed by the last rib and the lumbar musculature; (3) in front, at the end of the tenth rib; (4) at the umbilicus, on a line crossing McBurney's point; (5) on a line connecting the iliac spines; (6) at the point where the ureters enter the bladder; (7) a point upward and inward from the anterior superior iliac spines; (8) at the external inguinal ring, and (9) in the abdominal wall at the side, above the center of the crest of the ilium. Nizzoli calls attention to a characteristic tender point at the outer margin of the sacrolumbalis muscle. These points are tender when the kidneys are pathologic and not otherwise. Israel found fever a pathognomonic and sometimes the only symptom of cancer of the kidneys or adrenals free from febrile complications. This was the case in 8.2 per cent. of 146 cases. Roentgenoscopy is of not much use in diagnosis of kidney tumors. The absence of cachexia with a kidney tumor of long standing suggests that it is a hypernephroma.

73. The Heart with Uterine Myoma.—Jaschke's study is based on ninety articles that have been published bearing on the relationship between uterine myomas and loss of cardiac compensation or cardiac disturbance of any kind. The internists until recently focused their attention exclusively on the heart disturbances, ignoring the uterine lesion, while the gynecologists did the same with uterine lesions, overlooking any cardiac disturbances or regarding them as out of their province. Consequently the assumption of a connection between them is of comparatively recent date as in all the specialties more attention is being paid now to borderland problems. Jaschke concludes from careful sifting of the data on hand that there is no case on record in which it has been proved beyond question that any existing functional derangement or subjective disturbances in or from the heart had any causal connection with a uterine myoma. On the other hand, there are countless cases of uterine myomas in which the circulatory apparatus is known to be and persist entirely sound. The tendency to cardiovascular disturbances, thrombosis or embolism, recorded as rather more frequent in myoma cases, is explained by the anemia resulting from the local hemorrhages. In other cases careful study of the remote history will reveal injury of the heart from acute infections long before, with functional disturbances at the time or later. In another group of cases the women shrink from an operation to remove their myoma and they grow obese as they recline a great deal to ward off or arrest hemorrhage from the myomatous uterus, and the obesity and anemia then entail possibly serious conditions in the heart. The cooperation of internists, gynecologists, pathologists and chemists may open new horizons for treatment based on the internal secretions. This possibility is sustained by the often striking benefit from roent-

genotherapy of myoma; this suggests that the myoma is the concrete result of hypersecretion of the ovaries. Other glands with an internal secretion are probably involved, especially the thyroid, so that in this way it is possible to conceive of an indirect causal connection between myomatosis and cardiac disturbances. In any event, he concludes, it is important in operating for uterine myomas to refrain from inflicting further injury with a general anesthetic; spinal anesthesia should be given the preference. The technic for the operation is also extremely important, aiming at rapidity, ligation of the separate vessels and avoidance of any measures for hemostasis liable to interfere with asepsis.

74. Swallowed Fruit Stones.—Borggreve summarizes 123 cases and tabulates the outcome, classifying the cases by the localization and nature of the foreign body, etc. Only 62 per cent. of the patients are known to have survived and 29 per cent. died of the total material, while 93 per cent. were saved in the thirty-four operative cases, including one boy of 16 whose stomach was opened to extract a peach stone. He urges an operation without delay if serious symptoms develop and progress, indicating lodgment of a fruit stone or stones in the intestines. The majority, however, pass along and are voided without disturbance of any kind, especially cherry stones and prune stones, but they are liable under certain conditions to cause great trouble, particularly when the lumen of the gastrointestinal tract is small, as in the young, or from stenosis.

75. Operative Treatment of Chronic Gastric Ulcer.—Gressot lists 114 recent articles on gastro-enterostomy or resection of the stomach, and forty-five others on the malignant degeneration of gastric ulcers, and he then reports the ultimate outcome in twenty cases of benign ulcer treated mostly by gastro-enterostomy. His material and the experiences of a long array of large clinics show that malignant degeneration of surgical ulcers occurs only in 2.3 per cent. of all cases after gastro-enterostomy, while it is liable to occur also after resection of the stomach. He is inclined to believe that the gastro-enterostomy actually has an inhibiting influence on malignant degeneration which might otherwise occur. The irritation maintained by the ulcer invites cancer, just as irritation elsewhere invites it, and the gastro-enterostomy, by permitting the ulcer to heal, does away with this inviting tendency to malignant degeneration later. The remote results of gastro-enterostomy in regard to the ulceration are good but still far from ideal. It is liable to be permanently followed by slight intermittent pains at a certain period after eating, possibly associated with vomiting. This "postgastro-enterostomy syndrome," as he calls it, is quite common; only three of his eighteen recently reexamined patients were free from it or from symptoms suggesting duodenal ulcer. At the same time, the improvement in comparison with their former condition was marked and all the patients were satisfied and grateful. His compilation confirms anew the greater tendency to malignant degeneration of ulcers at a distance from the pylorus, and of those with a tendency to bore deep and grow hard.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 1, XLII, No. 16, pp. 585-616

76 *The Campaign Against Nostrums and Quacks in Switzerland. (Der Kampf gegen Kurpfuscher und Geheimmittel im Kanton Basel-Stadt.) H. Hunziker.

76. The Campaign Against Nostrums and Quacks in Switzerland.—Hunziker states that the laws against the practice of medicine by unqualified persons are very strict in all but two of the cantons of Switzerland. Proceedings can be instituted against a quack for illegal practice of medicine, for personal injury, obtaining money under false pretenses, criminal negligence, and even for a misdemeanor such as when a woman advertised a proprietary under the scarehead "The Black Hand" and thus frightened a number of persons. The laws against nostrums are strict at Basel, close to the German border, so that the lay press has been kept free from advertisements of proprietaries to a considerable extent, but the law does not protect against the advertisements of foreign quacks if they do not refer to secret medicines and apparatus, nor against advertisements in periodicals published elsewhere.

Quack hypnotizers and midwives can advertise without interference and the law does not prohibit the distribution of advertising pamphlets. To remedy these evils, in 1901 several cantons united and organized a central station at Zurich where proprietaries and their advertisements were examined. The board in charge of the work consists of a physician, a pharmacist and a chemist—all appointed by the Zurich board of public health. In 1907 ten cantons had thus united. The work of the central station is similar to that of the local health authorities at Karlsruhe in Germany (frequently mentioned in *THE JOURNAL*). Analyses are made of proprietaries advertised in the local papers and in periodicals reaching the town, and the results of the analysis, with comment, are published in occasional pamphlets. The authorities at Basel have recently published the list of objectionable and unobjectionable proprietaries which have been advertised in late years in the local papers and they have sent the list to the local physicians and druggists in the district. Basel is not a healthy place for advertising quacks and they soon seek more congenial quarters, but numbers find quack practices a lucrative side-line, and it is hard to combat these. Hunziker remarks that the confident way in which quacks assure people that they can cure them and the prompt explanation they offer of the symptoms described, have a soothing and encouraging effect so that a certain transient benefit may be derived from their practices in some cases. He urges physicians generally to be on the alert and to call the attention of the public health authorities to infringement of the law by quacks. He begs all to work for uniform legislation so that the whole country can be rid of them. By concerted action it will be possible to drive them farther and farther back but he adds that it will never be possible to eradicate them entirely. As long as incurable diseases exist, the sick will always grasp at the straws offered them "for a consideration" by those who prey on their credulity.

Deutsche medizinische Wochenschrift, Berlin

May 30, XXXVIII, No. 22, pp. 1025-1072

- 77 *Abdominal Cramps. (Differentialdiagnose der abdominalen Krampfzustände und ihre Behandlung.) A. Albu.
78 Early Symptoms of Organic Nervous Disease. (Frühsymptome organischer Nervenkrankheiten.) K. Heilbronner. Commenced in No. 21.
79 Cutaneous Inoculation of Guinea-Pigs in Differentiation of Human and Bovine Tubercle Bacillus. (Differenzierung des Typus humanus und Typus bovinus des Tuberkelbacillus durch Kutaninfektion beim Meerschweinchen.) E. Tomarkin and S. Peschie.
80 *Steatorrhea in Exophthalmic Goiter. (Fettstühle beim Morbus Basedowii.) A. Bittorf.
81 Quantitative Tests for Albuminuria. (Quantitative Eiweissbestimmungen im Harn und ihre praktische Brauchbarkeit.) C. Moewes.
82 *Death After Intravenous Injection of Hormonal. A. T. Jurasz.
83 *Syphilis in Etiology of Cardiovascular Disease. (Ueber Syphilis als Ursache von Herz- und Gefässerkrankungen.) R. Ledermann.
84 Titration of Acidity of Urine. (Ueber den praktischen Wert der Urinaziditätstiteration.) P. Orłowski.
85 *Hemorrhoids. (Zur Aetiologie und Prophylaxis der Hämorrhoiden.) M. v. Lenhossek.
86 Operative Treatment of Meningitis. (Beiträge zur Chirurgie der Hirnhäute.) P. Herz.
87 Injury of Urethra from Trauma of Perineum. (Harnröhrenzerreissungen durch Einwirkung stumpfer Gewalten vom Damme her.) W. Markens.
88 Improved Catgut. (Jodechromcatgut.) M. Claudius.
89 *Necessity for Reform in Medical Advertising. (Zur Bekämpfung des Heilmittelunwesens.) J. Schwalbe.

77. **Abdominal Pain.**—Albu discusses the various causes that may induce abdominal pain, commenting on the vagueness of the localization of the pains even by intelligent patients. The pain may be experienced at a distance from its starting point or it may spread so rapidly that the point of onset cannot be localized. Differentiation is, however, of paramount importance for treatment, attacking the cause. Dry or moist heat is the best symptomatic measure for cramp-like pain of any origin even when an acute inflammatory process is involved, such as cholecystitis. He has found particularly useful a folded towel dipped in hot water and then wrapped in flannel and renewed every ten minutes, or hot sitz or full baths up to half an hour long. Drinking hot water by the glass will often relieve. In exceptional cases, cold applications give more relief than heat. In all cases a rapid and vigorous purge is advisable. With pylorospasm, whatever its origin—

and he says that nearly all stomach cramps are in fact merely spasm in the pylorus region—he recommends a course of olive oil for four or six weeks, from one to three tablespoonfuls, fifteen minutes before each of the three meals of the day. To render it more palatable, he mixes one or two yolks of eggs with it and 20 or 30 drops of peppermint water. In case of intestinal colic, he advises systematic oil enemas, the patient reclining on the left side or with the pelvis raised, thus injecting 100 or 200 gm. of sesame or other cheap oil and leaving it over night. If a sedative is necessary, he gives the preference to belladonna, 0.02 or 0.03 gm. extract of belladonna in a suppository, two or three times a day, unless morphin cannot be dispensed with.

80. **Steatorrhea in Exophthalmic Goiter.**—Bittorf adds another to the few cases on record in which over 50 per cent. of the fat passed inutilized through the alimentary tract, indicating functional disturbance in the pancreas, in connection with severe exophthalmic goiter, accompanied by defective heart and kidney functioning.

82. **Death After Hormonal.**—Jurasz' patient was a woman of 43 convalescing after removal of the gall-bladder which had been perforated by a gall-stone. The next day enterostomy was required to relieve the distention of the abdomen, and 20 c.c. of hormonal was injected. Fatal collapse followed, and nothing to suggest air embolism was found at necropsy; the heart was apparently normal. He says that there can be no doubt that the fatality was the direct consequence of the injection. This is the first case on record, he adds, in which the collapse after hormonal proved fatal. The sudden reduction of the blood-pressure from the action of the vasodilatin in the hormonal proved too much of a strain for the heart. The pulse had been 120, regular but small, before the operation, and under stimulants had become stronger and 114 the next day. The case warns against hormonal when the heart is weakened from any cause, and this is frequently the case with peritonitis and ileus. "Consequently," Jurasz concludes, "hormonal thereby loses its most important significance for surgery."

83. **Syphilis as Factor in Cardiovascular Disease.**—Ledermann states there was a history of cardiovascular disease in 103 of his 6,000 cases of application of the Wassermann test to the blood-serum. A positive reaction was obtained in twenty of the thirty-six cases of aneurysm of the aorta, and syphilis was probable in four more. The reaction was also positive in seventeen of thirty-six cases of arteriosclerosis, and dubious in another case. He calls special attention to this large proportion of positive reactions in supposedly ordinary arteriosclerosis.

85. **Prophylaxis of Hemorrhoids.**—Lenhossek shows that the anatomie structure of the anal canal is peculiarly non-resistant to mechanical and chemical influences. The zone intermediate between the skin and the rectal mucosa proper lacks the defenses of each, while scraps of stool are liable to lodge in lengthwise folds and cause both mechanical and chemical injury. This is easily demonstrated by a small cleansing enema taken after defecation; it always brings scraps of stool away with it. He recommends a small tepid enema as an indispensable measure to follow defecation, and relates that this systematic "anicleure" has put an end completely to hemorrhoidal disturbances that had tormented him for years, and his friends have reported similar experiences.

89. **Druggists' Wrapping Paper.**—Schwalbe endorses the step taken recently by the organized internists of Germany and described in these columns June 22, page 2006. He also reports the results of investigation in regard to the wrapping paper used by druggists. The wrappers of 806 packages, bought at 400 different drug stores in all parts of Germany, were collected; about half of the wrappers were on medicines dispensed on physicians' prescriptions. Of the total 806 packages, only 110 were wrapped in plain paper. The paper in all the others bore printed matter lauding a proprietary. Sanatogen headed the list with 193; then came Biozitin with 61; Calbig with 45, and so on, to a total of seventy proprietaries from almost as many different manufacturers, including some notorious frauds.

Medizinische Klinik, Berlin

June 2, VIII, No. 22, pp. 893-932

- 90 *Gastro-Intestinal Hemorrhage. (Ueber seltenere Formen von gastrointestinaler Blutung.) G. Singer.
- 91 Internal Derangement of the Knee. (Meniscusverletzungen.) P. Bockenheimer.
- 92 *Oxalic-Acid Poisoning. (Einige Beobachtungen bei Oxalsäurevergiftungen.) H. Wiehern.
- 93 Tardy Rupture of Spleen After Contusion. (Zur Kasuistik posttraumatischer isolierter Spätrupturen der Milz.) S. Strauss.
- 94 Balneologic Treatment After Pleurisy. (Zur balneologischen Nachbehandlung der Pleuritiden.) Isserlin.
- 95 Hatschek's Zoologie System. (Das neue zoologische System von Berthold Hatschek und seine Vorgeschichte.) H. H. Wundsch.
- 96 Epistaxis. (Nasenbluten.) F. Kobrak.

90. **Gastro-Intestinal Hemorrhage.**—Singer discusses particularly the more unusual forms and emphasizes the causal importance of changes in the vessel walls as responsible for the hemorrhages, even without rupture. The characteristic syphilitic degeneration of the vessel walls permits the blood to ooze from the intact mucosa and thus explains many cases of parenchymatous hemorrhage in the stomach and bowels. It is probably also a factor in gastric ulcer. An ulcer in youth is liable to flare up anew under the influence of arteriosclerosis in later life. The arterial affection is the main point to be considered in treating many forms of hemorrhage in the gastro-intestinal tract, but the necessity for this is frequently ignored or overlooked, and the hemorrhage is erroneously ascribed to an imaginary ulceration when the condition of the vessels and circulatory apparatus in general should suggest the true interpretation of the case. Every month, he says, brings him cases in which men in apparently robust health are suddenly stricken with hemorrhage from the stomach or bowels, and evidences of arteriosclerosis can be found on examination. The relative euphoria, the rapid recuperation and the absence of gastro-intestinal symptoms further differentiate these cases from ulcer. These features are also common to the hematemesis with periodic vomiting which may be the first manifestation of tabes, years before any other symptoms develop. In regard to occult hemorrhage as a sign of cancer, Singer warns that even Boas has come to believe that neither positive nor negative findings should be accepted as conclusive, but only as another grain of evidence to be estimated in connection with the other clinical findings. Singer was misled in the diagnosis in one case by the patient's continuing to take a hemoglobin preparation while preparing for the test. He makes a point in treating gastric or duodenal ulcer to interpose two or three hemoglobin-free days occasionally to permit oversight of the state of the ulcerative process. Scirrhus cancer never induces hemorrhage and carcinoma not always, and gastric and duodenal ulceration may exist for years without manifest or occult hemorrhage. On the other hand, there may be bleeding with benign pyloric stenosis or chronic acid and anacid gastritis and even with chronic achylia, gastric catarrh or nervous vomiting. Generally with the latter, the vomit is first pure mucus, then it becomes blood-stained and then pure blood may be vomited. He reports some cases in which sun baths induced hematemesis and melena; the condition here might be compared with the duodenal ulceration liable to accompany superficial burns.

92. **Oxalic-Acid Poisoning.**—Wiehern reports four cases, and mentions that they all occurred in the course of three weeks. The last three patients said they had taken the oxalic acid as they had read in the papers the account of the first patient's having taken it with suicidal intent. He adds that if newspapers would refrain from mentioning the exact poison used in cases of attempted suicide, many lives might be saved. All recovered, but two of the patients developed severe uremic convulsions, threatening for a time, and all of the patients showed severe functional disturbances on the part of the kidneys.

Monatsschrift für Geburtshilfe und Gynäkologie, Berlin

May, XXXV, No. 5, pp. 535-670

- 97 *Intraperitoneal Injection of Oil. (Intraperitoneale Oelinjektionen.) v. Seuffert.
- 98 *Prolapse of the Placenta. J. P. Hartmann.
- 99 *Uterine Myoma in Relation to Sterility. (Uterusmyom, Sterilität und Fertilität.) A. Troell. To be concluded.
- 100 *Myoma in Uterine Cervix. R. Balaban

97. **Intraperitoneal Injection of Oil.**—In this communication from the gynecologic clinic at Munich in charge of Döderlein, three cases are reported in which oil was injected into the peritoneum in treatment of acute suppurative peritonitis, with recovery of two of the patients. The condition was extremely critical in all, and the course after the oil had been injected was surprisingly favorable in these two cases. Von Seuffert cites seventy-five similar cases from the literature (Hirschel, Borchard and Krecke), the mortality having been less than 25 per cent., when at least 35 or 40 per cent. would probably have succumbed without the oil. Holzbach and Delbet, on the other hand, witnessed no benefit from the oil in their experience. Von Seuffert reviews further the data in regard to prophylactic injection of oil, concluding from his personal experience in ten cases and those published by others that the oil is worthless in prophylaxis, whether injected during or as a preliminary to the operation.

98. **Prolapse of the Placenta.**—Hartmann has encountered prolapse of the placenta in two cases, the placenta separating prematurely, dropping down and being expelled before the fetus. The danger of fatal hemorrhage is great. In all the cases of the kind he could find on record the women had severe nephritis, which seems thus to be more than a mere coincidence. When the placenta has dropped down to the cervix it suggests placenta prævia, and requires about the same measures, only more haste is necessary if the fetus is still living. Only when there is reason to assume that but a short time has elapsed between the separation and the "prolapse" is there any hope of the fetus surviving the interference with the function of the placenta. Protracted labor with trickling of blood, in connection with pains and distention of the uterus, suggest premature separation of the placenta, especially when the woman has nephritis. The hemorrhage with each labor pain is more severe with placenta prævia.

99. **Myoma and Sterility.**—Troell has been examining the records in regard to myoma at the gynecologic clinic at Lund, Sweden, and states that in the twenty-two obstetric and 304 other cases of uterine myoma the proportion of nulliparæ was respectively 68.1 and 61.1 per cent. The more childbirths, the less seems to be the tendency to myoma production. He found myomas far more prevalent among the unmarried.

100. **Myoma in Uterine Cervix.**—Balaban gives an illustrated description of four cases and cites fifty-four articles on the subject from the literature. Treatment, he says, can only be operative, and the surgeon must be prepared for hemorrhage from the veins in the wall of the bladder and for complications on the part of the rectum and ureters, cervical myomas requiring greater technical skill for their removal than myomas of the body of the uterus.

Münchener medizinische Wochenschrift

May 28, LIX, No. 22, pp. 1201-1258

- 101 Successful Decapsulation of Kidney in Treatment of Acute Unilateral Septic Infectious Nephritis in Girl of 7. C. Ritter.
- 102 Vaccine Diagnosis and Therapy in Gonorrhea. Guggisberg.
- 103 Pituitary Extract in Obstetrics. (Verwertung der Hypophysenextrakte in der praktischen Geburtshilfe.) J. Hofbauer.
- 104 Internal Derangement of Knee from Trauma. (Zur Frage der Pathogenese und des Mechanismus der Meniskusverletzungen.) G. E. Konjetzny.
- 105 Technic for Nerve Blocking in the Axilla for Operations on the Arm. (Die Anästhesierung des Plexus brachialis in der Achselhöhle bei operativen Eingriffen in der oberen Extremität.) G. Hirschel.
- 106 A Hundred Hysterectomies for Myomas Without a Fatality. (Eine Serie von 100 abdominalen Totalexstirpationen bei Uterusmyom ohne Todesfall.) S. Flatau.
- 107 Pseudomyxoma of the Peritoneum. (Das sogenannte Pseudomyxoma peritonei.) E. Fraenkel. Commenced in No. 21.
- 108 Salvarsan in Syphilis. (Bisherige Ergebnisse unserer Salvarsanbehandlung.) Kannenglesser. Commenced in No. 21.

St. Petersburger medizinische Zeitschrift

May 28, XXXVII, No. 10, pp. 147-160

- 109 Rhinoscleroma Not Influenced by Salvarsan. W. Lleck.
- 110 Operative Treatment of Fractures Healing with Deformity. (Zur operativen Behandlung deform geheilter Frakturen und Pseudarthrosen.) W. Greiffenhagen.
- 111 The Methods in Vogue for Determination of the Uric Acid in the Blood. (Zur Bestimmung der Harnsäure im Blut.) A. Schawlow.
- 112 Volvulus of Large Intestine. (Zur Therapie des Volvulus des Dickdarms.) H. v. Hoffner.
- 113 Goiter in Northwestern Russia. (Ueber Kropf in Estland.) v. zur Mühlen.

Virchows Archiv, Berlin

May, CCVIII, No. 2, pp. 161-320

- 114 Changes in the Thyroid Gland in Exophthalmic Goiter. (Die histologische und chemische Veränderung der Schilddrüse bei Morbus Basedowii und ihre Beziehung zur Funktion der Drüse.) A. Kocher. Commenced in No. 1.
- 115 Changes in the Internal Ear with Cerebellopontine Angle Tumors, and Their Clinical Importance. (Ueber anatomische Veränderungen im Labyrinth bei Kleinhirnbrückenwinkel-tumoren und ihre klinische Bedeutung.) J. Zange.

Wiener klinische Wochenschrift, Vienna

May 30, XXV, No. 22, pp. 827-866

- 116 *Classification of Cases of Tuberculosis. (Eine neue Einteilung der Lungentuberkulose.) H. Schut.
- 117 Specific Diagnosis and Treatment of Tuberculosis. (Anwendung der Immunitätsforschung auf die Klinik der Tuberkulose—Die aktive spezifische Therapie der tuberkulösen Erkrankungen.) W. Neumann.
- 118 Exanthem After Salvarsan in Treatment of Syphilis; Eight Cases. M. Oppenheim.
- 119 Congenital Metatarsus Varus. O. v. Frisch.
- 120 Local Hemorrhage for Weeks After Resection of Nasal Mucosa. (Schwere Blutungen mehrere Wochen hindurch nach Entfernung von Hypertrophien der Nasenschleimhaut.) L. Rethi.

116. Classification of Tuberculosis.—Schut thinks that the time has come for a new classification of tuberculosis, and proposes the three main groups: obsolete, latent and manifest lesions. The manifest lesions he subdivides in turn into the proliferative and exudative, and each of these in turn into the non-progressive and progressive, and the progressive in turn into acute and chronic. This classification is based on whether the tuberculosis is progressing or not, and consequently it requires reexamination of the patient before the exact status of his disease can be determined. By proliferative he means the form distinguished by production of connective tissue, and thus the lesion is mainly interstitial. In the exudative form, exudation and destruction of cells predominate; there is much sputum and the temperature fluctuations are more pronounced. Both forms frequently coexist; the case should be classified by the predominating form. Then with the ordinary diagnostic measures, it is a simple matter to classify the patient properly and thus provide a basis for effectual treatment. He adds that the proliferative form has a better prognosis than the exudative. It is probable, he adds, that only the proliferative form is amenable to tuberculin treatment.

Zentralblatt für Chirurgie, Leipsic

June 1, XXXIX, No. 22, pp. 737-768

- 121 Peritonization of Stump of Mesentery After Resection of Intestines. (Peritonisierung des Mesenterialstumpfes mit freiem Netz bei ausgedehnter Darmresektion.) Iselin.
- 122 Management of Stump of Duodenum After Resection of Stomach. (Zur Frage des Verschlusses des Duodenalstumpfes nach umfangreichen Resektionen des Magens.) W. Lewit.

Zentralblatt für Gynäkologie, Leipsic

June 1, XXXVI, No. 22, pp. 697-728

- 123 Necessity for Classifying Separately Puerperal Fever After Abortion. (Notwendigkeit der Trennung der Puerperalfieber-Erkrankungen und Todesfälle post abortum und derjenigen post partum maturum, praematur, und immatur, in der offiziellen Statistik.) W. Thorn.
- 124 Campaign Against Criminal Abortion. (Der Kampf gegen die kriminelle Frühabtreibung.) A. Brün.
- 125 Rarity of Premonitory Rise of Temperature with Thrombosis. (Ist nun die Existenz eines prämonitorischen Temperatursymptoms bei Thrombose und Embolie erwiesen?) H. Kuster.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 21, XXXVII, No. 61, pp. 641-648

- 126 *Wassermann Reaction in Rachitis. (Rachitismo e reazione di Wassermann.) D. Caffarena.
- May 23, No. 62, pp. 649-656
- 127 *Salvarsan in Lesions Secondary to Syphilis. (Alcuni casi rari curati col salvarsan.) E. Jona.

May 26, No. 63, pp. 657-672

- 128 *Cholera an Enteritis Due to Adrenal Insufficiency. (Colera ed iposurrenalismo.) P. Piovesana.
- May 28, No. 64, pp. 673-680
- 129 "Uterus Cough" Cured by Correction of Retroversion. (Caso di tosse uterina curata chirurgicamente.) P. Tedeschi.

May 30, No. 65, pp. 681-688

- 130 Local Anesthesia of Larynx by Nerve Blocking with Alcohol. (Contributo alla anestesia locale nella tisi laringea per mezzo delle iniezioni di alcool.) M. Pavesi and E. Curti.

June 2, No. 66, pp. 689-704

- 131 Etiology of Epidemic Poliomyelitis. (Eziologia della poliomielite acuta.) G. Galeotti.

126. Rachitis and Wassermann Reaction.—Caffarena obtained a positive reaction to the Wassermann test in 30 per cent. of twenty children with rachitis and in some other member of the family in 40 per cent. He also found that the symptoms of the rachitis improved under specific treatment as for syphilis. His findings confirm Marfan's assumption of a causal connection between syphilis and rachitis.

127. Salvarsan in Diseases Other than Syphilis.—Jona found the salvarsan absolutely inert in some cases of diabetes insipidus and leukemia, but the jaundice and anemia subsided in some cases of syphilitic liver affections although the liver lesion itself did not seem to be modified by the treatment. The fundamental syphilitic affection may be beyond benefit from the specific treatment, yet secondary derangement may be cured by it.

128. Cholera and Adrenal Insufficiency.—Piovesana emphasizes certain features in common between Addison's disease, the syndrome observed after removal of the adrenals, and cholera. The resemblance in certain points is so marked that it suggests that cholera may be merely an acute specific enteritis with toxic symptoms on the part of the nervous system, especially of the innervation of the cardiovascular apparatus, due to deficient adrenal functioning. On this assumption the logical treatment of cholera would be to supply the lacking internal secretion of the adrenals. He reports nine cases in which he applied treatment on this basis, after considerable confirmatory animal experimentation. He thinks the results justify further trials of epinephrin in treatment of cholera, not shrinking from large doses. He noticed that the condition of the patients always grew rapidly worse when they were moved, and he urges that they should be treated at home when possible. The transportation, even with the greatest care, seemed to jar the viscera and aggravate conditions.

Policlinico, Rome

May 19, XIX, No. 21, pp. 745-780

- 132 No Difference in Virulence of Germs from Cholera Patients and from Healthy Carriers. (Ricerche sul comportamento dei vibriani di Koch isolati da malati e da portatori.) T. Pontano.
- 133 Treatment of Empyema in the Thorax. L. Vacearl.

May 26, No. 22, pp. 781-816

- 134 Neuroses of the Heart. (Le neurosi del cuore.) Belosersky.

May, Medical Section No. 5, pp. 189-238

- 135 *Tuberculous Meningomyelitis. G. Antonelli.
- 136 Metabolism in Pellagra. (Contributo allo studio del ricambio materiale nella pellagra.) L. Preti and L. Pollini.

135. Tuberculous Meningomyelitis.—Antonelli reviews the history of this disease and reports a case with the necropsy findings. His patient was a man of 47 with a history of old venereal disease but no secondary manifestations. In the midst of apparent health symptoms of pleurisy developed, with pains in the chest, especially in the region of the sternum. They were probably the clinical manifestations of the incipient disease in the spinal roots. The pleurisy persisted and the lung showed signs of involvement. Later pain developed in the lumbar region and joints of the legs. The joint disturbances suggested an infectious pseudorheumatism; this method of onset of meningomyelitis was observed in several of the cases on record. In the third period paralysis developed, readily explained by the necropsy findings, indicating ascending tuberculous leptomeningomyelitis. The whole trouble seemed to have developed secondarily to a recent tuberculous process in the pleura and lungs. In the cases in the literature the primary tuberculous process had always been of long standing.

Riforma Medica, Naples

May 4, XXVIII, No. 18, pp. 477-504

- 137 Pulsation in Pleural Effusions and Its Cause. (Delle raccolte pleuriche pulsanti e del determinismo della pulsantità di esse.) S. Livierato.

May 11, No. 19, pp. 505-532

- 138 Respiration During Experimental Pulmonary Embolism. (Sulle modificazioni della meccanica respiratoria nell'embolia polmonare.) F. Pentimalli.

May 18, No. 20, pp. 533-560

- 139 *Traumatic Neuroses. (Delle neurosi da trauma.) A. Murri. Commenced in No. 18.

139. **Traumatic Neuroses.**—Murri thinks that physicians are far too apt to overlook the previous condition in examining the victim of an accident. Because certain morbid conditions are found they are apt to be ascribed to the trauma, when in reality the trauma was merely the gentle breeze that brought down the ripe fruit just on the point of falling. The patient has every interest in concealing from the physician any preceding morbid condition. Murri calls attention further to the fact that traumatic neuroses were not observed after the great Messina earthquake a few years ago; the earthquake left the spectators in a neurotic condition but its duration was brief and it passed over like an acute disease, subsiding without leaving a trace. It is possible that the absence of any source to which to apply for an indemnity may have aided in the prompt subsidence of the neuroses. He gives a number of instructive examples of traumatic neuroses, with or without feigned or wilfully exaggerated symptoms. In one case a man of 39 developed epilepsy after a fall between two cars, but Murri was unable to find any records of epilepsy brought on at this late age by a railroad accident, and he thinks it much more probable that the epilepsy had long existed in a latent form and that it had been the cause of the fall. In one case a preexisting tendency to paralysis—asccribed by the patient entirely to the trauma—was discovered by means of his old shoes. The top of the toe of one shoe in each pair was worn off where the foot had dragged a little and hit the stair. Simulators generally make the pathologic movement exaggerated at first and it gradually grows weaker, while with organic disease the movement starts out more or less normal and becomes more pathologic with fatigue.

Brazil Medico, Rio de Janeiro

May 8, XXVI, No. 18, pp. 175-186

- 140 Cutaneous Sporotrichosis. (Esporotrichose.) F. Terra.

Revista de Medicina y Cirugia, Havana

May 25, XVI, No. 10, pp. 275-300

- 141 Improved Technic for Differentiation of Typhoid Bacilli. (Modificacion de la formula del medio de Endo.) L. Plascencia.
142 Treatment of Acute Purulent Otitis Media. V. Gomez.
June 10, No. 11, pp. 301-326
143 Sanitation of Burial. (Saneamiento de la muerte.) L. M. Cowley.
144 Sanitary Conveniences in Buildings During Construction. (Sistema que urge reformar.) A. G. Dominguez.

Semana Medica, Buenos Aires

April 25, XIX, No. 17, pp. 781-824

- 145 Plan and Method in Diagnosis. (El plan y el metodo en el arte del diagnostico.) A. Alfaro.
146 *Induced Pneumothorax in Treatment of Pulmonary Tuberculosis. D. Paternoster.
147 Morphology in Biology. (La morfologia dinamica.) F. Hous-say.
148 Does Filtering the Water Avert Danger of Typhoid? (Debemos confiar en los filtros para preevernos de la tifoidea?) V. Delfino.

May 2, No. 18, pp. 825-868

- 149 *Fracture of the Pelvis. L. Bard.
150 Artificial Mineral Waters. (Las aguas minerales artificiales y el agua de Seltz.) V. Delfino.
151 Deformities in Connection with Mental Disease. (Anomalias morfologica en los padecimientos mentales.) L. J. Ortiz.

146. **Induced Pneumothorax in Treatment of Pulmonary Tuberculosis.**—Paternoster describes his impressions on visiting Forlanini's clinic at Pavia, Italy, where he was able to study the technic and results at first hand of the therapeutic pneumothorax as Forlanini has perfected his method. He witnessed more than three hundred applications of the method, and states that none of the patients experienced any disturbance from it. They are kept under supervision but not obliged to stay in bed even from the first. The tubercle bacilli disappeared from the sputum in from two to six months, according to the severity of the initial lesions. He cites the details of a few clinical cases to show the benefit derived even during his stay and states that he saw also a number of former patients who are now in the best of health from twenty to twenty-four months and more since the termination of the treatment; he examined their sputum repeatedly but could find no trace of tubercle bacilli.

149. **Fracture of the Pelvis.**—Bard comments on the wide divergence of the outcome in cases of fracture of the pelvis,

some patients dying of shock from the serious injury, others surviving with severe complications while in others the fracture behaves and heals like the fracture of any bone without further trouble. In four cases reported the fracture healed in a plaster cast without complications in two cases, but complications and injury of viscera soon proved fatal in the others.

Hospitalstidende, Copenhagen

May 15, LV, No. 20, pp. 561-584

- 152 Roentgenoseopy of Bursitis in the Shoulder. (Röntgenundersøgelse som diagnostik Hjælpemiddel ved Bursitis sub-acromio-deltoida.) H. J. Panner.
153 Modification of Gram Stain Especially for Differentiation of Gonococci. (Om en Modifikation af Grams Farvning særlig med Hensyn til Gonokokdiagnosen.) V. Jensen.
May 30, No. 22, pp. 613-636
154 Formaldehyd Sterilization. (Formaldehyddesinfektion.) L. E. Walbum. Commenced in No. 21.
155 Dosage in Roentgenotherapy. (Iagttagelser over Maaling af Røntgenmængder.) H. Bang.

Ugeskrift for Læger, Copenhagen

May 23, LXXIV, No. 21, pp. 807-828

- 156 Roentgenoscopy Diagnosis of Adhesions in Colon Region. (Betydningen af Røntgenundersøgelse ved Diagnose af Colon-adhærener.) A. Pers.
May 30, No. 22, pp. 829-858
157 *Direct Inhalation of Mercury in Treatment of Syphilis. (Arteriel Kvægsølvtterapi gennem Inhalation—En ny Behandlingsmaade af Syfilis.) C. Engelbreth.

157. **Improved Technic for Mercurial Treatment: Direct Inhalation.**—Engelbreth explains the benefits of inunctions as principally due to the inhaling of the fumes from the mercurial inunctions; the inhaled mercury taken into the alveoles of the lungs passes directly into the arteries. He thinks that this same effect can be obtained much magnified by evaporating the mercury by heat and inhaling the fumes thus generated, and has devised an apparatus for the purpose of which he gives an illustrated description. The air is heated by an alcohol lamp and passing over amorphous mercury is conveyed to the nose by a tube and small cap fitting over the nose alone and held in place with a head-band. The amount of mercury to be inhaled can be exactly measured; the patient can read and make himself comfortable while taking his hour courses of inhalation. None of the fumes get into the mouth and consequently there is no danger of stomatitis—Engelbreth has never witnessed any tendency to intoxication in any of his cases. It seems, he says, as if by this method the mercury displays only a therapeutic action while the toxic elements of the drug are eliminated, or at least do not reach the patient. He has been particularly impressed with the way the patients thrive under it; they rapidly acquire the ruddy aspect of health and gain in weight while the influence on the manifestations of the syphilis seemed to be more radical than with any other treatment to date. The fumes pass directly into the arteries by this method, without any intermediate stages. He regards this as of paramount importance for syphilis seems to attack the vascular system predominantly; even the lesions in the central nervous system originate in or are closely connected with the vessels. Syphilis seems to be as closely connected with the arteries as gonorrhea with the urethra. A method of treatment, therefore, which goes directly and exclusively into the arterial system, and is peculiarly convenient and harmless, seems to offer a number of superior advantages, he declares, over any other method known to date.

Upsala Läkareförenings Förhandlingar, Upsala

XVII, No. 6, pp. 393-476. Last indexed June 15, p. 1890

- 158 Study of Cod-Liver Oil from Pharmaceutic-Chemical Standpoint. (Bidrag till kännedomen om Oleum Phoeae medicinale ur farmaceutiskt-kemisk synpunkt.) A. Wingård. To be continued.
159 Movements of the Eyes in Fixation. (Fortsatta undersökningar om ögats rörelser under fixering.) H. Ohrvall.
160 *Proposed Physiologic-Anatomic Nomenclature for Surgical Reports. (Om den för sjukhusens årsrapporter nu gällande operationsnomenklaturen.) J. A. Hedlund.

160. **Nomenclature for Classifying Operations in Annual Reports.**—Hedlund would arrange the reports of operations in seventeen classes according to whether the operation was on a bone, joint, muscle or tendon, skin and subcutaneous tissue, etc., and gives a table to show the superior advantages for classification and oversight of the method proposed.

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THE HOSPITAL PROBLEM*

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Progress in the development of hospitals, as an economic, beneficent factor in human experience, was painfully slow. During the long ages which produced the masterpieces of sculpture, of architecture and painting, and which gave to the world its splendid models of classic literature, the institution which to-day is foremost in making existence tolerable, and life sweeter for the afflicted was but a mockery. At every stage of progress, ancient, medieval and fairly modern, hospitals afford glaring and altogether pathetic examples of blind groping, hopeless indirection, and wasted energy. Up to, and well past the middle of the last century, their best achievement was little more than an expression of the primitive, the pitiable, the grotesque. Universally deplored, they were shunned by the intelligent and became the final refuge of the helpless.

During the Revolutionary War, on the authority of the Surgeon-General of the American Army, Dr. Benjamin Rush, hospitals were more a menace than a benefaction. "They were the sinks of human life, having robbed the United States of more citizens than the sword."

Within the memory of many of us, hospitals of wide repute and proud tradition, presided over by men who knelt at this shrine of human endeavor, the master spirits of their day, formed a stage on which were enacted an endless series of tragedies.

Patiently, but hopelessly, a solution of the problem was sought. But the efforts of the church, powerful in organized ecclesiasticism, of governmental authority, with its open treasure house and tremendous interest in the welfare of its subjects, and of private beneficence, with its limitless zeal in the promotion of human happiness, were alike barren of results.

In the middle of the eighteenth century, Hogarth, inspired child of the Renaissance masters, seems to have had prophetic vision of future possibilities, when he placed beneath the roof of St. Bartholomew's, his world-famous fresco, "The Good Samaritan." This bit of color, the silent voice of imagery, was veritably the handwriting on the wall.

But light came not from the vatican or from the sanctuary; the crown exchanged its gold for ashes, and the dream of the artist was not realized until the test-tube and the microscope divulged their secret, and gave new meaning to the magic word *cleanness*.

Pasteur, working beyond the confines of medical science, became the law-giver. His researches ushered in a new era and cleared the way for him who made a new thing of surgery. Sir Joseph Lister, more than any other, rescued the hospital from reproach and made it what it is to-day, a necessity for the multitude, a luxury for the few, a blessing for all. Through his work the hospital at once became the chief unit in surgical technic, the birthplace and home of modern surgery, and it may be added, that from this time, surgery became the chief incentive and inspiration in hospital evolution. Few human interests have been more helpful; none have elicited more generous support.

The world's hospital system, as it exists to-day, justly holds a conspicuous place among social, economic and educational institutions.

Like every other institution, its units present many types and varying degrees of productiveness and of excellence. Society, altruistic always, though sometimes apathetic in its attitude toward hospitals, has a serious task to perform in encouraging the best, in fostering the less favored and in eliminating the unworthy. Fundamental faults, be they technical or ethical, are intolerable. Definite standards of morality and of efficiency should be established and rigidly adhered to, and hospitals may justly be expected to maintain such standards, or cease to exist.

MATERNITY HOSPITALS

In recent years, the public has learned to place a correct estimate on the maternity hospital, and there is already a keen appreciation of its appropriateness. Slowly but surely the institutional is supplanting the residential lying-in room, and for manifold reasons, this tendency should be warmly encouraged by the medical profession.

Well-regulated maternity hospitals offer a maximum of comfort and safety, at a minimum outlay. In point of efficiency, the affluent and the poverty-stricken are on parity. Such hospitals constitute the best possible schools for the attendant and the nurse, and in them is being reared a type of men and women who are willing to work efficiently and exclusively in this specialty.

At every stage of delivery, the attendant is in full command of an adequate equipment. Emergencies may be met promptly and without embarrassment, and, not infrequently, a calamity is averted. Serious complications or fatalities, in this department of medicine, possess a peculiar significance.

The maternity hospital which is worthy of the name is intolerant of loose methods, of shabby subterfuge or ill-masked pretense, and is insistent on strict observance of scientific law. With rare, though conspicuous exceptions, this phase of our hospital system seems not to have elicited the interest and support which it merits.

* Chairman's Address before the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912

The lying-in wards of county and municipal hospitals have been much neglected and the service rendered therein is too often indifferent, if not unsafe. Some of the so-called private hospitals which invite this character of work are of low standard and without reason or justification for their existence.

Society needs to be reminded that the highest obligation of man to woman lies in his safeguarding and protecting her during that trying period of approaching motherhood.

PRIVATE HOSPITALS

Private hospitals, though of recent origin, occupy a large place in the general system. Physically, they present every phase, from the architectural model to the ill-favored and the squalid. In their equipment and conduct, there is a similar range from the artistically and ethically perfect to the incongruous and disreputable.

As the name implies, they are the creature of proprietorship and their real status is measured by the character and morals of their owners and professional patrons. As exemplified by the better types, these institutions are an acceptable unit in our hospital system, as they certainly are a permanent factor in modern life.

But the function of the private hospital is, in the main, that of a hotel for invalids. Inviting a promiscuous patronage, it does not admit of an official staff or a well-defined policy, and team work is impossible. As a rule, there is no executive head. Such clinical records as are kept, are the private property of its patrons, and statistics are wholly ignored. Logically, the work of such institutions is of a perfunctory, routine character. There is a notable lack of scientific interest and of that fine sense of responsibility which is manifest in more highly organized institutions.

The physician-owned hospital is very generally regarded as of doubtful propriety. Whether run for profit or convenience, a certain degree of odium attaches to it. There is, possibly, too close an analogy between such enterprises and the physician-owned drug-store.

It cannot be denied, however, that in many communities, regardless of tradition, prejudice, or financial considerations, physicians are forced to provide their own facilities or withhold hospital benefits from their patrons. The exactions thus entailed are a source of much vexation, and with few exceptions, are sharply resented. It would be a fortunate thing for all concerned, and for many reasons, if physicians could divorce themselves from hospital ownership and relegate the financial undertaking to private capital.

There is another matter pertaining to private hospital conduct which may be considered with profit. With increasing frequency, private hospitals are the recipients of private benefactions. Such funds are to be regarded always as a sacred trust and should be scrupulously dispensed for charity. Free beds, thus endowed, should never become a source of financial gain to the physician. It should be clearly understood that any person entitled to occupy a free bed is equally entitled to free service. If such patient can, at any time, in a small way, make financial return for such service, the hospital fund should have first consideration.

I come, now, to the consideration of a phase of this problem which cannot, and ought not to be approached in any other than a spirit of absolute frankness. It is high time that public attention be called to a considerable number of irresponsible, unspeakable establishments

which exist in every large community under the misnomer of private hospital. Behind its closed doors, there is found opportunity for the professional derelict, and under the veil of secrecy, encouragement for practices that are both nefarious and criminal. Responsibility for the correction of this growing evil rests with the medical profession. The remedy lies in close scrutiny, full publicity and, finally, a resort to the courts, based on clearly established evidence.

MUNICIPAL HOSPITALS

A discordant note proceeds constantly from the executive side of municipal hospitals. There is a strange discrepancy between the financial support accorded to them and the woeful lack of wisdom and, not infrequently, of common decency in its expenditure.

Structural conditions are not only tolerable, but acceptable. Standardized buildings and adequate equipment are by no means exceptional. Architects have displayed wise forethought in the methods of heating, lighting and ventilation. From the kitchen to the laboratories, every detail essential to convenience and comfort has been carefully worked out, but too often do we find illustrations of what is perfectly obvious that neither architectural design nor physical conditions are the main essentials in hospital efficiency.

Considered as a class, from the county poor-house to the imposing group of buildings which stand for the metropolitan hospital, a low order of intelligence seems to be the rule in administrative organization. Everywhere are seen the finger-prints of the politician; the ward boss and the political heeler exert their baneful influence without check or scruple. Tenure of office, for the chief executive, rests on his status as a henchman, rather than on his moral or intellectual fitness. The value of experience and training has been largely ignored and staff appointments are distributed for personal or political reasons, rather than for professional worth.

Few men have participated in the daily routine of ward work (the really serious side of hospital service) who have not experienced the disheartening influence of inefficient executive management. Reckless waste and utter disregard of all that makes for high efficiency (the veriest curse of many of our public hospitals) find no parallel in industrial enterprises. With here and there a conspicuous exception, it may be safely said that, not until municipalities are emancipated from a vicious system which makes place preferment depend on political service, can we hope for radical betterment of hospital conditions.

ORGANIZED CHARITY HOSPITALS

Hospitals founded and liberally supported by organized charity are an evidence that the faith mankind has in the ultimate righteousness of society is not misplaced. Eloquent they speak for the finer attributes of human character—generosity, sacrifice, human sympathy. These words are from Gethsemane and after many years became the inspiration of Hogarth.

The world fortunately has high regard for social efficiency—a phrase that applies, very properly, to that large class of wage-earners who, in self-respect and intelligence and respectability maintain homes, rear and educate children, and possibly set aside a pittance for the future, but whose income is barely adequate to meet their daily needs. Normally, they are able to defray the daily cost of living, while an emergency is a circumstance fraught with terror.

For this class, a hospital experience without liberal and well-timed aid means dissipation of modest savings, the incurring of indebtedness and sacrifice of future comfort. More than this, it means mental worry which disheartens the bread-winner and disintegrates the home. Here organized charity through its hospitals finds splendid opportunity; and many who have played their part know how cheerfully it has borne its burden.

A word of caution to those entrusted with the control of this important interest. Trustees and executive officials should take heed lest through their desire for patronage, which is little less than greed of gain, the charity hospital be degraded and demoralized by the wide-open door for promiscuous professional service. The reputation of an institution depends manifestly on a wise administration and carefully selected staffs, and it is equally true that no hospital can afford to become sponsor for the untrained and inexperienced.

ACADEMIC HOSPITALS

The last and most conspicuous hospitals in this category are those of academic type. The subject can scarcely be approached without entering on the broader and more attractive field of medical education with which its interest is interwoven. For ages there has existed an interdependence between existing hospitals and medical teaching. Through this relationship, both interests have profited, though it is always to be remembered that betterment of hospital conditions has been affected through the initiative work of the teacher whether intra- or extraneural. It is probable—in fact, certain—that in all hospitals which welcome and encourage the teaching function, it will continue, and that there will result a perfect correlation of interest between many municipal and charity hospitals and medical schools.

Very tardily and after much halting, a respectable minority of American universities have awakened to their real duty as regards medicine, and in good faith are studying its needs. Immediately, the necessity for a new type of hospital, that finest and most productive of all laboratories, became imperative, and governing bodies are expected to assume a new responsibility.

Regarded as laboratories, it is fundamental that they be owned and operated by the parent institution. A few universities grasped this bit of knowledge very early, but to the most it came as a rude awakening. There is no escape from the conviction that medical education cannot advance under an inhospitable roof, nor attain large results under a domination that is not in harmony with approved methods and high ideals.

The financial problem here involved is, to say the least, formidable. Regardless of the size of classes, the number of beds necessary for logical sequence in teaching is not elastic. Flexner insists that as many beds are required for twenty students as for a much larger number. Laboratories, costly accessories and multiplicity of apparatus complicate the situation, and it becomes apparent that universities which foster medicine must either draw heavily on university funds, seek legislative appropriations or enter on a strenuous campaign for private benefactions.

When fully installed and under way, there is the comforting assurance that worthy institutions of this type have rarely, if ever, closed their doors for lack of financial support. The truth is that mankind has high regard for the producer, and there is a ready market for the thing of value. If the signs of the times are not

misleading, it will happen, in the near future, that public benefactors and legislative bodies will heed the cry of those who labor in the service of productive scholarship.

It is unnecessary to warn heads of departments and the teaching staff of academic hospitals that there is in store for them a big sacrifice on behalf of higher medical education, in point of time exaction, sustained effort over long periods and meager compensation. Under the present and proposed policy, there can be no compromise. The one controlling factor in this scheme lies in the intimate association of teacher and pupil in the laboratories, in the wards and in the operating-room. Private interests are to be held subsidiary to university requirements, and the time will come in the near future when the life-work of the medical teacher will be, in large measure, within the walls of the university buildings.

I cannot leave this subject without speaking an earnest word in behalf of the hospital intern. It is to be recognized that the intern staff is indispensable in carrying on the work of any hospital, and more particularly, those of the academic type. The intern belongs to the class of highly skilled labor. Opportunity is his compensation, and there should be no exaction of drudgery. Hence, it becomes the duty of those in authority to see that he has such opportunity as is worthy of his earnest effort. The intern is the *aid-de-camp* of his superior; his hours of work are not limited; his personality is lost in that of his chief. It is asking not too much that provision be made for his comfort and physical welfare in the way of adequate quarters, an inviting, well-cooked cuisine and library facilities. Some provision should also be made for recreation and physical exercise, in the way of gymnasium facilities and ball or tennis courts. By an observance of this admonition, hospitals will make a substantial gain both in the type of students who will enter their service and in service rendered by the individual.

This audience, representative of the best there is in American medicine, is reminded that the hospital as an institution is of your creation; it is in every sense your ward, and responsibility for its uplifting is yours. It would be a splendid thing if a wide-spread movement could be initiated for the classification of all civil hospitals within your jurisdiction. Such a measure would tend to elevate standards and gradually to eliminate the unworthy. It would materially aid the general public in the selection of wisely conducted, well-equipped institutions; it would afford a safe criterion for the bestowal of private benefactions or for the appropriation of public funds. There is scarcely to be found a wider field for the exercise of fine discrimination between sterling merit and pressing need, on the one hand, and varying degrees of unworthiness from the imperfect to the impossible, on the other.

Believing that helpful criticism and full publicity will find a hearty welcome in hospitals of the better type, I respectfully recommend: That the American Medical Association, through its component bodies, inaugurate a system of organized inspection and classification of all American civil hospitals; that for this purpose commissions be created, either by state or county societies, under instructions to report their findings to the Council of the parent Society. It is further recommended that an appropriation to be determined by the Council be made for the prosecution of this enterprise.

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EXPERIMENTAL INTESTINAL OBSTRUCTION IN DOGS WITH ESPECIAL REFERENCE TO THE CAUSE OF DEATH AND THE TREATMENT BY LARGE AMOUNTS OF NORMAL SALINE SOLUTION *

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In an investigation into the cause of death following a high intestinal obstruction in dogs,¹ we were able to exclude, as causal factors, an invasion of the blood and organs by bacteria, and any influence due to the absorption of food residues in the stomach or intestine at the time the obstruction was produced. It was also determined that dogs would live under these circumstances for periods of ten days, provided no strangulation was present, and they were given normal salt solution, subcutaneously, while life was considerably shorter than this when a strangulation existed or the saline was withheld, and they received water only by mouth. At autopsy there was constantly found a more or less marked degeneration of the kidney and liver cells, often going on to actual necrosis, and the intestinal mucosa above the obstruction showed an exfoliation of the lining cells, a round-cell infiltration and a marked edema of the submucosa. It was remarked that the changes in the kidney and liver were the same as those found in various toxic conditions, including that of starvation. The work of Clairmont and Rangi, of Roger, and of Roger and Garnier was cited to show that the stagnated intestinal contents are very poisonous if they obtain entrance into the blood.

In view of this fact, of the constant damage found in the intestinal mucosa and of the evidence of toxic action on the kidney and liver cells, we tentatively suggested that death might be the result of the absorption of substances from the intestinal lumen which passed into the circulation in a poisonous condition, because the normal defense of the mucosa against such absorption was destroyed. We could offer no evidence for the proof of this suggestion, and nothing in our work gave any information as to the source of the hypothetical poisons. The beneficial action of the saline injections was attributed to one of two things, either a diuretic action on the kidneys, helping to eliminate the poisons, or a diminution in the desiccation of the tissues due to the loss of water in the vomitus.

Following this publication, the work was continued along the same lines with the hope of either supporting or controverting the absorption theory, and if it proved correct, with the hope of determining the sources of the poison or poisons.

We first studied the conditions arising from a low obstruction along the same lines as had been followed in the high obstructions. The special clamp described in the previous paper which produces a complete block of the intestinal lumen, without any interference with the circulation through the intestinal wall, was applied

in the vicinity of the cecum. This operation was done six times. The animals behaved in the same general way, after the obstruction was produced, as those with the high obstruction, their symptoms being the same as those described in our previous work. The longest post-operative life was ten days, the shortest, five and a half days, and the average, seven and a half days, which was a few hours longer than the average of nine dogs previously reported in which the clamp was applied in the lower duodenum.

The animals in the two series were under identical conditions, and both received the subcutaneous injection of normal saline solution, the high series getting 150 c.c. daily and the others 200 c.c. daily. It is therefore seen that from the standpoint of symptoms and of length of life, an uncomplicated intestinal obstruction in dogs varies little whether it occurs high in the small intestine, or near the cecum. The only difference noted was that in the latter the vomitus was very foul in odor and, possibly, was in larger quantities.

Autopsy was done in every case, and changes in the kidney, liver and spleen were found exactly similar to those above described as having been present in the high obstruction. In the intestine, however, it is important to emphasize the fact that a marked difference existed. The comparatively small section of intestine above the clamp in the high obstruction—never more than 30 cm.—was rarely found to be enormously distended, and in no case was there any gross damage to the intestinal wall approaching gangrene. In one or two instances, superficial mucosal ulcerations were seen and sometimes small hemorrhages in the mucosa were present. Microscopically, damage to the lining cells was always present. On the other hand, the intestine for many centimeters above the clamp, in the case of a low obstruction, was enormously distended in every case. It was filled with as much as 1,500 c.c. of a bloody, foul-smelling fluid. The wall was stretched to a paper thinness. The color was a deep purple, or sometimes even black. The mucosa was necrotic over extensive areas. In short, a condition approaching gangrene was present, owing probably to the disturbance in circulation from the enormous distention. In one case an actual perforation had taken place, partly from this cause, and partly from a volvulus around the clamp as a center.

Aerobic and anaerobic cultures were taken after death in four cases, the same technic being followed as in the cases reported previously. The peritoneum, the femoral blood, the liver and the spleen were all found to be sterile in every instance, except the one in which a perforation had taken place. Here the peritoneal tubes alone showed an abundant growth.

It was thus proved that a bacterial invasion of the organism is not necessarily present in a low obstruction. It was also apparent that the course of the disease, the length of life and the tissue changes in the two are very similar, except for the important difference in the extent of damage to the intestinal wall. If it be true that the damage to the mucosa permits the passage of unaltered poisonous substances through it into the blood, the quantities of these entering the circulation should be much greater in a low obstruction than in a high. If these poisons are the causal factor in killing the animal, death should result sooner in the low than in the high obstruction. Such, however, we did not find to be the case, and hence we concluded that the correctness of this theory was rendered doubtful.

In our earlier work, we had noted the fact that the dogs with a complete high obstruction were not only

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* From the Department of Surgery of the Cornell University Medical College.

1. Hartwell and Hoguet: Am. Jour. Med. Sc., March, 1912.

deprived of any nutritive materials, but also of water, because all that they drank was promptly vomited. To overcome this condition we began the subcutaneous injection of normal saline solution. This was given in amounts from 100 to 150 c.c. daily, and it resulted in delaying the symptoms of poisoning and in prolonging the life of the animals. Its effect had been so marked that we determined to study this question more fully, and for this purpose Dr. Benedict, of the department of chemistry, kindly offered to make some studies in metabolism for us. To him we are indebted for a most important discovery which, we believe, throws much light on the question under consideration, if it does not completely solve the problem of the cause of death from uncomplicated intestinal obstruction.

EXPERIMENT 1.—The first dog under his observation was a female in good condition, weighing 12.1 kg. The clamp was applied under ether narcosis on the lower part of the duodenum, March 4, 1912. The following table gives the results found during the three and a half days that she lived.

From these figures it is seen that she lost 2.2 kg. in weight. Her output of fluids, including the urine and vomitus, but not counting the water of expiration, was 1,857 c.c., to offset which she had only received 300 c.c. subcutaneously. The total nitrogen output in two days was 10.34 gm., which equals, approximately, 0.5 gm. per

TABLE 1.—DOG 9.—RESULTS OBTAINED AFTER CONSTRICTION OF THE LOWER PART OF THE DUODENUM FOR THREE AND ONE-HALF DAYS

Date	Weight, kg.	Urine, c.c.	Vomitus, c.c.	Combined Fluid Output, c.c.	Total Nitrogen, gm.
3/4/12	12.10	..	...	...	.....
Clamp applied to lower duodenum.					
3/5/12	11.28	26	720	746*	10.334
Received 100 c.c. of a 0.9 per cent. saline solution.					
3/6/12	10.36	15	500	515	
Received 100 c.c. of a 0.9 per cent. saline solution.					
3/7/12	9.86	86	510	596	
Received 100 c.c. of a 0.9 per cent. saline solution.					
3/8/12	.....	..	...	...	.....
Died.					
Totals,	.....	127	1,730	1,857	.....

kilo per day, which is two or three times the normal output. A sample volume of urine of 127 c.c. contained 3.574 gm. albumin. The creatin excreted in this equaled 0.638 gm., which was more than double the amount of creatinin. It was obvious from these figures that a very severe grade of tissue disintegration was taking place, and that a water loss averaging about 5 per cent. of the body weight was suffered each day. It at once became apparent that the amounts of water we had been giving were entirely inadequate to replace this great loss, and that probably death was much hastened by such a loss.

Accordingly, we made a study of three dogs in which the daily output was measured, and a quantity of normal saline about 100 c.c. in excess of this was injected under the skin. These dogs, with the clamp applied on the lower duodenum, were kept alive in this way for three full weeks (one for twenty-six days), and during this time they remained in good condition. They were then etherized a second time, and the abdomen opened to see if the obstruction was complete. In every case it was found to be so. The stomach and duodenum above the clamp were excessively dilated, and their contents could not be forced through the clamp into the intestine below, which was found empty and much contracted. By varying the amount of water injected, we could accurately control the condition of the dogs. The complete study of one of the experiments is shown below.

SUMMARY OF TABLE 2

A bitch weighing 11.3 kg. had the clamp applied, under ether narcosis, on the lower duodenum, March 13. April 3, twenty-one days later, when in excellent condition, she was again etherized and the abdomen reopened. The obstruction was found to be complete. The clamp was removed and she is still alive. The total vomitus during the twenty-one days was 6,640 c.c. and she received to offset this 8,250 c.c. of saline solution. Much of the vomitus had to be obtained by the stomach-tube, as the stomach became dilated and would not empty itself. She lost three kg. in weight. The study of the urine gave most interesting results. During the first week it showed very marked abnormalities. The albumin content was as high as 4.5 gm. per day, and the total nitrogen, exclusive of this, was, on an average, 5 gm. The creatinin-creatin ratio was about 1 to 2 instead of 10 to 1, which is near the normal for a starving dog. The latter ratio was later established. During this week, the vomitus was 1,870 c.c. in amount, which was 120 c.c. more than the amount of saline solution administered.

TABLE 2.—DOG 2.—RESULTS OBTAINED WITH CLAMP ON THE DUODENUM FOR THREE WEEKS AND INJECTIONS OF SODIUM CHLORID

Date	Weight, kg.	Urine, c.c.	Vomitus, c.c.	Combined Fluid Output, c.c.	Injection 0.9% NaCl, c.c.
3/13/12	11.3	...	...	...	...
Clamp applied to lower duodenum.					
3/14/12	.....	120	420	540	250
3/15/12	.....	175	—	175	200
3/16/12	.....	160	600	760	200
3/17/12	10.46	170	—	170	200
3/18/12	10.84	135	—	135	500
3/19/12	.....	†	†	...	150
3/20/12	.....	130	850*	980	250
3/21/12	9.64	130	—	130	550
3/22/12	10.24	100	550*	650	850
3/23/12	.....	80	800*	880	500
3/24/12	10.24	...	...	...	600
3/25/12	9.68	70	1,180*	1,250	750
3/26/12	.....	†	†	...	800
3/27/12	.....	85	1,160*	1,245	800
3/28/12	10.00	310	—	310	700
3/29/12	.....	562	150*	712	300
3/30/12	.....	390	—*	390	200
3/31/12	.....	150	200*	350	200
4/1/12	.....	55	80*	135	150
4/2/12	8.9	55	—*	55	100
Is in excellent condition.					
4/3/12	8.3	...	650	650	—
Obstruction found complete. Clamp removed. Recovery.					
Total for 21 days....		2,877	6,640	9,517	8,250

* Obtained by stomach-tube. † Incomplete. — None.

The urine equaled 890 c.c., so that there was a loss of water equal to one-tenth of the body weight. The condition of the animal was only fair during this week. After the seventh day the saline was increased to 550 c.c. daily and maintained there, or higher, for several days. The abnormalities in the urine entirely disappeared, and it became the urine of a dog under normal starvation, except that it contained bile throughout. There was coincident improvement in her condition. Later, on the sixteenth day, when the vomiting had ceased and the stomach tube recovered very small amounts, the saline was again decreased to 200 c.c. or less, and the dog remained well, and the urine continued normal.

EXPERIMENT 3.—A small bitch weighing 5.88 kg. had the clamp applied under ether narcosis to the lower duodenum, April 8, 1912. She received the normal saline solution subcutaneously, every day, the first injection of 300 c.c. being given immediately after the operation. This quantity was repeated on the two following days, and then for sixteen days she received 400 c.c. daily, and for two additional days 300 c.c. each. The total saline administered during the continuance of the experiment for twenty-one days was 7,900 c.c., an average of 376 c.c. per day, which was equal to about 8 per cent. of her average body weight. During this time the total amount of

fluids excreted in the urine and the vomitus was 6,354 c.c. Much of the vomitus had to be extracted by means of the stomach-tube because the stomach became atonic and vomiting ceased even though the organ was full. Her loss in weight was 1.4 kg. Throughout the entire experiment she remained in a condition of apparent perfect health. She was always playful and lively. On the twenty-first day she was etherized and the abdomen was reopened. The clamp was found *in situ* and the obstruction was complete. Four hundred and fifty c.c. of water were put in the stomach through the tube. This readily passed through the pylorus and down the duodenum to the clamp where it was completely stopped. It was impossible to force any beyond the clamp by direct pressure on the duodenal wall. The clamp was removed and a small perforation which was completely closed by the rubber covering of the plate and by adhesions was found in the bite of the clamp. There was no peritonitis.

EXPERIMENT 4.—A bitch weighing 12.2 kg. had the clamp applied under ether narcosis to the lower duodenum April 19, 1912. During the following six days she received 1,500 c.c. normal saline solution subcutaneously, and excreted in the form of vomitus and urine 1,020 c.c. On the seventh day she did not vomit, and the stomach-tube recovered nothing. We suspected that the clamp was not tight enough to produce a complete obstruction, and she was accordingly given 500 c.c. of water through the stomach-tube and a quantity of meat which she ate greedily. Following this she again vomited, and in four days put out 2,150 c.c. in which the digested meat was present. The injections were then increased, quantities varying from 700 to 500 c.c. being given daily. The vomiting ceased and a quantity of urine was passed, slightly less than the saline injected, the total for seven days being, saline 4,000 c.c. urine 3,200 c.c. The saline was again decreased, and the urine fell, but no vomiting recurred. She was etherized May 16, twenty-six days after the obstruction, and the abdomen was reopened. The obstruction was found to be complete. The stomach and duodenum were found to be enormously dilated, having a capacity of 1,000 c.c., while the intestine below the clamp was contracted and empty, not showing any trace of bile. No detailed study of the urine was made in this or the preceding case.

We encountered one difficulty which rendered several of our cases inapplicable to a study of complete obstruction, so that we are able to report only on the three here given. It was found at autopsy in such cases that the clamp had not remained sufficiently tight to cause an absolute blockage. We could force water beyond it with sufficient pressure, and sometimes there was evidence that small amounts of bile had leaked through it. In every case these dogs gave conclusive evidence that the clamp had caused a complete occlusion for at least two weeks. Then, owing to the lessened congestion, and possibly to the adjustment of the intestine within the clamp, it seems possible that leakage had taken place. We were never able to determine positively, until the abdomen was reopened, in which dogs we should find an absolute obstruction, and in which there had been a slight leakage. Those showing the leakage might with propriety be included in our experiments so far as the main result is concerned, because the clamp applied as described caused death in every case in which the large quantities of salt solution were not used. It is technically a very difficult thing to produce absolute closure of the intestinal lumen without causing some necrosis, and this we carefully avoided.² It will be noted that in many instances there was no vomiting, but the stomach-tube recovered large quantities. This must be taken into account in determining the amount of saline to be administered, because whether vomited or retained in the stomach, it means a loss to the animal. These three

dogs were under identical conditions with the nine previously reported, except that they received amounts of normal saline solution about 100 c.c. in excess of the daily output of vomitus, often reaching 500 to 700 c.c. per day, while the former series received only 150 or 200 c.c. per day. No dog in the first series lived longer than ten days. All dogs in the later number were alive and in good condition at the end of three weeks, and apparently would have succumbed only to starvation if the experiment had been continued.

From these results it is plain that the loss of fluid from the organism is the disturbing influence and is the important factor in explaining the symptoms and death following uncomplicated high intestinal obstruction in dogs. Death is caused by the loss of water which the tissues sustain from the excessive amounts vomited, and death can be prevented by replacing this water by subcutaneous injections of normal salt solution.

In accepting this conclusion we are forced to abandon our previous tentative suggestion that poisonous substances enter through the damaged mucosa. The only intoxication present is that produced by tissue disintegration, due to the abstraction of water from the organism.

The source of such enormous amounts of vomitus is a matter of interest. Dr. Benedict's study of the vomitus from the experiment detailed under Table 2 showed it to be strongly acid, and to have a specific gravity of 1.007. The total amount contained 16.72 gm. of chlorine, which, computed as sodium chlorid, equals 27.65 gm. Bile was always present. The low specific gravity indicates that it was largely water. These findings show, as would be expected, that the vomitus is a diluted mixture of bile and gastric secretion. The part played by the pancreas and duodenum is unknown. In all the cases the vomitus was more abundant during the early part of the experiment than it was later, and toward the end it often almost entirely disappeared. The following considerations offer an explanation of this unexpected fact. The dogs were all in good condition when operated on, and presumably the liver and other glands were actively secreting. The products of these glands, bile, pancreatic juice and duodenal secretion, found no outlet beyond the duodenum, and hence were forced back into the stomach. Here they acted as an irritant to the gastric mucosa, and as a result a secretion of gastric juice and an excretion of water took place to the enormous amounts found. As the experiment proceeded the dog gradually developed the condition of a starving animal in which all the alimentary glands become inactive, the bile in particular being very small in amount. The disturbing influence of these retained secretions being absent, the vomiting gradually grows less, and finally almost ceases. The small amount of bile that is secreted is taken care of in the duodenum and stomach, being either digested or absorbed. That some is absorbed is shown by the fact that the urine contains bile throughout the experiment. The bile alone, however, is not the offending factor, because in cases in which the common bile-duct was tied and an anastomosis made between the gall-bladder and intestine below the clamp, large amounts of vomitus appeared, though not equaling those above given. On the other hand, an obstruction at the pylorus produces no vomiting whatever.

We wish to emphasize particularly the fact that the results we obtained are present only when the obstruction is uncomplicated by any serious disturbance of the circulation through the intestinal wall. Anything approaching a strangulation, however small in extent, introduces

2. Since this paper was written a fourth dog under ether narcosis had the lower duodenum sectioned and the two ends closed by inversion. He behaved in every way like the dogs described in the text. Here obviously no leakage could have taken place.

a new factor, and the results are quite different. A future communication will deal with this phase of the subject, but we may here cite one case which illustrates it. In this instance the clamp was applied too tightly, and the course of the disease was in no way influenced by the saline injections. The dog died on the fifth day. Autopsy showed that the clamp had produced a gangrene of the intestine within its bite. There was no leakage through the gangrenous area owing to its occlusion by the rubber tube covering the clamp and the adherent omentum around it. The peritoneum was normal in appearance throughout, there being no evidence of peritonitis. Except for the small area of gangrene, the condition was as in the dogs which were kept alive for three weeks and longer by the administration of the saline solutions. Other facts obtained bear out this conclusion, namely, that even a small extent of strangulation entirely changes the picture.

Our work, to the present time, has dealt entirely with high obstruction. It is a matter of great importance to know whether the symptoms and death resulting after a low obstruction can be influenced in the same way by the administration of normal saline solution under the skin. The little experience we have had with this question indicates that it can be, up to a certain extent. Just what this extent will prove to be, we hope to determine by a further course of experiments which is now in progress.

The applicability of the results we have obtained to clinical intestinal obstruction can only be determined by clinical study which we have had no opportunity, as yet, to make. In making such application it must be remembered that an obstruction combined with strangulation (as is always the danger in acute conditions in man) will not be influenced to any extent; and, of course, no treatment in any way lessens the necessity of mechanically relieving the obstruction. It seems reasonable to hope that there may be an application of it to other conditions than intestinal obstruction in which excessive uncontrolled vomiting is an important factor. It may well be that the enormous loss of water in the pernicious vomiting of pregnancy and in Asiatic cholera is an important element in the intoxication there seen and that fully replacing this water may be very beneficial. To be of any avail the amounts of saline injected would have to be exceedingly large, about one liter per day in excess of the total output, which, as is known, may reach several liters. The dogs were able to take, without inconvenience, one-tenth, and more, of their body weight per day. When they were vomiting excessively, most of this came back in the vomitus, and very little from the kidneys, but if large quantities were administered after the vomiting had lessened, it reappeared in the urine. The usual amounts given to the dogs would correspond to from 5 to 10 liters per day for a moderate-sized man, an amount not difficult to give by continuous hypodermoclysis.

SUMMARY

Dogs with complete obstruction in the lower duodenum, if untreated, will live only a few days—three to ten. During this time they vomit large quantities. The urine shows marked abnormalities when compared with the urine of a dog in simple starvation. If a quantity of normal saline solution, slightly in excess of the total loss of water in the urine and vomitus, be given daily in the form of hypodermoclysis, the dogs promptly return to the condition of a dog undergoing simple starvation. Dogs so treated have lived in excellent health for periods of three weeks and more, showing at the end of that time

every indication that they would live much longer if the treatment were continued. The important element, therefore, in the development of the symptoms seen in intestinal obstruction in dogs, is the loss of water due to the vomiting. The symptoms of intoxication are those resulting from tissue disintegration following this loss. Replacement of the water cures the symptoms and prevents death over astonishingly long periods. If strangulation complicates obstruction, the above facts do not seem to hold true.

We wish to express our sincere thanks to Dr. Benedict, who, in addition to finding the key to the solution of our problem, gave us very valuable advice throughout, and made all the chemical analyses.

ABSTRACT OF DISCUSSION

DR. GEORGE H. WHIPPLE, Baltimore: My experiments are slightly different from those of Drs. Hartwell and Hogue, in this respect: I have dealt almost exclusively with the closed intestinal loop, which is isolated by two ligatures, one just below the pancreatic duct, and the other at the beginning of the jejunum. This procedure together with a posterior gastro-enterostomy excludes the gastric juice, pancreatic secretion and bile from the closed loop. Dogs treated in that way die in from twenty-four to forty-eight hours with symptoms of shock, low blood-pressure, vomiting, lowered temperature and symptoms of intoxication. It seemed to us of interest to study the material which accumulates in this closed washed loop. When heated to 60 C. and filtered, then introduced into a normal animal intravenously or intraperitoneally, it causes death in from three to twelve hours, the animal manifesting symptoms closely allied to those seen in the animal on whom the closed-loop experiment was performed. There is an elimination of fluid by the stomach and intestines which may be extreme, in fact so profuse as to be hemorrhagic in character. It is associated with extreme or almost complete splanchnic paralysis, and I think that this is one of the most dangerous features in the systemic effect of this toxin.

If this fluid is introduced intraperitoneally, death occurs more slowly, but simulates closely the death of animals with a closed loop. This toxic substance, which I believe to be of importance in intestinal obstruction, resists digestion, autolysis and putrefaction. No similar toxic substance can be produced *in vitro* by digestion, putrefaction, or bacterial growth, aerobic or anaerobic, in association with normal intestinal mucosa. It seems to be a rather definite substance, and I hope to be able to determine more about its chemical nature in the near future. I believe that it is produced by the mucosa, that it is the product of perverted activity on the part of the mucosa of the closed loop, probably stimulated or rendered abnormal by the presence of immense numbers of bacteria, although it cannot be produced by the bacteria themselves. Recently I had an opportunity to study the fluid obtained from an acute case of high intestinal obstruction in a woman. It was obtained at operation by puncture and drainage. When introduced into a normal dog, it produced the typical reaction, death and autopsy findings such as one finds after injection of fluid from these closed duodenal loops. So that there must be a close relationship between the substance obtained from these closed loops and that present in acute intestinal obstruction. I have noticed that in introducing sublethal amounts of this toxic material the dog becomes resistant to later injections. Therefore, I sensitized an animal by repeated injections of this toxic material and then made a closed duodenal loop. This animal lived six days, while the average duration of life of these animals with closed duodenal loops is two days. It seems to me that the observations made by the authors do not necessarily conflict with ours. It is obvious that these substances in the obstructed bowel can be washed out by vomiting or gastric lavage and that saline infusions would help to eliminate them. The dehydration of the tissues may be an important element but it is secondary and not primary. I can show that this toxic substance stimulates active secretion of fluid by the intestinal tract.

DR. BETH VINCENT, Boston: In the consideration of the subject of experimental intestinal obstruction it is well to emphasize the point that Dr. Hartwell made several times; that is, the fundamental difference between a simple obstruction where no damage is done to the protecting mucous membrane of the bowel, and an obstruction complicated by strangulation or some disturbance of the circulation which will result in a very serious injury to the protecting barrier of the bowel, the mucous membrane. The first form of simple obstruction with undamaged mucous membrane seems to resemble ordinarily the chronic forms of intestinal obstruction seen clinically. The other form with strangulation resembles the acute forms of intestinal obstruction. Dr. Hartwell has been concerned with the first type of obstruction. A year ago Dr. F. T. Murphy and I did some work which was chiefly directed toward finding the cause of death in the second type, the acute intestinal obstruction. Dr. Hartwell has shown very clearly the great importance of the element of abstraction of water from the tissues. In the chronic form it seems that there is a lack of absorption which he makes good by giving water; while in the acute form it is the absorption of toxic products from the intestine which we believe to be the cause of death. We came to the conclusion that the occlusion alone was not sufficient; that the disturbance of circulation was the vital factor, and that the obstruction of the venous return was the most important element in the circulatory disturbance. It caused the damage to the mucous membrane that permitted absorption, and also helped in the formation of the contents, the absorption of which, we thought, caused intestinal obstruction and death.

In our work this toxic substance was rendered inert by boiling. We centrifuged the intestinal contents and filtered them through a Berkefeld filter. We found that the supernatant fluid filtrate were also inert, so that it was probably more nearly allied to the bacterial than to chemical poisons. If this is wrong, if it is one of these elements, we hope the toxic substances will be isolated, and the symptoms of acute intestinal obstruction reproduced in animals, as Dr. Whipple has done in simple obstruction. Until this is accomplished, we shall still seriously consider the theory that the bacteria and their end-products play an important rôle in causing death in acute intestinal obstruction.

DR. ANGUS McLEAN, Detroit: The intestinal obstruction which is usually termed ileus or paralysis of the intestine following operation, fortunately, does not occur very often; in my experience about once in one hundred times. That condition may follow operation on a non-septic case, but more frequently, I think, it follows in the wake of septic operations, as, for instance, when there was a perforated appendix or a localized abscess. About four years ago I was at a loss to account for the death in three cases of ileus. I made a series of experiments, producing the intestinal obstruction by severing the bowel and sewing the ends together. I had great difficulty in creating an obstruction by simply tying or clamping the bowel. The obstruction would invariably leak and the result was a fatal peritonitis. After obstruction had taken place, for two or three days, some of the fluid was taken out of the dilated portion of the intestine. This fluid was filtered and injected into guinea-pigs and dogs. The only trouble I had was the occurrence of subcutaneous sloughs. The dog got very sick after three or four days. It was then bled and the serum injected into other dogs and guinea-pigs. It was injected subcutaneously, intraperitoneally and intravenously. There was no marked evidence of disturbance of any kind. In a few hours the animal was as well as before. I also transfused dogs, transfusing blood from the sick into the well dogs. These dogs were weighed; the weight of the well dogs was increased after the experiment, and that of the sick dog was proportionately less, showing that the blood undoubtedly passed from the sick to the well dog. In a few hours the well dog would feel as well as it did before. I think that that proves that it was not a bacteriemia, and that there was no toxin in the blood, because otherwise the well dog would have got sick. From these experiments I came to the conclusion that death in ileus was not due to a toxemia or a bacteriemia, but to something else. These dogs lost weight rapidly, not because of any change in

feeding, of fluids, but because of the large amounts of water poured into the obstructed portion of the bowel. Of course, bile and pancreatic juice are poured into the obstruction and vomited up in large amounts. Then I reached the conclusion that these dogs died from loss of fluid that had been drained out, and I believe the same thing to be true of ileus in the human being. I have seen such patients die years ago, but I believe they did not die of peritonitis. They had a localized peritonitis, accompanied by an ileus, which was the real cause of death. Just what causes ileus, whether trauma or something else, is hard to say. In my opinion the only thing to do is an early enterostomy. If a person is taken with ileus, as meteorism, pain and vomiting, or, what seems more like an overflowing of the alimentary canal, and if, after washing out the stomach every three or four hours or giving rectal enemas, the patient is not relieved inside of thirty-six hours, do an enterostomy. In my experience the ileus is confined to the small intestine and, coming on as it does very often after a laparotomy, it is a very simple matter to remove a few stitches. The distended intestine at once comes into view, and the enterostomy is quickly performed. I prefer local anesthesia to general anesthesia. Anoci-association may be used to block the terminal branches of a few spinal nerves. There will be less shock to the patient, and a greater likelihood of recovery from the operation. The distended loop of bowel easily comes up into the field of operation, and you can open it and insert a tube. There is not only the escape of gas from the bowel, but of secretions, that which is being formed by the mucosa of the bowel as well as pancreatic juice, and in a few hours a large amount of fluid is excreted. Then these people will be ready to take fluid by mouth and, in about half the cases, they will get well, if the enterostomy is done sufficiently early.

DR. J. SHELTON HORSLEY, Richmond, Va.: One of the most interesting features of experimental intestinal obstruction is the attempt to ascertain the cause of death. The difficulty is that normally the intestinal tract contains substances which are poisonous if injected into the circulation. Material from normal intestinal contents injected into the circulation will produce symptoms very similar to those that occur when the material from an obstructed loop of bowel is injected. In either instance, a sufficient amount will cause death. Much of the normal contents of the intestinal canal, as the peptones, are poisonous when directly injected and must be changed in the process of absorption from the intestinal tract before it is converted from a poisonous substance into nutrition for the body cells. Experiments, then, based on injection of material from an obstructed loop necessarily are misleading. The symptoms can hardly be due solely to an abrasion of the mucosa as then we would expect symptoms of intestinal obstruction whenever there was an ulcer of the intestinal tract or injury to its mucosa. If due directly to bacteria, obstruction should be more rapidly fatal in the ileum than in the upper part of the intestinal tract. This has been demonstrated by observers to be the reverse of the facts. It seems that we have neglected the fact that the mucous lining of the bowel is chiefly glandular in function and is so situated that its circulation can be easily interfered with as by strangulation, volvulus, etc. This is not true of the thyroid, liver or other glands important to metabolism. If we were to interfere with the circulation to the thyroid for about eighteen hours, as occurs often in volvulus or in strangulation, there would probably be a very material perversion of the metabolism in that gland. If the intestinal circulation is blocked we may have a right to expect some perversion here. It would seem that the toxic product is due to some perversion of the metabolism of the mucosa either in absorbing the material that ordinarily would not be absorbed, or else in directly producing some toxic product itself. It is likely that this perversion may be stimulated by the excessive amount of bacteria or by the interference with the circulation, or by a combination of these two. My associate, Dr. C. C. Coleman, and I did experiments on ten dogs, completely devascularizing a definite segment of intestine in each instance and wrapping it with omentum. In five of these dogs tapes were applied at each end of the devascularized segment and in the other five no tapes were applied. Of the five dogs with tapes in two instances perforation and septic peri-

tonitis with death occurred. Of the other dogs, one lived three days and two of them thirteen and fourteen days. In the five in which no tapes were applied one died twenty-seven days after operation and the others were killed at a period ranging from fifteen to twenty-two days after operation. The complete destruction of circulation had but little effect on the obstruction, so it would seem that partial interference with circulation and not its complete obliteration is the dangerous condition.

DR. FRANK D. GRAY, Jersey City, N. J.: While undoubtedly the loss of fluids is a sufficient cause and perhaps the usual cause of death in these cases, it seems to me that clinical experience demonstrates that there must occasionally be some other element producing the fatal result. I have a case in mind which occurred in my own practice early last year, a young woman, aged about 30, who manifested symptoms suggestive of intestinal obstruction, but not conclusive. There had been practically no vomiting. She had vomited slightly a few times during the two or three days preceding, so that whatever occurred could not be charged to loss of fluids. The fact that there had been only slight vomiting led me to be very uncertain as to actual intestinal obstruction. This patient had had an appendectomy and oöphorectomy performed four years before. A median incision had been made. She had attacks of colic and constipation in the meantime. I concluded to wait until morning to be certain of my diagnosis. Then she was verging on collapse. I rushed her to the hospital and operated on her, but she died in three hours. The operation was a brief one. I found a volvulus, with a band of constricting adhesions. It required no resection. The bowel was in good condition. The patient was dying before operation, and simply went on dying after the operation. This patient could hardly have died from loss of body fluids. It seems to me that the death must be charged to a toxemia or shock pure and simple. I think that some patients die from shock, and the practical lesson to be drawn from the case is that we ought never to delay an operation when a diagnosis of intestinal obstruction is made. It is better to open two or three abdomens unnecessarily than to let one patient die because we are not absolutely sure of our diagnosis and hesitate to operate. With regard to ileus, in postoperative cases, I think we cannot always be sure that we are dealing with an ileus. About three weeks ago I operated on a patient who had a perforative gangrenous appendix with a general peritonitis. Within thirty-six hours after the operation the patient began to vomit fecal matter quite profusely. I at once recognized the obstruction, but could not be sure that it was an ileus. I opened the incision and found a kink of the intestine, the bowel being sharply angulated by fresh adhesions. I liberated the adhesions and had considerable difficulty in returning the distended intestines into the peritoneal cavity, much more so than in the first operation. The patient is well to-day.

DR. MAX EINHORN, New York: Some experiments which I made have some bearing on the present topic. About five years ago I was interested in the value of the x-ray in finding out the place of obstruction in the intestine. I administered large amounts of bismuth and then made skiagrams. I made experiments on frogs because the frog can easily be kept in water and does not require much food. I ligated the stomach in one at the pylorus, in another I ligated the duodenum, in still another the middle of the small intestine, and ultimately in one the middle of the large bowel. I kept all the frogs and also had one control frog. I injected bismuth into the stomachs of all of them and kept them all in water, examining them each day with the Roentgen ray. I looked to see what became of the bismuth; how far it progressed; whether it had passed beyond the point of obstruction. I found that all of the frogs were alive except the control frog. I do not know why this one died. The other frogs were alive at the end of a week. I published my experiments and the results in the *New York Medical Journal* (May 18, 1907) and I stated that the site of the obstruction can be ascertained by giving a large amount of bismuth and then making skiagrams every day, to see where the bismuth stops. The interesting part of the experiments was that these frogs lived in water. There was no loss of fluids. The absorption of body fluids could go

on just the same, and that is the reason why I think these frogs did not die. I found a slight dilatation above the obstruction. The ligature was applied so that the circulation was not obstructed, but simply the lumen of the bowel. I think that that harmonizes very well with the results of the experiments of Drs. Hoguet and Hartwell and, as they say, if we have really an obstruction which is not interfering with the circulation, then the addition of water or fluids to the system is of very great importance, and can and will prolong life. In most cases of ileus, however, there is always interference with the circulation, and that is why these cases do not terminate in the same manner as do these experimental cases.

DR. J. A. HARTWELL, New York: The aim of our work was to study certain points advanced as being concerned in the cause of death in intestinal obstruction. Bacteriemia had been mentioned as such a cause. Our first work proved that this is not a necessary cause. A series of nine dogs were studied, and bacteriemia was proved not to be the cause of death in these animals. Other authors had stated that toxic elements are absorbed into the circulation and cause death. In our attempt to study this phase of the question we discovered the important rôle played by the loss of fluids, due to the vomiting. One series of dogs with an intestinal obstruction showed marked abnormalities and died in a comparatively short time. A second series, operated in the same way, received large quantities of salt solution, remained in comparative health and lived for long periods. This proved to us, conclusively, that the loss of water played a very important rôle. As Dr. Horsley stated, the fact that death results when the intestinal contents of one animal are injected into the blood of another animal does not prove that the fatal factor here is concerned in the death from intestinal obstruction. It has been shown that the normal intestinal contents are of great toxicity, if they be injected into the blood of another animal. We wish to emphasize in this discussion, that we have worked only with a simple obstruction, and not with a strangulation. The points of difference in these two conditions are very great, and require further study, which we are now undertaking. We find no evidence in simple obstruction to support the theory of the absorption of toxic material as a cause of death. The enormous loss of water due to the vomiting is the essential factor, and any toxemia is unimportant as compared to this, and possibly only a secondary result of it.

THE RESISTANCE OF THE PATIENT AS A GUIDE TO OPERATIVE PROCEDURE *

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I. INHERITED LONGEVITY

The unit of the human body is the individual cell. The absence of resistance by these individual cells to those influences which lessen or destroy their power for the reproduction of cells like themselves, in its last analysis, means death. The relation of these individual cells, which in the present state of our knowledge is unknown and unknowable, to premature impairment or destruction is the real conservator of life, and we speak of its highest manifestation as inherited longevity. The usually accepted proposition is that the various manifestations of disease—acute and chronic—are but the effort of natural laws making for recovery.

Just how far these supposed recuperative processes may proceed without compromising the safety of the patient is of the highest importance, and this is the problem which demands answer by the physician and surgeon when he decides on the course he will pursue, for on his decision may hinge the issue of life and death. It is his province to determine how far Nature can be trusted,

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and for him to know the opportune moment for wise interference.

When recovery follows disease, accident or previous operation, then the observer has some rational basis for the belief that the power of vital resistance is more likely to assert itself than when the patient has never passed through such an experience. Common observation discloses the fact that certain individuals reach an advanced age with practically no serious illness. It is equally obvious that an equal if not larger percentage of individuals live to old age, who have not escaped repeated illnesses, but have survived the consequences. In one case they present unusual immunity to illnesses; in the other they show a power of resistance to disease, which has not destroyed their expected longevity.

There is no strictly defined type of the human species which, from its physical form or general appearance alone, demonstrates the presence or absence of inherited longevity; and yet the trained eye of the physician and surgeon, with his familiarity with physiologic and pathologic conditions, enlarged by close observation and scientific study, can judge comparatively—not absolutely—of the individual resistance. Time will not permit, neither is it within the scope of my purpose to consider this aspect of the case farther. So far as I have been able to look up the literature, little has been written on this subject; and what I have to offer on the bearing of inherited longevity in relation to disease and traumatic injuries is the result of my personal observation, experience and conclusions.

If the mortality arising from preventable disease and accidental influences could be eliminated, the whole problem of heredity would be much simplified, but enough information may be elicited by careful interrogation and study of individual cases to afford valuable suggestions concerning individual resistance as related to the wisdom of a specific operation, particularly one known as a border-line case. Superficial appearances may be fallacious and unworthy of acceptance and should not be accepted as standards of judgment or action. The history of families, as such, affords valuable information, as the resistance to disease is shown in their individual lives.

Some of the finest specimens of men and women, judged by the standards of perfect physical development in symmetry and form, live scarcely past the age of 50 or 55 years. Their balance of what appears to be perfect health is so sensitive that, when disturbed, they fall victims to disease, oftentimes the first illness, or are equally susceptible to accidental injuries. It frequently happens that, by inherited tendency, children in certain families possess the strength or frailty of father or mother, and this applies as well to their inherited longevity.

Again, the fact is entitled to consideration that individuals and families enjoy immunity from, or special susceptibility to, infectious diseases and infections after injury. An exemplification of this truth is found in the individual experience of some surgeons, who survive a long career without infection, while their assistants fall victims to a similar exposure, and *vice versa*. Out of numerous other features which clamor for expression, I shall mention but one, namely, the necessity for ascertaining in every case, if possible, whether the individual possesses the hemorrhagic diathesis. It is, therefore, safe to assume, other things being equal, that the inherited tendencies noted in families and in individuals offer evidence which the operator should summon to his aid in all cases, particularly in serious emergencies, in determining the probable status of the patient, with reference

to any operation, which cannot be tested by other standards.

II. RECOVERY FROM SERIOUS ILLNESS

The recovery from serious illness furnishes one of the most precious guides to surgical procedure in doubtful cases. When the history of the patient shows recovery from one or more previous attacks of serious illness, it increases the chances of recovery after grave operation, in which it may be impossible to predict the consequences by any other standard of comparison. So, too, the recovery or repeated recoveries from minor ailments is suggestive that the individual possesses a high degree of resistance, and thus fortifies the judgment of the surgeon on determining on a certain course of surgical action. Chronic diseases, sometimes of long continuance, are not necessarily incompatible with inherited longevity. This goes to prove that the highest standards of health are no guarantee to long life, and, considered alone, chronic illness does not contra-indicate surgical procedures. Incomplete recovery after sickness does not vitiate the law of inherited longevity, but when often repeated tends to establish the inference. Patients with such conditions may, and often do, hold out greater expectation of recovery after operations than the typically healthy to whom I have referred, who fall victims to the first onset of disease or so often succumb to surgical operations. In surgical conditions these sufferers often inspire a hope—not otherwise attainable—and justify the operator in undertaking what would otherwise be regarded as a forlorn attempt. It is well to remember that the clinical history of such ailments, if available, would be invaluable aids in determining the resistance of the patient and the wise course to pursue.

III. RECOVERY AFTER SERIOUS ACCIDENTS

Here again is a valuable and trustworthy evidence of the resistance of the patient. The graver the accident, the more difficult and protracted the convalescence, compared with the completeness of the recovery, the greater is the evidence of vital resistance, which cannot be gainsaid. The greater the number of recoveries, the more weighty is their significance and the more useful their suggestiveness. Battle-field histories abound in the demonstration of the wonderful power of individual resistance to multiple injuries, which, followed by recoveries little less than supernatural, confirm the possibilities of overcoming what would naturally be regarded as unsurmountable surgical perils.

IV. RECOVERY FROM PREVIOUS SURGICAL OPERATION

Closely allied to the preceding group these recoveries have their special significance. The more serious and the more frequent the operations, the more valuable as guides do they become under new surgical complications. If the clinical facts are available they afford a valuable adjunct to the exercise of wise judgment, which is or should be the cardinal virtue of the operator. In latter-day surgery most operations are performed in hospitals, and that makes more accessible the history of past experiences. Unlike the traumatism following accidental injury, these procedures, be they operations of choice or necessity, are not to be entered on without due consideration. The possibilities of shock, hemorrhage (the latter too little appreciated), the risk of anesthesia, the possibility of final recovery, all enter into the problem and demand careful consideration.

V. PRESENT STANDARD OF HEALTH

Without entering into detail, the present health of the individual, as suggestive of individual resistance, must

have due consideration. Want of knowledge in all these particulars, is no excuse in charging a failure of surgical endeavor to the mysterious law of an inscrutable Providence. This consideration implies a careful inquiry into the condition of the nervous, circulatory, secretory and excretory organs of the body, with an appreciation of organic or functional derangements as accessories—important in the final analysis of cases which make for the resistance or want of resistance in the individual case. This embraces a wider field of inquiry than the scope of this paper intended, but, nevertheless, is imperative.

VI. RELATION BETWEEN INDIVIDUAL RESISTANCE AND THE VARIOUS FACTORS IN THE OPERATION

The relation of the resistance of the patient to the time taken for an operation, the shock incident to it and the anesthetic employed is of the highest importance and difficult to determine in advance. These are factors which tell mightily on the resistance of the patient. The time of every operation should occupy the least possible space compatible with thoroughness. No doubt many a desperate undertaking has failed from this cause, and too often a tardy operator has no conception of the reason. So, too, the use of the anesthetic requiring the skill and judgment of an expert is so often entrusted to a recent graduate. It is not my purpose to enlarge on this proposition, as the destructive influence of chloroform and ether anesthesia on cell-structure is being appreciated, and the greater safety of the nitrous oxid-oxygen mixture as a substitute is recognized. When these two factors are duly appreciated, there will come greater safety to those who, from every consideration, are entitled to the best skill and wisest judgment attainable.

Since this paper was prepared, Bloodgood, of Baltimore, has published in the *Annals of Surgery* for May a most valuable and instructive article of over twenty pages, which disusses in larger detail the matters of which I made brief mention. His masterly comments apply largely to those physiologic and pathologic principles which underlie the practice of surgery, and exemplify in no uncertain sound those doctrines which favor or militate against operative procedures.

It was my purpose to make some deductions regarding the resistance of the patient under operation, judged by the standards mentioned in my paper, and their subsequent clinical histories. These I will defer to some future occasion, in the belief that the farther time allotted to this paper will be more profitably spent in its discussion.

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ABSTRACT OF DISCUSSION

DR. HENRY ALBERT WADE, Brooklyn: A prominent factor in success or failure is inherited longevity. We cannot choose our ancestors, but we can do a great deal so that coming generations may have a larger degree of resistance than we at the present time enjoy. It is important that we should take careful histories. This point was forcibly brought to my attention when a pupil nurse at the Williamsburg Hospital was suffering from an inflamed gall-bladder. Scarlet fever some years before had left an inflamed endocardium. While suffering pain in the abdomen she had continued her duties. Her general condition was poor, she was anemic and had been suffering severely from pain for several weeks' time. In looking into the history I learned that five years ago while still suffering unduly from the heart lesion, she had undergone an operation for acute appendicitis and had made a good recovery. Bearing this fact in mind I felt that it would be entirely safe to open and drain the gall-bladder. Had I not found by going over her history carefully that she had reacted readily from the previous operation I should not have been inclined to operate for the gall-bladder condition. The young woman made an uninterrupted recovery. The anesthetic is a very important factor in the matter of a smooth recovery. For

the past two years I have used ether by the drop method and I find that patients suffer less from vomiting and shock than if etherized by the closed method. We all agree that chloroform is an unsafe anesthetic. Nitrous oxid gas requires a skilled anesthetist and that in a general hospital is difficult to secure. The duration of the operation is an important factor in the question of recovery.

DR. H. G. WETHERILL, Denver: I shall take this matter up at the point where Dr. Wade left off. In preanesthetic days the time consumed in operating was important. Now it is not considered so important, and yet, there are many cases in which it is so. Until a comparatively short time ago in the south and west, chloroform was the anesthetic of choice. It is only within the last few years that we have fully appreciated that the great dangers of chloroform are not the primary risks, but the secondary poisonings due to this anesthetic. I think the time has almost come when the great medical bodies of our country should unite in saying that chloroform is at no time and under no circumstance a safe anesthetic. Only in carefully selected and special cases should it ever be used, and always with the possibility of a late chloroform poisoning before us. Even in obstetric cases it is not safe. I saw in Johns Hopkins Hospital in Baltimore last week the specimens from a case presented by Whitridge Williams in which death occurred from late chloroform poisoning in an obstetric case.

DR. H. J. BOLDT, New York: The element of time which has been alluded to is of very great importance if one considers the time wasted, absolutely wasted, for which there is no occasion at all, particularly before the operation begins. Often the preparation of the patient, instead of being done before the anesthetic is begun, is not done until the patient is under the anesthetic. If fear is inherent, it is always of the utmost importance. Whether I undertake an operation is dependent on this fact. If there is any doubt on my part as to the outcome of an operation, and if, on the part of the patient, the element of fear predominates, I prefer that the patient be operated on elsewhere.

DR. THOMAS S. CULLEN, Baltimore: I agree with Dr. Boldt in the matter of fear. It is better either to let the patient alone or keep him under observation until the fear is overcome. In regard to speed, I have noticed that in operation for cancer of the cervix the patient will do well for perhaps an hour and a half and in the next fifteen or twenty minutes there will be collapse. Dr. Wetherill has spoken of the giving of the anesthetic. I would go a step further and say that it is absolutely necessary for us to have trained anesthetizers in every institution. It has been my good fortune to have an expert anesthetist for the last twelve years in the institution with which I am connected and the operator pays no attention whatever to the anesthetic.

DR. WALTER B. CHASE, Brooklyn: The factor of time cannot be too strongly insisted on. I discussed that matter some time ago in an article published in the *American Journal of Obstetrics*. The time element is so important that I am confident that surgeons have failed and have not known that prolonged anesthesia was sufficient to kill the patient. The element of fear is a matter entitled to consideration. To allow a delicate woman to worry about an operation for three or four days increases the liability that the operation may fail, particularly in border-land cases. If I cannot relieve a woman of fear I never tell her of the operation until within a few hours. My purpose is to urge physicians to prepare themselves by a careful diagnosis and every accessory, to ascertain in advance whether it is wise to operate in a given case.

An Argument for Vaccination.—During the first three months of 1912 there were reported 283 cases of small-pox in Michigan. The vaccination histories of these cases are as follows: Seventeen patients were vaccinated between 1 and 10 years previously; five between 10 and 20 years previously; one, between 20 and 30 years previously; two as far back as between 50 and 60 years previously, and several "in childhood," "years ago," "doubtful, if ever," etc.; but 245 had never been vaccinated. It costs Michigan \$150,000 a year to take care of indigent small-pox patients and to protect the unvaccinated.—R. L. Dixon in *Detroit Med. Jour.*

HYSTEROTOMY *

JOHN B. DEAVER, M.D.

PHILADELPHIA

During the past eight years I have opened the uterus through the abdomen for various conditions in fourteen cases. The satisfaction with which I have been enabled in this way to deal with varying kinds of pathology together with the rapid and uneventful recovery in each instance, has led me to believe that in hysterotomy we have an operation deserving of wider application than obtains at this present time, being at once safer and less mutilating than hysterectomy, and possessing the marked advantage in the case of young women of preserving the power to conceive.

Of the use of this operation under its common name of cesarean section in cases of late pregnancy complicated by a markedly contracted pelvis, I shall say little. It is too well recognized at this present time as the operation of choice, and the mortality in competent hands has fallen so low as in suitable cases to be almost negligible. There is scarcely any operation which is at the same time so spectacular, so easy of performance for the surgeon and so safe for the patient. Aside from the presence of a competent surgeon and the necessary simple paraphernalia, its success depends chiefly on the early recognition of the necessity for operation before the strength of the patient is too exhausted to endure surgical intervention.

I believe further that the operation should be extended to include all cases of placenta prævia. It may not be out of place in passing to state that it was my privilege to be one of the first to perform this operation for this condition. I had to endure much criticism for my advocacy of hysterotomy in this condition, but I have had the satisfaction of having my position endorsed subsequently by many of our ablest gynecologists. I am aware that, by the use of the various dilating bags, the hemorrhage may often be checked and delivery satisfactorily effected, but I have also known this method to fail of its purpose and result in the death of the patient from hemorrhage even in the hands of the most skillful obstetricians. There is always a feeling of insecurity when dealing with placenta prævia by this method. Even those who advocate the bag dilator feel great relief when the patient is out of danger. On the other hand, one may approach the operation of hysterotomy in this condition with the same assurance that he feels concerning cesarean section under other circumstances. The abnormal implantation of the placenta does not add to the gravity of hysterotomy. It can be performed in the same manner and with the same absolute control over hemorrhage as in any other abdominal operation on the uterus. Is it not therefore a more soundly surgical form of treatment? Why should we hesitate in advocating it? If operation is done at the proper season in the late cases, the child also can be saved, which is not usually the case in delivery by any other method. I have had in recent years five cases of placenta prævia, four of lateral and one of central implantation, all of which I have treated by hysterotomy with the utmost satisfaction. In the case of central implantation in which the placenta widely overlaps the outlet of the uterus, it is more strongly indicated than in the marginal implantation, but the difficulty in most cases of determining accurately in advance the exact situation

of the placenta should make us chary of trusting in the method of dilatation of the os.

There is a field for this operation also in neglected cases of the toxemia of pregnancy. In September, 1910, a patient came under my care who had been suffering for some months with marked toxemia as shown by vomiting, loss of weight and strength, increasing blood-pressure, nephritis and impairment of vision. I operated at once under intraspinal stovain anesthesia. The fetus was dead and the amniotic sac contained dark-colored fluid. The placenta and gestation sac were removed without difficulty; the uterus was repaired without much hemorrhage, and the patient made a rapid and satisfactory recovery. The blood-pressure, which was 185 before operation, in a week fell to 168. The eye-grounds prior to operation showed exudation and hemorrhage. Four days after operation examination showed the hemorrhage to be absorbed and the disks fairly well defined. The remaining symptoms showed the same rapid improvement.

I have the notes of a similar case which was treated by hysterotomy by my brother, Dr. H. C. Deaver, with equally good results. Such cases should perhaps have been treated earlier by evacuation of the uterus through the usual methods of inducing premature labor, but when the situation has become acute and prompt relief is necessary, hysterotomy is more rapid and at least as safe as any method of inducing abortion, if not safer. In fact, there is less danger of infection in operating through the abdomen than in the introduction of any foreign material through the uterus by way of the os. When time and circumstances permit I should always prefer hysterotomy to manual removal of the fresh placenta, which I regard as one of the most dangerous operations that can be performed, on account of the great and unavoidable danger of introducing infection as the hand is carried up through an area impossible of complete sterilization to one of the most dangerous of all areas in its susceptibility to infection and the futility of its treatment. When convulsions have occurred as the result of toxemia I should commend the operation as the procedure which is most expeditious in evacuating the uterus and giving the patient the best chance of recovery.

An occasional indication for hysterotomy is the inability of the operator after opening the abdomen to distinguish between a soft symmetrical myomatous uterus and a pregnant uterus. Every man who has done much pelvic work has occasionally found himself in this predicament and can agree with Maurice Richardson when he said that he could not always tell a pregnant uterus when he had it in his hand. It has well been said that "sometimes fibroids cry." It is a humiliating mistake to remove a pregnant uterus under the belief that it is a fibroid tumor. I have not yet had occasion to regret this mistake, but I have on several occasions closed the abdomen in the belief that the patient was pregnant, only to be compelled subsequently to remove a soft myomatous uterus. Usually the history, if we can be sure of it, together with the color and consistency of the uterus, will determine the condition. I would not incise a uterus that I believed to be pregnant; but, if I believed it to be myomatous and was not sure in regard to the possibility of pregnancy, I would incise and act in accordance with what the incision showed. In December, 1911, I operated in a case of somewhat this character.

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

History.—The patient was a married woman, 32 years of age, who had had one child ten years previously, but had not

been pregnant since. The menstrual flow had begun at the age of 14 and had been regular until 18, since which time it had been irregular, occurring every two or three weeks accompanied by severe dysmenorrhea. About one year before admission to the hospital the dysmenorrhea became almost unbearable. In February, 1911, a mass had been felt and diagnosed as cyst of the left ovary. Operation was advised, but declined. Between the periods the patient had pain in the left lower abdomen, especially on exertion. She had had a moderate yellowish discharge off and on for the past year. Two days before admission she was seized with severe pain in the lower left abdomen, extending over to the right, and relieved only by opium. She had missed her periods in September, November and December, but had suffered severely for about six days at each time.

Examination.—The abdomen was soft; an irregular ovoid mass could be felt in the lower abdomen extending slightly above the pubes. A mass about the size of an orange could be distinctly felt on the left side. There was tenderness but no rigidity on palpation. By vagina a firm mass which was not tender could be felt filling the culdesac. There was a small tender mass in the left vaginal fornix and on the right several smaller masses apparently connected with the uterus.

Operation.—The entire uterus was found enlarged to about the size of a three months' pregnancy. A subserous fibroid the size of an orange extended from the left cornu. Adjacent to the right tube was a small subserous fibroid, and in the mesosalpinx a small cyst. Myomectomy was performed on the two subserous tumors and the cyst removed. It was questionable whether the uterus was or was not pregnant. I incised and removed a fetus. As no other fibroids appeared to be present the incision was repaired, the abdomen closed and the patient recovered.

I feel that this was better than to remove the uterus or to close the abdomen in doubt as to its contents when the history of the patient was taken into consideration.

There is another class of patients who cause the surgeon anxiety, namely those who suffer from bleeding due to polyps of the endometrium or pedunculated intra-uterine growths. I have more than once removed a uterus with a strong suspicion that it was the seat of an early carcinomatous change in the fundus only to find that a benign pedunculated growth in its interior was the cause of the symptoms and hemorrhage.

I am a believer in diagnostic curettage in certain doubtful cases. If microscopic examination of the tissues removed shows carcinoma, our course is clear. If, on the other hand, no malignant changes are found, but curettage does not cure, what should we do? In some of these cases the uterus is scraped time after time without relief. This may be due to adenomyoma, so well described by Cullen, to adenoma of the endometrium or to chronic hyperplastic endometritis and certain poorly understood changes of the myometrium and its vessels, or to the fact that a pedunculated growth is present which escapes the curet. It is not always easy to scrape these away and especially if the curettage be done with that gentleness and care which should always be used in this operation. Twice I have opened the uterus under these conditions and have by direct inspection been able to conclude that no carcinoma was present, but only a polypous condition of the endometrium which could be dealt with under direct view far more completely and satisfactorily than by the blind insertion of the curet through the os. The subsequent history of both these cases was satisfactory and in neither case was the convalescence more alarming than in ordinary curettage.

On several occasions I have observed uterine hemorrhage due to the presence of one or more fibroid nodules immediately beneath the endometrium; could we determine beforehand the non-existence of malignancy, these

nodules could readily be removed through the incision into the uterus. These cases after one or more curettages usually come to hysterectomy as the only method of cure. While it is not possible to remove a fibroid of this character by curetting, one can easily do so when the interior of the uterus is laid open to inspection.

The method to be employed is as follows:

The patient is placed in the Trendelenburg position and the abdomen opened by a straight incision through the right rectus muscle. The intestines are packed off with moist gauze pads. The uterus, if large enough, is delivered and well packed off posteriorly and, below, anteriorly. If the uterus is not large enough to deliver out of the wound, it is well surrounded on all sides by gauze packing. In the case of pregnancy the operation is completed by incision of the anterior wall of the uterus and removal of its contents. In other conditions the incised walls are spread apart and the interior of the uterus examined. Curettement or submucous myomectomy may then be done if indicated.

The incision in the uterus is repaired by a continuous buried suture of chromic catgut which does not penetrate the endometrium. A superficial running suture of the same material completes the closure.

My experience with these few cases has been so satisfactory as to warrant bringing this operation up for consideration, in the belief that it should be kept in mind and employed in certain selected cases more often than is now the case. I wish especially to urge that placenta prævia must be considered an indication for hysterotomy which is to be given the preference over any other method of delivery. In the toxemias of pregnancy in their later and more severe stages it is to be seriously considered as a rival of less radical measures. In certain myomatous uteri and in the presence of pedunculated intra-uterine growths or endometrial changes, we may on occasion find it of great help in relieving our patients most expeditiously of their symptoms.

The chief contra-indication is the presence of intra-uterine infection, either demonstrated or strongly suspected. I would not at the present time open a uterus in the interior of which I feared to find infection. If this precaution is observed the operation is one of extreme simplicity and low mortality, but should be undertaken only by an experienced surgeon who is a master of intra-abdominal technic.

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ABSTRACT OF DISCUSSION

DR. E. G. ZINKE, Cincinnati: When, eleven years ago I wrote a paper endorsing the recommendation of cesarean section for placenta prævia, there was not a single voice in my support in the association before which I read the paper, the American Association of Obstetricians and Gynecologists. For two years thereafter I was much abused in the medical journals of this country as well as in some of the journals abroad; and some of the best authors of Europe, among them Schauta of Vienna, wrote against that which I had advocated. Two years later, when I spoke before the same body of the "Limitations of Cesarean Section" there was no dissenting voice. Six or seven years later the American Gynecological Society began to endorse the operation for placenta prævia and to-day cesarean section is performed on every case of placenta prævia in some of the clinics abroad. Dr. Deaver has had to bear some of the brunt of the battle, and he has stood it so bravely that I have lauded him for it in the past. While I support Dr. Deaver in the main, I do not advocate cesarean section in every case of placenta prævia or in all cases of puerperal eclampsia.

DR. JOSEPH B. DELEE, Chicago: To make a sweeping announcement that all cases of placenta prævia should be treated by cesarean section is in my opinion entirely too broad. Years ago I was one of the first physicians in America, that is of the younger men, to perform cesarean section for placenta prævia. I am still doing it and under certain limitations, which the few minutes at my disposal do not allow me to present; it is an operation of great satisfaction. A large percentage of placenta prævia cases can be treated by the older methods with very satisfactory results to both mother and child. The second point on which I wish to differ with Dr. Deaver is hysterotomy for incarcerated placenta. I fear that I did not hear aright if Dr. Deaver means that in the treatment of post-partum hemorrhage with an incarcerated placenta opening the abdomen even with a surgeon of the greatest ability to do it is less dangerous than the removal of the placenta from below. I take most decided objection to that. The man who is capable of opening the abdomen safely is ten times more capable of removing an adherent placenta safely from the vagina. If the placenta is pathologically adherent it may possibly be desirable to open the abdomen and remove the placenta if unsuccessful from below. Again, I might make a qualification that if the uterus is infected and the placenta is in the uterus, hysterectomy may be safer than removing the placenta. When we cannot determine the diagnosis—whether there is a tumor present or a pregnant uterus—it is safe to cut into the uterus to see. I have done it myself. Six or eight years ago in a case in which I could not distinguish a fibroid from the pregnant uterus I made an incision, found the pregnancy, sewed up the wound and delivered the woman at term. In another case I did vaginal hysterotomy because I could not tell whether there was a fibroid or pregnancy. I found a fibroid and removed it by laparotomy. In regard to hysterotomy in cases of toxemia, Dr. Deaver made no mention of the induction of abortion and in urgent cases of Dührssen's operation, commonly known as vaginal cesarean section. It is a procedure that requires no discussion.

DR. H. J. BOLDT, New York: The man who deserves the credit of having done the first cesarean section for placenta prævia in this country was the late C. A. Bernays of St. Louis. The one who brought cesarean section for placenta prævia to notice at all was von Halbertsma of Holland. There is unquestionably a field for an abdominal opening of the uterus but that occasion arises very seldom. In the case of myofibromas, to which Dr. Deaver has alluded as a question of doubt between pregnancy and myoma, I am in exactly the same position myself as Dr. Deaver. I have declined to remove a myomatous uterus because I first thought I was dealing with a pregnant uterus. Cases of submucous polypi in my opinion should be treated for diagnostic purposes by vaginal hysterotomy. It is practically entirely devoid of danger in the hands of a competent man. There is no occasion whatever for exploration by the abdominal operation.

DR. E. E. MONTGOMERY, Philadelphia: The value of this procedure I learned from experience more than twelve years ago when I operated on a young single woman, 22 years of age. I curetted the uterus which was considerably enlarged. As the abdomen was to be opened I made an incision through the fundus and found the uterine cavity filled with a number of grape-like masses and removed the entire uterus. Ten years ago in this city I operated on a patient in whom I had no reason to expect from the history she gave that she was pregnant; as she was suffering from profuse bleeding, I curetted the uterus, then opened the abdomen to shorten the ligaments, and to my very great disgust I became satisfied that she was pregnant. I incised the fundus and cleaned the cavity by removing the mass. I agree with Dr. Deaver as to the impossibility of always ascertaining the diagnosis of pregnancy. Within the last week, before a number of men at Jefferson Hospital, I curetted a retroflexed uterus to which I attributed the enlargement of the fundus. When the abdomen was opened to shorten the ligaments I was convinced that the uterus was too large and soft to be other than in an early stage of pregnancy. I cut through the fundus of the uterus but there was no pregnancy. The advantage of this procedure is that in some cases we may curet the uterus and by inspection

make sure of its condition. Not infrequently the wiping out of the uterus with a gauze-wrapped finger will be more effective. The procedure is of great value in cases of fibroid within the body of the uterus in women of child-bearing age. In some cases the growth can be more safely removed by incision of the fundus through an opening in the abdomen, the incision being a less dangerous procedure than would be the removal of such a growth through the contracted cervix.

DR. A. GOLDSPOHN, Chicago: As to the merits of this operation for placenta prævia I will say nothing because I am not competent to judge. It is indicated in those instances which have been mentioned of benign tumors of the uterus when it is not possible to distinguish between pregnancy and a neoplasm. Then in other cases in which persistent hemorrhage exists after repeated curettements, if an abdominal section is necessary, if for some other reason the abdomen has to be opened anyhow, then the uterus should be opened and the operator should be complete in what he does. But if there is no reason for opening the abdomen except to make sure of emptying that uterus, then I think the abdomen should not be opened because the cervical incision will give all the opportunity we need. It does not matter how large that uterus be, even though it be a post-partum uterus, the gynecologist and obstetrician can make use of the most important eye that he has—the finger. He can with this explore the entire interior of the uterus, often finding polypi or other reasons for persistent hemorrhage. He can in the same manner remove adherent placenta because he “sees” with the finger the condition present.

DR. C. S. BACON, Chicago: Abdominal hysterotomy for diagnosis, I believe, is rarely necessary. Either vaginal hysterotomy or the examination through the artificially dilated cervix is generally sufficient. Referring particularly to the obstetric uses of hysterotomy that Dr. Deaver has spoken of, if Dr. Deaver's teaching should go out as the obstetric teaching of this country, there would be a state of affairs in two or three years that would be appalling to contemplate. That all cases of placenta prævia should be treated by hysterotomy is a proposition impossible to conceive of. Only a small proportion, a minority, of the cases of placenta prævia are central. Rarely hysterotomy may be indicated here. Cases of lateral placenta prævia which frequently bleed very freely can be treated safely by version and traction or by the bag.

DR. RUFUS B. HALL, Cincinnati: I will endorse many of Dr. Deaver's points, but there are one or two to which I would like to call the attention of the Section. We ought not to let this paper go out with our endorsement of opening the abdomen and doing hysterotomy for diagnosis and for the removal of retained placenta. We ought not to let it go out that we would open the abdomen and then the uterus to make a diagnosis between simple myoma and pregnancy. The uterus should not be opened unless the abdomen were opened for other conditions and the uterus were found to be enlarged and it was a question as to diagnosis. Then I would say open the uterus. But we ought not to open the uterus merely to determine whether the woman was pregnant or had a soft myoma. The statement ought not to go out as the sentiment of the Section that we should open the uterus to make a diagnosis in suspected malignant disease in the fundus. There are other methods that are safer and as accurate. If there were no other urgency than the question of pregnancy a few weeks would settle that to the satisfaction of the doctor.

DR. S. M. D. CLARK, New Orleans: Dr. Deaver has presented an operation of distinct value, through which many grave mistakes will be avoided. In central placenta prævia, if surgical facilities are available, it is the operation of choice. I do not believe that Dr. Deaver means that all placenta prævia cases should be dealt with in this way. Dr. Russell of Hopkins, some seven or eight years ago, brought out the importance of this procedure in diagnosing obscure cases of hemorrhage from the uterus. In these obscure conditions of the uterus it is unquestionably of value. I have found small, submucous growths in this way, that could not have been detected in any other. One case which I had would especially illustrate its value. A physician brought a woman suffering from continuous bleeding, he having some two months prior curetted for

diagnostic purposes. These scrapings were examined by a supposed competent pathologist who found carcinoma. The patient came to me for Wertheim's radical operation. Under an anesthetic the cervix showed no evidence of malignancy, and the scrapings were negative. Still, I felt that I might not have curetted the exact carcinomatous area. Bimanually, I felt a soft mass on the left side which I thought was an infected tube, following the previous curettage. Abdominal section showed an ectopic gestation which was removed. This carcinomatous finding, however, worried me, so rather than take the uterus out without further evidence, I did a hysterotomy, finding a perfectly normal endometrium and saved the uterus. The pathologist had made an error, most probably mistaking decidual cells.

DR. JOHN A. MCGLINN, Philadelphia: I have no quarrel with Dr. Deaver on the surgical views expressed in his paper and in the main agree heartily with him. But when he enters the obstetric field and advocates such radical views I feel that the majority of us take serious issue with him. To say that every case of placenta prævia should be subjected to abdominal cesarean section is to my mind a very dangerous teaching. A few cases of placenta prævia I grant are best treated by abdominal section. But these cases are comparatively few and the majority of cases can be best treated by the older and tried obstetric procedures. We must not forget that the vast majority of labor cases are still treated by the general practitioner and to have him, a specialist in obstetrics but a tyro in abdominal surgery, section all his cases of placenta prævia would be simply to invite the slaughter of the innocents. That all cases of eclampsia should be treated by section is utter rot. If it is necessary to empty the uterus rapidly—and few of us will admit it necessary or even wise in the majority of instances—we have in vaginal cesarean section a safer and better operation than abdominal section. Toxemic cases are, as a rule, bad surgical risks and there is certainly less shock and danger of infection in the vaginal operation. In the main the best interests of the mother and child are served by the accepted obstetric treatment of elimination, control of convulsions, induction of labor by conservative means in the proper case and at the proper time. Finally, in those rare cases of adherent placenta I see no reason to consider abdominal section. The birth-canal in the normal case is sterile as far as pathogenic germs are concerned, and the placenta can be easily removed without danger of infection by the sterile hand covered with a sterile rubber glove. A man who does not understand asepsis and who would remove an adherent placenta by the vaginal route would surely infect his patient, but the chances are that she would recover, but if the same man did an abdominal section he would just as surely kill his patient. I feel sure that such teaching is dangerous and trust that it will not obtain general acceptance.

DR. THOMAS S. CULLEN, Baltimore: In the majority of cases with plenty of time and proper curettage we are able to determine the exact condition in the uterine cavity. I saw a case in consultation with a colleague a few weeks ago. The patient was 36 years of age and gave a history of bleeding for several weeks. She had been curetted by a most competent man. She had never missed her periods before and she had never been pregnant. There was a large amount of scrapings which, as a rule, is an indication of a pathologic process. I saw the scrapings later on and found that the surface was perfectly intact. You know the difference between a normal and a carcinomatous endometrium. There is just the same condition as you would see in a farm, one field would be perfectly smooth while another is overgrown and rough. In this case the surface was relatively smooth. The stroma beneath were between normal and decidual and the glands in both showed hypertrophy just as there is hypertrophy of the thyroid. This patient had been examined under anesthesia. I saw the patient with my colleague. It was thought unnecessary to make an examination since he had done it so thoroughly. We reached the conclusion of an extra-uterine pregnancy so small that it could not be determined. The doctor found an unruptured extra-uterine pregnancy of very small size. In the majority of cases you can tell from the scrapings the exact condition one is dealing with. Hysterotomy I would reserve for those cases in which such an

examination cannot be made or, in which, on opening the abdomen, one is not sure of the condition, in which the uterus is large and one is sure there is not pregnancy and yet one does not know whether there is a polyp or something in the interior of the uterus. When the patient is on the table, the abdomen open and it is not possible to curet, rather than close up and have a second operation I think one ought to split the uterus and see the exact condition in the interior. I must confess that in one patient examined under anesthesia I came to the conclusion that there was some uterine growth. On opening the abdomen I was not quite sure. In that case I split the uterus and found a remaining part of a placenta. There had been an old miscarriage, but nothing to indicate this had been given in the history. The part was just like a flaccid pocket. In all cases if there be infection and the cavity of the uterus is opened from above a chance is run of infecting the general peritoneal cavity, because even if carefully walled off, there is still some chance of the uterine suture coming through. I think hysterotomy is limited to those cases in which it is not possible to make a careful examination and curettage, in which one is "up against it" and the exact condition present has to be determined when the abdomen is open.

DR. J. H. CARSTENS, Detroit: It seems to me that this question is one of mighty little diagnosis and a great deal of operation; and I, for one, want to protest against indiscriminate operation of that kind, because the men who are gynecologists and who can do those operations as successfully as Dr. Deaver are the ones who will make a correct diagnosis as a general rule and very rarely need to make such an operation. Now there are cases, no doubt, in which placenta prævia can be operated on in that way, but when it comes to an adherent placenta, it can be removed in the usual manner by men who are practiced. If, as Dr. Deaver says, men who put in their dirty hands to take out the placenta can infect the uterus, they can also infect not only the uterus but the whole abdominal cavity, and they will certainly kill the patient. Now as Dr. Boldt has said, and Dr. Bacon and these other men, with a fine Italian hand, and if necessary a Dührssen operation, one can make all the necessary diagnosis and do nearly all those operations that have been advocated in a different way. I maintain that it is a good operation, but it is very rarely indicated.

DR. HENRY C. COE, New York: As I listened to Dr. Deaver's paper I could not help recalling the old plan of diagnosing conditions inside the uterus. The introduction of tents for this purpose was a long, uncertain and dangerous process. In pre-aseptic days, patients were sometimes infected and died before the diagnosis was actually made. I have been familiar with incision of the uterus per vaginam for years and regard it as a valuable procedure in proper cases. Dr. Deaver called attention to intractable uterine hemorrhage in which careful examination of the scrapings was negative. In these cases it is a scientific method to split the uterus and examine the interior. The operation is so simple that I have yet to see any reaction other than from an ordinary curettement. I agree with Dr. Deaver in regard to frequent difficulties of diagnosing normal pregnancy, and like him, have closed the abdomen in several cases in which I strongly suspected pregnancy, when the condition was found to be a soft fibroid. In two instances I opened the uterus through the abdominal route fearing the existence of pregnancy, but found a fibroid. We cannot always make a positive diagnosis, but we can wait. In regard to the information found by the examination of curettings, my experience has been somewhat different from that of Dr. Cullen, both as to position and negative evidence. Obstinate bleeding, resisting all the methods of treatment, may be a legitimate indication for a radical operation, even if the pathologist submits a doubtful, negative report.

DR. J. B. DEAVER, Philadelphia: Certain points have been referred to which were not touched on in my paper. I spoke of placenta prævia and conditions of the interior of the uterus impossible to diagnose and to handle properly except by hysterotomy; I am glad there are others in the audience who agree to the difficulty of diagnosis. I feel that the best result is obtained by abdominal section. Those men who take exception to hysterotomy for placenta prævia have not told us of the poor

women dying of hemorrhage and the babies who have never lived to gasp. This does not occur if the operation is done at the opportune season; before the patient gets well into labor, before instruments have been used, before the vagina is infected and the cervix lacerated. If done early both mother and baby will be saved. So far as the toxemia of pregnancy is concerned, I did not advocate this operation in all cases, but I advise it in desperate cases. This is conservative surgery from the standpoint of the abdominal surgeon or of the gynecologist, I care not which, because we are all the same. In one case of my colleague, Dr. Harvey Shoemaker, with extensive albuminoid retinitis and convulsion, hysterotomy was done with good results. I do not know of any more dangerous operation than curettage, if great care is not exercised in the selection of the case. I have operated, as have many surgeons, in cases in which the curet was used and the woman has come into the hospital with prolapsed bowel in the vagina. Dr. Goldspohn speaks of exploring the uterus with the finger; this is not possible in all cases of the type of which I have spoken in my paper.

UNCLEAN MOUTH AND ITS EVIL RESULTS *

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Uncleanliness of the mouth is probably the indirect cause of more bodily disease than any other source. This fact has recently been forcibly set before us by such men as Hutchison, Turner, Lang, Hunter and others.

"Chronic ulcerative stomatitis," "putrid sore mouth," "fetid sore mouth," etc., as described in works on medicine, and as spoken of by physicians, are simply stages of a disease of the alveolar process and gums, popularly known as "receding gums," "sore," "spongy" or "bleeding gums." These conditions are preventable by proper daily cleanliness at the hands of the patient. They are caused by local irritants against the gums, calcareous deposits being by far the greatest factor. Any irritant, however, such as bands, rough edges of cavities and roots of teeth, rough fillings, splinters, or improper approximal spaces may be the exciting cause.

The various conditions or stages of the disease should be described under a name such as "Riggs' disease," or better still, "alveolitis." This allows of discussing the etiology, of giving the morbid anatomy in the various stages, and of describing the treatment of the various stages. These stages of what seems to be one disease are looked on by many as several distinct diseases, but the pathology and recovery both point plainly to one source.

Alveolitis is a disease of the bone which supports the teeth and involves the overlying gum-tissue, also the periosteum and peridental membranes. It results in the ultimate loss of the teeth by the destruction of the alveolar process. After the onset or initial lesion in the gums, and the alveolar process has become involved, the malady is primarily that of the bone, the soft, spongy and bleeding gums being a natural sequence. This is evidenced by the fact that the gum-tissues, although still inflamed, remain intact and nearly to their normal height long after deep pockets have been formed into the bone. The gums also promptly recover their normal health when the bone gets well or the tooth is removed. Again no amount of gum treatment, pure and simple, will cure the disease. In view of the above statements the following nomenclature has been adopted.

The disease may be described in all its phases by arbitrarily dividing it into stages, as follows:

Initial or simple alveolitis.
Non-suppurative alveolitis.
Suppurative alveolitis
Necrotic alveolitis.
Acute alveolitis.

Descriptive subdivisions are:

Chronic non-suppurative alveolitis.
Chronic suppurative alveolitis.
Necrotic non-suppurative alveolitis, which is always chronic.
Necrotic suppurative alveolitis, which is nearly always chronic but may be acute.

The subdivisions are merely descriptive of combined conditions. The suppurative and necrotic stages, both acute and chronic, display all the conditions described under the names, "chronic ulcerative stomatitis," "fetid stomatitis," "putrid sore mouth," "chronic stomatitis," etc. Insanitary conditions of the mouth undoubtedly encourage the propagation and virility of such microbes as are involved in aphtha, thrush, cancrum oris, and other bacterial diseases of the mucous membrane.

Gingivitis is always present to some degree in every stage of alveolitis and is very marked in the advanced stages. Its mildness or intensity is dependent on several things, such as the condition of the underlying bone, the character of the infection and the quantity and character of the calculus about the teeth. Mercury and other metallic poisonings intensify the symptoms as do auto-intoxications, scurvy and sordes

INITIAL ALVEOLITIS

Initial alveolitis means the beginning of the disease in the gum-margin at the necks of the teeth. It usually starts from local irritants. These irritants cause wounds in the gum-tissues, which wounds are the doors of entrance (the infection atrium) of the infectious bacteria. All the irritants mentioned, excepting tartar, simply create the wound, which may be perpetuated by microbes. Tartar, however, never ceases to be deposited and is a continuous and progressive irritant, perpetuating the disease in its simple form.

Tartar is a normal constituent of saliva and is deposited in the protected places against the gums about the necks of the teeth. If undisturbed, it in due time becomes almost as hard as the tooth and very adherent to it. It is also rough and irritating to the gums. The pressure of tartar against the gums, be it soft or hard, will in time induce destruction of the mucous membrane. This creates an open wound at the point of contact, which will bleed on removal of the deposit. These wounds, be they ever so small, are the beginning, or initial lesion of the disease, resulting in the initial stage. This condition may be slowly progressive for many years without apparent infection. It is designated as simple alveolitis or chronic non-suppurative alveolitis, and is present to some degree in almost every human mouth and in the mouths of some domestic animals.

CHRONIC NON-SUPPURATIVE ALVEOLITIS

The unremitting effort of tissues to ward off disease may for years prevent a malignant infection of these wounds. With some persons it may be for a life-time, but the ultimate end of the disease, if the patient lives long enough and the deposits are not removed, is the loss of the tooth. This process is as follows:

If tartar presses against the gums an open wound occurs and inflammation and swelling of the gum-tissue follows. This inflammation is indicative of an effort on the part of the tissues to dispose of a foreign body. Tartar cannot be thus disposed of because it is adherent to the teeth. The inflammation and swelling of the gum

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

causes them to stand away from the tooth. This allows the saliva, freighted with calcareous material, to invade these spaces. Thus the deposit of tartar goes deeper and deeper, because the flesh recedes in order to get away from the irritant. This intended process of healing results in slow destruction of the alveolar process. The pockets thus become deeper and deeper until the bony support is entirely destroyed and the tooth is thrown off. During all this time the gums are more or less inflamed.

This simple or chronic non-suppurative form is so-called simply because the pus is not visible, and, as stated, is the most common of all forms. When, however, a malignant type of infection finds encouraging environment in one of these chronic non-suppurative wounds, it is most apt to be suppurative in type (staphylococcal or streptococcal). This is much more rapid in its destructive progress than the non-suppurative form. When suppuration exists in one place it is apt to be found in several places, and many times it is found in all the sockets. This condition constitutes suppurative alveolitis or so-called pyorrhea alveolaris.

SUPPURATIVE ALVEOLITIS OR PYORRHEA ALVEOLARIS

When pus is exuding from the sockets, it may be in such quantities that it is easily seen, or it may be easily pressed out with the fingers. On the other hand, it may be in such small quantities that it can only be seen with the aid of the microscope.

Once the suppurative type has begun, it may progress without the necessary presence of the original irritant or of calculus on the roots. A great many teeth are lost from this suppurative type of the disease. In consequence, the name "pyorrhea alveolaris" was originally given it, but this name indicates only one particular stage.

The absence of deposits on the roots of some of these teeth has led many authors to say that calculus or other local irritants have little or nothing to do with the disease. They say that it is systemic in its origin, that it is an accompaniment of the uric acid diathesis or a result of arteriosclerosis and its accompaniments. If, however, the complete history of alveolitis could be known, I believe, without doubt, that it would be found that the disease always starts with a local irritant and lesion. It is perpetuated by the continued presence of calculus, or of calculus and infection, or by other local irritants and infection, as above described. Those who say that the disease is caused by other than local irritants admit that these irritants must be thoroughly removed, and the pockets sterilized, or the teeth removed, before the disease will disappear. The tartar or other irritants at the necks, which caused the initial lesion, may have been removed and thus unobserved. The tissues, however, may still be suppurative. It must be remembered that there can be no lesion without a cause, and no infection without a lesion. Tartar is one of the greatest causes of these lesions and pus germs almost the universal infection.

The most frequent result of this suppurative infection, in addition to highly inflamed gums, is destruction of considerable zones of bone. This is especially true in the septa between the teeth and in the cancellous bone deeper in the alveolar process and the maxillæ. This condition is often comparable to osteomyelitis or tuberculous bone. It results in the death and destruction of much bone about and beyond the sockets of the teeth, and is known as necrotic alveolitis.

NECROTIC ALVEOLITIS

When the cancellous bone about or beyond the roots is reached any germs capable of living in such environment not only find Nature less capable of resisting their progress, but they find greater protection and more favorable conditions for rapid multiplication; consequently, considerable zones of bone die. This necrotic bone now becomes an additional object of care to the elements of protection and repair. Because the deposits still adhere to the roots, or because microbes are too plentiful to be entirely destroyed, Nature cannot accomplish the object of repair without assistance. She never ceases her efforts, however, until she disposes of the tooth, irritants and all. Then the army of repair soon heals the wounds. In this stage of the disease, calculus is often found about the apices, especially of the upper molars. Under these conditions the antrum is frequently penetrated, which often means empyema of this cavity. This penetration of the antrum is most apt to be between the first and second molars, but it is often between the second and third. The bone about all the teeth in the locality is more or less involved.

Deep-seated necrotic cases in the lower jaw sometimes result in the necessity of removing quite a portion of either the outer or inner plate of the jaw, and the loss of one or more teeth. In fact, the ravages of the disease may not stop short of the necessity of removing considerable portions of the jaw-bone.

In some instances, in both the lower and the upper jaw, quite large necrotic zones are found in the bone about, between or beyond the teeth. These cavities are often not associated with pus, but are of a "dry" necrotic or carious character; they are not usually accessible without drilling or curetting into them. The symptoms leading to their existence are usually pain of a neuralgic or *tic douloureux* character. The existence of these cavities is not commonly known, the pain usually being attributed to neuritis or possibly to *tic douloureux*. The treatment given in these instances is usually systemic for neuritis, instead of surgical for diseased periosteum and bone. Consequently the patient often suffers for many years without relief. Removal of the teeth involved usually gives entire relief in time. Healing may be induced, however, by curetting or burring out the diseased bone, sterilizing the cavities, and persisting in the treatment until recovery takes place. The *tic douloureux* features, which seem to involve the periosteum, would require a special paper to describe them; hence they will not now be discussed.

ACUTE AND CHRONIC ALVEOLITIS

The adjectives acute and chronic are applied to the various stages of alveolitis according as conditions demand, as is done in other surgical diseases.

MANUAL TREATMENT

While there is probably no disease of mankind so prevalent as alveolitis, there is likely no disease so amenable to treatment. This treatment is largely local and manual. Neither is there any disease more surely preventable. Prevention is a question of keeping the mouth clean and the teeth free from tartar and other irritants about their necks. This is a matter of mechanical cleaning, not medicinal. If the cause of the lesions is prevented, infection cannot enter and sterilizing medicines are not needed. Stomatologists and many dentists are now engaged in the successful treatment of alveolitis and in teaching their patients how to prevent it.

The whole of the operative treatment consists in removing all deposits or other irritants from the roots and necks of the teeth. This must be followed by sterilizing these surfaces, removing the dead and diseased bone in and about the sockets, sterilizing the sockets and cavities of bone, and keeping them thus sterilized until recovery is complete.

The preventive treatment is the patient's work. He needs instruction from the physician how to do it, however, since the ordinary way of "scrubbing the teeth" falls far short of reaching the object. In my hands it requires from three to six months for patients properly to learn the process of cleaning. It is the most important feature of the whole subject and the only practical method of prevention. Patients can and do learn it, however, and in consequence have mouths pure and free from disease, which is a large factor of insurance against many systemic maladies. Patients may have to return two or three times a year to have places cleaned which they cannot easily reach. But they can and do learn the preventive treatment.

The greatest shortcoming, in treating the disease, is the lack of thoroughness on the part of the stomatologist. He often fails to remove the deep-seated deposits near the apices of the roots and the dead bone beyond. To do this properly requires a touch trained to distinguish between deposit and the tooth surface, and between live and dead bone. It also requires skill and conscious effort coupled with a knowledge of the anatomy and pathology. Thus only can the work be properly done. This operative procedure must be followed by suitable methods of sterilizing the wounds. In but few cases is it practicable to remove all dead and diseased bone and all infection. If, however, a sufficient amount be removed, Nature will be able to throw a large enough army of repair about the wound to destroy the remaining bacteria and remove the dead bone. She then rebuilds the destroyed tissue as far as possible.

My own practice, in sterilizing these pockets, is to use pure tincture of iodine, 75 per cent. lactic acid or crystals of argyrol. Many other remedies may be equally good, but each physician must select his own, keeping in mind the object to be accomplished. A long curved hypodermic needle, and cotton wound on a "twist broach" have in my hands permitted the medication of any case yet presented. I have devised and had manufactured a set of curets and engine burs for removing dead and diseased bone. The burs are usually more efficient and less painful. The "plane-bit" type of the cleaners, however, is sufficient in most cases, being used also as curets.

PREVENTIVE TREATMENT

The dental profession of to-day is doing great good in promulgating and teaching the value of oral hygiene. After mouth examinations in schools, lectures and demonstrations are given to the children, teachers and mothers on the prevention of disease by mouth cleanliness. The results of this work show, not only improvement in general health, but also greatly increased mental capacity in the children.

The condition of the mouth, in both adults and children, should receive much more careful attention from surgeons and physicians than it ever has. This is especially needful, since oral sepsis is now known to be the source of many diseases. Numbers of these are surely preventable by mouth cleanliness. Insurance companies are beginning to recognize this fact.

The so-called prophylactic treatment, as practiced by the dentists of to-day, is really the surgical treatment

of the disease, since it is the removal of the exciting and secondary causes.

In the initial and non-suppurative stages of alveolitis, simply removing the tartar—cleaning the teeth—enables the wounds to heal. This is all the treatment a large majority of cases receive at the hands of most dentists, and all they need. But it is most desirable to know the whole pathology and treatment of the extreme cases as well as the simple ones.

The disease tends strongly to return if preventive treatment is neglected by the patient. That which brought on the disease, namely, the lime salts in the saliva, is always present to bring it back. Tartar, when first deposited, is soft, like partly dissolved soap, and is easily removed. Inside of forty-eight hours the film next to the tooth begins to harden and is then removed with much difficulty. Hence comes the necessity of thoroughly cleaning the mouth and teeth at least once a day, with brush, powder, picks and floss.

RECOVERY

It should be borne in mind that, after the initial stage, alveolitis is a bone disease, and should be treated as such. It takes the bone and periosteum of the jaws as long to repair as it does like tissues elsewhere; the cementum requires a longer time for repair than does bone.

In the deep-seated cases the difficulties of removing all calculus and infection are such that a number of sittings, a week or two apart, may be necessary to remove them. Healing begins immediately after the first treatment. The usual time required for regeneration of the bone and periosteum, however, must be allowed before we can expect recovery. Therefore great patience is necessary on the part of both patient and physician. Three months is the shortest time in which one could reasonably expect good results. A period of six months, a year or more often elapses before recovery is satisfactory. During this time the patient will need the physician's assistance once a week, or two or more weeks apart, according to symptoms.

SYSTEMIC FEATURES

Alveolitis, like all other diseases, has its nervous phase. This results in discomfort, pain, or total disability, according to the complications and intensity of the disease.

Alveolitis is encouraged by auto-intoxications and by the numerous manifestations accompanying them, such as gout, uric acid disorders, arteriosclerosis, etc. These diseases are in turn encouraged by alveolitis; thus, the vicious circle is established. I know of no systemic pathologic conditions, however, which could cause the almost universal presence of alveolitis, but local irritants are universally present.

We all know that alveolitis recovers without systemic treatment, but such treatment often materially assists in recovery. During systemic disorders, any weakened organ or point of least resistance, such as "sore gums," becomes easily inflamed and acute. That particular local feature is thus intensified. If, therefore, systemic disorders are manifest and serious, they should have attention at the hands of the operator or the family physician. On the other hand, I believe that alveolitis not only is of local origin but also, in its suppurative and necrotic stages, is a great predisposing factor to, and is the cause of, many bodily diseases, such as pernicious anemia, disorders of the alimentary tract, nervous derangement, etc., etc. The mouth as a source of septic poisoning and the cause of many diseases has recently attracted the attention of acute diagnosticians.

Dr. William Hunter, of London, has put the dangers of oral sepsis plainly before us. I strongly recommend his papers to any one who is interested in the subject. In closing, I wish to quote some paragraphs from him which will help to establish the idea that alveolitis is of local origin, and that it is the cause of many bodily diseases, instead of its being the result of such diseases.¹

In the foregoing sketch of the chief sphere of the doctor's work and interest, I omitted any reference to one other portion of the body which constantly comes under the observation, indeed, more often than any other—I mean the mouth. This omission was intentional on my part. The cases presently to be described—which could be multiplied by thousands and tens of thousands coming under the daily notice of doctors—illustrate how constant the omission is in practice. . . .

What I desire to impress on you students, and all students entering the profession, and all those already engaged in the practice of the profession is, it is "not a matter of teeth and dentistry." It is an all-important matter of sepsis and anti-sepsis that concerns every branch of the medical profession, and concerns very closely the public health of the community. It is not simply a matter of "neglect of the teeth" by the patient, as is so commonly stated, but one of neglect of a great infection by the profession—a great infective disease for which the patient is not primarily responsible any more than he is responsible for the contraction of typhoid fever or tuberculosis. The condition referred to is that to which I have given the name of "oral sepsis." . . .

The chief feature of this particular oral sepsis is that the whole of it is swallowed or absorbed into the lymphatics and blood. Unlike the sepsis of open wounds on the outside of the body, none of it is got rid of by free discharge on the surface. The effects of it, therefore, fall, in the first place, on the whole of the alimentary tract from the tonsils downward. These effects include every degree and variety of tonsillitis and pharyngitis, of gastric trouble, from functional dyspepsia to gastritis and gastric ulcer, and every degree and variety of enteritis and colitis and troubles in adjacent parts, e. g., appendicitis. The effects fall, in the second place, on the glands (adenitis), on the blood (septic anemia, puerperal fever, septicemia), on the joints (arthritis), on the kidneys (nephritis), and on the nervous system. . . .

The title "oral sepsis" was first introduced into medical literature in a paper entitled "Oral Sepsis as a Cause of Disease." My object in seeking for a special name, and, after consideration, in creating this one, was to emphasize the great fact that it is not the absence of teeth, but the presence of sepsis, that it is not dental effects, but septic effects, that it is not defective mastication, but the affective sepsis associated with such dental defects often present, in conditions of gingivitis apart from such dental defects, that are responsible for the ill health associated with "bad" mouths. . . .

The subject of oral sepsis, as I designated and defined it, namely, the septic lesions of streptococcal and staphylococcal infection found in the mouth, belongs to no one department of medicine or surgery. It is common ground on which the general physician or surgeon, the throat, nose and ear and eye specialist, specialists in children's diseases, in stomach diseases, in blood diseases, in "rheumatic" diseases, in fevers, in skin disease, in nervous and mental disease, and lastly the dental surgeon, all meet on terms of equal responsibility. In its earliest manifestations, no special knowledge is required to deal with it; a sound grasp of the principles underlying antisepsis alone is required. Unfortunately for the patient, it is precisely this grasp which I grieve to say is wanting. . . .

For this is what the practitioners are constantly doing. Wherein consists the pathologic difference between a follicular tonsillitis and a foul, septic, suppurating condition of the gums, with deposition of calcareous "crusts and scabs" (so-called tartar) covering and hiding septic wounds and ulcers, loaded, as microscopic examination shows, with staphylococci and streptococci? None whatever, except that the latter is

exceedingly common and the tonsillitis is comparatively rare. The pathologic condition in both is the same, namely, sepsis. Moreover, it is sepsis as easily recognized and much of it as easily removed in the case of the one as in the other.

Even if the teeth are not subject to a very marked septic infective process, the infective processes in the gums constitute very important septic wounds, and are a great source of sepsis to the body. As a matter of experience this is often the case. The teeth remain intact, or at least free from obvious caries or carionecrosis, but the gums and the periosteum of the sockets are the seat of numerous septic wounds. These are shown by septic suppuration, by deposits of tartar sometimes in great masses on the teeth, on the gum-margin and beneath the gum-margins, by the formation of pockets (septic ulceration of the periosteum—periostitis), absorption of bone, and loosening of the teeth in their sockets. . . .

I submit, then, once more, as I did in the first communication (1900) bearing the title of "Oral Sepsis," that in the interests of the many sufferers from the great group of medical affections which it produces, this condition of oral sepsis, the chief channel of access of all pyogenic affections, is urgently deserving of increased notice and attention. Knowing, as we do, the pathogenic qualities of staphylococci and streptococci, we have not the slightest excuse for allowing the mouth, so easily accessible to local measures, to remain their chief seat, and its open wounds a veritable hotbed for their development and propagation.

11 East Seventh Street.

WANTED: A SENSE OF ASEPSIS *

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Have we, as practitioners of an important specialty of the healing art, a proper sense of asepsis? If a just opinion can be formed from observing the clinical teaching in our dental colleges, the methods employed in the offices of nearly all classes of dental practitioners and the demonstrations at the clinics of our state and national societies, then we must admit that we fall far short of a proper sense of asepsis.

What is asepsis? Asepsis from the surgical standpoint is that condition, maintained during the operation or treatment and the after process of healing or cure, which is the result of any process or method rendering the tissues to be operated on, the hands of the operators, the instruments, dressings, fluids, medicaments and ligatures, which come in contact with them, *germ-free*, and maintaining this condition during the operation or treatment and the after-process of healing or cure.

It would be manifestly unjust to say that dental practitioners as a class are ignorant of the principles that underlie asepsis. That these principles are taught in the lecture-rooms of most of our dental colleges there is no doubt; but this teaching is then practically ignored by a very large majority of the students in their clinical work in the infirmaries. This is due in part to the fact that the clinic-rooms are poorly equipped with sterilizing apparatus and that the teachers, demonstrators and professors who oversee and direct the operations of the students are often exceedingly lax in their own technic and do not insist on a faithful carrying out of the didactic teaching on this subject. I have been astonished, yes, appalled, at the utter disregard of all modern, scientific methods of asepsis to be found in many of our dental colleges, in the offices of numerous dental

1. Hunter, W.: Role of Sepsis and of Antisepsis in Medicine, an address delivered at the opening session of the Faculty of McGill University, Montreal, Oct. 3, 1910.

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

practitioners and particularly at the clinics of our state and national societies.

Let me particularize as to some of the things that I have seen in the infirmaries of our dental colleges:

1. In one college there were only two sterilizers in the operating-room and one in the extracting-room for the use of more than fifty students. It needs no extensive calculation to prove that this provision for sterilization was entirely inadequate, and as a result the majority of the students contented themselves with simply wiping their instruments on a towel, often a soiled one, before passing to the next patient, rather than wait for their turn at the sterilizers. Furthermore, I have seen nerve broaches that had been used in septic pulp-canals tossed back into the box without sterilization and used again on a patient without even being dipped in phenol (carbolic acid) or other sterilizing fluid. One towel was made to do duty for an entire clinical period lasting from two to three hours and sometimes for two to three patients. Demonstrators frequently passed from one patient to another, examining and criticizing the work of the students, but never thinking it necessary to even wash their hands before placing their fingers in the mouth of the next patient. But worst of all, I have seen a prominent teacher pass through his operating-room with a mouth-mirror in a waistcoat pocket, examining the work of his students and going from chair to chair without once washing his hands or cleansing the mouth-mirror. Verily we do need "a sense of asepsis" and in this case something more.

2. I have visited the offices of many dental practitioners in which there was no provision for sterilizing instruments, and the only cleansing that I saw these instruments receive was a simple washing in warm water. I have been invited to examine a case, and after carefully washing my hands and sterilizing them with alcohol, have been offered a soiled towel to dry them with.

An office may be fitted up in the most elaborate manner with enameled furniture, marble floors and wainscoting and zinc painted walls, but this will prove of no value if the more important matters of local and personal asepsis are neglected or ignored. The charge, often made by physicians, and doubtless true, that infectious diseases such as tonsillitis, diphtheria, tuberculosis and syphilis have been frequently transmitted from one patient to another by unclean and septic dental instruments is a shame and a reproach to modern dentistry, and shows the need of a "proper sense of asepsis."

3. I have witnessed at the public clinics given by various state societies and at the clinics of the National Dental Association the same disregard of aseptic methods as those already mentioned. In fact, the one thing most prominently and indelibly impressed on my mind at the last meeting of the National Association was the reckless disregard of asepsis in many of the clinics, both by the operator himself and those that he permitted to inspect the progressive steps of his operation and its completion. Twice in my professional life I have been a patient at the clinics of the National Dental Association, and I therefore speak with authority and much feeling when I say that I looked with fear and trembling at the dirty fingers thrust into my mouth by the interested spectators. But never more. Personally I have always declined to operate at one of these public clinics for the reason that the facilities for aseptic operations were so meager or absolutely wanting that I dared not risk the health or life of the patient, or my own reputation

In my work as an examiner of dental surgeons for appointment to the dental corps of the U. S. Army, I have found a lamentable lack of a proper sense of asepsis, and many young men have failed in their practical tests by reason of this fact.

I have always considered it my duty to draw the line very sharply on the question of a proper sense of asepsis, for the reason that great harm may result from uncleanly methods of operating. The remedy for such methods lies with the teachers in our dental schools and with the clinicians at our state and national associations. When teachers of prominence and clinicians of high standing in the profession are indifferent to, or ignorant of, the principles of asepsis, it cannot be expected that the students and young practitioners will be impressed with its value or see the necessity for such painstaking and elaborate preparations to prevent infection. The fact that infection does not always take place when aseptic methods are ignored is no assurance that it will not take place in any case. Resistance to disease is not equal in all individuals, and the virulence of infective organisms is not always the same. Untold suffering and many deaths have been the result of neglect and ignorance of a proper sense of asepsis.

Much of the trouble experienced by so many dentists in the treatment of septic conditions of the teeth and mouth is the result of an imperfect knowledge of the principles of asepsis and a worse than bad technic.

I know of a physician who left the chair of a dentist of high reputation because of his fear of infection on observing the unscientific technic practiced by the dentist. The public generally is also becoming educated along these lines, and many individuals will not expose themselves to such grave dangers from infection at the hands of a careless or ignorant dentist or surgeon.

Is it not time that this question of asepsis in all dental operations should be taken up in a serious manner and that its principles be taught and the technic practiced in the most careful and scientific manner?

There is no longer any excuse for lax methods in asepsis, and the sooner the profession awakes to the fact, the better it will be for the reputation of the profession and the health of the public. *Wanted: a sense of asepsis.*

2519½ Durant Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FLETCHER AND MARSHALL

DR. VIDA A. LATHAM, Chicago: These papers show again that we need our laboratories; that we need wise teachers; and also that we must be weak somewhere that it takes twelve or fifteen years before the medical profession, including dentistry, to discover Hunter's work on oral sepsis. The paper read by Dr. Hunter has been lying dormant until some factor brought it out. Was it the attack on American dentistry in regard to bad bridge-work which caused such a furor, or was it the fact that Americans did not like the idea that that came from this side? This paper that has been quoted from was a paper on diseases of the blood, inspired by a paper which Byron Bromwell wrote on anemia, in which he said that there was a peculiar condition of the blood in anemia that nobody seemed to grasp. Dr. Brown presented that subject to us and gave a number of lantern slides, and the question was put to us, what was it that caused this peculiar condition of the blood? That means that it comes very near our field of work, and is very far-reaching in its effects; that it is not only in the mouth, but in the abdominal viscera, the liver, the spleen, kidney, etc., proving that sepsis from streptococcus infection was all through every organ. Dr. Hunter wrote as far back as 1900 on acute kidney sepsis due to streptococcus infection. If you remember I made mention of this at the Portland meet-

ing, and the suggestions made by this Section were put into effect in the Indian jails and the percentage of dysentery was lessened more than 50 per cent. by oral hygiene. It would look to me as though we need postgraduate work in this line, as only a few of the journals have made any mention of this subject, and that only in three or four which are simply relishes of what we already know.

DR. A. J. FLANAGAN, Springfield, Mass.: Of course, some here present know that in the minds of fully 90 per cent. of the people in America, who are having dentistry done to-day, the great thought as they enter the dental office is this, that they are paying for a material, and that the fee that is to be collected is usually computed on account of something material which they have received. In medicine and surgery that does not enter into consideration. People think to-day, when they go to physician or surgeon, that they are to pay for the knowledge and the ability of the operator, and the dangerous condition of the operation, and many other things which we have not the time to mention. Now, if 90 per cent. of the people can be educated to understand that dentistry is a part of the healing art, the great problem of sepsis in the average dental practice will have been solved. It is an economic question because of the condition that exists in the minds of the people. Now, what are we to do about it? I would like to ask Dr. Fletcher, or any man here, if the tooth which has lost two-thirds of its hold in the jaw is the equal of one which has its three-thirds. In proportion as we lose a proportion of that hold in the jaw, in that proportion do we lose a certain usefulness of that tooth. If we take into consideration the stress and the fact that there is going to be decay of the tooth, and the liability of the tooth to disease and all that, we need to recognize the fact that the tooth can never be retained in the mouth without some method of increasing or bringing back the hold which has been lost. Has any man ever been able to recreate pericemental tissue? Many young men are led astray by the idea that we can recreate that two-thirds or half of the attachment of the pericemental tissue.

DR. M. L. RHEIN, New York: The hygienic preservation of the mouth with the septic foci left in the mouth is of course to us an absurdity, and yet a careful investigation of what 90 per cent. of the dentists of this country consider this sort of treatment will show just such a condition of affairs. I am a very earnest advocate of mouth cleanliness among the poorest classes of children. I believe that if dental dispensary service to poor children were confined to this one feature much more benefit would ultimately accrue than by the use of questionable methods of dental repair and construction. I have seen much harm perpetrated and damage done to the human body by makeshift or cheap constructive dental service; nothing has tended more to produce unhygienic conditions. Operative dentistry in its true sense is more or less of a luxury; it is impossible to make it a necessity. We can teach oral hygiene in its real and true sense; but when it comes to the repair of the ravages of dental disease, anything that falls short of what should be done should be criticized as malpractice. It is not a benefit; it is a curse. That is the true picture of dentistry as performed by the mass of dentists for the people who cannot afford to pay for dentistry properly performed. The excuse that these dentists give for that kind of malpractice is that it is impossible for them to provide the proper kind of dentistry and earn a livelihood. My point has always been in this matter that the people who cannot afford to pay for the preservation of the tooth so that it shall be preserved in an aseptic condition from further possible infection hereafter, would be far better off if they never had anything done to that individual tooth. It remains for a Section like this to establish some form of education that will bring the practice of stomatology out of such a condition. The one way is to make the general medical man understand what aseptic dentistry means and to be able to distinguish the difference between aseptic dentistry and septic dentistry. When the physician understands that that dentistry is taking away years of the life of that patient by the septic methods of work pursued, he is going to protest against that thing just the same as he would protest against some form of maltreatment of the patient's ears or eyes, or any other part of the body.

DR. E. S. TALBOT, Chicago: The first part of Dr. Fletcher's paper is rather labored. Dividing up the different degrees of the disease does not appeal to me as being a point well taken. If we understood more clearly the nature of the structures under discussion we would be better able to grasp the pathology and be much more clear I think in the aggregate. If we understood that the alveolar process is a transitory structure; that it is simply there for the purpose of holding the teeth in place, and when disease attacks the alveolar process, or a tooth is extracted, it is natural for that process to be destroyed, then we would more readily understand the nature of the disease that attacks the gum margin. Again, the alveolar process is an end-organ, and end-organs are more easily involved in disease than any other structure of the human body. So that having an exceedingly sensitive structure, a double transitory structure and an end-organ, when disease once attacks the gum margin it becomes chronic and the tissue is very rarely restored to health. In lower vertebrates we have continuous sets of teeth; they come and go throughout the life of the individual, and as we ascend in the scale up to man, and some of the lower vertebrates, we have only two sets of teeth, and all of the vertebrates that have only two sets of teeth have what I call interstitial gingivitis. Animals in captivity, cows and horses, if fed on food that is not natural, or animals put in cages and forced to live unnatural lives, have this disease, because the teeth are only intended for a short period of time. The first teeth come into place and are lost, the second come into place to remain only a short time. As soon as man or animal get their growth, the alveolar process begins to absorb away to shed the teeth. It is an atavism, and so this inflammation is not easy to treat. If the individual has any disease, if his system is out of order, if his blood is in poor condition, and he has a local irritation about the teeth, that irritation affects these transitory structures and end-organs, and as the result sooner or later they lose their function and the teeth drop out. In 1886 I read a paper, (I think in the *Cosmos*), making the statement that dentistry was producing more disease of the gums than any other one thing, and I have worked on that line for forty years. The principle of saving teeth is wrong. Every time we put the rubber dam or a clamp on a tooth, or wedge the teeth apart for the purpose of filling, or injure the gum margin with an instrument, we set up an irritation that eventually, whenever the system is out of order, that is to say, when the blood is not perfectly pure, will affect the alveolar process. If we cannot treat a tooth and save it without irritating the alveolar process and the gum margin, it is much better to remove that tooth; it is a quicker way of getting rid of it and the patient would have a healthier mouth, then he could possibly have under our present methods of operation.

DR. W. C. FISHER, New York: The appurtenances provided at most dental meetings for giving clinics certainly are deplorable, and everything that Dr. Marshall has said is true in more than nine out of ten state and national meetings. I agree most decidedly with Dr. Talbot that many of these cases are extremely difficult to treat. I frequently have skiagraphs taken of the patient almost immediately on presentation for treatment in order to learn if there is anything to prevent a cure, and if I am convinced that there is, I do not hesitate to remove the tooth. In referring to the character of bridge-work, and the unclean mouths that result from the character of work done by 90 per cent. of dentists to-day, I do not blame the dentist, but I blame the patient for going to the man who is doing the kind of dentistry that is done to-day in the dental school and in the public clinic. I am not inclined to think that 90 per cent. of American dentists have been so careless as they have been pictured. There are more than 10 per cent., I believe, who do good work and do not do patients harm.

DR. M. I. SCHAMBERG, New York: I would like to emphasize further the point brought out by Dr. Talbot in connection with the fact that the gingival border of the gum tissue might be properly styled an end-organ, and that that portion is more susceptible to disease during conditions of poor peripheral circulation than other parts. We might take as an analogy, the

drying up of a leaf, the manner in which it dries up on the edge as a rule more particularly than in the center and the manner in which the majority of fruit rots or decays at the point of a bruise. There is a tremendous amount of harm done through the bruising of the margin of the gum, whether it is done by improper brushing of the teeth, poor dental work, or the impaction of food in the interdental spaces. These are the exciting causes of pyorrhea. Dr. Flanagan's question, "Is there a man who can restore lost tissue?" must necessarily be answered in the negative. I have had several very severe cases during the past winter in which there appeared to be a gum flap lying over the tooth, with no tendency toward attachment at any point. I snipped that off with scissors, in some cases exposing the tooth almost down to the apex. It is astonishing in many of these cases the amount of firmness that is regained after the source of irritation and accumulation of filth has been removed. I believe that the tooth even though it be exposed for one-third the length of the root might be retained, as many temporary teeth are at times retained, and remain very firm with practically no root remaining, as is frequently noticed.

DR. H. S. HASLETT, Pittsburgh: The statement was made a moment ago that the fault of poor dentistry lies with the teaching in the colleges. The fault lies more with the following out of the teaching after the student gets into practice himself. We find in many instances that young men going into practice will neglect the most intricate part of their work, will forget technic, and take short cuts across lots in order to reach a conclusion rather than to go by the beaten path through which they were led during their college course. Not more than three weeks ago a young man who had been in practice for three years, brought a piece of bridge-work to me and asked me to criticize it, and he walked out of the office because I said he was never taught to make a bridge such as that, and that as soon as he could forget this kind of work, just so soon would he begin to progress in the profession and not until then. That was the case of a young man who had been in practice a short time. Last week a student just finishing his freshmen course came to me to ask if he had failed. I told him that he had; and he said, "I believe that dentistry is a big graft game, and I am sorry that I cannot go on." "If that is the way you feel," I said, "now is the best time to get out; we do not want you, if you feel that dentistry is a graft." What would you expect of that man if he went on? How would he prepare cavities, how would he fill teeth, how would he treat any conditions that he came in contact with, with that idea of graft before him? Now, we do not teach graft; we teach dentistry, and if they become grafters after that, it is not the fault of the college, but the fault of the student.

DR. M. H. FLETCHER, Cincinnati: In answer to Dr. Flanagan, I do not think that the physiologic repair of tissues can be measured by halves or quarters. One tissue may repair more than another, and I believe with Dr. Fisher, that when there is nothing left that will bring about repair, that teeth should be removed for the purpose of asepsis. Nevertheless, after careful study of the conditions, if I can distinguish any healthy tissue left in the socket of the tooth, it is worth an effort to try and save that tooth. I have seen many cases in which teeth have become useful regardless of stress. I can show any number of radiographs taken one, two or three years after the case had been in hand in which there has been repair. An artificial substitute of itself would be more or less a continual cause for sepsis. How many people who have removable pieces in their mouths keep them as clean as they should be? Now, it is up to us to know enough about the laws of physiology of repair and about pathology to be able to distinguish these conditions when we see them. If the doctor's degree does not give that knowledge what is the degree for? I object to Dr. Talbot's use of the term "end-organ." His condemnation of the alveolar process, saying that it is transitory, does not mean to me what it does to him, for in an animal which has progressively growing teeth, the alveolar process is continually reforming as long as that animal has that tooth, and as long as it lives. Why does that animal not

have this disease around the teeth? Look at the ruminants, there is a hard tissue developed around their teeth, which when wounded heals as the skin would heal. It heals because of the physiologic principle for the organism to repair itself. That is the law of repair and growth, and it cannot be changed no matter what we think or try to do. It is my endeavor to teach every patient and I tell them that they cannot be my patients if they do not want to learn this. What I undertake to do is to replace with the tooth-brush in the hands of the patient everything that creates healthy gums and healthy connective tissue around the necks of the teeth. I do not see any difference between the method of repair of the tissues around the alveolar process and that in any other part of the body. The cementum will repair itself to a certain degree. They have originally the same process of forming bone. As far as the transitory conditions are concerned I do not see any difference excepting in environment which brings about the necessity for the animal to shed the teeth. Take the pachyderms, the elephants; elephant's teeth are continually shedding—until the time of death, as far as I know—and the physiologic process of building bone around each tooth is a natural histologic process in consequence of the demand of the animal for the teeth. The alveolar process is found in all ruminants, and the process is perfectly normal as far as I see.

DISEASES OF THE FALLOPIAN TUBES *

H. J. BOLDT, M.D.

NEW YORK

The belief that all diseases or pathologic conditions of the fallopian tubes cause symptoms is fallacious. Pathologic changes in the tubes may be present for some time without giving rise to disturbing symptoms. It is important, therefore, to examine carefully, for the possible existence of pathologic conditions of the fallopian tubes, all women who consult us about diseases of the generative organs. This is particularly exemplified, for instance, in cases of catarrhal and interstitial salpingitis caused by gonorrheal infection, in which the tubal inflammation causes no marked symptoms and the physician is consulted only as to the cause of sterility. Should the physician, in such a case, make use of intra-uterine treatment, without realizing what the true condition is, a pelveoperitonitis is liable to result.

It is likewise fallacious to suppose, as many do, that women whose fallopian tubes are the seat of gonorrheal infection, particularly so if it be suppurative, are permanently sterile therefrom. So long as the inflammatory process has not caused an occlusion in a part of the tubal lumen, a cure of the inflammation is possible, and subsequent conception as well—this latter, however, only if the husband be entirely cured and if a restoration of the tubal mucosa to its normal condition take place. But, knowing of such possibility, we must be guarded, not only in our prognosis, but also in our therapeutic measures. We should not, in such cases, advise a surgical intervention which would prevent the possibility of a future impregnation, unless, after carefully weighing the subjective and objective symptoms, an intervention of such serious nature seems imperative.

We may lay at the door of gonorrheal salpingitis the cause of most tubal pregnancies. Any tubal inflammation which destroys the tubal epithelium to such an extent that the fertilized ovum is not conveyed to the uterine cavity will cause that mishap.

If we find the fallopian tubes objectively in a pathologic condition, and the patient complaining of dys-

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menorrhoea, of which she did not formerly complain, we may attribute that symptom to the inflamed adnexa. Inflammation of the adnexa, however, need not necessarily cause dysmenorrhoea. It should be borne in mind, though, that from the character of the dysmenorrhoea, the cause of it cannot be diagnosed with certainty.

Likewise, tubal inflammation may cause a change in the type of menstruation. The most common change in the type is menorrhagia, caused, however, not so much by the change in the tubes, as by the accompanying change in the ovaries, giving rise to an alteration in ovulation, which produces chronic hyperemia of the uterus. This explains not finding a thickened endometrium when one cures such patients for the relief of uterine bleeding. Sometimes, however, amenorrhoea may be the result of salpingitis. If the tubal disease does not cause pathologic changes in the ovaries, the menstrual type is not likely to be changed.

Pain, too, need not be a constant or necessary symptom of tubal inflammation, but if it be present, it is not a characteristic pain of any particular variety of tubal disease. In most instances, pain is caused by localized peritonitis. If the tubal sacs are exceptionally large, as occasionally occurs in pyo- and hydrosalpinges, pain may be caused by pressure of the sacosalpinx. Furthermore, adhesions of the tubes to the intestines may be a cause of pain whenever peristalsis of marked degree is present. It is likely that, in some instances, colicky pain, which sometimes occurs, may be explained by contractions of the tube-wall. Exacerbations of pain and of local peritonitis are apt to occur in some forms of tubal inflammation, particularly those caused by gonorrhoeal infection.

The cause of the exacerbation can usually be elicited, if one is careful in taking the history. About the time of the menstrual period exacerbations are more likely to occur should the patient expose herself to wet, to cold, to sexual excess, to undue physical exertion, and so forth. Sometimes such exacerbation may be accompanied by symptoms of such severity that an operation at that time may appear imperative. Such is, however, seldom the case. With proper treatment the patients usually recover within two weeks; generally after the lapse of a week they are able to be about again. Exacerbations are indeed practically the only pathognomonic sign of tubal inflammation, particularly of those of gonorrhoeal origin. This may be ascribed to the microorganisms in the tubal secretions in such cases. But that even very gross pathologic tubal lesions, of gonorrhoeal origin, too, may exist without causing marked symptoms, was again well illustrated to me a few days ago, in the case of a patient who had had symptoms for a number of years, and who had been advised to have herself operated on by every gynecologist whom she had consulted. For nearly a year she had been free from pain, and her only reason for now seeking advice was to know why she had not menstruated during the previous four months. The pelvis was filled with two large tubo-ovarian abscesses that had been diagnosed hitherto by others: the history of repeated attacks of gonorrhoea was distinct, as was also the recurrence of repeated attacks of pelveoperitonitis formerly; yet now only amenorrhoea was present as a symptom, accompanied by moderate leukorrhoea. It is very seldom, I admit, that we have absence of symptoms in the interstitial forms of salpingitis, particularly if, as is not infrequent, the infection has been transmitted to the

pelvic connective tissue, which may then cause more or less distortion of other structures within the pelvis.

Backache is a prominent symptom, usually accompanied by pain in the lower abdomen, most intense on the side corresponding to the tube most markedly affected.

It occasionally happens that a distended tube partly empties its contents into the uterus, if the uterine end is patent and if its position is not too low in the pelvis. Or the tube may become intimately adherent to the bladder or to the rectum, and a rupture may occur into either, and thus a part of the contents may be evacuated. I have never seen an instance of rupture externally, although this, too, has been reported by reliable observers. I recall one instance of spontaneous cure, but only one, from spontaneous rupture of the tube into the rectum.

Among other symptoms of salpingitis, neurasthenia is not a rare occurrence, brought about primarily by the undermined general health of the patient; and, perhaps, also by the dislike for sexual intercourse which often acts detrimentally on the general condition of such patients.

It may chance that a rupture of a distended fallopian tube takes place intraperitoneally. The symptoms resulting therefrom necessarily differ, according to the virulence of the tubal contents. The accident, if the contents be purulent, must always be considered as very serious — so serious that the abdomen should be opened and the necessary surgical work be done as soon as possible.

I believe that I was among the first, if not the first, to describe spontaneous rupture of pyosalpinges, and at the time I narrated the history of the cases seen by me. Since then a number of others have published similar experiences.

When one finds the symptoms of sudden collapse, with the knowledge that a pyosalpinx was probably previously present, then there is reason for an immediate surgical intervention, particularly should peritoneal symptoms be already present. The temperature may in these cases become quite high, especially if the rupture date back a day or more and the patient be nearing a fatal termination.

The exacerbations of gonorrhoeal pyosalpinges that are not infrequently found during the puerperium, associated with peritonitis, are so frequently mistaken for a true septic infection, for which the accoucheur is held responsible, that it is important to call attention to this condition. The symptoms are sometimes so grave that the patient's life may be endangered, but in the greater number of instances they subside after a few days, so that sometimes a *restitutio ad integrum* may take place.

DIAGNOSIS

From the foregoing it is obvious that, to establish a diagnosis of salpingitis, the fallopian tubes must be palpated. This can be done only by bimanual examination, and at times it will be necessary to resort to rectovagino-abdominal palpation under an anesthetic, and even to steady the uterus, and make traction on it with a tenaculum forceps, while palpating. Normal fallopian tubes, or those which are the seat of mild catarrhal inflammation, cannot readily be felt, if at all, unless the conditions for examination are favorable.

To make an accurate diagnosis it is necessary to distinguish the ovary from the tube, which one can do by appreciating the difference in consistency of the struc-

ture, when the two are closely attached to each other. But in addition to the palpatory findings, a history, taken carefully, is of the utmost value in coming to a conclusion, when a diagnosis is to be made.

The position of a fallopian tube which is the seat of inflammation, particularly of purulent inflammation, may be in various abnormal sites of the pelvis. For instance: I have seen the tube of one side elongated and distorted so that it was adherent to the tube of the opposite side. And, again, I have seen such tubo-ovarian abscess adherent to the fundus of the uterus, so that a uterine tumor was simulated.

In instances of tubal disease, in addition to securing a carefully elicited history and the objective pelvic findings, one should inspect the vulva, particularly about the urethra, and should carefully examine the small urethral ducts for evidence of the presence of chronic gonorrhea. Likewise the cervical secretion should be examined with the same object in view.

To make a diagnosis of tuberculous salpingitis, it is necessary to have other evidence of a like tuberculous condition than the mere presence of thickened tubes. If a tuberculous salpingitis has been present for some time, it is probable that other changes are discoverable which will aid one in making a correct diagnosis; the most positive of these is the finding of tuberculosis elsewhere, particularly if another infection can, with certainty, be excluded.

I do not believe it possible to make a positive diagnosis of tuberculous salpingitis in the early stages of the disease, when it is still limited to the deposit of small tubercles on the serosa of the tubes and when there is only a moderate thickening of the tubes. At least I, in such cases, have failed to make the diagnosis. I could, in three of these instances, only determine that there was an indurated condition of the tubes near to the uterus, resembling the salpingitis nodosa, first described by Schauta. The other part of the tubes, toward the abdominal end, seemed somewhat thickened.

To diagnose by palpation alone, whether a tube is distended by pus, serum or blood is not easy. I thought, some years ago, that I could distinguish by bimanual examination alone the difference between a hydrosalpinx and a pyosalpinx, but a few errors in succession taught me how erroneous was my belief. Even the examination of the blood, when the pus is confined to the interior of the tube, and the process is chronic, is not likely to aid us, because in such cases we are not likely to find leukocytosis.

The most reliable feature on which to make a diagnosis of pyosalpinx is the doughy sensation that a pyosalpinx imparts to the examining finger, rather than the elastic sensation that a hydrosalpinx gives. Furthermore, in patients with pyosalpinx, we are likely to have, at times, slight elevations of temperature, perhaps of one-half to one degree, particularly after a bimanual examination. This is not the case in hydrosalpinx patients. In addition to the two principal features mentioned, I may add that purulent tubes are more likely to be adherent than hydrosalpinges.

Hematosalpinx, not due to tubal gestation or to atresia of the genital tract, cannot, with even a moderate degree of certainty, be diagnosed, except by puncture with an exploratory needle, a method not necessary or desirable in such cases. A tubal gestation, if uninterrupted, may be best determined by recognition of the changes of pregnancy in the structures of the vulva,

vagina, uterus and the underlying connective tissue; and in case of no previous pregnancy, the breast-changes are important. But still, despite all carefulness, one may sometimes be in a quandary as to the diagnosis, as the two following examples, cases recently seen, so well illustrate:

CASE 1.—A. F. was referred to me by Dr. Max Einhorn. The patient has been married two and a half years, but has never been pregnant. Menstruation is regular, at intervals of four weeks. For four weeks there has been atypical bleeding, which, during the last week, has been accompanied by intermittent cramp-like pain, lasting about five minutes; then, after a few hours of freedom from pain, recurrence of a similar attack. The uterus, on examination, was found to be sharply retroflexed, a trifle relaxed in consistency and seemingly a little larger. The right tube was prolapsed but seemingly normal; the left tube I failed to palpate. No pain was felt on moving the vaginal part of the cervix. There were no breast symptoms. Immediately after examination the patient fainted; her pulse became absent at the wrist. As soon as she rallied from the collapse, she complained of very severe pain in the lower abdomen. The whole picture, although there were no objective symptoms further than the relaxed uterus, pointed so strongly to a ruptured tubal gestation that, as soon as the patient had sufficiently rallied and a cessation of the pain had been brought about by scopolamin and morphin, I sent her to the hospital with a view to operating on her for that condition, should a more definite objective symptom present itself, and also because of the uterine displacement. By the following morning she was again in good condition, the bleeding excepted. Most careful examination under anesthesia failed to show on palpation any evidence of an hematocele. Indeed, I failed even now to palpate the left tube. Such complete absence of objective symptoms was there that I did not consider it necessary to make the trivial culdesac puncture, but proceeded to curet, which procedure was practically negative, as was also substantiated by an examination of the scrapings in the laboratory.

The bleeding continued as before, likewise the intermittent pain, so that I felt conscience-stricken for not having entered the peritoneum; but then another bimanual examination, two days later, again failing to show objective signs, particularly no hematocele, and no tenderness on moving the portio vaginalis—a sign, very reliable, if taken in connection with other objective symptoms, as already frequently stated by me—I determined to let the patient alone. I do not believe it proper—rare instances excepted—to open a woman's abdomen merely on suspicion.

CASE 2.—The second patient, seen on the same day, said that she had been curetted nearly four weeks previously by her family physician, with the object of destroying the conception product, of which she believed herself possessed. She has had atypical bleeding since, and also pain now and then, in the lower abdomen. The pain was described as a "heavy pain" at no time cramp-like. The pelvic examination was negative; but in view of the symptoms I was suspicious, believing that probably a curetting had been done in the presence of a tubal gestation. Five days later the palpatory findings verified this suspicion. On the following morning the diagnosis was verified by operation. The tube ruptured during operation.

In instances in which a tubal gestation has begun to be interrupted—in which the conception product is dead—the diagnosis is not likely to be difficult, unless the symptoms are atypical. The history in such cases is of great importance. In cases of doubt, certainty as to the presence or absence of tubal gestation may be obtained by making an opening into the culdesac of Douglas, a minor procedure, free from all risk, if properly done. The presence of free blood always verifies the suspicion of tubal gestation.

PROGNOSIS

The prognosis, so far as life is concerned, except in cases of malignant disease, is generally good. This is even true of tuberculous salpingitis, if recognized sufficiently early to be treated properly. The restoration of the patient to health, that is, to a normal condition, from a pathologic point of view, depends on circumstances. I believe, for instance, that cases of gonorrheal salpingitis, particularly when the result of an acute infection, will in the majority of cases result in a complete recovery, if properly treated, and if care be taken that renewed infection does not occur. To comply with the latter demand it is necessary that the source of infection be avoided until all danger of reinfection from that source has passed. The man should be carefully examined by some one who is competent to make such examination.

When closure of the fimbriated extremities of the fallopian tubes has taken place and when, as the result of this, the tubes have become more distended, the prognosis of a cure from a pathologic point of view is out of question. It is in these cases, too, that recurrent attacks of pelvic peritonitis are quite common.

The acute gonorrheal tubal inflammations occurring during the puerperal state present an especially serious aspect, particularly as to the symptoms which are present. The prognosis in these cases, if peritonitis has developed, seems almost positively fatal; and yet, if one keeps one's head and employs proper treatment, nearly all such women recover.

One of the chief features to be observed in affecting cures is to see that abstinence from sexual intercourse is adhered to.

The prognosis as to sterility after a gonorrheal salpingitis has been acquired is not readily answered. Much depends on the treatment that had been instituted; whether the severity of the disease and also its duration had been shortened. If both questions can be answered in the affirmative, it is likely that the prognosis from that side may be considered as "favorable."

TREATMENT

The principal factor in the treatment of tubal inflammation is absolute abstinence from sexual relation; and to bring this about the avoidance of eroticism. To secure this, it is necessary to individualize, to consider the surroundings and the social position of the patient. It is an easy matter for a physician to say that these factors should be avoided, but unless definite directions are given, the orders will not be followed. I know of nothing more difficult than the observance of this, the most important part of the treatment. In some — indeed in many — circumstances it is a physical impossibility.

Knowing that by the avoidance of sexual emotions, physical rest and proper hygiene the greater number of women with a first attack of tubal inflammation can be cured, one should not be hasty in advising a surgical intervention, especially one that will unsex a woman.

In addition to the fundamental principles of treatment, the use of copious hot-water douches, boro-glycerid tampons — either plain, or in combination with ichthyol — vaginal boluses of fuller's earth, made into a proper mass with glycerin, are remedies that give good results.

In cases in which we fail to bring about a cure, even though it be only a symptomatic cure, we may consider a surgical intervention, particularly in chronic cases, and those with recurrent attacks of pelvic peritonitis. But, I again repeat, one must not come too hastily to a conclusion that a surgical intervention is imperative. Since

the prognosis, from surgical interventions, has become so good in ordinary surgical work, there is much needless operating. Before an operation is performed in such cases, it is best, in the interest of the patient, to get the advice of an experienced gynecologist, a man who has devoted a sufficient number of years to that branch of medicine, and has observed the effect of treatment and of operations, to enable him to speak authoritatively. No one, not so trained, and not having such experience, is competent to advise correctly in such cases.

In acute tubal inflammation, when we have distended tubal sacs and if the pyosalpinges are attached to the floor of the pelvis, it is best to incise them *per vaginam*, to place a strip of gauze in the opening made and to drain. If it be a single large tubal sac, as is usually the case when it is a first infection, a number — the greater number — of such patients may be cured, providing the other rules of treatment, previously mentioned, are carried out, and if no reinfection take place.

To get the best results from a vaginal section, it is necessary to make it large. I usually make the section through the vagina large enough to enable me to introduce my hand through the opening. An opening so large has the advantage that one can feel with precision the condition of the pelvic organs. Moreover, the necessary work can be done intelligently; and last, but not least, the dressings, subsequently necessary, can be made with less pain to the patient. I use for this purpose the pelvic abscess instruments devised by me a number of years ago.

Conservative operations, such as mentioned, are useless if the tubes are sacculated. This cannot, however, be determined until one has the fallopian tubes in direct contact.

In regard to abdominal operations, in purulent inflammation of the fallopian tubes, I prefer the longitudinal incision, although many surgeons of late use the transverse, usually called the "Pfannenstiel" incision. My preference is caused by the liability of the abdominal parietes to become contaminated with purulent secretion during enucleation of the salpinx, and, should the pus be not sterile, we may have suppuration of the abdominal walls, which, if it takes place in the case of a transverse incision, is much more tedious to overcome than in the old form of incision. Moreover, in the horizontal incision, the muscles and fascia can easily be protected with the peritoneum, and contamination of the peritoneum with pus is not such a serious matter. Full pelvic elevation in these cases is desirable, so that one may see, and not work by the sense of touch alone, as was universally done formerly.

Before deciding on an operation, one should weigh carefully every factor, since, as was mentioned in the beginning, tubal diseases do not always cause symptoms. Indeed, two patients with greatly distended pyosalpinges may, in the one instance, have no symptoms at all or symptoms so slight as not to annoy, and, in the other, have symptoms so serious as to make an operation imperative. And still another with objectively insignificant symptoms may be such a sufferer as seemingly to make an operation a necessity to relief. All physicians of extensive experience can undoubtedly verify this. An illustration not infrequently presented, showing how necessary it is to consider all phases, are patients with marked tubal inflammation — pyosalpinx — who seek advice only because of sterility.

Hence, while the objective symptoms are of the utmost importance, they should never, by themselves, form an

indication for a surgical intervention. The subjective symptoms are the ones that must, in nearly every instance, determine our course concerning an operation which has for its object the ablation of the whole, or a part of the adnexa. Here is the great distinction for an indication for local treatment. To again illustrate with a supposed case of sterility: A woman may have no other reason than sterility for consulting a physician, but a careful bimanual examination would show the presence of thickened fallopian tubes, which need not be at all sensitive on examination. An interview with the husband would reveal that he had had, before marriage, an attack of gonorrhea. Intra-uterine treatment, so-called "tinkering," in such cases, may be fraught with dire result. The same may be said of a curetting, an operation particularly frequently done by family physicians, for the cure of sterility. I have seen several patients die as the result of this supposedly "safe" operation. I have also a few times, as the consequence of such local treatment, seen the necessity arise, later, for the removal of the adnexa.

In connection with this, I wish again to call attention to the danger of ever using the curet, in instances of gonorrheal infection, if there is the slightest evidence of tubal affection.

Another point to which attention must be directed is the avoidance of radical operations during the stage of acute pelvic peritonitis caused by tubal inflammation. When proper care is given to such patients they usually recover from the peritonitis. Operations at such a period are fraught with much risk to life, the micro-organisms then being quite virulent.

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ABSTRACT OF DISCUSSION

DR. RUFUS P. HALL, Cincinnati: I assume that Dr. Boldt means that only in the minority of cases there are practically no symptoms indicating the presence of salpingitis. In my experience the presence of salpingitis with fixation of the tubes and uterus is discoverable by bimanual examination and close inquiry into the clinical history of the case. Put the patient on the witness stand, as it were, and there will be something in the history suggestive of the disease. I have had patients give a vague history and if we stopped at that we should not have much idea of the conditions. But take her history, make a smear and you find the big "G." The woman perhaps has had no babies. There may be a distinct history of latent gonorrhea from her husband within a few weeks after marriage which is the cause of her sterility. While it may be true that the woman with pus tubes from gonorrhea and in which conservative operation has been done is able to bear children, it is certainly rare. That is not the usual outcome as every surgeon in this work knows. I think with Dr. Boldt that it is our duty to conserve for the woman everything you can. An important question, however, in these cases is: What is conservative surgery? I do not think it is conservative surgery to save a tube in a woman who has had gonorrhea and at a later date be compelled to do another operation. My experience in these cases has been that a second operation is necessary in the gonorrheal cases if one leaves a tube, and not in the tuberculous. If you conserve tubes in gonorrheal infection you do not do conservative surgery. I believe that in all these women during menstrual life, if you must remove both tubes, you ought to save both ovaries if you can. If you cannot save one ovary, save a piece so that you do not cut off the menstrual life of the woman. If she menstruates she is functionally a woman in sex life, but she is sterile as before but is relieved of her abdominal pain, because you remove the diseased tubes.

The differential diagnosis between tuberculosis and gonorrheal salpingitis is a very important point. I do not believe

it is possible to make a strictly differential diagnosis in all of these cases. I believe, however, that in a large majority of the cases the doctor can say the condition is tuberculosis or gonorrhea with almost as much certainty as a man can tell a tumor is a fibroid or a cyst. It is worth while to take the time to know. In gonorrhea the smear almost always gives you a clue; you will have the temperature at 99. In tuberculosis you never have the temperature at normal in the forenoon. It is up every day above 99.5 in the afternoon and down in the morning just as regularly as the sun rises and the tide comes in.

THE ETIOLOGY AND TREATMENT OF SUPERFLUOUS HAIR *

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Women suffering from the overgrowth of hair on their faces have not received the same consideration from the profession accorded patients with nevi and other disfigurements of equal moment, and therefore these miserable ones are deflected to beauty doctors and various irregulars, almost invariably ignorant, incompetent and unscrupulous.

Subjects of this growth are notably sensitive and depressed. Many become embittered, melancholy and resentful, to the detriment of their mental and physical health. The disposition is often affected to such an extent that they lose their incentives; and in more than one instance have such patients asserted that death was preferable to the life of embarrassment they had to live, as they felt that they were objects of pity, ridicule and scorn. Few endure their disfigurement with philosophic resignation.

It is no doubt true that the treatment is difficult, tedious and relatively unprofitable to the operator. But if it can be done so as satisfactorily to remove what constitutes a bar to the happiness and health of the afflicted, it ought to be as much our duty as any other work. And there can be no defense for neglect of it—neglect, which seems commonly due to the fact that it is financially unprofitable—except in those instances in which the physician is occupied in other and equally important works, and really cannot find time for it. To those who are in the profession of medicine largely for what money they can make, this paper has no excuse. For those to whom the relief of distress and the conservation of human happiness appeals, it requires none.

It is possible to remove any growth of hair, permanently, without scarring and without pain worth considering. It takes ten times as long to remove ten hairs as it does to remove one. The number of hairs calling for removal means proportionate work. But it is as feasible to remove a thousand as to remove six.

The grateful appreciation of this class of patients stands out in contrast like an oasis in the desert of ingratitude which we encounter as our common experience.

At the time I had instruction in Vienna in Kaposi's clinic, Spiegler made a demonstration of the electrolysis of hair, and his class had an opportunity to participate in the work. It was crudely, painfully done and the scarring was so considerable as to leave doubt as to

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whether, in view of the resulting disfigurement, the remedy was not worse than the disease. It soon after became necessary for me to attempt relief for superfluous hair and the following technic has been worked out to my satisfaction and that of my clients.

The patient is placed in a comfortable chair, high enough to allow the operator to work without stooping. A good light is requisite, north exposure being best. The area involved is mopped with absolute alcohol. Dry skin is a very poor conductor and the absolute alcohol dehydrates the surface of the skin. The funnel-shaped orifice of the hair follicle is often filled with inspissated sebum and epithelial debris, which obstructs the entrance of the needle. The alcohol macerates this and facilitates the passage of the electrode. Absolute alcohol is to some extent germicidal and inhibits infection. It is also very efficient in obtunding sensation.

The needle is introduced without force, until it reaches the bottom of the follicle or meets resistance. Current is then passed until the follicle whitens or the bubbles serve to mark the site of the hair follicle. The hair is epilated and the needle returned through the vacated follicle, until it rests on the papilla. Enough electrolysis is then employed to destroy the papilla.

The alkaline caustics set free in the operation are not selective. If the effort is made to destroy the papilla when it is surrounded by the hair bulb, all tissue in the same radius from the needle must also be destroyed. If the hair is epilated and the needle placed directly on the papilla, obviously much less tissue need be cauterized.

If effort is made to force the needle in by the side of the hair, the crowding may cause a lesion of the sheath, and the needle, free in the corium, goes wide of the papilla; or the sheath may buckle, making it impossible for the needle to traverse it to the papilla.

Meanwhile, the application of absolute alcohol goes on. After an hour's work the patient's skin may show no resentment — neither redness nor swelling, but the reaction varies in different subjects and in the same subject at different times. Usually there are tiny marks of the treatment to be seen for a day or two, but they are ephemeral, and the face is left finally quite free from any mark or scar.

The needle is rounded on the end and preferably olive-pointed; the shaft, being smaller than the bulb point, has less area of contact and causes less electrolysis. The needle-holder is a modification of the one commonly sold by instrument-makers. In the two jaws are placed rivets with channeled heads which grasp the needle, allowing a pivotal motion, enabling the needle to be quickly set at any angle, conforming to the axis of the shaft of the hair. This enables the operator to rest his hand on the face of the patient, to keep the hand out of the field of vision and facilitates steadiness, accuracy and speed.

The positive pole is grasped by the patient's hand. If difficulty is experienced in returning the needle to the vacated follicle, the patient breaks connection until the needle is introduced, to avoid superficial electrolysis. The current is from $\frac{1}{4}$ to 1 milliampère. This calls for more time to accomplish the development of adequate alkalies than would a stronger current. But it is painless and the results are better. The ampèreage should be measured, not guessed. Frothing about the needle is not a safe guide, whether in salt solution or in the tissue.

For the source of electricity, the La Clanche type of cell (the carbon cylinder, ammonium chlorid type) provides the smoothest and most satisfactory current, and, although bulky, is cheap and durable.

There are periods when the skin shows irritable, urticaria-like resentment to electrolysis. When this is manifest, it is better to postpone treatment. The operator should not remove hairs closely grouped, all at one treatment. Nor should the remaining hairs be treated until all reaction from the previous electrolysis has passed.

Within practical bounds, the smaller the diameter of the shaft of the needle employed, the nicer the technic and the better the result.

The minimum of electrolysis adequate for the destruction of the papilla should be employed. It is better to risk one occasional return and be sure of no scarring than to exceed this and find later an indelible scar. The statement that scarring after this treatment is relative — that it always follows in some degree — is not in accord with my experience. Scarring is unnecessary in any degree. Nor is there any pain; during a long treatment patients have frequently fallen asleep. The thing most commonly irksome to the patient is the necessity of keeping quiet.

While electrolysis thus applied serves as a satisfactory cure for superfluous hair, it does not prevent its development. I have studied this anomaly with a view of correcting the tendency, and an experience with a large number of patients develops the following observations:

The majority of cases occur among women living *absque marito*. In two cases the development of hair began after interruption of the marital relation and disappeared on its resumption. One patient with considerable overgrowth of hair on lip and chin had the satisfaction of seeing herself rid of it within two years after marriage and the birth of her first child. Another, who had dysmenorrhea from an acute flexion of the uterus, had the overgrowth disappear when this was corrected and menstruation became normal.

Just as toxemias destroy hair on the top of the head, where hair ought to grow, so toxemias seem responsible for the overgrowth of hair on the face. Often we find a poor growth on the scalp, while the exuberance of hair on the face causes the bearer to seek relief. Indican is conspicuous in so many of these cases that the relationship must be accepted. With an improved metabolism the tendency to superfluous hair is modified or overcome. Seborrhoids are frequently associated with hypertrichosis.

In diabetes, while thinning of the hair on the scalp is commonly observed, it is not very unusual to see the growth increase on the face. In a case of malignant endocarditis, the growth of hair on the face was notably rapid and exuberant. No cases have been observed in which the subject was in the enjoyment of the full normal physiologic functions and free from toxic influence. Many times the patients have insisted that they were perfectly well and probably believed themselves so, but searching analysis has invariably found some departure along the lines here suggested.

Overworked spinster school-teachers furnish the largest quota of my cases. Manifestly it is not always possible to remove the cause of these tendencies to superfluous hair. But many are susceptible to varying degrees of relief, without resort to electrolysis.

Every case is entitled to careful analysis, and I am confident that, if the same zealous investigation of this class of patients were undertaken which the profession devotes to others, no more worthy of it, there would be fewer cases of superfluous hair requiring operation.

ABSTRACT OF DISCUSSION

DR. W. O. ROOP, Dayton, Ohio: I regard electrolysis as one of the most unsatisfactory procedures in the dermatologic armamentarium. My experience with the method has been very unsatisfactory. It is, of course, possible to remove hairs with the electric needle, but the patients expect that they will not recur, and in my experience a certain number of the hairs will always come back, and for that reason the treatment must be continuous. If the attempt is made to introduce a straight needle into the curved cavity, it will often perforate the hair follicle and the result will be unsatisfactory. I have tried to explain this to some of my patients, but, as a rule, the explanation does not prove satisfactory, and when the hair recurs such patients are apt to become "knockers." Instead of electrolysis, I prefer to treat these cases by persistent epilation. After this procedure the new growth of hair is often finer than before, and it is whitened and rendered less noticeable by the application of peroxid of hydrogen. Epilation can be done rapidly and, in my hands, at least, it has proved more satisfactory than electrolysis.

DR. M. L. RAVITCH, Louisville: One must be an artist to use the electric needle effectively; it is not necessary to be a scientific man to be well versed in its use. One point is not to prolong the sittings unduly; not to try to remove too many hairs at one sitting; fifteen or twenty are enough. The man who is sufficiently careful and artistic will be successful with this method of treatment.

DR. J. B. KESSLER, Iowa City: While electrolysis for the removal of superfluous hair is very tedious and often unsatisfactory work, I am told that a good operator can remove about 85 per cent. of the hairs by this method, although that is better than I have succeeded in doing. I confess that the method has its drawbacks. For instance, after the removal of the hairs about the chin, the lanugo hairs will become stronger under the stimulating effect of the electrolysis and we will have to remove those also. I have also seen a great deal of scarring produced by electrolysis, particularly on the upper lip, and it has been very noticeable. While the treatment is often unsatisfactory, still in some cases, particularly those of women with dark, disfiguring hair on the face, we cannot refuse to undertake it, even at the risk of being called "beauty doctors." I do not agree with Dr. Roop that the hairs are apt to grow in finer after epilation; my experience has been quite the contrary.

DR. GEORGE H. FOX, New York: The work requires a certain delicacy of touch which the majority of men do not possess. In my entire experience, I have found only one assistant who could do it in a satisfactory manner. Some years ago Dr. J. C. White of Boston made the statement that during the past ten or twenty years there had been no advance made in this operation, and the same remark holds good to-day. Various suggestions have been made from time to time to improve the technic, and I have given them a trial, only to find that the simplest and best method is the one to which the individual operator has become accustomed. I use a simple, flexible needle, after having tried various others without satisfaction. I prefer a very small needle, and the entire success of the procedure depends on introducing the needle into the follicle, just as a sound would be introduced into the urethra. This cannot always be done, but large, coarse hairs can be destroyed in 100 per cent. of the cases. It is the only method I know of for the eradication of superfluous hair. The use of absolute alcohol in connection with electrolysis, as outlined by Dr. Baum, strikes me as favorable theoretically, and I shall try it. As to the use of soothing ointments, I have found that a simple antiseptic application is all that is necessary. In some cases in which the hairs are on the lip, I think it is impossible to remove them without slight scarring; in other cases, large numbers of hairs can be removed with practically no scarring. I recall one case in which I removed 12,000 by actual count without any scarring.

DR. L. DUNCAN BULKLEY, New York: I have been using electrolysis in hirsuties for many years; indeed, before this treatment was suggested I described a new method of treat-

ing hirsuties in one of the earlier volumes of the *Archives of Dermatology*. This was the first suggestion of treating such individual hair by means of a three-cornered glover's needle in a proper handle. This was dipped in phenol (carbolic acid) and bored into the follicle, destroying it and the papilla, and I reported cases treated successfully in this way. The electric current was a later addition, and has, of course, supplanted the other. I wish to call attention to the advantage of a blunt point to the needle, rounded off, as Dr. Baum has recommended. With such a point, the needle is much less likely to enter the opening of the sebaceous glands or penetrate the sides of the follicle, and thus fail to reach the papilla. I am heartily in accord with what Dr. Baum said in regard to the constitutional elements connected with hypertrichosis, and I always give additional internal treatment. In this connection I would like to call attention to the fact that the growth of superfluous hairs is a common incident among insane women.

DR. WILLIAM B. TRIMBLE, New York: I have used alcohol for a number of years in connection with certain phases of dermatologic work, but not for the purpose of preventing scarring after electrolysis, as described by Dr. Baum. I have employed it simply for antiseptic purposes. I have never seen any noticeable scarring after the removal of hairs with the electric needle.

DR. JOSEPH ZEISLER, Chicago: I recall an article by Troxler which recommended the use of pumice stone for the removal of superfluous hair on the face, employing the stone as a polishing agent.

DR. WILLIAM S. GOTTHEIL, New York: I advised the use of pumice stone in one case, and the only result was a slight irritation of the skin.

DR. J. B. KESSLER, Iowa City: A few years ago I saw a young woman from whose face I removed about 1,200 hairs by electrolysis. She still had some on the cheeks which she treated with very fine emery paper.

DR. H. C. BAUM, Syracuse, N. Y.: I think the use of pumice stone in these cases is absolutely unjustifiable. While it rubs away the fine hairs, it eventually increases the growth of the hair. The equivalent of pumice stone has been used in uncivilized countries for many years instead of shaving. I think electrolysis is far superior to epilation in the treatment of hypertrichosis. By the free application of absolute alcohol, and a blunt-pointed needle, even the hairs on the lip, to which Dr. Fox referred, can be removed without scarring. Perhaps the use of a needle-holder steadies the hand and insures greater accuracy. The success of the method depends largely on the skill of the individual operator. In my own experience, not more than 2 per cent. of the hairs recur after electrolysis. I have frequently removed from sixty to seventy hairs in the course of an hour. I have never heard these patients complain of pain, and the best friends I have are among the women who have been easily and permanently relieved of this affliction.

CUTANEOUS REACTIONS *

ERNEST DWIGHT CHIPMAN, M.D.

SAN FRANCISCO

The greatest weakness in the science of dermatology to-day is the deficiency in the knowledge of causes. The greatest need of the practitioner is not, as is often supposed, the ability to attach a name to every lesion of the integument but to have some idea of the relationship between surface manifestations and what is taking place within the body. The function of the dermatologist is not to furnish short cuts to simulate the glow of health but to interpret correctly the significance of cutaneous lesions as applied to the organism in general.

An interesting sign of progress toward knowledge of causes is the tendency revealed by recent text-books to classify skin diseases on a basis of etiology. The classi-

* Read before the Cooper College Science Club, Feb. 5, 1912.

fication of skin diseases on a strict pathologic basis so commonly in use would at first glance seem to be of great service. One would say that by means of such grouping it is at once apparent what is the nature of the change in the skin—whether inflammation, hemorrhage, atrophy, hypertrophy or what not. But of what avail is the knowledge that a given process is an inflammation so long as with it there comes no light on the cure of the condition? True, we have definite principles in the treatment of inflammation and these we can apply; but let us not deceive ourselves into the notion that in allaying the inflammatory reaction we have treated the case successfully, for, unless we have searched deeper and acquired some idea of the ultimate cause with the purpose of preventing recurrences, we have not done our work well. It comes down then to what we have just said, that the highest function of dermatology is the interpretation of morbid cutaneous manifestations. And this brings us to our subject proper.

The term "cutaneous reaction" was first employed in its present sense by Brocq, to whose instruction and text-books I am indebted for much of the material in this paper. He divides all skin diseases into two main groups. The first consists of true clinical entities or diseases originating from some definite, constant cause, usually external, such as traumatism, poisons, microbic or parasitic invasion; the second group includes the so-called cutaneous reactions which are the outward manifestations of various morbid conditions originating within the individual. These may result from a variety of causes and may be of purely internal origin, though, by reason of individual predisposition, various outward influences, as slight traumatism, parasitic and microbic infections, etc., may suffice to cause a reaction which would be impossible in one not predisposed.

This difference may be well illustrated by scabies, which is typical of the first group. Let the *acarus* gain an entrance into the skin and, regardless of predisposition, heredity, sex or season—regardless of anything—there result certain lesions which are characteristic. There we have a true clinical entity. On the other hand consider the question of urticaria. Several children are bitten by fleas; one, apparently sensitized, reacts with an urticarial eruption while the others show no reaction at all.

Now, whatever may be the objections urged against this grouping of diseases it has this manifest merit. It indicates at the outset one class of cases in which the treatment may be direct and specific, requiring no careful internal diagnostic methods, as distinct from another group, which requires faithful attention to general diagnostic detail. It is in the successful treatment of this second group of cases that the real test of dermatology lies.

The consideration of this group of cutaneous reactions rests largely on personal characteristics. Witness, for example, the various effects of the administration of the iodid of potassium in seven different individuals. The first one tolerates it admirably; the second suffers from sore throat, coryza, swelling of eyelids, increased lacrimation and headache; the third develops an iodid acne; the fourth shows a marked purpura; the fifth reacts with anthrax-like acne; the sixth presents large red nodules; the seventh is stricken with successive bullous crops somewhat suggestive of severe forms of pemphigus.

Antipyrin reacts in almost as many ways, and further illustrations are not wanting to prove the diversity of results according to the individual.

Approaching the question from another point of view we may analyze the clinical histories of several patients affected with the same lesions of the skin. Let us again illustrate with urticaria. One has had an outbreak after having eaten shell-fish; a second, after strawberries; a third, after veal; a fourth has developed hives after having taken chloral; in a fifth it is a symptom of malaria; in a sixth it is associated with hydatid cysts; in a seventh there is a deficiency or excess of thyroid secretion, while in an eighth there is nothing more tangible than an undoubted neuropathic basis, or a sensitized state by reason of which an attack is determined on the slightest external irritation or the slightest emotional influences.

We may then, with Brocq, admit the following as general principles:

1. The same causes may provoke different reactions in different individuals, and

2. The same eruption may be provoked by the most diverse causes in predisposed subjects.

This doctrine of cutaneous reactions has also the great advantage of presenting lesions of the skin in their correct places, attaching to each its proper relative value and not making the commonplace error of elevating a mere symptom to the dignity of a disease. The true morbid entity has a fixed etiology, but not necessarily a constant symptomatology; e. g., syphilis has always a definite etiologic factor but presents most diverse symptoms. The cutaneous reaction, on the contrary, has no fixed etiology but presents constant objective signs.

The consideration of skin lesions as reactions from variable-internal causes involves a study of both inherited and acquired predisposition. The former has to do with racial and familial tendencies as well as the parents themselves; acquired predispositions are connected with such general influences as sex, occupation, environment, habits of life, including hygiene, the evolution of life with special reference to such phases as dentition, puberty, menstruation, pregnancy and the menopause; further, such affections as modify the general state of a patient and his morbid receptivity, e. g., anemia, neurasthenia, the so-called gouty diathesis, diabetes, organic disease, general infections, as tuberculosis and syphilis, as well as any intercurrent acute disease.

Then, as secondary to these diverse predisposing causes, comes the long list of exciting causes which act only in those already predisposed. These again may be of external or internal origin. Chief among the external factors is traumatism, but this is effected in countless ways through atmospheric influences, chemical agents, mechanical means, parasites, microorganisms, etc. The internal exciting causes are also numerous but for present purposes may be mentioned under such general heads as improper diet, defective elimination, disorders of the nervous system, the circulatory system and various organic affections.

This indicates only in outline the etiologic factors to be considered. With all their ramifications they present an enormous field to be traversed in order to settle definitely on the ultimate cause in a given case. Brocq includes provisionally under the general title of cutaneous reactions all those dermatoses arising from within the individual. He divides them etiologically into four main groups:

1. Affections in which disorders of the nervous system play a major part, e. g., dermatoneuroses and reflex dermatoses.

2. Affections apparently connected with troubles of nutrition in the tissues which may be intimately con-

nected with the foregoing, as various hypertrophies and anomalies of pigmentation, etc.

3. Affections apparently having to do with deviation of the normal type of the tissues and which correspond to many tumors of the skin.

4. Those remaining eruptions which Brocq calls cutaneous reactions *par excellence*—a group which has always resisted all efforts at satisfactory classification.

Now, these cutaneous reactions in the restricted sense are divisible into two classes according to whether or not pruritus is the chief symptom, or, more than that, whether or not itching is antecedent to the outbreak and contributes toward its production. Under the influence of some of the causes already enumerated an individual suffers from itching. There is no evident lesion. The subject scratches or rubs the field affected and, according to the individual predisposition, the skin shows a reaction. Sometimes, as in pruritus senilis, there is no visible lesion—at least not for a considerable time; then little by little there develops a certain degree of papillary hypertrophy and acanthosis. Sometimes, as in lichen simplex, the histologic changes of lichenification, hyperacanthosis and papillary hypertrophy develop with variable rapidity and intensity. Sometimes an edema of the papillary layer is developed with more or less cellular infiltration; the epidermis may remain sound or become edematous; inter- or intracellular vesicles may be formed and, according to the intensity of the process, may separate the epidermis either at the papillary layer or beneath the stratum corneum, forming deep or superficial vesicles. These changes in the epidermis are accompanied by variable changes in the corium, but cellular infiltration usually plays the leading part. According to the degree of infiltration and the character of the infiltrating cells various types may be distinguished. These histologic changes, in which congestion is the principal process, correspond to the lesions known as lichenification, urticaria, lichen urticatus, true vesicular eczema, dyshidrosis and bullous erythema multiforme.

These, then, are the pruriginous reactions. They form a closely connected group and demonstrate the fact that the skin reacts to outward influences as scratching, etc., in the same diverse ways as it does in response to internal influences, the illustration of which was furnished by citing the effects of iodid administration.

The second class of this restricted group of cutaneous reactions consists of those eruptions in the production of which the pruriginous element has apparently played no part, in which the itching when present is a symptom and purely consecutive. This group is less sharply defined than the preceding and the criteria for placing reactions in this class are the absence of any known organism, the absence of any other etiologic factor, such as lesions of the nervous system, troubles of development, etc., and the possibility that the lesions may alternate in the same subject with other cutaneous or visceral manifestations. It is furthermore possible, as Brocq indicates, that subsequent advance in etiologic knowledge will tend to deprive this group of its members one by one.

The histologic changes in the members of this group are much the same as in the previous group, viz., various stages of inflammation with dilated vessels, diapedesis, vesiculation, formation of bullæ, perivascular infiltration, acanthosis, hyperkeratosis, etc. These correspond to what are known clinically as simple erythema, herpes, pemphigus, pityriasis rosea and psoriasis with its allied eruptive forms.

We have, then, narrowed down to reasonably close limits in these two classes those eruptions of the skin whose etiology is so little known or so variable as to make of them a class apart, clearly separated from the true clinical entities about whose causes we are certain.

To one who is familiar with the usual dermatologic classifications and nomenclature this must appear simple, though to one who is not occupied with these matters the whole scheme may seem complicated. In actual practice the difficulties most likely to be encountered arise from the following facts which, however, apply to any other classification:

1. An eruption may be of mixed type because it develops on some antecedent abnormal condition of the skin, e. g., an eczema on a preexisting ichthyosis.

2. An eruption may be composite because two or more distinct reactions occur simultaneously in the same subject.

3. One eruption may be superimposed on another, e. g., a microbial dermatosis may be added to a parasitic infection or *vice versa*.

4. Artificial eruptions of external origin may complicate cutaneous reaction or microbial infections, or even both at once.

5. A cutaneous reaction may be complicated by a microbial infection or *vice versa*.

This coexistence of dermatoses is a matter of everyday experience. Fordyce, speaking on this point in a recent article, refers to the large number of cases usually diagnosed as eczema which have been secondary to some antecedent lesion or disease of the skin, such as scabies, infected wounds, abscesses, furuncles, intertrigos, sinuses left after operations on bones, etc., and agrees with Engman in the use of the term infectious eczematoid dermatitis. That is the equivalent, according to this doctrine, of recognizing the coexistence of a definite microbial infection and a cutaneous reaction. The very common observation of urticarial wheals in subjects of scabies is an evidence of a cutaneous reaction complicating a true entity due to parasitic invasion.

These reactions assuming different forms in accordance with the special susceptibilities in given cases are spoken of by some writers, especially of the French school, under names derived from the dermatoses which they most closely resemble. Instances of this are the terms "lichenification" and "eczematization."

From what has been said it is apparent that not only the relationship which these reactions of the skin bear toward other cutaneous lesions must be borne in mind but also their relationships with visceral conditions. This is strikingly illustrated at times in the balance between a nephritis and an eczematous reaction. So long as a certain amount of serous effusion finds an outlet through the oozing from the skin the kidneys struggle along tolerably. The sudden crusting of the surface or its sudden contraction by astringent applications is often coincident with exacerbations in the inflamed kidneys. Further illustration is afforded by observing the alternation of an urticarial reaction of the skin with an asthmatic crisis. The same apparent interchangeability is often witnessed between gouty conditions and various reactions of the skin.

Now, the object of all this is not to quibble over mere terms. It is not that we would do away with such time-honored names as "lichen," "eczema" or "hives." It is rather to call attention to a broader conception of dermatology which leads us from the false sense of strength with which the mere possession of a name

beguiles us into that safer attitude which impels us toward the search for the ultimate cause.

Recent work along the lines of internal secretion, the question of anaphylaxis from food or bacterial proteins, studies in general metabolism, all offer attractive fields to workers in dermatology. This work, however, as Fordyce aptly remarks, must be in active cooperation with the experimental pathologist, the histopathologist and the chemist.

240 Stockton Street.

THE CARE OF THE MOUTH OF THE SICK *

WILLIAM CUMMINGS FISHER, D.D.S.

NEW YORK

That the mouth of the sick does not receive the attention that it should is, I think, a fact sufficiently well established not to need further proof submitted at this time. Any one of you stomatologists can, I am sure, cite case after case from your own private practices, in which your patients have presented themselves to your observation, after a prolonged illness, their teeth showing signs of rapid decay due to a period of the neglect of mouth hygiene.

I am sure that much evidence of the general neglect of the mouth of the helplessly ill has come to the notice of the dental surgeons attached to hospitals and especially those larger institutions with public or general wards. Any adverse criticism, therefore, that I may make of this condition must be assumed by the members of the dental profession as well as the medical.

That some feeble effort is made at times, in some cases, toward the maintenance of a clean and hygienic condition of the oral cavity, any one is willing to admit; but a feeble effort — and in a few cases — is admission that hygienic condition of the mouth is essential. Then are we all the more remiss in our duty toward the helpless sick and invalid, if we do not perform this duty fully.

Would a nurse for one moment shirk her duty regarding the administration of medicaments? Would she fail to bathe her fever patient? Would she neglect the stool? Emphatically, no. Then why has she not been more carefully instructed in the care of the mouth and the cleaning, by use of brush and mop, of the teeth; and being carefully instructed, why has not the physician seen to it that this work was as carefully done as any other? The condition of a patient's mouth should be the meter by which is registered the ability of a nurse.

You may say the facilities in our large hospitals are not adequate and that the nurse already has much to do. Both objections — and I have heard them both many times — should be dismissed with the answer that proper facilities should be provided.

Regarding the facilities, they are very good already in most well-equipped hospitals. A tongue-scraper made of ivory or steel, which could be sterilized, together with a cotton swab, could do in such severe illness where the vigorous use of a brush would be ill-advised.

But it should be emphasized that nothing can better take the place of the thorough brushing of the teeth and the massaging effects which this has on the tissues. For it is during prolonged illness, when the patient is unable to use the teeth in mastication of hard substances, that offensive masses of mucus form on the gingival borders

of the teeth, encouraging the deposition of other salivary deposits and thus set up a highly inflammatory condition of the mucous membrane, which, while the patient is in a debilitated condition, has lost its tone and is susceptible to any irritation.

In addition to the usual brushing or swabbing of the teeth, it is very essential for the hygiene of the mouth and the general comfort of the patient that the mouth and throat be sprayed with a pleasant and efficient wash or mouth-bath. To get the best results, it is essential that the spray be driven by a greater force than can be obtained by any ordinary hand atomizer. By the use of compressed air of between 10 to 12 pounds pressure, the medicament can be driven into every little fold of mucous membrane and between the interdental spaces. To obtain the bed-side use of compressed air for this purpose, I have suggested mounting on a rubber-tired wheeled platform a 2-foot air tank and automobile pump, with a 6- or 8-foot hose attachment for spray bottles.

This tank can be filled by some attendant, while the whole apparatus is in another room or hall, if there be any objections to the sound of pumping. Enough air can be stored by sixty seconds' pumping to spray the mouth of ten to fifteen patients. I have one which I used before I installed a motor power pump, which the children used to delight in pumping. I state this simply to show with what ease it can be operated and that it would be no hardship on any nurse. The platform, tank and all, could be rolled from bed to bed and thus facilitate greatly this question of mouth hygiene in the large wards.

Now, an additional word regarding the care of children's teeth — and this will also apply in many adult cases. You will find sick children, who, although not dangerously ill and weak, will resent very often any marked attempt at mouth hygiene and especially the brushing of teeth. In such cases, I offer a bribe in the form of chewing gum, for a half hour a day, if they will have their teeth brushed just a little. In that way, I gain two things: the child permits *some* brushing of the teeth and by this together with the cleansing action of the gum-chewing, a rather clean set of teeth are obtained. In this manner, children can be brought through a long illness without the usual decay of their deciduous teeth, often preventing that most pitiable of conditions, namely, the aching or abscessing of teeth during convalescence. The gum, after use, is destroyed by burning, a new piece being used each time.

The direct and exciting cause of tooth-decay is the lodgment of particles of food between and on the teeth, and the fermentation of this food with the productions of bacteria and acids, which destroy tooth substances. The foods that undergo this fermentation are chiefly the carbohydrates, starches and sugars — just the character of food which a convalescent is likely to receive. This decomposition and fermentation begin very quickly, so that the nurse's attention to the mouth of the sick should be directed immediately after the patient has partaken of any food.

In the Department of Therapeutics about a year or so ago, *THE JOURNAL*, in speaking on mouth hygiene and its applications in the cases of the sick, advocated the use of hydrogen peroxid on swabs when ulcerations were noticed on mucous membranes. I desire to take exception to this for two reasons: First, it is very unpleasant to most patients and adds to the already unpleasant condition of the mouth; second, by its effervescence, it can readily cause an extension of the ulcera-

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

tion. These conditions, if they will not heal under an application of the usual solution of iodine, aconite and chloroform, should be treated with a caustic, touched with silver nitrate, and their growth and sensitiveness thus checked.

The use of hydrogen peroxid should be discouraged; for, if any pyrrheal pockets are present which contain pus, the effervescent action of hydrogen peroxid may cause a tearing of tissue and an extension of pocket. Slight ulcerations could be treated with a solution of boric acid and glycerin.

Where nasal obstructions cause the invalid to breathe constantly through the mouth, the dry condition which is found should be relieved by frequently moistening the mucous membranes with a solution of glycerin and water, to which a drop or two of oil of betula may be added. If patient is conscious, salivary stimulation may be obtained by use of ordinary ginger ale as a mouth-wash.

It is a question in my mind whether illness is not very often prolonged or convalescence greatly checked by an unhealthy condition of the oral cavity. I could relate several cases in my own practice in which the placing in a healthy state of the oral cavity hastened, if it did not altogether account for, convalescence. I would rather quote from another's practice a case published recently in one of our journals:

The dental surgeon was called in this case to do what was absolutely necessary to relieve the discomfort of a patient who had been confined to her bed for three months with intestinal infection. While placing two cement fillings, the operator noticed a congested condition of the mucous membrane and on pressure, pus was seen to exude from the gingival margins. To be brief, after three or four days of treatment and the use of a mouth-bath every half hour or so, this patient was able to leave her bed and take her meals with her family; her improvement from that time on was steady and rapid.

There is no doubt that such cases as these are not only helped, but cured by the institution of oral cleanliness. Is it then necessary for me to urge further the establishment of some degree of treatment and care of the oral cavity of the sick and invalid?

373 Fifth Avenue.

ABSTRACT OF DISCUSSION

DR. VIRGIL LOEB, St. Louis: I think the blame in regard to the care of the mouths of patients in hospitals may be laid on the staff of these hospitals, especially the private ones. In my own city there are very few hospitals which have stomatologists on their staff and just as few whose lectures to nurses include lectures on the care of the mouth.

DR. A. J. FLANAGAN, Springfield, Mass.: One great need that I have in mind is the question of the forceful use of a spray that has some pressure back of it. In the hospital at Springfield, with which I have been associated for some years, there is no compressed air apparatus, and in the cases that I have had charge of I have used the oxygen tank. Of course that is an expensive method of spraying the mouth but a very efficient one. Dr. Fisher has put forth an idea to-day which is original and most practical—the bicycle pump to get the proper pressure. We had a case in our hospital of three months' duration in which the expense of the oxygen used amounted to about \$30, but it happened to be the case of a patient with plenty of money, and we used plenty of oxygen. On the other hand, with patients from whom the hospitals do not receive a great deal of income, and some which are practically charitable patients, they are a little careful about using oxygen. If dentistry is a part of the

healing art why is it not possible for those who have a hand in the arrangement of these lectures to arrange to have at least one delivered to the nurses with regard to the care of the mouth in relation to health and disease. For years the hospitals at Springfield have had an annual lecture given by some dentist to the class of nurses on that subject. This is a practical point, and I think if we do not call the attention of the people interested in these things to it, and if we do not occasionally insist on it, we will accomplish very little.

DR. THOMAS L. GILMER, Chicago: It seems to me that the most important point to be considered is the teaching of the nurses in the hospitals, on account, not of the work in the hospitals but of the work with out-patients. In the hospital in Chicago, with which I have been connected for nearly twenty years, there has been a course of lectures to nurses, and they have been instructed in the care of the patients' mouths during illness. It is not necessary to have an expensive apparatus for the purpose of cleansing the mouth; that is impracticable in the case of out-patients. I recommend for patients' use, especially those who have fractures of jaw and are wearing appliances, a bulb syringe with numerous openings on the side of the point by which the solution of water or whatever is used may be forced in between the teeth. The teeth can be very thoroughly cleansed in that way. It does not, of course, give as much pressure, and does not perhaps dislodge the debris to the extent that we might with compressed air, but it answers the purpose and is more practical for out-patients. I think that cotton is a poor thing with which to cleanse the teeth. It may be all right for cleansing the mucous membrane, but it simply forces the particles of food between the teeth and into the interproximal spaces where it will do more harm than good. I do not see why any ordinary soft brush will not answer in these places and on the tongue instead of a scraper, because we do not get between the papillae with a scraper as we do with a soft brush. Every person should cleanse the tongue once a day, and certainly, a sick patient should have the tongue cleansed once a day.

DR. W. J. LEDERER, New York: The institution with which I am connected, the German Hospital of New York, has had for the past four or five years in the curriculum of the training-school for nurses a series of lectures on the care of the mouth and teeth. There is another side to the care of the patient—the surgical care. The patient who is to be operated on for some intestinal trouble is carefully prepared, the surgeon sterilizes himself, his assistants and the nurses, and the patient's skin is sterilized, and yet nothing is done to the mouth, as a rule. Imagine a patient on whom such an operation is performed, with whom every precaution is taken and who yet is permitted to swallow pus by the teaspoonful—and that is not a fanciful picture but one which is seen in every hospital almost daily. Unquestionably the mouths of surgical patients should be looked after, and I would suggest that the surgical patients can be divided into two classes, the one to be operated on in one or two days or a week, and the emergency patients. With the latter we cannot go through that careful routine of treatment of pyorrhea, etc., but we can remove the pus pockets. It should be made a rule, if possible, that the attention of the surgeon be called to the fact that the mouth should be cleared of pus pockets, abscessed teeth removed and in that way the danger of infection from the buccal surfaces will be reduced, because we do know that no patient will recover from anesthesia or any disease, as one who has a sterile mouth. That is a factor which has not received much attention and nothing much has been done in this direction. The care of the mouth of the medical patient is also a chapter which should be looked into carefully. It is an established fact that pneumonia is frequently the consequence of intestinal fermentation producing auto-intoxication, and that the buccal surfaces play an important part in that; therefore the sterilization of the mouth should become a factor in medical diseases.

DR. M. I. SCHAMBERG, New York: No hospital in the future will be thoroughly equipped without an outlet beside each bed from which can be furnished compressed air for cleansing the mouth. I see no reason why a simple plant such as is

necessary for the supply of compressed air should be any great hardship on any institution. They are equipped with many similar necessities, such as plants for the care of the linen. We may teach the nurses what should be done, but we must equip them with the means wherewith to perform their work. The hospitals are usually very generous in supplying thermometers and other necessities, and compressed air as a means of complete cleansing of the mouth is certainly a necessity. In regard to the work outside of the hospitals, done by the nurses among poor people, I venture to say if the manufacturers of these various tanks were encouraged to supply compressed air in small tanks as they supply oxygen and nitrous oxid, they could do so at a nominal cost, and this contingency could be met. I really think that compressed air is the only feasible way of cleansing the interspaces between the teeth, save by the successful manipulation of the dentist in his office. There is no reason why the private household, which equips its bath-room with needle sprays and other forms of conveniences, should not be equipped with some means of providing compressed air for the complete cleansing of the mouth, and I think it is merely a matter of education along these lines that is necessary to bring about this advanced step.

DR. M. L. RHEIN, New York: Hospital service varies greatly in different parts of the country. In the city of New York it seems to have been practically impossible to obtain stomatologic service in the hospitals. In New York City the medical staffs of the hospitals have been jealous of permitting any intrusion on that staff. They are willing to have stomatologists in the infirmary. That is not my conception of the field of our work in the hospital. Whatever instructions the nurses may receive in the training department of the German Hospital, the patients receive very little attention. I agree with Dr. Lederer's statement about the preparation of patients prior to surgical work, and I know a great many able surgeons in New York City who insist on that procedure, and in other parts of the country. I agree with the great value of compressed air for this purpose in preference to anything else, and I follow that in my own practice. I have had installed a number of compressed air outfits in private houses at little cost; a motor pump can be attached to any electrical outlet, and that gives compressed air instantaneously. I have had great satisfaction in the introduction of such an apparatus, which is a comparatively cheap apparatus, and in a hospital it can be moved from bedside to bedside and simply attached to any ordinary electric outlet and the compressed air is immediately at the disposal of the operator as readily as the electric light would be. There is an additional objection to the use of hydrogen peroxid for this purpose, and that is the escharotic action on tissues, and especially in the delicate condition in which these tissues are during the early periods of convalescence from some diseases, those especially of the exanthematous type. At that stage the mucous membrane is in a delicate condition and anything as powerful as hydrogen peroxid is detrimental to the comfort of the patient and the welfare of the mucosa.

DR. JOSEPH HEAD, Philadelphia: Everybody has said that the mouth should be cleansed, but I will venture to say that nobody has said how it should be cleansed. In the first place, if the average dentist in this room will look in the mouths of his own patients, he will find that with healthy patients it takes constant coaching for them to brush their teeth often. The wisdom teeth are not ordinarily brushed at all. The twelve-year molars are not properly brushed, and the six-year molars are brushed fairly well, and the rest of the mouth may or may not be according to the care that the patient takes. This is to a certain extent due to the carelessness of the patient and also to the carelessness of the dentist in teaching many methods of brushing the teeth that are ineffective. In the first place, dentists, in giving instructions in brushing, tell the patient to brush up and down. If anyone will take a brush and try it on a skull, he will find that in brushing up and down the bristles will pivot so much that there is practically no bristle movement at all. We must understand that the wisdom teeth decay not because they are different from any other teeth, not because the structure is any worse, but because they are never brushed. Since

dentists allow the ordinary patient to go with his mouth unbrushed, and can hardly get him to look after his mouth, I think it is hardly to be conceived that the mouth of the sick patient will get very much more attention. But, we will take it for granted, for the sake of argument, that the mouth is made sterile; that the floss silk is used to remove the debris from between the teeth, and then the mucous membrane brushed thoroughly with proper bristle friction, where the toothbrush does not pivot. And supposing then that we sterilize the mouth, I understand when etherization takes place the air goes through the fauces, and it strikes me that any sterilization of the mouth without the sterilization of the nasal cavity and the fauces would be of very little value. It seems to me that we can hardly by merely brushing the mouth and cleansing the mouth expect to protect the lungs of the patient during etherization without cleansing the nostrils and the fauces, any more than we could protect our feet from the mud, if we made a safe walk one-third of the way up to our porch and allowed the rest to be muddy.

DR. S. L. MCCORDY, Pittsburgh: Hydrogen peroxid is of no value in this particular field, or in surgery anywhere. In preparing the mouth for oral operations I always, the evening before the operation, have the patients cleanse their mouths with a brush, and then of course they get nothing in the mouth after midnight, and then when they awake in the morning and have their bath, the mouth is cleansed every half hour with normal salt solution. I rarely have any complications; indeed it is difficult under these circumstances to infect the mouth, and as Dr. Gilmer says, it is almost impossible to have an infection following an operation, and I rarely have any in mine.

DR. W. C. FISHER, New York: Regarding the case which Dr. Flanagan spoke of in which it cost \$30 to use oxygen, if it was necessary to expend that amount for an entire outfit it would be lost to many hospitals forever. It has always seemed strange to me, especially in recent years, when there has been such a cry for pure food, pure drugs, and we have had Congress legislate to protect the public and give them something pure, when a person is sick or debilitated they are allowed to introduce pure food and pure drugs through mouths in such a condition that these pure drugs and pure foods are in a filthy condition by the time they reach the intestines for absorption. I think the reason that people do not brush the molars is that there are very few brushes on the market which the public can buy which will reach these places, but brushes with short bristles at the end can be made which will give plenty of movement at the end of the bristle—frictional movement. So again it is the fault of the dentist and not the patient, in advising them as to the kind of brushes to use. Dr. Gilmer objects to the cotton swab. I did not mean that the teeth should be cleaned with the cotton swab. I said that at times, such as Dr. Rhein has referred to, when the mucous membrane is so tender that a brush cannot be used, the best thing in that case is the cotton swab. It seems to me that if every barber's chair to-day can be fitted with an outlet for compressed air—and they do not consider it a great expense—that at least every bedside in our hospitals can have a compressed air outlet. Some one suggested that it would be practical to have compressed air supplied as nitrous oxid is now supplied in cylinders. There are automobile concerns already supplying these for automobiles, and there is no reason why the dentist could not get these and attach the spray bottle to them. Dr. Rhein, I think, is right when he speaks of the New York hospitals. Four years ago I was asked to take a position as dentist in one of the largest hospitals in New York, and the members of the staff told me that my position would be such that I would be confined to constructive work on the teeth in the public ward; just purely dental treatment, that is, the insertion of fillings occasionally and the treatment of abscesses. I would not be allowed any scope whatever as a stomatologist, and would never be allowed to treat an antral case no matter if that was purely an infection from the teeth. No, that is the work of the rhinologist. When I understood what they wanted, I told them that what they were after was a constructor of teeth, or possibly a leecher or barber, and I refused the position.

DILATATION OF THE LARGE BOWEL *

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During the last ten years attention has been called by a number of surgeons and medical men to certain conditions involving the colon. In these reports some observers have emphasized one group of facts and symptoms and others have reported other phenomena, until finally it now seems possible to correlate the accumulated evidence, to reconcile apparently contradictory facts and to build up out of what, for a time, seemed a puzzle of fragmentary bits of clinical observation a clear and well-defined picture of a pathologic entity, with fairly well-known etiology, with a symptom-complex sufficiently definite to make its recognition possible and with a therapy based on a thorough understanding of the condition and on the results obtained in actual practice in a considerable number of cases. It is unfortunate that we have not a short descriptive term for this disease. I suggest that some one coin a new word which will convey the idea of chronic constipation with resulting colitis, dilatation and atony of the colon, and as a more advanced stage of the condition, pericolicitis with adhesions and obstructive symptoms, colic and ileus. On the whole, I think the best short description is the one given by Gerster, i. e., colitis and pericolicitis.

In reviewing the literature of this subject one will find the following important articles bearing on it:

1. Credé, in 1887, before the German Surgical Congress reported three cases in which he had found adhesions, as the cause of chronic colic, and operated to cure the colic and, also, as a prophylaxis against ileus.

2. Maydl, in 1889, reported a case of chronic colic cured by resection of the intestine.

3. In 1893, Lauenstein¹ made an important contribution on adhesions and bands in the abdomen as the cause of severe continued colic. He quoted the cases of Credé and Maydl referred to above and, also, reported ten cases of his own. Lauenstein made the condition of colic due to these adhesions separate from ileus due to the same causes, and pleaded for exploratory laparotomy and removal of such adhesions, if found in the doubtful cases, which heretofore had masqueraded under the terms of abdominal neuralgia, local hysteria and neurasthenia, hypochondriasis, liver-colic, pseudogall-stone colic, stomach cramps from unknown causes, etc.

4. In 1894, Riedel² presented the subject of adhesions resulting from inflammation in the abdominal cavity, and reported a number of cases that belong to the group under discussion.

5. In 1895, Dr. Erwin Payr³ discussed the subject of a peculiar form of chronic stenosis of the large intestine at the splenic flexure.

6. Our distinguished guest, Professor Rovsing, has so fully presented his views of a group of cases which border on this territory that it is unnecessary for me to add to them.

7. For several years, Arbuthnot Lane,⁵ of London, in a number of publications has discussed the subject of the surgical treatment of chronic constipation.

8. In 1906, Paul Klemm⁶ published a paper on "Chronic Appendicitis without any Acute Attacks." Many of these cases belong to this same group.

9. In 1908, Hans Haberer⁷ from the Eiselsberg clinic published articles on "Chronic Adhesive Appendicitis." These also present a phase of our topic.

10. In 1908, Wilms⁸ wrote a paper on the mobile cecum as the cause of many cases of so-called chronic appendicitis.

11. In 1909, Jabez Jackson⁹ published a paper on "Membranous Pericolicitis."

12. In 1909, Fischler¹⁰ published an article on "Typhlotomy (Dilatation) and Atony of the Cecum as an Independent Disease and Its Relation to Appendicitis."

13. In 1909, in Bruns' *Beiträge*, Klose wrote on "Clinical and Anatomic Consideration of Mobile Cecum."

14. In 1910, Stierlin¹¹ wrote from the Wilms' clinic on the mobile cecum as the cause of many cases of so-called chronic appendicitis and gave the results of the cecopexy.

15. In 1911, Gerster¹² wrote on "Chronic Colitis and Pericolicitis."

16. In 1912, A. Blake¹³ discussed the subject of "Voluminous Cecum" and suggested a reefing operation as a cure.

17. From the medical side, one of the best articles is by Bittorf¹⁴ from the Breslau clinic of Professor Strümpell on "Pericolicitis." Bittorf referred to the interesting fact that this condition was recognized by Virchow as early as 1853 and discussed in his work on the "Study of Abdominal Affections." He called attention to the occurrence of adhesive circumscribed peritonitis about the colon especially at the hepatic and splenic flexures, and the sigmoid, and expressed the view that they resulted from fecal stagnation.

I believe that all of these men are writing on different phases of the same subject. The different conceptions are well represented by the following examples:

1. Lane's chronic constipation with, as he believes, adhesions about the colon resulting from mechanical causes necessitating, he thinks, the removal of the colon or an anastomosis between the ileum and the sigmoid.

2. Wilms' mobile cecum, which he believes causes attacks simulating appendicitis and which he would cure by anchoring the too mobile cecum.

3. Jackson's membranous pericolicitis, which he believes produces colic and obstruction and which can be cured by the removal of the membrane and the freeing of the intestines.

4. Fischler's dilatation and atony of the cecum, which he thinks can be handled by proper diet, massage, exercise and management of the bowels.

5. Blake's voluminous cecum, which he suggests might be cured by reefing it to normal size.

6. Payr's peculiar form of chronic obstruction of the colon at the splenic flexure.

7. Klemm's chronic appendicitis without acute attacks.

8. Haberer's chronic adhesive appendicitis.

9. Gerster's colitis and pericolicitis, and many reports which find their way into the literature of chronic con-

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Lauenstein: Arch. f. klin. Surg. (Langenbeck's), 1893, xlv, 121.

2. Riedel: Arch. f. klin. Chir., 1894, xlvii, 153.

3. Payr: Arch. f. klin. Chir., lxxvii, 671.

5. Lane: Chronic Constipation; a Consideration of Its Surgical Treatment, Surg., Gynec. and Obst., New York, 1908, vi, 116.

6. Klemm: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1906, xvi, 549.

7. Haberer: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1908, xviii, 169.

8. Wilms: Deutsch. med. Wchnschr., No. 41.

9. Jackson: Surg., Gynec. and Obst., New York, 1909, ix, 278.

10. Fischler: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1909, xx, 663.

11. Stierlin: Deutsch. Ztschr. f. Chir., 1910, cvi, 407.

12. Gerster: Ann. Surg., September, 1911.

13. Blake: Ann. Surg., 1912, p. 767.

14. Bittorf: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1909, xx, 150.

stipation associated with auto-intoxication, hysteria, neuroses, etc.

The facts which must be analyzed in this multiform condition are the following:

1. Chronic constipation.
2. Dilatation and atony of the colon, especially of the cecum.
3. Enlargement and displacement and movability of the colon, especially of the cecum, both congenital and acquired.
4. Colitis from fecal stagnation.
5. Pericolitis with formation of adhesions and so-called membranes.
6. Obstructive symptoms due to these adhesions with resulting (a) colics and (b) ileus.

Before attempting to draw a picture of this symptom-complex, it is, I believe, necessary to point out and eliminate from this discussion two great mistakes which have been introduced. The first is Lane's conception of chronic constipation, its causes and results and surgical management, and the second is Wilms' mobile cecum as a cause of serious symptoms demanding surgical interference. Lane's teaching that chronic constipation alone frequently requires radical surgical treatment, such as the removal of the entire colon or an ileocolostomy, cannot be too severely condemned. We should always demand definite evidence of adhesions and obstructive symptoms in addition to mere constipation before resorting to dangerous operative measures. Lane's conception that the assumption by man of the erect position and the mechanical factors, such as the dragging of the loaded intestines on their mesenteries, are responsible for the adhesions which he finds about the colon is, I believe, wrong and should not be accepted. When the adhesions exist they are the result of a pericolitis. Lane has developed an admirable technic for the removal of the colon, but the trouble with his work and teaching is that he advocates and practices the removal of the colon for habitual constipation alone. We cannot accept these views. We must demand for such serious surgical operations absolute definite evidence of organic obstruction.

As to Wilms' mobile cecum, it will be interesting for you to read, if you have not done so, Wilms' original article and you will find that there is no further basis for mobile cecum than the fact that it occurred to Wilms as an idea which might explain the failures to cure some cases which he had operated on for chronic appendicitis. Many of the patients were neurotics (38 per cent.), and he noted that in some of the failures to cure the operation had been very easy technically, the appendix easily brought into view at the end of a very movable cecum and easily brought out of the wound. In thinking over the subject it occurred to him that the very movability of the cecum might be the cause of the symptoms, and he decided to anchor it in place and see the result. He then for a considerable series of cases with symptoms of chronic appendicitis, not only removed the appendix, but anchored the cecum, and reported most perfect cures just as our gynecologic brethren sometimes do after anchoring the uterus by some special method, or as our surgical colleagues do in reporting some special operation for movable kidney.

As a matter of fact, there is no reason to suppose that the mere movability of the cecum can of itself alone give rise to trouble any more than can a normal ileum or normal sigmoid, both of which are much more movable than the so-called mobile cecum. The trouble is

that here and there all over the world credulous surgeons and gynecologists have accepted without question Lane's views and Wilms' views, and are removing colons and stitching up supposed mobile cecums to the great detriment of their patients. Let us therefore in the beginning of this discussion wipe off the slate of legitimate surgical procedures Lane's operations for chronic constipation and Wilms' anchoring of a movable cecum. There remains, however, a real pathologic entity to discuss. The condition presents itself in two distinct forms, a minor and a major, or a medical and a surgical variety.

First, the medical variety, without obstructive symptoms, is the condition of chronic constipation with colitis and dilatation and atony of the cecum. These cases lack the severe symptoms of colic and ileus of the obstructive variety; they are seen by the dozen by the experienced practitioner, and are best handled by exercise, massage, proper diet, cathartics and enemas. These cases are simply the cases of inveterate constipation, usually in women, which as a rule are badly managed and often cured by exercise, abdominal massage and proper diet. In addition to the ordinary picture of constipation with occasional attacks of colitis our new authors have found that in many of these cases the cecum is dilated, filled with gas, gurgles under pressure, feels like an air cushion on palpation, does not empty itself readily, is atonic, dilated and displaced. The *x-ray* will normally show bismuth in the cecum six hours after it has been swallowed. As a rule the cecum empties itself of the bismuth within twenty-four hours.

An enormous amount of work—and some very excellent work—has been done lately showing the position and size of the colon and cecum by means of the bismuth intake and the *x-ray*. We have still, however, much to learn in this field, and many of the conclusions which have been drawn from such *x-ray* evidence are not warranted. For instance, we cannot say that, because in a given case the cecum does not empty itself in twenty-four hours but requires thirty-six hours to empty itself completely, the condition is pathologic and requires correction by surgical interference. Nor can one say that because a cecum seems larger and lies lower in the abdomen that it is dilated and displaced, and requires reefing and anchoring in position. The medical phase of this condition is the old picture of chronic constipation with the added facts of Fischler's dilatation and atony of the cecum. If, under a mistake of diagnosis, one of these cases should be explored through an abdominal incision and nothing found except a pouchy, low-lying cecum without at any place an obstruction due to bands and adhesions and no other discoverable cause, the operation should be made purely exploratory and the abdomen closed without any interference, unless it is to remove the appendix. The patient can then, after the exploratory operation which simply made a definite diagnosis, be cured by proper medical management.

The surgical type of this condition is a very different matter. Here we have the following sequence of events: constipation, colitis, pericolitis, adhesions, colics, obstruction. These are the cases reported by Crede and Lauenstein as chronic colic due to adhesions, by Payr as obstruction at the splenic flexure due to adhesions, by Jackson as membranous pericolitis, by Gerster as colitis and pericolitis. These are the cases in which radical surgical measures, such as removal of bands and membranes, anastomoses and resections, are not only warranted, but are demanded and are often curative. The

picture here is the same as in the medical type, plus a pericolicitis with the formation of bands and membranes which produce partial obstruction with colics, or more complete obstruction with colics and partial or even complete ileus. There are especially four locations at which these membranes and adhesions are found: (1) about the cecum and appendix; (2) at the hepatic flexure; (3) at the splenic flexure and (4) about the sigmoid. These cases of pericolicitis are not as a rule correctly diagnosed. The cases about the cecum and appendix are almost always thought to be appendix attacks unless the appendix, as often happens, has been removed at a previous operation, and then the correct diagnosis may suggest itself. The cases of adhesion at the hepatic flexure are often thought to be gall-bladder attacks. The adhesions at the splenic flexure which are more frequently reported than any other variety may be mistaken for stomach attacks, and the cases of obstruction about the sigmoid often closely simulate carcinoma with obstructive symptoms.

I think that with the light that has been thrown on the subject lately we shall in the future make correct diagnoses more often. I was very much impressed, in seeing a case of this kind recently with Gerster, with the fact that a thorough understanding of the subject made the diagnosis much easier. We saw a young woman who had had a previous attack of appendicitis and the appendix had been removed. She had what appeared like an appendix attack with almost complete ileus, very little temperature, pain, tenderness, a dilated cecum which at times stiffened in its efforts to empty itself. Before operating, Gerster drew a diagram on paper of what I would find, i. e., a fan-shaped mass of adhesions producing obstruction at the hepatic flexure with the cecum and ascending colon covered with a veil of adhesions, the so-called Jackson's membrane. On opening the abdominal cavity I found exactly what he had drawn, with the colon distal to the adhesions collapsed. After division of the adhesions, the collapsed colon ballooned up with gas. The woman's bowels moved and the obstruction was temporarily relieved. It is evidently a case, however, in which an anastomosis must be made later, as the obstructive symptoms returned.

These cases of pericolicitis are, I believe, not very uncommon. We must to-day know this fact and have a clear conception of the condition so that we can recognize it by its symptoms before operation, and by the gross findings met with at the operation. These cases of pericolicitis with obstruction are dealt with best (1) by dividing the adhesions and removing the so-called membranes; (2) by side-tracking the obstructed section by a colocolostomy, by a colosigmoidostomy, by an ileocolostomy, rarely by a resection of the colon or artificial anus. This whole subject is as yet too new to permit definite valuation of the various measures advocated. We might adopt tentatively the following scheme:

1. In the minor cases in which the adhesions are limited and it seems probable that we can obtain permanent relief in this way, simply divide the adhesion and protect by normal peritoneum the raw surfaces so as to prevent their reforming.

2. When the cecum and ascending colon are involved extensively, make a lateral anastomosis between the ileum and the transverse colon.

3. When the obstruction is at the splenic flexure, make an anastomosis between the transverse and descending colon or between the transverse colon and the sigmoid.

4. When the obstruction is in the sigmoid, usually make a resection of the sigmoid and union by lateral anastomosis. But an anchoring of the cecum because it is movable, or a resection of the entire colon for constipation, *never!*

In the name of modern, scientific surgery do not let us here in America repeat the mistakes in this new field that have been made so often in the past. Think of the thousands of women who have been operated on unnecessarily for retroposition of a normal uterus, because it was tilted a little further backward than seemed fashionable; think of the many unnecessary operations we have made for slightly movable kidney; think of the hundreds of gastro-enterostomies which have been made without any fair reason, without any pathologic findings and without any benefit to the patient. Let us in cultivating this new field demand, as we now do for a uterus fixation, for a kidney fixation, for a gastro-enterostomy, a definite, tangible, gross pathologic condition which clearly demands it before we submit our patient to serious surgical operations. Reject, then, such bogies as the mobile cecum and operations for anchoring it in place. Reject operations based on *x-ray* indications, because some bismuth lingered a little longer in the cecum than in the opinion of some *x-ray* operator it should. Reject the surgical treatment for chronic constipation without organic obstruction.

And in the place of this nonsense, let us recognize and investigate and cultivate with great care the large group of cases of pericolicitis which really do exist, which can be recognized by properly interpreting their symptoms, which are due to gross, pathologic conditions and which can be relieved by proper surgical measures.

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THE RESULTS OF OPERATIONS, ESPECIALLY ABDOMINAL, PERFORMED ON THE PRINCIPLE OF ANOCI- ASSOCIATION *

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It is the purpose of this paper to restate the principle of anoci-association as applied to surgical operations, to describe its application, and to present the results of operations by this method as compared with an equal number of operations performed by other methods.

My argument assumes that physical action and emotional activity are only expressions of motor stimulation; it assumes that there are in every active animal and in man stores of energy which when released are expressed in motion or emotion; that when these stores of energy are consumed fatigue or exhaustion is produced. The stored energy of the body may be discharged by physical injury of sensitive parts of the body, by emotional excitation or by physical exertion.

It is of highest importance to know that inhalation anesthesia does not prevent injury impulses from reaching the brain-cells and making them discharge their nervous energy, thus causing exhaustion or shock.

Under nitrous oxid anesthesia animals require approximately three times as much trauma to produce an equal amount of shock and equal physical changes in the brain-cells as under ether. What is the cause of these changes

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

in the brain-cells and the exhaustion following injury under inhalation anesthesia? Does inhalation anesthesia act on all parts of the brain alike? If inhalation anesthetics acted on all parts of the brain alike, then the function of all the brain-cells would be suspended—that is to say, the patient would be dead. Under inhalation anesthesia, therefore, a part—I may say the greater part—of the brain is awake—not only awake, but responds to injury just the same as if no anesthetic had been given—that is, the same as if the patient were entirely awake. What kind of response do these awake cells make to the physical injury of operation? They make an effort to escape from the injury; they are trying to get off the operating-table and escape from the surgeon.

The above statements are based on the following observations: During a surgical operation there is, in response to every incision, every pull of the retractors—*indeed to every physical contact*—a change in the pulse, the respiration and the blood-pressure. These changes are a part of a physical act—an effort to escape from the injury. This is further shown by the fact that, if the anesthesia is light and the operator is rough, the patient moves purposelessly on the operating-table; but if the anesthesia is still lighter, the patient makes a physical defense of self-protection just the same as if there were no anesthesia and as if he were not on an operating-table. It is this that leads to the exhaustion of the operation and the physical changes in the brain-cells. The entire so called subjective mind is unanesthetized, though held in bondage, and may be punished in the course of operation.

Let us take still another point of view: Suppose that instead of the usual inhalation anesthesia, we give our patients curare and artificial respiration by intratracheal insufflation. Such patients would be even more quiet than under ether or nitrous oxid; there would be absolute muscular relaxation and absolute death-like quiet during the operation; but while curare completely paralyzes the muscular system, it leaves the mind perfectly clear and the sense of pain normally keen. What would be the effect on a human being if a prolonged surgical operation were performed under curare? What would be the state of the nervous system of such a patient and what would he say to his surgeon when finally he emerged from the muscle-paralyzing influence of the curare and had regained the power of speech? This is precisely the predicament of the subjective mind in our every-day operation. It is as completely unprotected under ether as the brain under curare, and suffers just the same. It has been shown that animals first placed under ether, then subjected to trauma succumb to shock-producing trauma as readily as under curare and morphin.

With these facts we can now understand by what influence a strong robust patient who enters the operating-room in the full tide of health an hour later may emerge broken and beaten and shattered, requiring months, perhaps years, to recover fully. It is for the same reason that the same man, if run down by a railway train and mangled, is shattered and broken; or if he has passed through a horrible experience, such as having a cold pistol pressed against his forehead in the night by a highwayman, or if he has been a witness of a murder, or if he has been subjected to any of the nerve-shattering stimuli of life. These and all of these are motor stimuli and whether they impair or whether they break the nervous system they are, except for the memory, just the same as surgical operations under ether.

There is an interesting fact concerning the state of the patient just before the operation. If the patient is in grave

doubt as to whether or not he can survive the operation; if there is entire lack of confidence in the hospital or the surgeon, the patient has what in physiology is known as a low threshold to stimuli. And if he goes under the anesthetic in this state, the effect of any physical injury will be augmented and throughout the entire anesthesia the evidence of fear in the respiration and the pulse and in the way in which he reacts to the anesthetic is manifested. These patients take the operation very poorly. It is as if the patient went under the operation with his motor set at high speed and accordingly the energy of the body is consumed the more rapidly; hence, the greater the exhaustion or shock.

Can these injurious results be obviated? Yes, if worry and fear are excluded and if the field of operation is temporarily disconnected from the brain by the use of local anesthesia. Then no matter how severe, how extensive, or how prolonged the physical injury in the zone of operation thus blocked, no exhaustion follows and no brain-cell changes are seen.

In the body there have been implanted innumerable nerve receptors for the purpose of effecting an adaptation to environment; some of these receptors, such as those assisting in acquiring food, may be designated “*beneceptors*,” while other receptors, having as their function the protection against harmful or noxious contacts, are “*nociceptors*.” The nociceptors are not distributed over every part of the body equally, but are most numerous in those parts most frequently subjected to injury. Hence we find in the skin that the nociceptors are most numerous in those parts coming most in contact with the outer world, that is, the hands and feet; the back, being less exposed, has fewer nociceptors. In the deep, interior and protected parts there are few nociceptors.

In the brain, which through all time has been protected with a skull, no nociceptors at all are found. The brain has no pain sense; one may probe the brain of an awake patient at will without even his knowledge. It therefore happens that the effect of an operation in this or that portion of the body is dependent on the phylogenetic or ancestral exposure, hence on the number of nociceptors the part contains. Physical injury of any sensitive part, that is, any part having nociceptors, causes a discharge of nervous energy leading ultimately to exhaustion. This discharge of nervous energy is not prevented by inhalation anesthesia. This exhaustion is due to driving the motor mechanism. With equal facility may exhaustion be produced by perceptions through the special senses such as seeing or hearing danger. The human motor mechanism may be driven by a physical-contact stimulation of the nociceptors implanted within the body, or it may be driven by perceptions through the special senses. Whatever the cause may be, the stimulus is always through the awakening of associative memory; that is, all action is on the law of association through memory — phylogenetic association.

Harmful or noxious associations are called “*nocio-associations*.” If then an operation be so planned that all harmful or noxious associations are prevented, this state is designated “*anoci-association*,” that is to say, “*without noci-association*.” Practically applied it means that a surgical operation performed on this principle must be so conducted that there is excluded from the brain all noci-associations. This may be accomplished as follows: The surgeon must have so thoroughly prepared himself for his work and so controlled his surgical surroundings that he can truthfully say to his patient that his operation will be distinctly safer than his disease,

that the operation will be so conducted as to be devoid of either painful or dramatic incident, and that he will have no unpleasant experience to reflect on afterward. The patient should be given much personal consideration by the surgeon himself; if no contra-indication exists the patient should be given the benefit of a preliminary dose of morphin, or morphin and scopolamin; the management of a patient up to the point of anesthesia should be by only those nurses, orderlies and physicians who are humanitarian psychologists; the anesthetist should be even more of a psychologist, and preferably a woman, for somehow the world has an instinctive confidence in the ultimate good intentions of woman as compared with those of man. Who can say how much difference there is in the effect on a patient about to undergo a serious operation, between looking into the face of a virile young intern as compared with the faith-inspiring face of a Florence Nightingale? Anoci-association may further be promoted by the use of pleasant nitrous oxid instead of the irritating, suffocating ether, provided only that the anesthetist is an expert in this anesthetic. Then when under anesthesia, the brain may be entirely isolated from the field of operation by as careful and as complete infiltration into the latter of a solution of 1:400 novocain as if no general anesthesia had been given, and during the operation a special consideration of accuracy and gentleness should be observed. In this manner an operation, however extensive, may be performed without materially driving the motor mechanism—hence, without consuming nervous energy.

At the close of the operation, if the zone of operation is cut off for a considerable time from communication with the brain by an injection of quinin and urea hydrochlorid, after-pains and postoperative nerve-exhausting stimulation are avoided.

What does this accomplish? In abdominal operations under anoci-association and nitrous oxid there is complete relaxation. This relaxation is so marked that most operations require no abdominal pads and the closure of even upper-abdomen incisions becomes most simple. In no operation under anoci-association does one expect to find the pulse-rate at the close of the operation faster than when in bed the day before. This is strikingly illustrated in operations in Graves' disease, in which for the first time the pulse at the end of the operation is no faster than when the patient was in bed the day before. It almost wholly prevents gas-pains; there is but little nausea or vomiting. The patient is at once awake and in full possession of his senses. Unlike ether, there is no depression of the immune forces of the body; the patient, being strong, is able to take up his full share of the battle of convalescence. The care of the nurse is much simplified; the convalescence shortened; reoperation is not dreaded; there are fewer painful scars; the pulse, temperature and respiration show less postoperative changes, about 90 per cent. of the patients have no especially unpleasant memories of the day of their operation. The mortality rate, especially in abdominal operations, in my experience has been more than cut in two. Anoci-association takes from surgery most of its proverbial harshness, and on this principle we can now actually perform shockless operations.

Osborn Building.

ABSTRACT OF DISCUSSION

DR. JOSEPH C. BLOODGOOD, Baltimore: Many years ago Dr. Crile published his extensive laboratory experiments on the factors in shock and their cause and prevention. Later he continued to give us the results of his accumulating clinical

observations. We owe, therefore, Dr. Crile a debt of gratitude and I am sure that many of us have not familiarized ourselves with his published writings. This knowledge, therefore, is accessible to all of you, and I take this opportunity to emphasize that you should become familiar with the details of his technic. You will find this knowledge of great value in your daily operative work. The chief difficulty is that surgeons will not appreciate the difference in the ordinary case and in the ordinary operation. Its greatest value is in the handicapped patient. The experimental work and the clinical observations of Crile have led him to understand and appreciate the factors of shock, the psychical factors which begin the moment operation is suggested, the factor due to anesthesia, that due to hemorrhage, and that due to the trauma of the operation itself. It was his appreciation of these factors that led him to the development of his technic which has for its object the prevention of shock, or the reduction of the shock to the least degree.

To achieve this in the most effective way, the technic must be adopted for all cases and in every operation, no matter how trivial. If employed only for handicapped cases one will never master the perfection of technic. To attain this perfection and to appreciate the difference in the results, you must look on every individual who is to be subjected to surgical treatment as a handicapped one, and the details of the technic must begin from the moment that an operation is suggested. Nitrous-oxid-and-oxygen anesthesia, although in the majority of cases best for the patient, makes the work of the surgeon in many operations more difficult. The technic of blocking sensory impulses by infiltration with 1:400 novocain is difficult to master. I am confident from my own experience that with the knowledge that Crile has given us of the factors of shock and with the employment of his technic, our operative mortality will be reduced, postoperative complications will be lessened, and the period of disability shortened. Briefly, therefore, surgical operations will become distinctly less of an ordeal. Furthermore, these results will have a tendency to lengthen the life of the surgeon. Mortality, postoperative complications and discomforts are the chief wear and tear in the work of the modern surgeon. Hours spent in the most arduous labors in the atmosphere of such results are less fatiguing than minutes with the old results. Crile has demonstrated that the modern surgeon must be as much, or more, a physiologist, than an anatomist. The recognition, prevention and treatment of shock is one of the most, if not the most, important problem in surgery to-day.

DR. JAMES H. FORD, Indianapolis: I represent a different class of surgeons from the one that these men do. I am the surgical head of an organization which employs from 40,000 to 50,000 men in extra hazardous work. These men are injured frequently, and the shock from the injury is of sufficient magnitude to cause the surgeon considerable worry, to say nothing of its effect on the outcome of the case. Pain is the realization of irritation. If at the instance of the trauma the afferent impulses to the nerve could be obliterated, there would not be any shock perceptible. We cannot carry out in our service the technic outlined by Dr. Crile, but we can come very close to doing so and we carry it out as far as we can. We instruct all of our medical men that the moment the trauma is inflicted they should administer to the patient some narcotic. No matter what they may have on hand, morphin or anything else, the nerves should be blocked so that shock impulses may not travel over them. We have to do our surgery on the ground, or on the tile floor, at best, and we have learned by much observation and personal experience with severe cases of crushing injury that this procedure of blocking the nerve-paths by means of a narcotic plays a very considerable rôle in effecting a speedy recovery of the patient. That brings us back to the aphorism of the old surgeons, who said that opium was the sheet-anchor of surgery. It blocks the nerve-paths so that shock impulses cannot reach the brain and the element of fear is also removed.

DR. G. W. CRILE, Cleveland: Dr. Bloodgood has written more in detail and much more practically than I have attempted to do. I have received much inspiration from what he said.

DILATATION OF THE DUODENUM IN RELATION TO SURGERY OF THE STOMACH AND COLON *

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This presentation is but a preliminary report, because at the present time the material is sufficient only for a short presentation.

In my experience dilatation of the duodenum may be divided into the following three groups:

1. Dilatation associated with acute dilatation of the stomach—gastromesenteric ileus. This condition is often met with during the acute stage of, or in the convalescence from, a number of grave conditions, chiefly infections such as typhoid fever, pneumonia, acute inflammatory rheumatism. It is also a very common postoperative complication. The best treatment in this group is with the stomach-tube, but under certain conditions operative relief may become imperative. (On this form of dilatation of the duodenum much has been published.¹ I have nothing new to add here, except in regard to operative relief.

2. Chronic dilatation of the duodenum. In my first report² I think I was one of the first to call attention to chronic gastromesenteric ileus. At that time I suggested the possibility of an anastomosis between the duodenum and jejunum. Since then Stavely has reported a successful case,

Since January, 1911, in an experience with twenty cases of resection of the colon I have observed in five instances great dilatation of the duodenum. The constriction at the root of the mesentery is due to a pull on the mesentery by the dilated cecum displaced into the pelvis. This cecum cannot produce such tension on the mesentery of the small intestine unless the last portion of the ileum near the cecum has an unusually short mesentery. I shall dwell on this point later. Clinically, in these patients gastric symptoms predominate, with vomiting and gastric residuum containing bile and duodenal contents. The duodenal dilatation and its cause were demonstrated without question. These patients have been relieved after the resection of the right half of the colon. Up to this time I was unfamiliar with this possible explanation of the cause of chronic dilatation of the duodenum and have not found it mentioned in the literature. Undoubtedly others have observed the same conditions, and if a later search of the literature brings this out, it can be used as confirming evidence. As these patients also suffer from constipation, it is my opinion that resection of the colon will relieve their symptoms better than anastomosis between duodenum and jejunum.

3. Dilatation of the duodenum after resection of the stomach, with gastro-enterostomy of some kind. In these cases the gastric end of the duodenum, of course, is closed. If any obstruction takes place at the gastro-enterostomy preventing the contents of the duodenum entering the stomach or passing on into the jejunum, the patient will exhibit symptoms of shock or toxemia with tachycardia and anuria, and die within a few days. I have observed but two cases, but I am inclined to the opinion that some of the deaths reported in the literature as of postoperative shock, or anuria, or dilatation of the

stomach were really due to dilatation of the duodenum closed at both ends. Draper Maury was one of the first to call attention to this physiologic death after his experimental work on animals.

In the first two conditions there is complete or temporary relief from washing out the stomach, because the duodenum closed completely or incompletely at its jejunal end still can empty into the stomach, and this material can be washed out with the stomach-tube. In the third type, however, gastric lavage will not have any effect whatever. This condition must be prevented, if possible, in the technic of the gastrectomy; in those cases in which prevention is unsuccessful, the condition, if recognized early enough, may be relieved by temporary drainage of the duodenum.

I shall attempt to illustrate these three types of duodenal dilatation by cases which have been under my own observation, and describe a little more in detail the essential features which are of practical importance in diagnosis and treatment.

GROUP I. DILATATION OF THE DUODENUM WITH ACUTE DILATATION OF THE STOMACH

In my only observation in which this lesion was not postoperative the dilatation of the duodenum extended to the mesenteric vessels.³ The dilatation in this case occurred during the convalescence from acute inflammatory rheumatism. I saw the patient three and one-half days after the onset of vomiting. The stomach-tube had not been employed. Gastric lavage at that time brought away more than a liter of dark brown fluid. This color is characteristic of duodenal contents. I was able to inspect the pathology of the lesion both at operation and autopsy. To-day, with my increasing experience, I would attempt to relieve this patient by repeated employment of the stomach-tube and would not subject the patient to operation so quickly. In the literature numerous cases of this type are reported. If gastric lavage is employed repeatedly from the onset of the first symptom, recovery usually takes place.

Postoperative dilatation of the stomach is a much more common occurrence. In the majority of cases the fluid removed by lavage is brownish in color and contains bile, demonstrating that the pylorus is patent, that the duodenal contents pass into the stomach and that the obstruction is lower than the pylorus. I have seen but one autopsy on a patient dead of postoperative acute dilatation of the stomach. This case has been previously reported.⁴ Here also the obstruction was at the root of the mesentery between the duodenum and jejunum.

In my experience most cases of dilatation of the stomach following operation are relieved by gastric lavage. This treatment must begin early and be repeated at frequent intervals until the stomach remains empty and the castor oil given through the stomach-tube passes and moves the bowels. In the diagnosis and treatment of this postoperative dilatation of the stomach one should not wait for symptoms, like vomiting, to indicate gastric lavage. In some cases, in which experience has taught us to expect this complication the stomach-tube should be passed within twelve hours after operation and this repeated until it is found that the stomach is empty. This routine procedure will prevent the dilatation becoming excessive and, I am confident, will shorten the period of dilatation. If a stomach after operation is allowed to become very much overdistended, it takes longer for the muscle tone to return.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Bloodgood: *Ann. Surg.*, 1907, xvi, 736.

2. Bloodgood: *Ann. Surg.*, *ibid.*, p. 744 (Case 3).

3. Bloodgood: *Ann. Surg.*, November, 1907 (Figs. 1 and 2).

4. Bloodgood: *Ann. Surg.*, November, 1907 (Figs. 3 and 4).

The dilatation should always be expected in patients operated on for intestinal obstruction. I employ the stomach-tube as a routine twelve hours after operations on the stomach, whether it be a gastrectomy, a gastro-enterostomy, or a Finney pyloroplasty. Retention of gastric secretion is not always present after these operations, but I am confident that this routine procedure prevents it in some, and makes it less distressing in others. In other cases, again, the indications for the passage of the stomach-tube are epigastric distress and distention in the epigastrium, with increased rapidity of the pulse. Do not wait for vomiting. It is often a late symptom and in many cases present when there is no dilatation. In this type of acute dilatation of the stomach, whether it follow operation or not; the duodenal contents are emptied into the stomach, and if they are removed at frequent intervals with the tube, the toxic symptoms are reduced, or do not appear at all.

The question arises, How long shall we continue the lavage? It is my rule after each lavage to leave some castor oil in the stomach after the washings have become clear. Now, if the bowels do not move, and we continue to find residuum in the stomach of a brown color and stained with bile, we know that the obstruction is not relieving itself. The question now naturally arises, how long shall we wait before attempting to relieve this by operation, and if we operate, what are we to do?

CASE 1.—In my first experience the patient had been subjected to a Finney pyloroplasty for a pyloric stenosis due to a duodenal ulcer. Gastromesenteric ileus followed the operation with symptoms similar to the case which I have previously reported.³ In this case, however, the toxic symptoms were very slight, because of the frequent gastric lavage, but the bowels did not move. On the sixth day I performed a posterior gastro-enterostomy. The duodenum was obstructed up to the root of the mesentery, the jejunum and the remainder of the small intestines, collapsed. There was no ptosis of the colon and no obstruction from adhesions. This operation relieved the patient at once.

The second case is even of greater interest. Apparently the etiologic factor was different, the treatment differed and the result was even more astonishing.

CASE 2.—This patient, a woman, aged 27, on May 3, 1912, was operated on at St. Agnes Hospital by Dr. Calihan, the resident surgeon. There had been local symptoms of acute appendicitis for seven days. On the fifth day—forty-eight hours before operation—symptoms suggesting perforation and peritoneal infection set in.

On admission to the hospital there was every sign of general peritonitis. The patient was also critically ill—temperature 103 F., pulse 128, blood-pressure 100, leukocytes 24,000. Dr. Calihan under gas anesthesia removed the appendix through a right McBurney incision. The appendix had very thick walls demonstrating that the inflammatory process had been of some duration, and in the center over a concretion there was a large, ragged perforation. He drained through this incision and a second suprapubic incision. The peritoneal cavity and the pelvis were filled with pus and fibrin. It is interesting to note that during the nitrous-oxid-and-oxygen anesthesia the blood-pressure rose to 125 and then fell gradually to 90; the pulse rose to 140.

There was no evidence of dilatation of the stomach before operation. Forty-eight hours after operation the stomach contained 400 c.c.; seventy-two hours 1,600 c.c.; on the fourth day 2,100 c.c.; on the sixth day 900 to 400 c.c.; but the urine was increasing in quantity, and the bowels had moved from the first twenty-four hours. This evidence shows that in spite of the dilatation of the stomach something was passing into the small intestines. The stomach later on held duodenal contents, indicating that the obstruction was in the duodenum, probably secondary dilatation, because the first washings were

distinctly gastric. By the eighth day the stomach-tube showed no gastric residuum. The urine had increased, the bowels moved, and the patient was in very much better condition.

On the eleventh day, after three days without symptoms and after twenty-four hours of constipation in spite of enemas there was a recurrence of the symptoms. Repeated lavage for forty-eight hours brought away about every six or eight hours from 800 to 1,000 c.c. This material was always stained with duodenal contents and contained bile. The amount of urine fell to less than 200 c.c. in twenty-four hours. In spite of castor oil per tube and enemas no gas or fecal material passed the rectum. The abdominal distention was very slight. The patient's leukocytes were 20,000; the blood-pressure 98. The patient did not complain much of pain, except epigastric distress before lavage. She was cyanotic and looked toxic. It was my opinion that something had to be done for her relief. Non-operative measures had failed. I was inclined to the view that the pelvic peritonitis had partially obstructed a loop in the pelvis. This had produced the second attack of acute dilatation of the stomach. But I did not foresee the other factor which was revealed at operation.

The patient was placed on the operating-table. A slightly distended loop of intestine seen and felt in the right wound was opened. It proved to be cecum, because it contained peptonized milk which had been given per rectum, and salt solution stained with methylene-blue per rectum appeared in two minutes. This demonstrated a free colon. An incision was made in the middle line above the suprapubic draining sinus, and the peritoneal cavity opened. There was exposed the omentum plastered to the lower abdomen pulling the greater curvature of the stomach down to a position 3 cm. below the umbilicus. This omentum was separated and the stomach pushed back into position. There was no general peritonitis. The loops of intestine were then separated from the pelvis. The adhesions were not extensive. There was a distinct kink at a distance of 3 feet from the cecum. The bowel below was rather collapsed, with patches of adhesions; above it was slightly distended, but the peritoneum was clean. The most remarkable finding, however, were a number of pus pockets (about six). They resembled somewhat a small bird's egg from which the shell had been removed. The outer wall consisted of fibrin, of a yellowish white color; the central cavity was filled with yellowish pus. These abscesses could be picked from their positions in the peritoneal cavity, and whether adherent to the peritoneum of the mesentery or of the small intestine, the peritoneum looked normal after the removal of the pus pockets. One of these was situated between the jejunum as it passed through the mesentery and the mesocolon at its root. Whether this was the cause of the obstruction producing gastroduodenal dilatation, I do not know. I handled the small intestines from beginning to end, replaced them, sutured the ileum, just above the point of the kink, to the peritoneum of the middle wound with three rows of silk sutures, introduced a small catheter into the ileum and fixed it with silk; placed the remaining lower portion of the ileum in the pelvis, drained the pelvis below the enterostomy with gauze and rubber tissue and fixed a small tube in the cecum. The patient before operation was given intravenously 1 mg. of strophanthin and during operation salt solution intravenously also. Her blood-pressure at the end of the operation was 88; the pulse fell from 110 to 60; the respirations had increased from 20 to 32. The stomach was washed out and castor oil left in.

After operation the patient said she felt more comfortable. In twelve hours there were still 500 c.c. in the stomach. Salt solution was given subcutaneously every eight hours. In forty-eight hours the gastric contents had fallen to 300 c.c. The enterostomy began to drain; the urine increased to 900 c.c. in twenty-four hours. It is now nine days since the second operation; there has been no further dilatation of the stomach; the enterostomy is working perfectly; the patient is taking soft diet, and there is every appearance of recovery.⁵

Later I hope to be able to present more in detail the indications for operation in acute gastroduodenal dilata-

5. July 4, 1912: The patient is well.

tion, whether postoperative or not, when non-operative measures fail to give relief. At the present time it may be stated that when gastric lavage continues to demonstrate large quantities of residuum in the stomach with duodenal contents, when nothing passes per rectum, and when the secretion of the kidneys gets gradually less, operation is indicated. What the surgeon should do depends on what he finds. These patients should be anesthetized only with nitrous oxid and oxygen. Although my experience so far with strophanthin is limited, I feel that this drug will be helpful in maintaining the blood-pressure during the operation. The patients should also get large quantities of water intravenously or subcutaneously.

GROUP II. CHRONIC DILATATION OF THE DUODENUM

In August, 1906, I first recognized this condition at an exploratory operation. This case has been previously reported.⁶

CASE 3.—(Pathol. No. 7,442.)—Mrs. R., aged 42, had chronic dilatation of the duodenum (gastromesenteric ileus). The following symptoms continued for two years, after an attack of mumps: intermittent attacks of pain with nausea and vomiting; between attacks indigestion, belching and constipation; for five weeks alternating constipation and diarrhea; loss of weight; emaciation. Examination revealed a movable, palpable mass above the umbilicus, suggesting gastric cancer or ulcer. This proved to be the pancreas which, with the duodenum, could be pulled out of the wound. The duodenum was huge, dilated; the pylorus large, the stomach slightly dilated and in moderate ptosis; the small intestines were ribbon-like. The wound was closed. The symptoms not relieved; the patient continued to vomit, the material containing duodenal contents and bile; now and then the bowels moved. The urine was scanty. Death took place suddenly twenty-seven days after the operation, with very rapid pulse and the picture of toxemia, but no fever. The autopsy findings were identical with those at operation.

At that time I had had very little experience with ptosis of the colon and I made no note on the condition of the colon. My operative experience with ptosis of the colon and of the stomach began in January, 1911. The first case was a typical example of ptosis of the stomach with obstruction from a pyloric kink and ptosis of the colon. This patient has been relieved after resection of the stomach with a Kocher anastomosis and resection of the right half of the colon. The second case, in April, was an example of ptosis of the right half of the colon with a fairly normal stomach. This patient was very much relieved after resection of the right half of the colon. In the third case (May 29, 1911) I demonstrated for the first time the relation of duodenal dilatation of the chronic gastromesenteric-ileus type to ptosis of the colon, and relieved this patient completely by resection of a portion of the ileum and the right half of the colon.

Up to the present time I have had five such cases. In four only the colon and a piece of the ileum were resected. In one case part of the stomach was also resected because of its great dilatation and displacement. This patient and three of the four patients having resections of the colon have been completely relieved of all their symptoms. One patient who became pregnant after the operation is not yet fully relieved.

In all of these cases the pathologic condition found at operation was almost uniform. The most impressive feature is a hugely dilated cecum situated in the pelvis. The mesentery of the portion of the ileum near the cecum

is short, and one can demonstrate at the operation the pull of the cecum on the mesentery of the small intestine—a straight pull producing more or less constriction on the duodenum by the mesenteric vessels at the root of the mesentery. When the mesentery of the ileum is long the redundant cecum cannot produce this pull. In all of these cases the duodenum was dilated up to the mesentery, notwithstanding long preoperative treatment by restricted diet and gastric lavage.

The distended cecum in the pelvis, the short mesentery of the ileum near the cecum, the demonstrable pull on the mesentery, the dilated duodenum appeared to be the essential pathologic features.

In all of these five cases the symptoms previous to operation, which varied from four months to four years, were chiefly gastric and consisted of vomiting. When the patients remained in bed, as a rule the gastric symptoms subsided or disappeared. This, however, is not always so. It was absent in my first case reported here and in a recent one seen in consultation with a colleague. But in two of the five cases subjected to operation, the patients were comfortable when quiet in bed. Three patients, although not free from symptoms when in bed, were less uncomfortable. These five patients were losing weight, were unable to eat solid food; even with restricted liquid diet, there was nausea and vomiting when they were up and about. The gastric material always contained bile and duodenal contents. The gastric residuum varied. In all of the cases, when the patients first came under observation, the stomach-tube demonstrated retention from 200 to 500 c.c. In four of the cases this residuum disappeared after rest in bed, restricted diet and lavage. The chemistry of the gastric secretion varied: in four cases hypo-acidity, in one slight hyperacidity. In all of the cases constipation was a marked feature.

The previous history varied. In three cases the long history suggested a congenital enteroptosis. Two cases were associated with pregnancy and infections following labor. Two patients had been previously operated on elsewhere: one cholecystostomy, one suspension of kidney, liver and stomach.

The investigation of this group is by no means completed, but I have sufficient evidence to suggest that duodenal dilatation may be secondary to ptosis of the colon, especially in those cases in which the ileum near the cecum has a short mesentery. In these cases, after a history of constipation and other symptoms associated with ptosis of the colon, gastric symptoms supervene. In my experience these patients are relieved by resection of the right half of the colon, followed by an ileocolostomy. In one of my cases in which the stomach was so very large, I performed a resection with a Kocher anastomosis.

About six months ago a colleague had under his care an unmarried woman with a previous history suggesting enteroptosis. In the last six months gastric symptoms supervened. The clinical picture was almost identical with my first case observed in August, 1906. Vomiting and gastric stagnation were such prominent symptoms that the surgeon was of the opinion that there was pyloric stenosis. A Finney pyloroplasty was performed. He noted the great dilatation of the duodenum and the ptosis of the colon. The symptoms were not relieved. On some days after the operation nothing passed into the small intestine, and the urine became very scanty. During these periods gastric lavage revealed 1 to 2 liters of material. There was present in this material bile and duodenal contents. Then there were intervals of temporary relief when the bowels moved and the urine increased in quantity. The patient finally died of exhaustion in about two weeks.

6. Ann. Surg., 1907, xlii, 745 (Fig. 6).

These two cases demonstrate that duodenal dilatation of the chronic gastromesenteric-ileus type may be fatal if not relieved by the proper operative measure. After my first report Stavely⁷ of Washington in 1910 performed duodenojejunostomy for chronic gastromesenteric ileus. The patient was absolutely relieved. Stavely calls attention to the fact that Barker⁸ suggested this operation before the publication of my paper. But when I observed my first case (August, 1906) I unfortunately had not seen Barker's paper. Codman⁹ in his paper on chronic obstruction of the duodenum at the root of the mesentery writes, "Bloodgood is the only one whom I have read who has devoted one sentence to the chronic condition. Doubtless others whom I have not read have spoken of it."

In these two types—acute and chronic gastromesenteric ileus—usually associated with some dilatation of the stomach, the danger of the physiologic death from obstruction of the duodenum is lessened, because the pylorus is patent, the duodenal contents can pass into the stomach and be removed by the stomach-tube. J. W. Draper Maury¹⁰ was apparently the first to call attention to the physiologic death from obstruction of the duodenum. His conclusions are based on experiments on animals.

The practical point that I wish to bring out and emphasize is that in the acute and chronic condition, if the patients are not relieved by gastric lavage, if observations demonstrate that little or nothing passes into the intestine, if the urine becomes scanty, that is, when non-operative measures have failed, something should be attempted by operative interference. In the chronic cases the problem seems to be less difficult. In my experience, if on opening the abdomen the duodenal obstruction can be demonstrated to be due to a prolapsed cecum pulling on the mesentery of the small intestine, then the right half of the colon should be resected, as this operation would relieve the ptosis as well as the duodenal obstruction. If this cause—ptosis of the colon—is not obvious, the operation first performed by Stavely—duodenojejunostomy—is indicated.

In acute cases in which the cause of the duodenal obstruction is ptosis with pull on the mesentery, the patients may be too ill for resection of the colon. Then duodenojejunostomy is indicated, unless there is some other cause removable by a simple procedure, as in the first case reported here. In my second case gastro-enterostomy relieved the condition.

In a second paper I shall attempt to discuss this question more in detail. I have, however, emphasized here, and, as far as I know, for the first time in the literature, the relation between ptosis of the colon and chronic gastromesenteric ileus, and have shown by five successful cases that both can be relieved by resection of the ptotic colon.

GROUP III. DILATATION OF THE DUODENUM AFTER RESECTION OF THE STOMACH

My attention to this as a probable cause of death after gastrectomy was attracted by the experimental work of Maury¹⁰ in April, 1909.

I could imagine that after a gastro-enterostomy because of pyloric stenosis, acute duodenal dilatation might take place. A kink at the anastomosis would prevent the escape of the contents of the duodenum into the stomach, and the stricture at the pylorus would block

the other outlet. I have never observed this condition. After gastrectomy, however, when the pyloric end of the duodenum is closed and some form of gastro-enterostomy is performed, there is opportunity for this condition to develop, if any kink or spur prevented the duodenum emptying itself either into the stomach or into the intestine through the anastomosis. In such a case lavage of the stomach would be of no avail. One would be suspicious of the condition by the absence of duodenal contents or bile in the gastric washings.

CASE 4.—(Pathol. No. 10,069.)—This patient had a huge cancer on an old ulcer at the pyloric end of the stomach. The stomach was adherent to the pancreas. To get the diseased tissue away I had to resect a large portion of the stomach. The pancreas had to be drained as it was injured. A Kocher anastomosis was impossible without too much tension, and the drainage also interfered with this method. I therefore performed a posterior gastro-enterostomy under great difficulties, because of the high position of the stomach. This patient died five days and twelve hours after operation. The operation did not produce shock. The first characteristic feature was intense abdominal pain, then increasing rapidity of the pulse, subnormal temperature with two rises, and increasing delirium. There was no vomiting or hiccup. In spite of large quantities of water administered subcutaneously, the amount of urine voided progressively diminished. Gastric lavage brought away very little from the stomach, and the material contained no duodenal contents or bile.

On account of the delirium, pain, tachycardia and no temperature I was of the opinion that the patient had a pancreatitis, but as I had placed a drain to meet this complication I saw no further indication for intervention. I believe now, however, that I should have recognized the true nature of the complication in forty-eight hours and explored, when I would have found and relieved the dilatation of the duodenum either by introducing a tube for temporary drainage, or relieving the obstruction at the gastro-enterostomy.

CASE 5.—(Pathol. No. 12,101.)—Operation Oct. 19, 1911. Gastrectomy for a very large indurated ulcer involving the pylorus and over half of the stomach. The indurated mass was so much like cancer that I felt that resection should be performed. It was not adherent. There was no difficulty in the resection, but the remaining portion of the stomach was very small. For this reason I decided not to risk the ordinary gastro-enterostomy, but to perform a modified Roux. I divided the jejunum, sutured one end (the lower) to the posterior wall of the stomach after the method of Kocher, and the upper end to this loop at about 6 cm. from the stomach. (I had had an experience recently with an anastomosis of this kind which had worked unusually well.) The autopsy in this case showed that I sutured the upper end laterally into the lower loop too far to the left, so that when it dropped into place it twisted the lower loop on its longitudinal axis and produced a kink.

This patient died about five days after operation, with symptoms very much like those in the other case: the same increasing rapidity of pulse with subnormal temperature at the end of forty-eight hours; after that the temperature rising with the pulse. The postoperative notes on this case made by Dr. Calihan are very complete. Eight hours after the operation: The patient was in good condition. The stomach-tube removed 50 c.c. of blood-stained fluid. Twenty-four hours after operation there was a stool and the abdomen was soft and not distended; no vomiting. Thirty hours: For the first time tachycardia was noted; gastric lavage brought out 200 c.c.; no duodenal contents or bile. Forty hours: No vomiting; still rapid pulse; beginning distention in the right upper quadrant which later proved to be the dilated duodenum; the urine scanty. Fifty-four hours: Vomiting for the first time; lavage 400 c.c.; pulse still rapid; patient comfortable after lavage; the distention is still present in the right upper quadrant. Sixty-four hours: The patient is in collapse with a very rapid pulse and complains of pain in the right upper quadrant; the remainder of the abdomen is soft and scaphoid. Seventy-three

7. Stavely: Surg., Gynec. and Obst., 1910, xi, 288.

8. Barker: Bull. Johns Hopkins Hosp., January, 1906.

9. Codman: Boston Med. and Surg. Jour., April 16, 1908, p. 503.

10. Maury, J. W. D.: Am. Jour. Med. Sc., May, 1909.

hours: Slight improvement after subcutaneous and intravenous salt; only 50 c.c. of urine in the last twelve hours; the patient has a rapid pulse (140); the extremities are cold; the skin cyanotic; the palpable mass in the right upper quadrant is larger. Eighty hours: Dr. Calihan explored the palpable mass and placed a tube in the hugely dilated duodenum which was the size of the patient's arm. Twenty-four hours after the duodenostomy: The patient except for anuria is better; there is no further gastric retention; the duodenum is draining and something has passed per rectum, but the kidneys have secreted only 125 c.c. in twenty-four hours. Thirty-six hours after the duodenostomy: The patient is in coma; there is no gastric residuum, the bowels have moved, the pulse-rate has improved, but in spite of all treatment the total amount of urine is but 170 c.c. The patient died in coma forty-eight hours after the duodenostomy.

The drainage of the dilated duodenum eighty hours or a little over three days after the operation was followed by improvement of everything, except kidney function. The gastro-enterostomy was apparently working, because there was no gastric residuum and the bowels had moved, but the kidneys apparently had been too profoundly affected by the toxemia to regain their function.

I believe we have here two examples of physiologic death from acute obstruction of the duodenum. I think in the future such cases may be recognized earlier and the condition relieved by immediate operation. It is a complication that must be borne in mind when some form of posterior gastro-enterostomy is made after gastrectomy. It is the fear of this complication that influences me to employ Kocher's method whenever possible. Undoubtedly the technic of the anastomosis in these two cases was faulty, but I have had a large experience and in both cases I had time to perform the anastomosis in the best way under the unfavorable conditions. Perhaps an anterior gastro-enterostomy in such cases would be preferable.

As far as I have gone into the literature, the deaths after gastrectomy and posterior gastro-enterostomy have not been sufficiently investigated to exclude this possibility, especially in those cases which have succumbed within the first five days without symptoms of peritonitis and in which at autopsy, if any, no peritonitis was found. The condition of the duodenum has not been critically examined. The cause of death has been given as vicious circle, shock, anuria. We should become suspicious of this condition when gastric lavage does not relieve the symptoms and does not bring forth bile and duodenal contents. In addition, these patients show an unexplained tachycardia, increasing delirium, marked anuria. The palpation of the duodenal distention may be late. It was not noted in the first case, although it might have been present; it was observed in the second case at least forty-eight hours after operation. Perhaps if we look for it carefully we shall observe it earlier.

This preliminary report has for its object to direct attention to the practical importance of these three types of duodenal dilatation. I have not discussed duodenal dilatation with high obstruction, except in the history report of the one case relieved by operation.

Johns Hopkins Hospital.

ABSTRACT OF DISCUSSION

DR. JOHN W. DRAPER, New York: It is gratifying to see the results of experimental work beginning to be applied to clinical surgery. I wish to call the attention of this Section to the fact, which I think can be considered a law, viz., that dilatation does not occur in any organ, except at the point of obstruction. I have never been able to produce dilatation of the stomach by simulating gastromesenteric

ileus. This certainly is true in animals. Therefore, I believe that no dilatation occurs through mechanical causes except at the point of obstruction. Dilatation remote from the point of obstruction is due to chemical disturbances. I am still convinced that the cause of death is a toxemia, despite the interesting studies which have just been presented. It is almost unbelievable that an animal could be dehydrated in the short period of thirty-six to forty-eight hours. Many animals on which obstruction of the duodenum had been produced died in this time. They pass a nearly normal amount of urine and dehydration cannot be the underlying cause of death. The second point is that when the autopsy is done on these animals it is impossible to find, so far as ordinary examination goes, any lesion except a universal dilatation of the capillaries of all the organs, more marked in the colon and small intestines. Dr. George Wallace has called attention to the fact that the condition is strikingly like that of death following the toxemia of diphtheria. He has also noted that much experimental work has been done to show that hydration of the tissues always lengthens life in any toxemia.

I want to report two more studies on the glycuronic function of the liver in intestinal obstruction. They show that the liver is undoubtedly involved functionally, its morphology remaining normal. Furthermore, the recent studies which we made at the New York University show a very pronounced lowering of the blood-pressure. This has also been observed by Dr. Whipple. The reaction to epinephrin suggests that the disturbance is a central rather than a peripheral one.

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THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. ITS ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

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[For other information see second page following reading matter]

SATURDAY, JULY 13, 1912

THE FUSION OF NERVES

The phenomena of degeneration in peripheral nerves after section or injury and their regeneration when the severed portions are united by suture have not only awakened activity along experimental lines, but also stimulated the surgeon to attempt, with success, the practical application of nerve reunion in neurologic procedure. The old idea that if the severed ends of the nerves were brought together carefully by sutures they might unite by first intention without degeneration in the peripheral stump has long since been given up. Degeneration is inevitable when the living continuity of the fibers has once been interrupted in any way; and the general features of the regenerative processes leading to a final functional continuity are familiar in text-book descriptions, although some of the vital details are still subject to controversial discussion. The technic of the process consists in bringing the nerve-stumps into accurate juxtaposition. A peculiar and characteristic scar consisting of proliferated cells and nuclei originating from the neurilemma forms at the place of interruption. After a time a distinct swelling sometimes referred to as a neuroma forms. The scar becomes organized, blood-vessels entering it from the neighboring perineuria. New nerve fibers are laid down in the interstices of the cells in every direction, owing to the mechanical conditions. But as the cells in the scar later gradually diminish, there comes a time when the new fibers tend to rearrange themselves into their original conformation and relationships.

The idea derived from this picture of nerve regeneration, in which it has been emphasized that the mechanical conditions imposed by the scar of nerve suture are sufficient to bring about marked changes for the time being in the anatomic nerve pattern at that point, has led Dr. Feiss, of the Laboratory of Experimental Medicine at Western Reserve University in Cleveland, to attempt a new mode of union.¹ When nerves are crushed and tied together with an absorbable ligature he finds that they actually grow together and may become one structure anatomically and physiologically. Not

only may such nerves reassume their original function, but they may also take on increased function as induced by the new and different combinations which are brought about by the union. The conditions in the scar occasioned by the ligature and injury cause fibers to pass permanently from the fascicles of one nerve into those of another. Feiss has termed the result "nerve-fusion."

To obtain the crossing of fibers within the scar and thus the establishment of new neural connections a good proliferation of cells leading to an abundant distortion of the regenerating fibers must be secured. This can be accomplished by having the scar not too short. Feiss believes that the results obtained by suture are neither more nor less than the effects of conditions superinduced by scar. No matter how skilfully suturing is carried out, the final arrangement of the new nerve-fibers must depend on the mechanical conditions necessitated by the mass of proliferated cells which forms at the divided nerve-ends. This mass may prevent the cut ends of the nerves from remaining in accurate apposition so as to enable fibers to pass directly from one fascicle to another.

The advantages of the fusion method, according to Feiss, are in its physical possibilities. The experimentalist is enabled to carry out procedures not to be thought of by the method of suture. The union of nerves in their continuity, the anastomosing of nerves of most diminutive size, and the distortion of the nerve pattern of single fascicles, all become feats of technical simplicity.

DIAGNOSIS OF PANCREATIC TRAUMA AND LESIONS

Because of the importance of early recognition of injury of the pancreas, due to the fact that necrosis so quickly follows, great interest is attached to the work of Wohlgemuth and Y. Noguchi,¹ who appear to have demonstrated a simple method of determination of such injury within a few hours after it is sustained, and without the performance of exploratory laparotomy which has always been in disfavor. Wohlgemuth has shown that resection of a portion of the pancreas is followed by an increase of diastase in the blood and urine, which occurs also on blocking of the pancreatic ducts. It was then natural to suppose that following a trauma of the pancreas, when secretion would be available for absorption, more diastase would be found in the blood. The method is as follows: Five cubic centimeters of the patient's blood are defibrinated and centrifuged and the serum removed. In ten tubes are placed decreasing quantities of serum, in the first tube 1 c.c. and in each of the following tubes one-half the quantity in the preceding tube. To each tube are added 2 c.c. of a 0.1 per cent. starch solution and all are placed in a water-bath at 40 C. for thirty minutes. They are then cooled and to each is added drop by drop a 1/50 normal iodine solution until the color no longer disappears when iodine is added,

1. Feiss, H. O.: The Fusion of Nerves, Quart. Jour. Exper. Med., 1912, v, 1.

1. Wohlgemuth and Noguchi: Berl. klin. Wehnschr., 1912, xlix, 1069. Abst. 95, p. 151, this issue.

but remains a distinct blue. One is thus enabled to measure comparatively the limit of starch digestion, and thereby to estimate the quantity of starch which would be reduced by 1 c.c. of serum. This gives an index which marks the amount of diastase present. In examination of over 150 persons by this method a normal index of between 8 and 32 was found for the blood and between 16 and 32 for the urine.

The results of observations on experimental pancreatic lesions are very interesting. In one case the pancreas of a dog was cut squarely across; all hemorrhage was stopped, and the dog examined immediately on recovery from anesthesia. The diastase in the blood increased hourly; after four hours it doubled in amount; and after twenty-four and forty-eight hours, respectively, the amount was ten and twenty times as great as at the beginning. The diastase in the urine followed a similar course, passing from 0 before the operation to 8 one hour afterward and 16 two hours later, the increase continuing. In a second case the pancreas was merely stabbed with a small scalpel and the surrounding area pinched lightly together with the fingers. There was only a slight amount of hemorrhage and a small hematoma formed immediately. Here also there was continued increase in the diastase of the blood, but to a smaller extent and at a relatively slower rate. The increase of diastase in the urine ran parallel.

As to the application of these results to man, the authors state that the reaction is quicker, but the index in man is smaller than in the dog. In two cases in which the pancreas was injured slightly in the course of operations on the liver and intestines, an increase in diastase was found after twenty-four hours.

It would seem, then, that we have here a means of determining quickly that a pancreatic trauma has been sustained; furthermore, that the amount and rate of increase of diastase may be expected to throw light on the extent of the injury. The method must be given wide trial in a large number of cases under a variety of conditions before the final limits of its practical usefulness can be determined.

SUPPORT OF STATE LICENSING BOARDS

The provision in most of our states requiring that the expenses of examining boards shall be paid out of fees received from candidates is clearly wrong in principle. If the board thoroughly does its duty and establishes a strict safeguard between the public and incompetent practitioners of medicine, the number of candidates at its examinations may be diminished and the income of the board correspondingly reduced. On the other hand, an unscrupulous board may take advantage of the income from fees and establish short cuts or easy markings, in order to induce candidates to take their examinations and thereby to increase the board's income. The rather loose methods of administering reciprocity

prevailing at present tend to encourage such methods. A state having reciprocal relations with a large number of other states, by making its own requirements easy, might license a considerable number of incompetents, who, after receiving their licenses, would be transferred to other states through reciprocity. A better provision for meeting the legitimate expenses of the licensing board would be through a definite state appropriation, and if the board is to be in position to safeguard carefully the interests of the public against incompetent physicians, this appropriation should be generous.

The new practice act recently secured in Pennsylvania is encouraging in that it has wisely provided an annual fund of \$30,000 to cover the expenses of its new board, the Bureau of Medical Education and Licensure. In marked contrast to this generous action, we are astonished to note that in Minnesota, notwithstanding the very excellent work which has been carried on by the licensing board of that state, some carping critics have found fault because, besides the very reasonable amount expended for running the office and keeping the records, that board paid on an average to each member as a per diem and for traveling and other expenses the very extravagant sum of \$245 each year! And this was to cover all expenses for four different examinations of four days each! Yet even with this ridiculously low pay it is worthy of note that the Minnesota board is one of the five or six in this country which have adopted, to any considerable extent, practical laboratory and clinical tests in the examination of those who seek to practice medicine, thus making it more possible to protect the people of that state from uneducated medical men. Instead of criticizing the apparently very reasonable expenditures of that board, it would be in better grace for those representing the people of that state to show their appreciation of the good work being done by securing for their licensing board a generous annual appropriation to provide for its expenses.

The licensing board in every state should be so financed and be given such unhampered authority that it would not only be in position to license to practice those who are found to be properly qualified, but also to prosecute the unlicensed, the medical fakers, the criminal abortionists and others who, posing as "doctors," are defrauding and swindling the public. Medical license would be in far better condition in this country if in this way all states would make ample provision for their licensing boards.

THE PLACE OF MUSHROOMS IN THE DIET

In advance of the usual crop of fatal cases of mushroom poisoning which regularly follows the opening of the summer season it may be worth while to offer some comments on the reputed nutritive value of the edible fungi. How little the judgment of the inexperienced may be depended on to determine the distinction between the delicious nutritive mushroom or its dangerous and toxic

inedible companion may best be emphasized by the fact that there are in this country undoubtedly more than one hundred edible species. The popular distinction between mushroom and toadstool is one of name alone, for many of the supposedly inferior specimens have proved on careful dietetic examination to be harmless to the organism, whereas some of the fungi which bear an extremely close family resemblance to favored articles of diet are the carriers of danger in the form of exceedingly powerful poisons. Let him, therefore, who lacks the training requisite for the unfailing detection and identification of species carefully refrain from excursions into a field of uncertainty so fraught with danger.

As a rule mushrooms are eaten much as are most of our ordinary "green vegetables," without any assumption of extraordinary nutritive value. In some quarters, however, the opinion has gained ground that mushrooms constitute an unusually nutritious and sustaining diet. A well-known botanist has publicly intimated that mushrooms may contain from 20 to 50 per cent. of protein material in their dry matter and suggests that such material might properly be called vegetable meat and used as a substitute for animal food. It is even suggested that a hearty meal on mushrooms alone would be about as reasonable as a dinner on nothing but beefsteak and might be expected to be followed by similar ill consequences. The underlying fact on which such conclusions are based is the actual presence of nitrogenous material in this plant tissue. Many chemists have in the past made the now unjustifiable error of ascribing to nitrogen in food material a value equal to that of an equivalent amount of protein. We know today, however, that there are many forms of nitrogenous compounds existing in both animal and plant tissues, which are non-protein in character. This applies, for example, to the so-called extractives of meat and the amids of plants, all of which certainly play no rôle in nutrition at all comparable with that taken by the proteins proper. The fact, therefore, that the chemist in his analysis finds nitrogen to be present in an edible material no longer justifies him in converting the results of his analysis into terms of proteins without a more refined consideration of the presence of these indispensable foodstuffs.

Mushrooms offer an instance of the foods in which a not inconsiderable proportion of the nitrogenous materials present exists in forms other than those of the readily available proteins. This was shown some time ago in the studies of Mendel¹ on the edible American fungi. He points out that the familiar edible mushrooms contain very large quantities of nitrogenous carbohydrates which resist digestive changes and are, therefore, not available to the organism; and the fact is emphasized that while the edible fungi may properly be regarded as dietetic accessories, they ought by no means

to be ranked with the essential foods. Referring to the comparison of the mushrooms with beefsteak, for example, it can readily be shown that an individual would be obliged to consume several kilograms of fresh morels to obtain a day's requirement of protein which is easily satisfied in the form of beefsteak. More recent studies by Reuter² have shown that the mushrooms contain large quantities of nitrogenous material comparable with chitin, which is familiar as the protective covering of the lobster. Such material is proverbially indigestible. It is interesting to note that these vegetable forms thus represent a transition, as it were, between the lower animal and plant forms. In addition to the chitin there are present various nitrogenous compounds such as guanin, adenin, hypoxanthin, cholin, trimethylamin and numerous others in free form. Such chemical compounds are readily converted by autolytic or bacterial changes into toxic bases and the question may well be raised whether the toxicity occasionally observed after the ingestion of reputedly edible fungi may not be due to the formation of this class of compounds. The more we learn of the mushrooms, regarding the palatability of which we have no objection to record, the more it becomes apparent that they are scarcely different as regards dietary virtues from the general run of the green vegetables which have never achieved the distinction of any unique or superior nutritive properties. They belong rather to that large group of food materials which we consume for reasons quite apart from the yield of calories which they have to offer to the organism.

Current Comment

LEPROSY IN THE UNITED STATES

A survey of the prevalence of leprosy¹ in the United States and its possessions was recently made by the U. S. Public Health Service. Health officers of the several states, Porto Rico, Hawaii and the Philippines were requested to submit a statement of the number of new cases reported in 1911, and of the total number on Jan. 1, 1912. The results were not complete, because in only eighteen states and the District of Columbia is leprosy a specifically notifiable disease. In all, 146 cases were reported in the United States, of which forty were new cases having been first observed in 1911. In 1911 a commission of officers of the Public Health Service found 278 lepers in the United States. Of these, 145 were foreign-born, and thirteen were of unknown nativity; 186 were reported as probably having contracted the disease in this country. Only seventy-two of the patients were isolated and cared for by the local authorities. The 146 cases reported in the present survey do not indicate a decreased prevalence. Rather these 146 cases reported by health authorities are comparable to the seventy-two cases of patients cared for by health officials in 1901.

¹ Mendel, L. B.: The Chemical Composition and Nutritive Value of Some Edible American Fungi, *Am. Jour. Physiol.*, 1898, 1, 225.

² Reuter: Beiträge zur Kenntniss der stickstoffhaltigen Bestandteile der Pilze, *Ztschr. f. physiol. Chem.*, 1912, lxxviii, 167.
1. Pub. Health Rep., June 14, 1912.

Three states—California, Louisiana and Massachusetts—have specific provision for lepers in leprosariums. In other states varying degrees of care and isolation are provided. There are known to be twenty-eight lepers in Porto Rico. In Hawaii and the Philippines the disease constitutes an important public health problem. In the Philippines about 6,000 lepers have been transferred to Culion. Cebu, an island with one-tenth of the Philippines' population, furnished one-half of the cases. On this island many instances indicate that leprosy is a so-called house disease. The Treasury Department recently amended the interstate quarantine regulations to the effect that common carriers may not transport a leper except under specified restrictions, and a special permit from the Surgeon-General of the Public Health and Marine-Hospital Service. A leper who violates this regulation is to be returned to the original state or to a designated federal quarantine station.

TYPHUS AND DIPHTHERIA IN NEW YORK

The New York City Department of Health in its May bulletin¹ presents some data of particular interest regarding epidemic contagious diseases in that city. The recent studies of Anderson and Goldberger² and the discussion engendered by them have brought a practical unanimity of opinion in the medical profession of New York that "Brill's disease" is in reality a mild form of typhus fever.³ It is recommended therefore that the use of the name "Brill's disease" be discontinued, even while full recognition is accorded to the persistent study and accuracy of observation of Dr. Nathan E. Brill. Dr. Brill strongly suspected the true nature of the disease which by common consent bore his name, although it was left for others to furnish positive proof of the identity of "Brill's disease" and mild non-epidemic typhus. Typhus fever is a reportable disease in New York and the Health Department will take such measures for its suppression as are indicated by the recently discovered facts regarding its transmission. The medical profession at large and public health authorities must take cognizance of the fact that typhus fever, even though of a mild type, is now endemic in several cities of the United States. The disease has never been very prevalent on the American continent. In 1847 small epidemics were introduced into Canada by immigrants. In New York City, epidemics were noted in 1867-8, 1881-2 and 1892-3. Philadelphia was visited in 1883. Typhus appeared in Cuba and Mexico in 1906, and is still found in Mexico. In the New York epidemic of 1881-2, there were 810 cases with 225 deaths in Manhattan, and eleven cases with four deaths in Brooklyn. In 1892, 707 cases developed in Manhattan with 245 deaths. The strictly localized nature of this outbreak in a small number of lodging and tenement houses speaks strongly in support of the theory that the body louse is the responsible agent of transmission.⁴ This theory receives additional confirmation from the impor-

tance of social conditions in the development of typhus. Overcrowding, alcoholism, privation and insanitary surroundings are predisposing factors. Another matter of interest recorded in the report is that the year 1911 showed a lower incidence of diphtheria in New York than in any year since 1902, and the lowest recorded number of deaths from this disease. Before 1895, when diphtheria antitoxin was introduced, the death-rate for this disease averaged over 14 per 10,000 population; the total was from 2,000 to 3,000 a year. In 1911 the death-rate was only 2.7 and the total number of deaths 801. The decrease in morbidity and mortality is ascribed chiefly to the introduction of diphtheria antitoxin.

ENLIGHTENED SELFISHNESS

Under this title, the Philadelphia *North American* discusses the work of the Equitable Life Assurance Society for the conservation of life and health. After commenting on the loss of 1,600 human beings in the wreck of the *Titanic* and contrasting this loss with the certain loss of 9,000 lives every year in Philadelphia through preventable diseases, the *North American* says: "The business of the Equitable Life Assurance Society is to insure lives. Higher death-rate means loss of revenue and reduction of profits. So, with enlightened selfishness, the Equitable is endeavoring to stimulate interest in the problems of health and sanitation. The Equitable wants people to avoid illness and to enjoy length of days. With the Equitable, it isn't merely a humane interest. It is strictly business. To the Equitable, saving lives means saving money, and yet this is not any more true of a life-insurance society than it is of the community. Every life has a money value to society. A definite economic loss is suffered every time an individual, who might have been saved, dies. A city is rated according to the number of its citizens willing and able to make a living. . . . The enlightened selfishness of powerful financial interests like the Equitable is a hopeful sign. . . . There is no influence that holds out more hope for progress than enlightened selfishness." The *North American* is right. It is the economic appeal of the health conservation movement which is encouraging. Purely moral causes win support slowly. But a cause which is both moral and economic cannot fail to win, as soon as these two facts are recognized.

INTERESTING FIGURES CONCERNING MENINGITIS

Notwithstanding the efforts of Shreveport, La., to keep out meningitis by establishing quarantine against the state of Texas, where a considerable epidemic of the disease occurred during the winter and spring, a number of cases occurred in that city and vicinity. Some interesting figures have been prepared by the city health officer concerning the disease. Since Dec. 4, 1911, 111 cases originated in the city and nineteen were imported, making the total number treated 130. Exclusive of imported cases, twenty-seven patients were white and eighty-four colored, eighty-four were males and forty-six females. Among the cases in the city there were sixty-nine recoveries and thirty-eight deaths, making the per-

1. Monthly Bull., Dept. Health, City of N. Y., May, 1912.

2. Anderson and Goldberger: U. S. Pub. Health Rep., Feb. 2, 1912.

3. American Typhus and Body Lice, THE JOURNAL A. M. A., April 20, 1912, p. 1198.

4. Anderson and Goldberger: U. S. Pub. Health Rep., March 12, 1912.

centage of recoveries 65. Of the whites, twenty-three recovered, a percentage of 85. The disease occurred most frequently among negroes between the ages of 11 and 20. The greater number of cases and higher percentage of deaths among the colored population are probably accounted for by the difference in economic and hygienic conditions. The percentage of recoveries at Shreveport is a little better than the average in the Texas epidemic, the deaths in the latter state being between 40 and 60 per cent. In one city in Texas, where most cases occurred, the mortality in the city hospital under the serum treatment was 27 per cent., while among those treated outside of the hospital with and without the serum it was 60 per cent. In a few places the death-rate reached 85 per cent. The showing in favor of the hospital treatment combined with the serum is remarkably good, as compared with the ordinary management of these cases. But the death-rate for this disease, even under the vigorous action of the health authorities, with the use of the serum, is still high, and meningitis still remains one of the most fatal of epidemic diseases.

PARTY PLATFORMS AND NATIONAL HEALTH SERVICE

The framers of the platform of the Republican National Convention did not see fit to make any definite declaration on the subject of a national Bureau or Department of Health. For this omission there are two possible explanations: Either they did not consider the subject of sufficient importance to be worthy of mention, or they feared the antagonism of the interests and sects which, either through selfishness or ignorance, have opposed this measure. On the contrary, the framers of the platform for the Democratic party placed in it a strong and comprehensive endorsement of a national health service. The plank is a straightforward endorsement of the principles of the present Owen bill. It reads:

"We reaffirm our previous declarations advocating the union and strengthening of the various governmental agencies relating to pure foods, quarantine, vital statistics and human health. Thus united and administered without partiality to or discrimination against any school of medicine or system of healing, they would constitute a single health service, not subordinated to any commercial or financial interests, but devoted exclusively to the conservation of human life and efficiency. Moreover, this health service should cooperate with the health agencies of our various states and cities without interference with their prerogatives or with the freedom of individuals to employ such medical or hygienic aid as they may see fit."

There is nothing vague about this; it is concise and straightforward, with no attempt at ambiguity.

SANER CELEBRATION OF INDEPENDENCE DAY

According to immediate returns from this year's celebration of the Fourth of July, obtained by the *Chicago Tribune*, comparatively few deaths or injuries have resulted. Of course the figures are not complete, but they are sufficiently so for comparison with similar figures for last year. It will require several weeks before the final results—especially in cases of tetanus—can be known and their outcome recorded. We shall compile

the statistics this year as usual and, while our system of gathering these ensures fairly complete returns, we shall be glad to receive reports from physicians of any deaths or injuries cared for by them or coming to their attention. Such cooperation will be appreciated and will make possible the publication of a more complete statement than would otherwise be the case. The publication of statistics showing the results of the old-time methods of celebration has doubtless done more than all other factors combined to arouse public sentiment against the wanton trifling with life and limb in this annual celebration. While it is true that the annual total of death and mutilation has been greatly reduced, let us not rest until the annual recurrence of senseless noise and destruction has been entirely done away with.

Medical News

ARKANSAS

New Officers.—The Medical Society of the Sixteenth Congressional District was organized at Dermott recently: president, Dr. W. A. Brown and secretary, Dr. Smith, both of Monticello. —Howard County Medical Society at Nashville: president, Dr. T. F. Alfor, Murfreesboro; secretary-treasurer, Dr. E. C. Dilbert, Nashville.

New Dean for Medical Department.—Dr. Morgan Smith, Little Rock, secretary of the State Board of Health and last year president of the Arkansas Medical Society, was elected dean of the Medical Department of the University of Arkansas, June 26, vice Dr. J. H. Lenow who has been at the head of the medical school since its beginning in 1879.

CALIFORNIA

Personal.—Dr. Oliver D. Hamlin, Oakland, fractured his knee in a runaway accident in Chicago, June 16.—Dr. Marion Thrasher, San Francisco, who has been seriously ill with ptomain poisoning, is reported to be convalescing.—Dr. George H. Kress, Los Angeles, has sailed for Europe.—Dr. Nettie M. Stephens, Stanford University, has been awarded the \$1,000 scholarship given by the Naples Table Association for the promotion of laboratory research by women.—Dr. C. F. Buckley, San Francisco, who has been seriously ill with pneumonia, is reported to be improving.

ILLINOIS

New Officers.—Lake County Medical Society, in Waukegan: president, Dr. H. B. Roberts, Highland Park; secretary-treasurer, Dr. W. C. Boughton, Waukegan.

Personal.—Dr. and Mrs. Louis Ostrom, Rock Island, are spending their vacation in Bermuda.—Dr. H. H. Rogers, Canton, has been reelected physician of Fulton County.

X-Ray Machine for Hospital.—An x-ray machine has been donated to St. Francis' Hospital, Evanston, by a lady of St. Mary's Parish who desires to remain anonymous. The apparatus cost \$2,000.

Chicago

New Sanatorium.—Ground is to be broken this week for a sanatorium to be erected on the northwest side by the Jewish Consumptive Relief Society.

Gift to Hospital.—Charles Deering has acquired a tract of land on South State Street from Mrs. Bertha Honore Palmer which he intends to give to Wesley Hospital. The land has a frontage of 175 feet on the west side of State Street and 100 feet south of Twenty-Fourth Street. The hospital now owns 175 feet, and Mr. Deering 150 feet adjoining his present purchase. The hospital is said to have an option on the remaining 100 feet of frontage in the block, thus rendering it possible to acquire the entire 600 feet of frontage for hospital purposes.

INDIANA

Reward Offered for Murderer.—The special committee of the Nu Sigma Phi Sorority of Women Physicians of Indiana has collected about \$3,000 to be given as a reward for the arrest and conviction of the murderer or murderers of the late Dr. Helene Knabe, Indianapolis.

Personal.—Dr. J. H. Powell, Logansport, has been elected president of the Cass County Historical Society.—Dr. Z. C. Wolfe, Indianapolis, was seriously burned by an explosion of gasoline at Corydon, June 3.—Dr. Severance Burrage was given a farewell dinner by the Tippecanoe County Medical Society at the LaFayette Club, June 3, at which Dr. George F. Keiper acted as chairman. Dr. Burrage has arranged to leave LaFayette for Indianapolis.—Dr. J. McLean Moulder, Kokomo, has accepted the position of superintendent of the Methodist Episcopal Hospital, Indianapolis.—Dr. L. B. Hill, Seymour, has been elected president of the Fourth District Medical Society.—Dr. J. W. Sluss has been appointed superintendent of the Indianapolis City Hospital, vice Dr. John L. Freeland, resigned.

IOWA

New Officers.—Dubuque County Medical Association, at Dubuque, June 26: president, Dr. W. L. Becker; secretary, Dr. M. J. Moes.

Personal.—Dr. Warren T. Peters, Burt, was seriously injured by the overturning of his automobile at Algona, June 21.—Dr. George P. Neal, Fort Madison, has been appointed county physician of Lee County.—Dr. D. S. Fairchild, Clinton, has been reelected editor of the official journal of the Iowa State Medical Society; Drs. J. W. Osborn, Des Moines, and C. A. Boice, Washington, have been elected assistant editors and Dr. Granville N. Ryan, Des Moines, has been elected chairman of the Board of Trustees of the Society.—Dr. Walter L. Biering, Des Moines, who has been seriously ill with pneumonia, is reported to be improving.

MASSACHUSETTS

Correction.—In the news item entitled "Psychopathic Hospital Opens," in THE JOURNAL, July 6, page 44, the name of the director should be Dr. Elmer E. Southard.

State Society Meeting.—At the annual meeting of the Massachusetts Medical Society, June 11, the following officers were elected: president, Dr. Walter P. Bowers, Clinton; vice-president, Dr. Francis W. Goss, Roxbury; secretary, Dr. Walter L. Burrage, Boston; treasurer, Dr. Edward M. Buckingham, Boston, and librarian, Dr. Edward H. Brigham, Brookline. At the annual banquet, June 12, one thousand were present and Dr. George B. Shattuck, Boston, presided.

Hospital News.—The Boston Floating Hospital has gone into commission. During 1911 this institution treated 438 permanent patients and 800 day patients. The hospital appeals for a contribution of \$22,000 to meet notes which mature in April of next year.—The New England Baptist Hospital, Roxbury, has opened an addition to its bungalow service. The new building has ten private rooms and a veranda ten feet wide extending its entire length.

Personal.—Dr. Arthur Isaac Kendall, Boston, has been placed in charge of the research work on tuberculosis in Northwestern University, the chair for which was recently endowed with \$250,000 by James A. Patten, Evanston, Ill.—Drs. John H. Homan and David Cheever, Boston, have been appointed surgeons to the Peter Bent Brigham Hospital.—Dr. Samuel H. Durgin, chairman of the Boston Health Board, retired from office after forty years of service, June 10. His associates presented him, on his retirement, with a gold watch, chain and pencil, suitably inscribed. The former president of the Board of Aldermen also presented Dr. Durgin with a handsome traveling bag. Dr. Durgin sailed for Europe, June 11, and expects to spend a year in traveling abroad.—Dr. Loring B. Packard, resident surgeon of the Haymarket Square Relief Hospital, Boston, has resigned and has been made surgeon in chief of the Brockton Hospital.—Dr. Samuel A. Green, who has been ill in the Boston City Hospital for two months, is reported to be improving.

MICHIGAN

Personal.—Dr. and Mrs. George R. Pray, physician to the Michigan State Prison, Jackson, sailed for Europe, June 19.—Dr. Leon M. Gillette, formerly mayor of Battle Creek, is said to have been committed to the Kalamazoo State Hospital, June 6.—Dr. A. F. Kingsley, Battle Creek, has been elected secretary of the Calhoun Medical Society, vice Dr. Ray C. Stone.

MINNESOTA

Appropriation for Health Office.—The City Council of St. Paul has transferred \$5,000 from the miscellaneous account of the general fund to the quarantine fund for the prevention of small-pox.

Personal.—Dr. O. O. Brietenbach has been elected president of the Frazee Commercial Club.—Lorin B. Ohlinger, superintendent of the State Sanatorium for Tuberculosis near Walker, has resigned.—Dr. George A. Geist, St. Paul, has been appointed bacteriologist of the State Board of Health.—Dr. Hibbert W. Hill, Minneapolis, epidemiologist of the State Board of Health, has resigned to accept the office of director of the Institute of Public Health of London, Ont., and to become a member of the faculty of the Medical Department of Western University.

NEBRASKA

Maternity Homes Licensed.—Acting under the new law regulating maternity homes, twenty-seven institutions had applied for and received licenses up to June 2. The application for license must show that the home is approved by the authorities of the city in which it is located. The homes are subject to inspection at any time and are under the supervision of the State Board of Health as to proper regulation.

Personal.—Dr. H. B. Cummins, Seward, has been reappointed a member of the Board of Secretaries of the State Board of Health.—Dr. W. W. Hedlund, Lincoln, has succeeded Dr. M. Gifford Welch, Haigler, resigned, as assistant physician to the State Penitentiary, Lincoln.—Dr. George Ewh, of Talmage, was thrown from his buggy while making a night call recently and fractured his leg.—Dr. Harold Gifford, Omaha, was given the honorary degree of Master of Arts by the University of Michigan, June 27.

NEW JERSEY

Personal.—A testimonial dinner was given at the Montclair Club, June 17, by the Associated Physicians of Montclair and vicinity, in honor of Drs. Henry B. Whitehorne, Verona, and W. H. White and Edward M. Ward, Bloomfield, all of whom have been in practice more than fifty years and served in the medical corps during the Civil War.—Dr. Thomas H. Mackenzie, retiring physician of the State Hospital, Trenton, was presented with a handsome Shrine jewel by the employees, July 1. Dr. Martin W. Reddan has succeeded Dr. Mackenzie.—Dr. and Mrs. J. Henry Clark, Newark, have gone abroad.

NEW YORK

New Officers.—Delaware County Medical Society, at Delhi, June 11: president, Dr. C. R. Wood, Hamden; secretary-treasurer, Dr. W. R. Tymesou, Franklin.

Unite to Teach Sex Hygiene.—The American Federation of Sex Hygiene was incorporated with the Secretary of State, on July 1, to operate throughout the country. Its purpose is the voluntary education of the public in the physiology and hygiene of sex, including the study and application of every means, educational, sanitary, moral and legislative, for the prevention of vice and its diseases. The principal office of the corporation will be located in New York City.

Additions to Faculty.—Syracuse University Medical School has made the following additions to its faculty: Dr. Leverett Dale Bristol, of St. Paul, Minn., assistant professor of bacteriology; Dr. Earl V. Sweet, Phoenix, N. Y., instructor in the department of histology; Dr. Albert G. Swift, New York City, instructor in surgery, and Dr. John W. Cox, instructor in pathology.—Colgate University has signified its intention of permitting the students to take the senior year in a registered medical college *in absentia*, such students to receive the bachelor's degree on the presentation of a certificate from the college of medicine attended, to the effect that the work has been done satisfactorily.

Alienists Meet.—On July 1, the State Insanity Commission met at the Manhattan State Hospital, Ward's Island, where testimony was presented showing the overcrowded condition of the insane hospitals in this state and confirming what is already well known, that this condition is chiefly due to the large percentage of foreigners in the state. There are more than 1,900 alien insane patients in the Manhattan State Hospital and few of these patients have taken out naturalization papers. These cost the state in ten years of their hospital life \$3,400,000. There are in this hospital at present 4,720 patients, although the capacity of the institution is only 3,596. It was also stated that 50 per cent. of our native-born insane patients are the children of foreign parents. A convention of authorities on insanity from many states will be held in New York in the fall when it is proposed to make a report to the government on the New York conditions.

New York City

Off for Europe.—Among those who have recently sailed for Europe are the following: Drs. R. R. Lytle, George M. Swift and Dr. W. S. Renner, Dr. and Mrs. William Porter, Dr. and Mrs. A. M. Jacobus and Dr. and Mrs. Amos Canfield.

Kill Rats at Quarantine.—Under a new ruling all steamships arriving from ports infected with the bubonic plague must have rats exterminated before entering the Port of New York in order to prevent them from carrying germs ashore.

Field Hospital a Feature of the Fourth.—One of the features of the celebration of the sane Fourth of July in this city was the establishment of a field hospital with medical officers and nurses at City Hall, and the use of ambulances which accompanied the parade and were stationed at various places where celebrations were held.

Automobile Fatalities.—The National Highways Protective Society has issued its monthly report which shows that during the month of June there were fifty persons killed by vehicles and 275 seriously injured in the streets of New York City. During the month of June, 1911, there were 171 accidents and 12 persons killed by automobiles while this year there were 26 killed by automobiles; of those killed 20 were children under sixteen years of age.

Personal.—Dr. Simon Flexner has returned from Europe. —Dr. Charles H. May and wife, Dr. J. S. K. Hall and wife, Dr. J. W. White and Dr. J. M. Griffin have sailed for Europe. —Dr. Charles Baskerville, professor of chemistry and director of the laboratory at the College of the City of New York, has been awarded the Edward Longstreth Medal of Merit by the Franklin Institute of Philadelphia, for his investigations in the chemistry of anesthetics. —Dr. John Elmer Weeks was given the honorary degree of Doctor of Science by the University of Michigan, June 27.

NORTH CAROLINA

State Board Election.—The State Board of Medical Examiners at its meeting in Hendersonville, June 17, elected Dr. W. W. McKenzie, Salisbury, president, and Dr. B. K. Hayes, Oxford, secretary (reelected).

State Health Officers Hold Meeting.—The State Health Officers' Association held its annual meeting in Hendersonville, June 16, under the presidency of Dr. L. B. McBrayer, Asheville, and elected the following officers: Dr. L. N. Glenn, Gastonia, president; Dr. George M. Cooper, Clinton, vice-president, and secretary-treasurer, Dr. W. S. Rankin, Raleigh.

OHIO

Faculty Changes.—The following changes in the faculty of the Medical Department of Western Reserve University, Cleveland, are announced: Dr. Benjamin L. Millikin, professor of ophthalmology since 1893 and dean since 1900, has resigned both professorship and deanship, and has been made senior professor; Dr. George C. Ashmun, professor of hygiene and preventive medicine, from 1893 to 1909, professor of medical ethics since that time and secretary of the faculty from 1893 to 1907, has resigned and has been made senior professor; Dr. Carl A. Hamann, professor of anatomy from 1893 to 1911 and since that time professor of applied anatomy and clinical surgery, has been made dean; Dr. Charles E. Briggs has been made associate professor of surgery; Dr. W. E. Bruner, associate professor of ophthalmology; Dr. Henry J. Gerstenberger, associate professor of pediatrics; Dr. Howard D. Haskins, associate professor of organic chemistry and biochemistry; Dr. David Marine, assistant professor of experimental medicine, and Dr. Charles W. Stone, associate professor of nervous diseases.

PENNSYLVANIA

Health Officers Warned of Small-Pox.—Because of the presence of eleven cases of small-pox throughout the state (nine in Philadelphia) all traceable to the passengers of the steamer *Haverford*, Dr. Samuel G. Dixon, state health commissioner, has sent warnings to the health officers of the following places to which passengers had been ticketed: Allentown, Wilkes-Barre, Wiconisco, Harrisburg, Arnold, Alverton, Brownsville, Carnegie, Chester, Coatesville, Collingdale, Haverford, Homestead, Monessen, Norristown, Norwood, Parkesburg, Shenandoah, Cynwyd, Reading, Mocanaqua, Smoke Run, Chambersburg, Pittsburgh and Philadelphia. Examination will be made of all these passengers to insure the prompt reporting of cases.

Philadelphia

Personal.—Drs. Howard F. Hansell and W. W. Woodward and provost Edgar F. Smith of the University of Pennsylvania have sailed for Europe.

New Medical Dean at University.—It was announced, July 1, that Dr. William Pepper, son of a former provost of the university, had been appointed dean of the Medical Department of the University of Pennsylvania, to succeed Dr. Allen J. Smith, resigned. Dr. Allen Smith will still remain professor of pathology, comparative pathology and tropical medicine. Dr. Pepper has been a professor of clinical pathology at the university for five years.

Committee Urges More Nurses for Municipal Hospital.—The committee appointed by Dr. Joseph S. Neff and composed of Dr. W. M. L. Coplin, former director of the Department of Health and Charities; Marion E. Smith, supervising nurse of the hospital of the University of Pennsylvania, and Dr. J. William White, investigated the question of nursing at the Municipal Hospital for Contagious Diseases and found the number of nurses inadequate for the care of the patients. The committee suggests that the training school at the hospital for contagious diseases be combined with that of the Philadelphia General Hospital and that a course of four months' study in the Municipal Hospital be obligatory to nurses at the Philadelphia General.

TENNESSEE

Personal.—Dr. J. J. Neeley has been reelected superintendent of the Western Hospital for the Insane, Bolivar. —Dr. J. T. Wilson, Nashville, is reported to be in a hospital in Little Rock, suffering from a dislocated shoulder, a sprained ankle and other injuries received in an accident on the Iron Mountain road near Argenta. —The office of Dr. W. A. Nailling, Union City, was burned recently. —Dr. Michael Campbell, superintendent of the Eastern Hospital for the Insane, Bearden, was struck by a rock thrown by an insane patient, June 30, and sustained a fracture of the skull. —Friends and associates of Dr. Henry Berlin, Chattanooga, gave him a dinner, June 23. Dr. Berlin has started for Egypt to be gone six months.

TEXAS

New State Laboratory.—Dr. Henry Hartman, the state bacteriologist, formally commenced work in the new laboratory of the State Board of Health, June 15. The laboratory will make and provide anti-typhoid vaccine, diphtheria antitoxin, vaccine virus and antimeningitis serum. All of these serums and antitoxins are to be sold to the people of the state at cost.

GENERAL AND FOREIGN

Railway Surgeons Meet.—The seventeenth annual conference of the Association of Surgeons of the Southern Railway was held in Washington, D. C., June 11-13. Norfolk, Va., was selected as the next place of annual meeting, and the following officers were elected: president, Dr. H. W. Blair, Sheffield, Ala.; vice-presidents, Dr. M. N. Stow, Jesup, Ga.; M. W. O'Brien, Alexandria, N. C.; J. E. W. Helde, Rockville, S. C., and J. H. Hamilton, Union, S. C., and secretary-treasurer, Dr. J. U. Ray, Woodstock, Ala. (reelected). —At the annual meeting of the Baltimore and Ohio Association of Railway Surgeons held in Philadelphia, Dr. C. F. Winston, Cincinnati, was elected president; Dr. John Palmer, Jr., Wilmington, Del., first vice-president, and Dr. C. E. Johnson, Philadelphia, treasurer (reelected).

International Artificial Pneumothorax Association.—At the close of the recent International Tuberculosis Congress at Rome, those interested particularly in the method of treating tuberculosis by artificial pneumothorax organized an international association to promote this method of treatment. It is proposed to publish an annual bulletin listing the members, and thus constituting a guide to specialists and institutions making a practice of artificial pneumothorax treatment. The membership fee is stated in the *Policlinico* to be 5 lire (1 dollar). Those interested should write to Professor Saugmann, Vejlefjord-Daugaard, Denmark, or to Professor U. Carpi, Pavia, Italy, assistant at the medical clinic at Pavia in charge of Professor C. Forlanini, a pioneer in this method of treatment.

Bubonic Plague.—The existence of bubonic plague in Havana, Cuba, has been definitely determined. A case at the Las Animas Hospital has been demonstrated to be plague and three other patients in the hospital are said to be ill and showing similar symptoms. Suspected houses are being fumigated, the rat killing corps of the Health Department has been reinforced and orders have been issued for a warfare on rodents. —The Louisiana State Board of Health has decided to inaugurate an early campaign for rat extermination and is preparing circulars imparting information to the public and asks public cooperation in the work. —The

health officer of the port of New York held up the steamer *Philadelphia* of the Red D line which made a stop at San Juan, Porto Rico, June 21. The steamer was released after examination of rats for bubonic plague had been found to be negative.—Passed Assistant Surgeon Grubb, San Juan, reported, June 25, that rat examinations indicated that a mile of the water front was infected. Measures were being taken to limit the infection to the island of the old city. The worst houses in the infected area were being destroyed after being first surrounded by a wire fence. Systematic catching and laboratory examination of rats and daily house inspection were being carried on. Observation and detention camps had been provided. Three deaths had occurred in the suburbs.—Colonel Jefferson R. Kean, Major Frederick Russell and Lieutenant Frederick Foucar, M. C., U. S. Army, have gone to San Juan, with a complete laboratory equipment and everything necessary for exterminating rats and handling the disease condition. Major Bailey K. Ashford of the Medical Corps is already at San Juan.—Passed Assistant Surgeons R. H. Creel and Williams, U. S. P. H. & M.-H. Service, have gone to Porto Rico and will assist Passed Assistant Surgeon Grubb in the work against the plague.—Most of the cases in Porto Rico were found in Puerto de Tierra and the district connecting the walled city of San Juan with the main island, the inhabitants of which are mostly all laborers.—Up to July 10 no new cases of plague had been reported from Cuba or Porto Rico. Three steerage passengers from Havana were taken from the steamer *Chalmette* and will be detained at the New Orleans Quarantine Station until it is ascertained that they are not infected.—The work of destroying rats along the New York, Galveston and Mobile water fronts is still under way.—A regulation has been approved by Surgeon General Blue prohibiting passengers from Havana from entering any port in Florida until they have been detained seven days at the Pensacola Quarantine Station.

International Congress on Hygiene.—Thirty-two foreign countries have accepted the federal government's invitation to participate in the Fifteenth International Congress on Hygiene and Demography in September, and lists of official delegates appointed have already been received from twenty-five. These lists contain many names which are well known both to the medical profession and to sanitarians in general as foremost authorities in their particular lines of endeavor. Among the Belgian delegates will be Professor Jules Bordet who first, in connection with Gengou, called attention to the now famous Bordet-Gengou phenomenon of complement fixation on which some of our newest and most delicate tests in laboratory diagnosis depend. The list of the Danish official delegates includes the name of Dr. Thorvald Madsen, the director of the State Serum Institute of Copenhagen. Among the French delegates, the names most familiar to the American scientific world are those of Dr. Laveran, member of the institute and of the Academy of Medicine, the discoverer of the malarial organism; Dr. Jacques Bertillon, chief of the Bureau of Municipal Statistics of Paris, and known in this country as the moving spirit in the compilation of the causes of death adopted by the international commission; Professor Jules Courmont, of the University of Lyons; Dr. Chantemesse, the distinguished sanitarian, and Dr. Netter of the University of Paris. The list of the German official delegates includes the names of Dr. Fraenkel, of Halle; Dr. August Gärtner, whose researches on meat poisoning and the paratyphoid group of organisms were the first in this field; the distinguished anatomist, Dr. His, famous for his anatomic studies; and Dr. Lehmann, of the Julius-Maximilians University. Among others, Great Britain has named Dr. Newsholme, who, in addition to greatly activating the progress of sanitation in England, has labored unceasingly and effectively to reduce the infant mortality rate in that country; and Professor G. Sims Woodhead, the renowned pathologist of Cambridge University. Among her delegates, Norway has appointed Professor Axel Holst, the distinguished bacteriologist of the Royal Frederik's University of Christiania. Sweden will send as one of its delegates Professor Dr. Alfred Pettersson, the chief of the bacteriologic section of the state Institute for Medical Research. These are only a few of those who have been officially designated by their respective governments to represent them at the congress. The programs of the sections contain long lists of some of the most distinguished names known to medical and sanitary science. In the United States interest in the congress has become widespread. Forty-seven of the forty-eight states of the union have officially accepted the Federal government's invitation to participate in the congress and most of our large municipalities have also accepted this invitation and will send official delegates. The Fifteenth International Congress on Hygiene is the most pow-

erful instrument thus far for permanently improving the progress of sanitation in this country, and the new and permanent impetus which it may confidently be expected to give to progressive work in all branches of hygiene throughout the country is being eagerly awaited by those who are interested in civic welfare and public health.

International Congress for Neurology, Psychiatry and Psychology.—The Swiss Neurologische Gesellschaft has the organization of the next congress in charge and has appointed September, 1914, as the date and Berne the place. Professor Dubois of Berne will preside. The secretary has not yet been appointed. The last international congress of the kind was held at Amsterdam in 1907.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, June 22, 1912.

The National Insurance Act

The conflict between the profession and the government continues, but the end, whether it take the form of rupture of negotiations and practically unanimous refusal to work the act, or an arrangement due to concessions, which must be large, cannot be deferred much longer. In a previous letter to THE JOURNAL it has been pointed out that a weak point in the profession's defense is that it is open to the government not to administer medical benefit, but to hand over the money for that purpose to the friendly societies, who have in their employ at present a large proportion of the physicians of the country. As long as these hold their appointments, they must attend not only the present members of the societies, but the large accretion which is resulting from the act. The whole will in time amount to the great majority of the insured. This weak point in the profession's defense has been remedied by a pledge supplementary to the original one, declining to work the act except on terms satisfactory to the British Medical Association. By the new pledge, which is being signed with practical unanimity, the medical officers of friendly societies are placing in the hands of local committees of the British Medical Association (for use when it is decided that the time is ripe) the resignations of their appointments so far as they extend to insured persons. Also, the profession generally undertakes not to accept any appointment so resigned and to accept appointments dealing with insured persons only with the consent of the Association and, except in cases of urgent necessity, not to attend an insured person through the service of any voluntary charity, and not to cooperate with any member of the profession who is under contract to render service to insured persons on terms not approved by the profession. This pledge, of course, affects the specialist class, most of which hold hospital appointments and otherwise have not previously been involved in the struggle over the act, except as leaders of the general practitioners. All over the country meetings of hospital staffs have been held and it has been decided with practical unanimity to sign the pledge and stand with the general practitioners in their fight against the act. All other negotiations having failed, the government has agreed with the British Medical Association to appoint an independent accountant to examine selected sample books of accounts of physicians, with the object of ascertaining what would be fair remuneration. When that has been done the government hopes to come to close grips with the final stage of the controversy.

SANATORIUM BENEFITS UNDER THE ACT

While the medical benefits do not come into force under the act until the beginning of next year, the large sums voted by the state for the treatment of tuberculosis become available on July 15. Local health authorities are preparing schemes for the tuberculous, such as when fully developed will bring treatment within the reach of all the inhabitants within their area. Several types of physicians will be concerned in the work—general practitioners, special tuberculosis officers in charge of dispensaries, medical officers of sanatoriums and other residential institutions, health officers and school medical officers. The central feature will be the tuberculosis dispensary. In country districts, however, instead of a fixed dispensary there may be an expert who will visit different localities periodically. It is proposed that on an average there will be a dispensary unit for every 150,000 of the population, in charge of a specially trained medical officer. These "tuberculosis officers" will be in touch with the general practitioners attending patients in their homes. On their efficiency will depend in many cases early recognition of

the disease. Their salaries will be a minimum of \$2,500. Before appointment they must have had special training in chest hospitals, sanatoriums, or other suitable institutions.

Several conferences have been held at which the Chancellor of the Exchequer, Mr. Lloyd-George, endeavored to smooth matters. The insurance commissioners have approached the British Medical Association with the request to assist them in obtaining from the various district or provisional committees of the association the names of two representatives for the local insurance committees. According to the act, these committees will be composed as follows: three-fifths of the members to represent the friendly societies, one-fifth to be appointed by the local county council, two members by any association of physicians in the district, and the remainder by the insurance commissioners. The State Sickness Insurance Committee of the British Medical Association has replied to the insurance commissioners stating that the association cannot assist them in the manner indicated until such time as it is satisfied that the minimum demands of the medical profession in regard to the act will be conceded. Nominations have been made for the annual election of the central council of the British Medical Association. One of the outside bodies (referred to in previous letters to *THE JOURNAL*) formed for the purpose of uniting non-members of the association in resistance to the act and of promoting a more active resistance on the part of the association, the generalship of whose leaders is considered to have been faulty at the critical time, has put forward a "ticket" of selected candidates, stalwarts, whom it asks the members to support. This body, called "The National Medical Union," was formed in Manchester and has a large membership.

SCHEME FOR PUBLIC MEDICAL SERVICE

The State Sickness Insurance Committee of the association has brought forward an elaborate scheme for a "public medical service" (*THE JOURNAL*, May 4, p. 1386) to be administered by the profession as alternative to the insurance act in case the government fails to grant the demands of the profession. The scheme takes two forms: one based on the capitation system, the other on payment per attendance. The service is defined as constituted for the organization of the supply of medical attendance and medicine for persons unable to pay the ordinary medical charges. Subscribers to the capitation scheme will be admitted only after medical examination. There will be an income limit, to be determined, but in no case to exceed \$10 a week. The subscription is not to be less than 6 cents a week, inclusive of drugs, provided that in the case of persons who are below the ordinary standard of health special rates of subscription may be prescribed. A subscriber may choose his medical attendant from the physicians of the service who are willing to attend him, and shall for the time be entitled to the services of this physician only. Except by the consent of both physicians concerned, he cannot change his physician more than once in six months, giving at least a calendar month's notice, terminating on June 30 and December 31. Subscribers shall be entitled to ordinary medical and surgical treatment at the physician's office within specified hours, and when their condition requires it, to treatment at home, if within two miles of the doctor's house, other than night calls and special visits. The following are excluded from and must be paid for according to a scale to be fixed: confinements, miscarriages, vaccination, fractures, dislocations, consultations, administration of a general anesthetic, night visits (between 8 p. m. and 8 a. m.), certificates, illness in consequence of misconduct, and dentistry. It may be remarked that these terms are about 200 per cent. higher than those under which contract practice is now carried on all over the country with friendly societies. It must be borne in mind, however, that there is a tendency for contract work to be scamped in consequence of its low rate of remuneration. Under the scheme of payment per attendance, the subscribers will make weekly payments, as in the previous scheme, but from the fund so created the physicians instead of receiving the capitation fees will be paid at the rate of 50 cents per visit at the patient's house, with 12 cents extra for medicine and 30 cents for consultation at the office. This scheme is not in final form. It is brought forward for consideration by the divisions of the association and will come before the representative meeting at the forthcoming annual meeting of the association.

Deaths Due to the Use of Hedonal as a General Anesthetic

The synthetic product—methyl-propyl-carbinol-methane—known as hedonal has recently, following the practice of Fedoroff, been used in this country as a general anesthetic. It is administered by intravenous infusion in the strength of

0.75 per cent. in saline solution. It has been used in over 100 cases by Mr. C. M. Page at St. Thomas' Hospital. He regards the method as valuable and has had no death. Three deaths, however, have recently been recorded. In one case a man, aged 48, died at the Golden Square Throat Hospital after the operation. An inquest was held and, in accordance with the medical evidence, a verdict was returned that death was due to heart failure from blood-poisoning, accelerated by the administration of the anesthetic and the operation. In Hull, a death from respiratory failure, a few hours after the operation, when all apprehension of danger has passed has been reported. In the Hospital for Sick Children, Great Ormond St., a third death has occurred. The patient was a girl, aged 8, whose respiration failed as the stitches were being inserted. The pathologist stated that the status lymphaticus was a contributory cause of death.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, June 21, 1912.

Antityphoid Vaccination

Antityphoid vaccination has created an interesting discussion in France. At a recent meeting of the Académie des Sciences, M. Metchnikoff reported the results of attempts, made by Dr. W. Broughton Alcock, to apply antityphoid vaccination to man, following the method used by M. Metchnikoff and M. Besredka with the monkey. Sensitized virus was used for the vaccination. At the Académie de médecine, on the other hand, Professor Chantemesse and Professor Vincent insisted on the efficacy of vaccine obtained from killed bacilli. While recognizing that the injection of living bacilli confers a strong immunity to animals, they believe that it should not be used with man because it exposes him to very grave risks (typhoid, biliary infection, etc.). Such an injection might make the subject a bacillus-carrier. They conclude, therefore, that the inoculation of living bacilli cannot be recommended under any form, sensitized or attenuated.

M. Metchnikoff disputed the efficacy of the vaccinations made by Chantemesse and Vincent on the soldiers in Morocco by showing that their figures are scarcely convincing. The vaccinations were made when the epidemic was already on a decline, and partly, too, in localities where there were very few cases of typhoid, while, in order to make the results more favorable, the non-vaccinated subjects were taken from places where the fever was much more prevalent. In short, M. Metchnikoff thinks that this trial in Morocco, instead of proving the favorable influence of antityphoid vaccination, shows simply that the statistics given can be easily misinterpreted and that they should be accepted as significant only with great caution.

The Description of Conscripts

The Minister of War has ordered much greater precision in the descriptions given in the papers of conscripts and in the military journals. The principal modifications concern the color of the hair and eyes, the shape of the forehead, nose and mouth, and on the identification of particular points, as scars, cuts, burns, abscesses, tattooing, etc. The idea of taking finger-prints, which was under consideration, has been discarded as savoring of methods of identification of criminals.

An Agreement Between France and the Netherlands for the Repatriation of Insane Paupers

An agreement has been made by France and the Netherlands for the repatriation of insane paupers of the two countries, to go into effect on August 10, each agreeing to receive its citizens who have become insane and have become charges of the other contracting state. This repatriation will be conditional, in each case, on the consent of the state which the patient is to leave. The fact that the insane person has lost his nationality cannot be opposed to the applying state unless the patient has in the meantime become naturalized elsewhere. This agreement does not apply to the colonies of the two contracting states.

The Arrest of Macaura

The public prosecutor has at last decided to prosecute Macaura, whose exploits I have described in a previous letter (*THE JOURNAL A. M. A.*, June 8, 1912, p. 1767). Macaura was accused of the illegal practice of medicine on the complaint of the syndicat des médecins de la Seine and of swindling on the complaint of several of his clients. Naturally Macaura protested, declaring that he does not practice medicine and that he confines himself to extending the use of "Pulsocorm."

A French graduate physician, he said, was connected with his office to examine the patients to determine whether "Pulso-conn" might be useful to them. The examining judge observed that the presence of this physician does not change the situation in the least, because this physician is merely an employee. The examination resulted in the arrest and imprisonment of Macaura, who was later released on 50,000 francs (\$10,000) bail. The next day the walls of Paris were covered with Macaura's "Proclamation to the French People," published also in the daily papers, in which Macaura modestly declares that he is now successfully conducting the greatest campaign against sickness ever known in the history of France.

Death of Dr. Villemin

Dr. Paul Villemin, surgeon of the Hospitals of Paris, died very suddenly, aged 51. He was the son of the celebrated Villemin who discovered that tuberculosis is contagious.

The Mission of Dr. Legendre

The return of Dr. Legendre, army physician, who with Captain Noirot and Lieutenant Dessirier, left France, Sept. 12, 1911, to explore the provinces of Yunnan and of Le-Chuen in China, has been celebrated recently. During his journey Dr. Legendre with one of his companions, escaped death only by an almost superhuman calmness and courage. On Dr. Legendre's arrival, General Lebon, vice-president of the geographie society, gave an earnest address in which he said that Dr. Legendre had been the benefactor of the region of Le-Chuen in establishing at its capital a school of medicine.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, June 14, 1912.

Vital Statistics of Prussia in 1911

The death-rate and especially the infant mortality of the third quarter of last year demands especial attention, because the great heat and dryness could not help but exert an influence on the health of the people at large, and especially on that of children of tender years. It was hardly to be assumed, however, that it would be so marked as is shown by the official figures, the increase over the previous year being more than 50,000, or quite 32 per cent. The absolute increase in the cities and in the country was nearly equal, but relatively the increase was greater in the cities. In spite of the fact that the destructive influence of the abnormal weather made itself felt more markedly in the city than in the country, the death-rate compared with the entire population was only 20.50 (in 1910, 15.50) per 1,000 inhabitants in the cities, as compared with the country rate of 20.91 (in 1910, 16.24). Compared with the whole population of the state, the death-rate was 20.72 compared with 15.90 in 1910 and 16.30 in 1909. Of every thousand people, about five more died than in the previous year. The increase of deaths was noted at all ages, but was most marked in children under one year, amounting to not less than 65.4 per cent. In the cities the infant mortality increased from 23,609 to 41,589, or about 75.7 per cent., while in the country it rose by 57.8 per cent. Only 301,256 children were born living against 307,377 in 1910 and 361,287 in 1909. The reduction from the previous year was nearly 2 per cent, proportionally greater in the country than in the cities. The excess of births was only 9.28 for one thousand inhabitants, as compared with 15.16 and 18.11 in the two previous years. Fortunately, there was an increase in the number of marriages which is evidently connected with the improvement in economic conditions.

Institution for Psychopathic Children

The juvenile courts, which, as is well known, have been established for some years in Germany, have found that the abnormal social behavior of the young often depends on an abnormal mental constitution. Therefore the psychiatrists, especially Ziehen, former professor of neurology in Berlin, have sought means for the erection of an institution for the special treatment of needy children of this class. Such an institution, the first in Germany, has now been erected by the province of Hanover on the grounds of the Göttingen provincial Heil- und Pflegeanstalt, at a cost of \$62,500 (250,000 marks). The institution is under the direction of Professor Cramer, to whom the credit of its erection is due. He has submitted all of the children in the public asylums of the province to a systematic examination as to their mental condition. Psychopathic traits were found in

a large number of the pupils, degeneration from inherited taint, imbecility or conditions bordering on insanity. The new institute will admit those who are not suitable for an insane asylum and cannot be admitted into any of the existing charitable institutions. The education of these constitutionally inferior young people is to be undertaken in the institute by methods adapted to each individual case. The purpose is to be accomplished by medical treatment, instruction, moral care, and strictly regulated suitable employment of the pupils. In respect to the latter, work in the open air, especially the care of vegetables, fruit and flowers, and instruction in the most common handiwork, and also games and gymnastics are to be included.

Hygiene of Infants in Bavaria

The infant mortality in Bavaria was, for 1910, 20.2 per cent. of those born living, as compared with 21.7 for the previous year. The high mortality corresponds to a high birth-rate—in 1909, 33.4 births per 1,000 inhabitants as compared with 31.9 in the entire German empire. In 1908, organized efforts were made to combat infant mortality by creation of a central station for infant welfare. For this purpose the sum of \$136,344.25 (547,377 marks) was expended, in addition to the expenses for crèches and for milk kitchens, which amounted to \$120,300 (481,200 marks). In 1910, 169 stations for advice were in existence, conducted in the majority of cases by private or official physicians, which were attended by 10,196 children.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, June 22, 1912.

Unpleasant By-Effects of Excessive Ozonization

A few months ago the Austrian Parliament Hall installed an outfit for supplying a quantity of ozone for the improvement of the air during the sittings of the house. The ozone generated by an electric apparatus is driven by fans or ventilators into the hall. Ever since the installation of the arrangement, members of the parliament have continually complained of rheumatism and colds and the morbidity of the house has been exceedingly high. Medical members have ascribed this condition partly to the large volume of ozonized air pumped into the halls and corridors, producing cold draughts, and partly to the high percentage of ozone in the air. The latter effects are similar to those of radium, especially in rheumatic people, to which class, owing to their age, the majority of our members of parliament belong. It has been noted also that the temperature of the atmosphere in the house is comparatively very low; especially on hot summer days it is deliciously cool, but at the same time the food served in the restaurant of the house to the members quickly gets cold. As this complaint also dates back to the installation of the ozone ventilation plant, it is logical to ascribe it to that. At all events steps have been taken to find out the real by-effects and to ameliorate them.

Opening of the Radium Station in the General Hospital

Without any festivity a very important addition to the therapeutic armamentarium of the Allgemeines Krankenhaus has been made by the opening of the radium institute, an annex to the dermatologic clinic of Professor Riehl. The Radiumstation (that is its official title) will serve two purposes: first, it is, of course, intended for the treatment of the patients of the hospital itself; second, it will also stand at the disposal of the profession and the general practitioners outside the hospital, for a number of "radium cells" will be loaned to them, and water charged with emanation will be sold to them and their patients. The institute owns half a gram (7½ grains) of pure radium, valued at about \$50,000, which has been presented by the ministry of public works from the radium factory in Joachimsthal. The "station" will be self-supporting, and any net profit is to go to its enlargement. A special scientific-research department will be added in a short time to this radium institute, which will devote its material to biologic investigation pertaining to radium. Already interesting results have been announced.

Medical Recruit's Term of Service with the Ranks Shortened

The new army act, which will go into force on October 1, provides a radical change of the terms of service for medical recruits, who have hitherto had to serve six months with the regular army barracks, had to do all other service like any regular soldier, but they could choose the time of their service between their twenty-first and twenty-fourth year of age.

Afterward they had to serve another term of six months as army doctors, of course after obtaining their degree of M.D. This term was served in the hospitals of the army or in the barracks. The students lost always half a year of their medical curriculum, and were thus at a disadvantage against their confrères who escaped army service. The new law stipulates a service of three months in the barracks for medical students, which service can be done during the university term, as it will occupy only little of the student's time, and afterward a service of nine months, after obtaining the degree of M.D., in the army hospitals. The advantage of the new law is obvious. Not only there is no loss of time for the medical student, but a distinct gain, because the nine months of hospital service will be very useful to him, and he at once starts with professional work, instead of military drill, as formerly. On the other hand, less stringent requirements as regards physical fitness will be in force for the recruiting of medical men, so that a large number of doctors will be enlisted in the army, if only for temporary service.

Professor Neusser's Health

The numerous friends and pupils of Professor Neusser, the famous physician whose interesting lectures on differential diagnosis always attracted so many attentive listeners, will no doubt learn with satisfaction that his health is improving as far as one can expect it in his condition. In fact, it has been said by him that he would gladly take up his tutorial work again, but there is hardly any hope for that.

Marriages

EDWIN CARTER BRANDON, M.D., Fairview, Ky., to Miss Pansy Rule of Earlington, Ky., at Clarksville, Tenn., June 19.

GEORGE LOUIS SCHNEIDER, M.D., to Miss Mary Alta Herander, both of South Williamsport, Pa., June 25.

JAMES EDWARD WALLACE, M.D., Biloxi, Miss., to Miss Fern Scott Loar of Hammond, La., at Biloxi, June 23.

ELBERT BAKER, M.D., Aurora, Mo., to Miss Matilda Dieckhoener of St. Louis, at Clayton, Mo., June 27.

THOMAS B. WILSON, M.D., Indian Mound, La., to Miss Annie Leigh Frierson of Frierson, La., June 20.

WYATT R. ARNOLD, M.D., Bedford City, Va., to Miss Pattie Wilmer Steptoe, at Boonsboro, Va., June 26.

HARRIET NOYES RANDALL, M.D., Roslindale, Mass., and Jesse Knowlton Flanders, at Roslindale, June 26.

ALFRED LEE CLIFTON, M.C., U. S. Navy, to Miss Gladys Burgess of Northampton, Mass., June 22.

CARROLL ROLLIN BANCROFT, M.D., to Miss Ellen Cecelia Kennedy, both of Anaconda, Mont., June 19.

EDWIN DANICK GARDNER, M.D., to Miss Evelyn Howes, both of Boston, at Rockland, Mass., June 20.

EDWARD STUART PARKER, M.D., Idagrove, Ia., to Miss Dora Hall Young of Mankato, Minn., June 20.

RALPH DUDLEY HEAD, M.D., Pittsfield, Mass., to Miss Margaret Cole of Andover, Mass., June 26.

ARTHUR ST. CLAIR BRUMBAUGH, M.D., to Miss Mary Louise Dunn, both of Altoona, Pa., June 25.

JOHN F. RICHARDSON, M.D., to Miss May Nestor, both of Denver, at Syracuse, N. Y., June 25.

JOHN ANDERSON PETTEY, M.D., to Miss Anna Eva Dustin, both of Brockton, Mass., June 25.

GEORGE NORBERT HEMMER, M.D., to Miss Ethel May Place, both of Syracuse, N. Y., June 25.

FRANK MILTON POGUE, M.D., Trafford, Pa., to Miss Grace Stully, at Towanda, Pa., June 18.

FRANK DE WITT STINSON, M.D., to Miss Byrd Hartenbower, both of Douglass, Kan., June 19.

EDWARD LIEURANCE, M.D., to Mrs. Emma Record, both of Crow Agency, Mont., June 16.

ARTHUR A. KAHALA, M.D., to Miss Mamie Villeman, both of Bemidji, Minn., June 19.

PHILIP CARTER WASHBURN, M.D., to Miss Elinor Lothrop, both of New York City.

RICHARD BERT PLATT, M.D., to Miss Olena Ferguson, both of Friend, Neb., June 26.

HUGH MCPHERSON, M.D., Tyson, Ala., to Miss Louise Pulham of Louisville, recently.

LOUIS HERLY, M.D., to Miss Nettie Aaron, both of New York City, June 26.

EUGENIA A. MILLER, M.D., and Harry I. Klawans, both of Chicago, June 29.

Deaths

John Boyce Donaldson, M.D. One of the most notable practitioners of Pennsylvania and a pioneer in the work of medical organization, died at his home in Canonsburg, June 29, from heart disease, aged 63. He was born in Marshall County, W. Va., the son of a well-known physician of Bridgeville. His medical course was taken in the Western Reserve University at Cleveland, from which he graduated in 1872. He began practice in Pittsburgh, but at the end of a year removed to Bridgeville, and in 1878 located in Canonsburg. In addition to his prominence as a practitioner Dr. Donaldson was always identified with the activities of his home city. In 1882 and 1883 and from 1902 to 1903 he was burgess of Canonsburg and he also served as councilman and school director. In 1888 he was elected a member of the legislature and served during one session. He was for twelve years secretary of the Washington County Medical Society, holding this position at the time of his death and was the first to suggest a conference of county secretaries. He was also a member of the Medical Society of the State of Pennsylvania and its president in 1910-1911, and a member of the American Medical Association. Dr. Donaldson was a firm believer in organization as a means of raising the standards of the medical profession. He was editor of the *Medical Program of the Medical Organization of Washington County, Pa.*, the earliest county medical society bulletin. On account of his rescue work at the time of the Johnstown disaster, the governor of Pennsylvania conferred on Dr. Donaldson a special certificate of commendation. Medical organization has sustained a great loss in the death of Dr. Donaldson, the medical profession has lost an eminent practitioner, the state and county a public-spirited citizen and his fellow townsmen, a cherished and faithful friend.

Manuel R. Moreno, M.D. Medical College of the State of South Carolina, Charleston, 1878; city physician of West Tampa, Fla., in 1891, and for two years thereafter acting assistant surgeon in the U. S. P. H. & M.-H. Service; an expert in yellow fever; for several years, beginning with 1895, United States Counsel at Cienfuegos, Cuba; later a member of the Florida legislature from Monroe County; died at his home in Tampa, June 17, aged 65.

Edward Field Parsons, M.D. College of Physicians and Surgeons, New York City, 1858; a member of the Connecticut state legislature in 1887; for many years medical examiner for the town of Enfield where he had practiced for nearly half a century; for twenty-five years a member of the school board; died at his home in Thompsonville, June 13, from cerebral hemorrhage, aged 78.

Robert John Devlin, M.D. College of Physicians and Surgeons, New York City, 1881; a member of the American Medical Association and the New York Academy of Medicine; for thirty years dermatologist to the Northern Dispensary, New York City, and consulting dermatologist to the French Hospital; died at his home in New York City, June 26, from pneumonia, aged 51.

Edwin Saunders Ricketts, M.D. Miami Medical College, Cincinnati, 1877; a member of the Ohio State Medical Association; American Association of Obstetricians and Gynecologists, British Medical and British Gynecological Society; a well-known gynecologist and surgeon of Cincinnati; died at the hospital of his brother in that city, June 12, from carcinoma of the liver, aged 59.

Edwin Morrison Ward, M.D. College of Physicians and Surgeons, New York City, 1862; a surgeon of United States Volunteers during the Civil War; attending physician to the Mountinside Hospital, Montclair, N. J.; formerly president of the board of health of Bloomfield, N. J.; died at the home of his nephew in Newark, June 18, from cerebral hemorrhage, aged 72.

Samuel Beecher Hunter, M.D. Jefferson Medical College, 1855; a member of the American Medical Association; surgeon of the Seventh Maine Volunteer Infantry throughout the Civil War; for many years acting assistant surgeon, U. S. P. H. & M.-H. Service, and in charge of the Marine Hospital at Machias, Me.; died at his home in Machias, June 2, from senile debility, aged 81.

Matthew Francis Dunn, M.D. College of Physicians and Surgeons, New York City, 1885; a member and once president of the Medical Association of Georgia; chief of staff of St. Joseph's Hospital and attending physician to St. Mary's Orphans' Home and St. Francis Orphan Asylum, Savannah; died at his home in Savannah, May 31, aged 51.

Harry H. Harrison, M.D. Kentucky School of Medicine, Louisville, 1891; a member of the Mississippi State Medical Association; a leading practitioner of Jackson; died at his home, June 14, from nephritis; aged 50. At his funeral the pallbearers were selected from the medical profession of Jackson.

W. Frederick Mueller, M.D. University of Marburg, Germany, 1869; a surgeon in the Prussian service during the Franco-German War and for three years thereafter a surgeon on transatlantic steamers; for thirty years a practitioner of Denison, Ia.; died at his home in that city, June 12, aged 68.

John Elias Johnson, M.D. University of Louisville (Ky.) 1872; New York University, New York City, 1879; a member of the American Medical Association; died recently at his home at Lebanon Junction, Ky., from heart disease, aged 67, and was buried in the Lebanon Junction Cemetery, June 14.

George W. Hayden, M.D. Medical School of Georgia, Augusta, 1858; a charter member and formerly president of the Johnson County (Tex.) Medical Society; assistant surgeon of the Fortieth Alabama Infantry, C. S. Army, during the Civil War; died at his home in Fort Worth, Tex., June 23, aged 73.

Henry J. C. Sieving, M.D. Beaumont Hospital College of Medicine, St. Louis, 1897; afterward a lecturer in his alma mater and an instructor in Marion Sims Medical College; a member of the American Medical Association; died at his home in St. Louis, June 21, from cerebral hemorrhage, aged 53.

Charles O. Cooley, M.D. Washington University, Baltimore, 1877; a member of the American Medical Association and Minnesota Valley Medical Association; one of the best-known practitioners of southern Minnesota; died at his home in Madelia, Minn., June 13, aged 61.

James Beatty Spencer, M.D. New York University, New York City, 1882; for several years a member of the board of education of Wellston, O.; a specialist on diseases of the eye; died in his home at Wellston, June 24, from disease of the kidneys and liver, aged 54.

John Patten Wales, M.D. University of Pennsylvania, Philadelphia, 1852; formerly a member of the American Medical Association; a veteran of the Civil War; mayor of Wilmington, Del., in 1882; died at his home in that city, June 24, from heart disease, aged 81.

John S. Black, M.D. University of Alabama, Mobile, 1872; a member of the State Medical Association of Texas and formerly president of the Greenwood County Medical Society; a Confederate veteran; died at his home in Lanus, June 20, from typhoid fever.

Grant Abram Reber, M.D. St. Louis University, 1903; a member of the American Medical Association; of Okema, Okla.; who went to Phoenix, Ariz., a few months ago on account of his health; died in Albuquerque, N. M., June 18, aged 42.

Robert Clark, M.D. University of Minnesota, Minneapolis, 1903; formerly health officer of Plummer but more recently a practitioner of Thief River Falls, Minn.; died in Plummer, June 2, from what is said to have been acute alcoholism, aged 34.

Loren Bisco Doxey, M.D. Rush Medical College, 1894; formerly of Columbus, Neb., and Washburn and Des Moines, Ia., but recently a practitioner of Savannah, Tenn.; was found drowned in the Tennessee River, at Clifton, June 19, aged 53.

George R. Patrick, M.D. University of Maryland, Baltimore, 1879; a member of the American Medical Association and a practitioner of high rank in Gaston County, N. C.; died at his home in Lowell, June 19, from cerebral hemorrhage, aged 57.

Walter Scott Blakeman, M.D. Vanderbilt University, Nashville, Tenn., 1879; a member of the Kentucky State Medical Association and a Confederate veteran; died at his home in Glasgow Junction, June 19, from heart disease, aged 75.

Thomas J. Birch, M.D. University of Pennsylvania, Philadelphia, 1877; a member of the American Medical Association; formerly coroner and county physician of Schuylkill County, Pa.; died at his home in Port Carbon, June 24, aged 73.

David Hudnal Connally, M.D. Atlanta (Ga.) Medical College, 1860; surgeon of the Gate City Guards, C. S. Army, during the Civil War; health officer of Tyler and Smyth County, Tex.; died recently, at his home in Tyler, aged 74.

Albert M. Williamson, M.D. Medical College of Ohio, Cincinnati, 1871; a veteran of the Civil War and for thirty-five years a practitioner of Dayton, O.; died at his home in Hyde Park, Cincinnati, June 13, from heart disease, aged 68.

Alonzo B. Oliver, M.D. Memphis (Tenn.) Hospital Medical College, 1894; of Memphis; a member of the Tennessee State Medical Association; who recently went to California for his health; died in Los Angeles, June 14.

Callom B. Jones, M.D. Medical College of Virginia, Richmond, 1869; of Ashland, Va.; a Confederate veteran; died in St. Elizabeth's Hospital, Richmond, Va., June 14, a day after a surgical operation, aged 70.

William Miles Clark, M.D. Memphis (Tenn.) Hospital Medical College, 1894; a member of the State Medical Association of Texas; of San Antonio; formerly of Floresville; died in Houston, May 21, aged 48.

Franklin Marion Brantley, M.D. Medical College of Georgia, Augusta, 1847; a charter member of the Medical Association of Georgia; died at his home in Senoia, June 5, from senile debility, aged 93.

Ludwig Otto Thoma, M.D. University of Buffalo, 1870; of Buffalo; who went to Berlin recently to arrange a trip for the German-American Teachers Association; died in a hospital in Berlin, June 22.

William Isaac Pace (license, Tennessee, 1889), for many years a practitioner of Toms Creek, Tenn.; died at the home of his daughter, in Nashville, June 15, from cerebral hemorrhage, aged 63.

Thomas A. Guest, M.D. (license, Illinois, 1899); Harvey Medical College, Chicago, 1901; a member of the Illinois State Medical Society; died at his home in Congress Park, Ill., June 23, aged 44.

William E. Chadwick, M.D. Vanderbilt University, Nashville, Tenn., 1907; a member of the Tennessee State Medical Association; died at his home in Murfreesboro, June 17, aged 29.

George Franklin Lucas, M.D. New York University, New York City, 1870; a member of the Medical Society of the State of North Carolina; died at his home in Currie, June 18, aged 65.

Elsie Dexter Lester Dana, M.D. New York Medical College and Hospital for Women, New York City, 1864; died at her home in Brooklyn, June 9, from senile debility, aged 82.

William Russell Lewis, M.D. Rush Medical College, 1874; a member of the Illinois State Medical Society; died at his home in Oak Park, Ill., June 27, from heart disease, aged 64.

Glen A. Emery, M.D. Columbus (Ohio) Medical College, 1879; formerly mayor of Rendville, O., and coroner of Perry County; died at his home in Toledo, June 14, aged 59.

Mark Trafton Dodge, M.D. Medical School of Maine, Portland, 1883; formerly a member of the state legislature of Maine; died at his home in Troy, May 18, aged 61.

Earl A. Scofield, M.D. University of Buffalo, N. Y., 1887; a member of the Medical Society of the State of New York; died at his home in Bemus Point, June 24, aged 57.

Ernest W. Pinson, M.D. Louisville (Ky.) Medical College, 1890; a member of the South Carolina Medical Association; died at his home in Cross Hill, May 18, aged 43.

Austin Elijah Palmer, M.D. Bellevue Hospital Medical College, 1869; a member of the Illinois State Medical Society; died suddenly at his home in Morris, aged 65.

James Andrews Douglass, M.D. Miami Medical College, Cincinnati, 1880; died suddenly at his home in Alliance, Ohio, June 21, from cerebral hemorrhage, aged 54.

James F. Purdon, M.D. University of Louisville, Ky., 1881; formerly of Louisville; died at his home near Shepherdsville, Ky., June 19, from asthma, aged 61.

Jacob C. Brubaker, M.D. Jefferson Medical College, 1855; formerly of Chicago, and Waseca, Minn.; died at his home in Colorado Springs, June 18, aged 76.

William Edward Gordon, M.D. Missouri Medical College, St. Louis, 1890; died at his home in Old Ripley, Ill., June 19, from heart disease.

I. Cleophas Ferrault, M.D. Laval University, Quebec and Montreal, 1864; died at his home in Beloeil, Que., June 22, aged 70.

Correction.—The Dr. John L. Short whose death was recorded in THE JOURNAL, June 22, was not John L. Short of Rolla, Mo., but a physician of the same name living in La Grange, Ind.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

CALCIUM GLYCEROPHOSPHATE

Its Poor Quality Shown by a Report of the Council on Pharmacy and Chemistry

Believing that the glycerophosphates were of some probable value, the Council decided to describe calcium glycerophosphate in New and Nonofficial Remedies, so that definite standards of quality might be prescribed. The Association's Chemical Laboratory having, at the request of the Council, taken up the examination of the supply of calcium glycerophosphate on the American market and entered into correspondence with the manufacturing houses, now reports that no product of even fair quality is to be had, and that those who make it appear not inclined to make improvements. Investigation having shown that the glycerophosphates are probably not superior to ordinary inorganic phosphates, there is little likelihood that a consequent decreasing demand will be any inducement to provide a good quality of drug in the future. In view of these conditions, the Council decided not to describe the drug in New and Nonofficial Remedies, and authorized the publication of the report which appears below.

W. A. PUCKNER,

Secretary.

SUPPLEMENTAL REPORT ON CALCIUM GLYCEROPHOSPHATE

The glycerophosphates have come into rather wide use during the last twenty years. This use was based on the belief that because of the chemical relation between glycerophosphates and lecithin, the former were more readily assimilable than inorganic phosphorus compounds. While the evidence for the value of glycerophosphates was not altogether satisfactory, it was considered sufficient to give these products a place among the remedies of possible value and, therefore, the Council decided to describe calcium glycerophosphate in New and Nonofficial Remedies. Since the Council reached this decision, experiments by Fingerling,¹ McCollum and Halpin, and others have shown that animals can form organic phosphorus compounds (lecithin, nucleoproteids, etc.) out of inorganic phosphates quite as readily as from organic phosphorus compounds. Hence, it is probable that the glycerophosphates are of no more value in phosphorus metabolism than the inorganic phosphorus compounds.

1. Fingerling, G.: Die Bildung von organischen Phosphorverbindungen aus Phosphaten. *Biochem. Ztschr.*, 1912, xxxviii, 448, xxxix, 239. McCollum, E. V., and Halpin, J. G.: Synthesis of Lecithins in the Hen. *Proc. Am. Soc. Biol. Chem.*, 1911; *Jour. Biol. Chem.*, 1912, xi, xlii. See also editorials in *THE JOURNAL A. M. A.*, April 20, 1912, p. 1198; May 25, 1912, p. 1605.

At the request of the Council the examination of the available supply of calcium glycerophosphate was taken up in the Association laboratory. The following report from the laboratory gives the result of this examination and indicates the efforts which the laboratory has made to secure the adoption of a suitable standard whereby the quality of the product may be judged.

The laboratory undertook the study of calcium glycerophosphate with the view of proposing standards for its quality. Five specimens were purchased and examined. While a pure specimen should have a faintly alkaline reaction, should be practically free from chlorids, sulphates and alcohol-soluble matter, should contain about 17.5 per cent. of calcium and yield about 55.7 per cent. of ash, the specimens examined gave the following results:

The specimen bearing the label of the Mallinckrodt Chemical Works was faintly alkaline in reaction, contained 1.8 per cent.

of chlorid (calculated as sodium chlorid), 0.66 per cent. of alcohol-soluble matter, lost 4.5 per cent. of its weight by drying over sulphuric acid, left 51.9 per cent. of ash on ignition and yielded 12.7 per cent. of calcium by the method used for the determination. This specimen contained considerable amounts of a sodium salt, possibly sodium glycerophosphate.

The specimen sold under the Powers-Weightman-Rosengarten Co. label contained about 1 per cent. of sodium chlorid, 1.8 per cent. of calcium sulphate, 0.7 per cent. of alcohol-soluble matter, free acid equivalent to about 3 per cent. of citric acid, lost 3.5 per cent. of its weight when dried over sulphuric acid, left 51 per cent. of ash on ignition and yielded 15.6 per cent. of calcium.

The Schering and Glatz specimen, sold

under the name of "Lime Tanol" with extravagant claims as to its purity, contained a trace of chlorid, about 1 per cent. of calcium sulphate, 3.5 per cent. of alcohol-soluble matter, free acid equivalent to about 4 per cent. of citric acid, lost 3.2 per cent. of its weight when dried over sulphuric acid, gave 50.7 per cent. of ash on ignition and yielded 15.7 per cent. of calcium.

The Squibb specimen contained a trace of chlorid, 0.6 per cent. of calcium sulphate, 6.3 per cent. of alcohol-soluble matter, free acid equivalent to about 9 per cent. of citric acid, 14.5 per cent. of calcium, lost 2.9 per cent. of its weight when dried over sulphuric acid, and left 47.7 per cent. of ash on ignition.

The Merck specimen contained a trace of chlorid, about 0.25 per cent. of calcium sulphate, 7.5 per cent. of alcohol-soluble matter, free acid equivalent to 9.5 per cent. of citric acid, 14.2 per cent. of calcium, lost 3 per cent. of its weight when dried over sulphuric acid, and yielded 47.8 per cent. of ash on ignition.

The examination showed that none of the specimens examined was completely soluble in water. Those which were most nearly soluble were such as contained considerable quantities of an organic acid. Two of the specimens contained considerable amounts of chlorid and four of them contained considerable quantities of sulphate. One specimen contained



"We Must Fight-TOGETHER!"

both chlorid and sulphatè. The alcohol-soluble material ranged from 0.66 per cent. to nearly 7.5 per cent., the greater part of it, apparently, being citric acid. In other words, all of the specimens were decidedly impure in one or more particulars. On comparing the results found in the examination with the standards prescribed in the foreign pharmacopeias and pharmaceutical commentaries—there is no American standard—it was found that none of the specimens complied with all of the requirements in any one of these authorities.

That some of the manufacturers were aware of the poor quality of their products is shown by the occurrence on the labels of their specimens of such qualifying phrases as "Calcium glycerophosphate soluble" and "Glycerophosphate of lime, about 95 per cent."

The findings were submitted, with suggestions for standards and with a request for criticisms to the respective manufacturers, who were also asked to propose standards. While the firms in a way acknowledged the general unsatisfactory condition of their products no definite promises of improvement were made.

Thus, according to this examination the market supply, including the proprietary brand "Lime Tonol" for which extravagant claims of purity have been made, are all of inferior quality. The products contain considerable quantities of impurities such as sulphates, chlorids, and foreign sodium and calcium compounds, the presence of the latter in most cases having been disguised by the addition of citric acid. The composition is such that none of the products on the American market is entitled to the name "calcium glycerophosphate." The report also shows that while the manufacturers have in general acknowledged the poor quality of their product, they have shown considerable indifference concerning its improvement. Since they have been unable or unwilling in the past to supply calcium glycerophosphate of fair quality, there is little likelihood that a decreased demand, which may be expected since the demonstration of its small value, will offer an inducement to improve the quality in the future. In view of these conditions, it is recommended that calcium glycerophosphate be not described in New and Nonofficial Remedies.

Association News

Date of the Next Annual Session

The Board of Trustees announces that the next annual session of the American Medical Association will be held in Minneapolis, June 17-20, 1913.

Correspondence

The Value of the Journal to the Country Practitioner

To the Editor:—In reading over your "Knocks and Boosts," I am rather surprised that the "knockers" criticize THE JOURNAL on the ground that it has too little of value to the general practitioner—that it does not help the country doctor. I have been a subscriber to THE JOURNAL ever since my senior year in medical school and have been what might be called a "country practitioner," but I never have received an issue of THE JOURNAL that has not contained something of interest or value to me. I look forward to the coming of THE JOURNAL in every Monday mail and am sure to miss it if it fails to appear. Even if I do not read everything it contains, yet I scan it carefully from cover to cover to be sure that nothing escapes me, for often I have found some helpful suggestion in the most unexpected place. I have tried other journals but have never been able to get so much value out of them as I invariably do from THE JOURNAL of the American Medical Association.

In the issue of THE JOURNAL for May 25, for example, I was interested in the article on the "Operative Treatment of Fractures" by Dr. Sherman, of Pittsburgh, because I occa-

sionally have to refer fractures to a surgeon for operative treatment and if I know what other surgeons are accomplishing with this method I can judge of the results my patients are getting. I read the article on "Gas on the Stomach," because that is a complaint every physician has to treat. I read the article on the treatment of "Gonorrhea in Girls," because I can never tell when I may get a similar case. "Abdominal Pain as an Initial Symptom in Typhoid" should interest the general practitioner, who is sure to have a case of typhoid at least once in a year. Dr. Frank's article on "Medicine as Depicted in English Literature Before the Eighteenth Century" proved very interesting to me. Dr. Lovett's article on "The Atrophy of Muscle and Bone Resulting from Joint-Disease, Injury and Fixation" brought forcibly to my attention a danger which I had never appreciated and gave me an informing point in the diagnosis of long-standing joint troubles which I hope I shall ever bear in mind. I read with much interest the editorial discussion of "Life Without Bacteria," and comments on "Federal Meat Inspection," "Graduation Required in Mississippi" and "A Clean Daily." Under the Propaganda for Reform, which always has something good, I found a reprint of Samuel Hopkins Adams' exposé of Swamp Root.

But it would take too much space to enumerate all of the things in this one issue of THE JOURNAL that proved of interest to me. I look through the state medical news to pick up something about some friend or acquaintance or institution in other states. I often glean something out of the correspondence and Queries and Minor Notes, and I never fail to look through the book reviews and the review of the current medical literature, for many a time I have thus gathered a suggestion or bit of information that has proved of value to me in my practice.

It seems to me that the value of THE JOURNAL would stand on one of its departments alone, that of the Propaganda for Reform, containing especially the reports of the Council on Pharmacy and Chemistry. That feature alone has been of infinitely more value to me than the \$5 per annum I pay for THE JOURNAL. It has thoroughly immunized me against the insidious attacks of the proprietary drug houses whose landatory circulars and attractive samples uniformly go from the post-office to the waste-basket.

R. A. ALLEN, Carbonado, Wash.

Chloroform as an Anesthetic: A Protest Against the Report of the Committee on Anesthesia

To the Editor:—The conclusion of the Committee on Anesthesia that the use of chloroform is no longer justifiable in major operations (THE JOURNAL, June 15, 1912, p. 1909), is so extreme that I wonder at finding no protest. If this conclusion is to stand unchallenged, it follows that thousands of surgeons (mostly of the south) will be obliged to give up their favorite anesthetic; not always because they agree with the committee, but because they fear censure or suit for malpractice in the event of a fatality. Chloroform is used in Texas more than ten times as much as ether, and I feel sure that the same ratio exists in many other southern states. I feel sure that there are in Texas more than one hundred surgeons, whose experience would duplicate my own, viz., more than one thousand administrations of chloroform without a death.

THOMAS J. TURPIN, Corpus Christi, Texas.

Induced Pneumothorax in Treatment of Pleurisy with Effusion.—V. Fossati reports in the *Semana Medica*, xviii, 1911, 769, six cases of pleurisy with effusion in which he aspirated the effusion and replaced it with about half the quantity of filtered air. The benefit was so marked that he advises this as a routine procedure. He states that by curing the pleural affection, danger of secondary involvement of the lung is prevented, as also development of adhesions which would interfere with pneumothorax treatment of the lung later; also that the introduction of air prevents the disagreeable sequences of thoracentesis alone, and it permits total evacuation of the effusion.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THERAPEUTIC USE OF TUBERCULIN—TECHNIC OF VASECTOMY—FEE OF A PHYSICIAN CONSULTED DURING PREGNANCY BUT NOT CALLED AT LABOR

To the Editor:—1. What is the present state of opinion held by authorities on the subject as to the advisability of therapeutic use of tuberculin in chronic tuberculous conditions, such as of bones and glands?

2. Can you refer me to any literature on the technic of vasectomy under local anesthesia?

3. When a physician has been engaged for a confinement and he looks after the patient during pregnancy, makes a number of urine examinations and at various times gives advice to patient, can he collect the fee for attendance at time of labor if he is not called, he being unengaged at the time, another doctor being called in attendance?

F. K. K.

ANSWER.—1. Tuberculin is generally believed to be a valuable remedy in treatment of chronic localized tuberculosis.

2. In THE JOURNAL, Sept. 30, 1911, p. 1152, under Queries and Minor Notes will be found a short discussion of vasectomy and a considerable bibliography. Reference is given there to an article by H. C. Sharp on "Vasectomy as a Means of Preventing Procreation in Defectives," printed in THE JOURNAL, Dec. 4, 1909, p. 1897, in which the technic of the operation as performed by him without local or general anesthesia is given.

3. Under the conditions outlined, to collect a fee for the service the physician was in readiness to render at the time of the confinement, the physician must prove that a contract existed—establish the fact he was "engaged." Unless the patient, her husband or guardian did enter into such a contract with the physician, the latter is in the position of the merchant from whose stock a purchaser turns to buy a like article at a rival store. The physician can collect his usual charges for the service he did actually render.

PREVENTION OF SEASICKNESS

To the Editor:—Please give information through THE JOURNAL as to the most efficacious remedies for the prevention and cure of seasickness.

M. A.

ANSWER.—As a general proposition the more incurable a disease the more methods for cure are offered. This is true of seasickness. There is no sure preventive or sure cure. Various methods of prevention have been recommended, among which are the taking of large doses of bromids a day or two previous to going aboard. This will succeed in some instances. Methyl valerianate, chlorbutanol (chlorotone) and veronal sodium have also been recommended. Bier's hyperemia of the head induced by constriction of the neck is also said to prevent seasickness. It need not be used while the patient is lying down and should be employed, of course, under the supervision of the physician. Hot dry packs over the entire body, including the head, kept up until the superficial vessels become fully dilated is a procedure which has been used successfully by H. W. Yemans, Manila, P. I. (THE JOURNAL, Dec. 21, 1907, p. 2107), for many years and is the most effective remedy employed by him during a long experience. Probably the best treatment is that which was advocated by Dr. Alfred C. Girard in THE JOURNAL, June 23, 1906, p. 1925. This consists of atropin sulphate, gr. 1/120, and strychnin sulphate, gr. 1/60, better given hypodermically. This should be taken immediately on going aboard and repeated every three to six hours for a day or two, or as necessary. This treatment was advocated by Dr. W. N. Skinner previous to its employment by Dr. Girard, as the latter acknowledges.

The advice commonly and freely given to the sufferer is to keep out of the stateroom, remain on deck, and move around. On the contrary, many find from practical experience that they get over the trouble much quicker and with less suffering by lying quietly in bed for one, two or three days, as may be necessary—that is, until their nervous systems become accustomed to the motion of the vessel. See also abstract 117 in THE JOURNAL, June 1, 1912, p. 1730.

THE DIRECTORY AND NOSTRUM LITERATURE

To the Editor:—I think the suggestion of A. C. (THE JOURNAL, July 6, p. 53), to omit the residence address in the Directory, is a good one. I find that for the last two or three years my "proprietary" mail and samples of drugs have been coming to my residence, much to my discomfort. The manufacturers have evidently obtained my residence address from the Directory and feel that I will give

more attention to the samples and mail if they are delivered at my home. The reverse of this is true, however, as I am disgusted at receiving such articles at my residence.

I would also suggest that when advertising pamphlets and booklets are received they should always be torn up before being thrown in the waste basket. My waste paper is collected by the Salvation Army, and I feel that I should not help the dissemination of this semiprofessional literature by throwing, unopened, into the waste basket, pamphlets on various diseases and their treatment and proprietary remedies. We also make it a practice to spill or destroy samples of medicine sent to us through the mail, especially those that are not in New and Non-Official Remedies.

It may be too late, as these houses have the residence addresses of many physicians, but I am certain they are making a mistake in addressing physicians on business matters at their residences.

W. H. SNYDER,

[Chairman Academy of Medicine of Toledo and Lucas County.]

Medical Education and State Boards of Registration

COMING EXAMINATION

MAINE: State House, Augusta, July 16-17. Sec., Dr. Frank W. Searle, 776 Congress Street, Portland.

Will Require Supplementary Examination

At a meeting of the Illinois State Board of Health, held June 29, 1912, a resolution was adopted that candidates seeking a license in Illinois through reciprocity will be required to take an examination in materia medica or practice, or both, if their original licenses were obtained in states which do not require examinations in those subjects.

Pennsylvania Secures Reciprocal Relations

A recent statement from the office of the Bureau of Medical Education and Licensure, Harrisburg, states that reciprocal relations have been established by Pennsylvania with Nevada, New Jersey and Illinois.

Illinois January Report

Dr. James A. Egan, secretary of the Illinois State Board of Health, reports the written examination held at Chicago, Jan. 17-19, 1912. The total number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 80 of whom 46 passed and 34 failed. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Examined.
Bennett Medical College, Chicago..	(1911, 2)	(1912, 2)	4
Chicago Coll. of Med. and Surgery..	(1911, 7)	(1912, 1)	8
Coll. of Med. and Surg., Physio-Med., Chicago..	(1911)		1
Hahnemann Med. Coll. and Hospital, Chicago..	(1911)		2
Hering Medical College.....	(1911)		1
Jenner Medical College.....	(1911)		1
Northwestern University Medical School.....	(1911)		8
Reliance Medical College.....	(1911)		1
Rush Medical College.....	(1911, 5)	(1912, 2)	7
Coll. of P. and S., Chicago.....	(1911)		4
Kentucky University	(1901)		1
Univ. of Mich., Dept. of Med. and Surg.....	(1911)		1
University Medical College, Kansas City.....	(1911)		1
Syracuse University	(1907)		1
Long Island College Hospital.....	(1903)		1
Eclectic Medical College, Cincinnati.....	(1911)		1
Woman's Medical College of Pennsylvania....	(1908)		1
University of Toronto, Ontario, Canada.....	(1911)		1
Royal College of P. and S., London.....*	(1897)		1

FAILED

Chicago Coll. of Med. and Surg....	(1905, 1)	(1911, 5)	
(1912, 2)			8
Bennett Medical College, Chicago..	(1910, 2)	(1911, 3)	5
College of Medicine and Surgery, Chicago.....	(1908)		1
Hahnemann Medical College and Hospital, Chicago	(1910) (1912)		2
Illinois Medical College.....	(1910)		1
Jenner Medical College.....	(1905)		1
Northwestern Univ. Med. Coll.....	(1910) (1911)		2
National Medical University, Chicago.....	(1909)		1
Coll. of P. and S., Chicago.....	(1910, 1)	(1911, 3)	4
Reliance Medical College.....	(1910, 1)	(1911, 2)	3
Rush Medical College.....	(1911)		1
Coll. of P. and S., Keokuk.....	(1893)		1
Louisville and Hosp. Med. Coll.....	(1908)		1
American Medical College, St. Louis.....	(1911)		1
Univ. of Trinity Coll., Toronto, Ont.....	(1897)		1
University of Rome, Italy.....	(1906)		1

* An examining body, not a medical college.

Medicolegal

Admissibility of Evidence for Impeachment of Medical Experts and to Prove Expert Knowledge

(*Southern Railway Co. et. al. vs. Parham (Ga.), 73 S. E. R. 763*)

The Court of Appeals of Georgia holds that a witness who testifies as a medical expert cannot be impeached by showing that in other cases he made mistakes in his diagnosis. Testimony as to his general reputation, and not as to his success or failure in special cases, is what is admissible for the purpose of impeachment.

In this case, a medical expert introduced by the plaintiff (Parham) testified as to the character and extent of the plaintiff's injuries. The defendants introduced a witness by whom they sought to impeach and discredit this medical expert by showing that on a previous occasion he had examined this witness and had stated that the witness was suffering from spinal concussion or "railway spine," the same diagnosis which the expert had made of the plaintiff's injuries, when, in fact, the witness had never been in a railroad accident and had never suffered from any spinal trouble. It is held that this testimony was properly excluded.

The court says that it hardly thinks that the value of the testimony of a medical expert can be impeached by instances of special cases in which he might have been mistaken in his diagnosis. So to hold would bring in issue the question as to whether or not in each particular case the diagnosis was correct or incorrect. While it might strike the ordinary mind that a medical expert could not be safely relied on in his diagnosis when he had stated on an examination that a person was suffering from spinal concussion, or "railway spine," when in fact the person had never been the victim of any railroad accident, or had never suffered from any spinal complaint, and while it might be argued that this medical expert in making a similar diagnosis of the plaintiff's injuries was indulging somewhat in a fad or a favorite theory, yet it must be manifest to any thinking mind that it would be unsafe, as well as unjust to the medical expert, to allow such special method of attack, unless at the same time the expert thus attacked were allowed an opportunity of meeting the attack by showing that the witness who testified that he was not injured had been in fact injured and was testifying falsely, and that as a matter of fact this diagnosis of the witness' condition was correct. This method of impeachment should not be permitted.

In support of the medical expert who testified in behalf of the plaintiff it was proper to admit in evidence testimony that he had held many positions in different sanatoriums and hospitals in which he had had extensive experience in medicine and surgery. One method of proving expert knowledge is to show expert opportunities and experience, and clearly this testimony was admissible for this purpose.

When Action for Malpractice is Barred

(*Palmer vs. Jackson (Fla.), 57 So. R. 240*)

The Supreme Court of Florida, Division A, holds that, in an action for damages, in which it is alleged that the defendant, a physician, "undertook the treatment of" the plaintiff, and that "it was the duty of the defendant as physician to properly and skilfully treat the plaintiff, but the defendant did so carelessly, negligently, and unskilfully treat the plaintiff that he was thereby injured," the cause of action is on an "obligation or liability not founded on an instrument of writing," and is barred in three years under Subdivision 5 of Section 1725 of the General Statutes of Florida of 1906, which provides that an action on a contract, obligation or liability not founded on an instrument of writing must be commenced within three years.

Milk-Licensing Powers Conferrable on Board of Health

(*State ex rel. Niles vs. Smith (Fla.), 57 So. R. 426*)

The Supreme Court of Florida, Division A, holds that the city of Jacksonville may regulate the sale of milk within its territorial limits, and require a license tax therefor. The

city may authorize a board of health created by it to prescribe the forms to be used by applicants for licenses; it not appearing that the board has added therein burdens outside those fixed by ordinance. If the board should add unreasonable and improper overinquisitorial questions to be answered, and the applicant should refuse for that reason to comply with the form, he could then raise the question of the propriety of those questions. A board of health may be given power to withhold a license to sell milk, if the place of business or the wagons or the vehicles be not "in a sanitary condition and fit and proper for the use and purpose to which they are intended to be put."

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Niagara Falls., August 20-22.

Minnesota State Medical Association, Duluth, Aug. 14-15.

AMERICAN SOCIETY FOR THE ADVANCEMENT OF CLINICAL INVESTIGATION

(*Fourth Annual Meeting, held in Atlantic City, May 13, 1912*)

Study of the Question of Epinephrin in the Circulating Blood

DRS. T. C. JANEWAY and EDWARDS A. PARK, New York City: The contradictory results obtained by Batelli, Schur and Wiesel, Schlayer, Fraenkel, Kretschmer, Trendelenburg and others in their attempts to demonstrate epinephrin in the blood of normal and especially of nephritic individuals led to this study, which has been prosecuted during the past year. The method used has been a modification of the Meyer strip, testing each serum or blood simultaneously on a coronary and a peripheral artery preparation. This meets the criticism, raised by G. N. Stewart, that no substance can be said to contain epinephrin unless it be shown to give both its stimulating and its inhibitory reactions. Previous workers had used only one of these. Langendorff and others have shown that epinephrin dilates the coronary, as contrasted with all other arteries. One of us (Park) has confirmed these results and has shown that, by the Meyer method, dilatation of the coronary can be obtained with epinephrin in Locke's solution in dilutions as low as 1 in 50,000,000. This method—duplicate reactions with coronary and peripheral arterial segments—has the advantages over all previous methods of employing the mechanism it is desired to study, of sensitiveness and of freedom from disturbance by the viscosity of blood, which, for the frog-perfusion-method, necessitates dilution.

The result of all experiments with ox and human serum or defibrinated blood was an extreme constriction of both the coronary and the peripheral artery preparations, thus demonstrating clearly that the vasoconstrictor substance was not epinephrin. Since the publication of O'Connor's and, later, of Schultz's work, showing that this vasoconstrictor substance is not present in whole blood, but appears only after the formation of the clot, three experiments on uncoagulated human blood, diluted one-half with Locke's solution containing 1 per cent. sodium citrate, have been performed. Two with blood from normal individuals have entirely confirmed O'Connor's results with animal blood, no effect on either artery being obtained. One with blood from a patient with chronic nephritis and marked hypertension failed to give clear evidence of the presence of epinephrin. Epinephrin added to citrated human blood could be identified readily in low dilution.

It is clear, therefore, that, at the present time, proof of the existence of epinephrin in the circulating blood, exclusive of the blood of the suprarenal vein, has not been obtained by any experimenter.

Influence of Adrenals over the Pancreas

DRS. RALPH PEMBERTON and J. E. SWEET, Philadelphia: We have shown in work previously reported that intravenous injections of epinephrin inhibit the flow of pancreatic juice, whether this be caused by hydrochloric acid, normal chyme

or secretin. This inhibition may last some time after the blood-pressure has apparently returned to normal and is independent of the systemic blood-pressure. The removal of the adrenals from dogs otherwise normal induces a flow of pancreatic juice which may last for hours. This flow may occur with a fairly high systemic blood-pressure, though it generally occurs when the blood-pressure is low. The work now reported deals with a study of this flow of pancreatic juice which follows the removal of the adrenals, and leads to the following conclusions:

1. Injections of epinephrin made when the flow is at its height inhibit the flow.

2. Shortly after or before the blood-pressure falls to its previous level, the pancreatic flow returns. It can thus be repeatedly inhibited and it then repeatedly returns. The tendency to flow seems very strong.

3. Since removing the adrenals induces a flow, since injections of epinephrin then inhibit the flow and since the flow returns when the effect of the injection wears off (which last can be repeatedly demonstrated in one animal), it is difficult to escape the belief that one gland normally influences the other.

Effect on Growth of Feeding Anterior and Posterior Lobe of the Hypophysis

DR. JOSEPH L. MILLER, Chicago: Young white rats were placed in individual cages and each received daily a weighed amount of dried hypophysis mixed with cracker, the controls receiving the same amount of dried meat and cracker. Three groups of animals were fed in this manner for periods varying from sixty-eight to ninety days. In all, twenty-three rats were used. Seven of these received daily powdered anterior-lobe in amounts varying from 0.2 to 0.4 gm. Six received from 0.2 to 0.3 gm. daily of posterior-lobe. Ten were used as controls and received the same amount of powdered dried meat. The results were completely negative, both as regards weight and skeletal changes as shown by the x-ray. No disturbances were noted, the animals thriving in the same manner as the controls.

Clinical and Pathologic Observations on Subacute Bacterial Endocarditis

DR. E. LIBMAN, New York: During a study of eighty-nine cases of subacute bacterial endocarditis (so-called chronic malignant endocarditis) evidence was obtained that persons with this disease can spontaneously overcome their infection and that the lesion on the valves may heal in part or entirely. Altogether I have observed eleven cases of bacteria-free healing or healed lesions of subacute bacterial endocarditis. The cases in which I have found bacteria in the blood and which I could follow up all terminated in death. In one case of influenzal endocarditis the bacillus was found five times in the blood. Four later cultures were negative, and the patient died within a few months. There was unfortunately no autopsy. It is remarkable, then, that there should be so many cases in which the bacterial infection is overcome without its being discovered. The explanation that seems the most likely is that in such cases the bacterial infection is of short duration, and the patient does not feel sick enough to see a physician, and that, if he does, he is not put to bed. The patients who overcome their infections before we see them present four clinical pictures: 1. They develop a chronic nephritis and die of uremia. 2. They present the clinical picture of "chronic endocarditis with fever." 3. This group presents a clinical picture that seems to have been entirely overlooked. These patients develop a remarkable brown color of the face (to which I wish to draw particular attention), sternal tenderness, palpable spleen, slight temperature elevation and the evidences of a valvular lesion. The subsequent course of such patients is unknown. 4. They have a valvular lesion with marked anemia and die from exhaustion alone or combined with decompensation. Whether patients can recover entirely and have only the valvular lesion which they had before they were affected by subacute bacterial endocarditis can be determined only by further studies and possibly by complement-fixation tests.

Study with the Electrocardiograph of the Mode of Death of the Human Heart

DR. G. CANBY ROBINSON, New York City: Electrocardiographic records were obtained from seven cases at the time of death—two cases of poliomyelitis, four of lobar pneumonia and one case of pneumococcus meningitis. These records have been analyzed in order to determine the changes in the mechanism of the heart-beat at the time of clinical death in each case. Clinical death was considered to have occurred when respiration finally ceased, when no heart-sounds could be heard and when muscular relaxation and the general appearance of the patient indicated to the physician at the bedside that death had occurred. The patient was pronounced dead in each case without any knowledge of how the heart-beat was affecting the galvanometer.

Cardiac activity sufficient to give a definite record with the electrocardiograph may continue in the human heart for some minutes after clinical death has occurred from an acute infectious disease. In the seven cases described the cardiac activity continued from six to thirty-five minutes after all the usual clinical signs of death had occurred. In four cases the ventricular activity outlasted the auricular activity, in two cases this was reversed and in one case the two parts of the heart seemed to cease synchronously. Marked slowing of the rate of cardiac activity always occurred and there was usually distinct delay in the conduction time between auricles and ventricles. Complete dissociation was seen in three cases. Ventricular fibrillation occurred in two cases, in one of which the ventricles again established a regular rhythm. Evidence of auricular fibrillation was never seen. Characteristic changes in the ventricular electrical complex occurred in all cases. They consisted of a decrease in the size of the R wave and increase in the size of the T wave, and a tendency to a fusion of these waves. There was usually but little change in the duration of the ventricular complexes as the cardiac activity gradually ceased. The foregoing observations indicate that there is no one point in the human heart which may be considered as the *ultimum moriens*, at least when death occurs from an acute infectious disease.

Experimental Bronchopneumonia

DRS. MARTHA WOLLSTEIN and S. J. MELTZER, New York City: We have succeeded in producing experimental bronchopneumonia in dogs with cultures of streptococcus (twenty dogs) and influenza bacillus (eleven dogs), with positive results in every case. The pneumonic lesions were typically lobular in character. There were various features in the character of the lesions produced by these organisms which differed strikingly from the lesions caused by the insufflation of the pneumococcus culture. Especially was this the case with regard to the quantitative production of fibrin. In order to find out whether these differences are specific and due to the differences in the species of the organisms employed, or are merely an expression of the degree of virulence, we studied further in ten dogs the effect of insufflation of cultures of a non-virulent pneumococcus. All these animals had pneumonic lesions which were typically fibrinous or "lobar" in character, although the intensity of the reaction was somewhat less than in the reactions produced by cultures of a virulent organism.

The Nature of the Intoxication in Pneumonia

DR. RUFUS I. COLE, New York City: It is possible (1) that the intoxication in pneumonia may be due entirely to disturbances in the metabolism of the body, and the growth of the bacteria may be only an inciting factor in these disturbances; (2) that the intoxication arises from the breaking down of the exudate at the site of the local lesion. At present, however, we desire only to consider the possibility of the production of a poison by the pneumococcus, either within or outside of the body. Sufficient experiments have already been made to show that there is no active soluble toxin formed in the cultures of pneumococcus. Experiments to detect free poisons in the filtered blood of infected rabbits were negative. We then repeated and confirmed the experiments of Friedberger in relation to the production of the so-called anaphylatoxin with pneumococcus. Later Rosenow showed that acute intoxi-

cation could be produced in guinea-pigs by the injection of bacteria which had been allowed to undergo autolysis in salt solution. Similar observations were made by Neufeld and Dold. Our own results with this method of producing a poisonous substance from the pneumococcus were somewhat inconstant. In certain cases the autolyzed extract produced symptoms and death like that seen in anaphylactic shock, but in other cases the effect of such injection was slight.

In order to learn more in regard to the nature of the changes which the bacteria undergo and also to discover a method by which such poisonous extracts can be prepared more quickly and with great constancy, treatment of the bacteria with various chemicals was undertaken, but the results were not promising until we tried dissolving the bacterial bodies in dilute sodium cholate solution. It was found that such an extract of the bodies of the pneumococcus is extremely toxic when injected into rabbits and into guinea-pigs, and, furthermore, that the symptoms produced both in rabbits and guinea-pigs are exactly like those seen in acute anaphylactic shock in these animals after a second injection of horse-serum. In certain cases these symptoms have been produced by extracts which have been obtained by treating the pneumococci with a dilute sodium cholate solution for only ten minutes at 37 C. (98.6 F.), or half an hour at 4 C. (39.2 F.). Lately the view has been most generally held that the intoxicating substances obtained from the bacterial bodies arise by partial digestion of the protein substances of the bacterial bodies. While our experiments do not disprove this view, the short time and low temperature necessary for the setting free of the poison would rather suggest that the intoxicating substances are preformed in the bacterial cells and are set free on their dissolution. These experiments would therefore rather tend to support the older endotoxin theory of Pfeiffer. The toxic substance so obtained is labile, being destroyed at 60 C. (140 F.) for one hour.

AMERICAN PEDIATRIC SOCIETY

Annual Meeting, held at Hot Springs, Va., May 29-31, 1912

(Concluded from page 61)

The Dextrins and Maltose in Infant-Feeding

DR. THOMAS S. SOUTHWORTH, New York: In health the infant seems to take with about equal facility the three sugars most commonly employed in making up the deficiency of carbohydrates in diluted cow's milk, namely milk-sugar, cane-sugar and so-called malt-sugar. Although the advantages of malt-sugar or maltose have received wide recognition for purposes of restoring deficient nutrition in infants, there has been little appreciation of the rationale of its action. The terms "malt-sugar" and "maltose" are inaccurate and misleading. Pure malt is a rare product of the laboratory, too expensive for general use, and consequently never employed in infant-feeding; the commercial products to which this term has been applied are numerous, and it is doubtful whether any two of them have the same composition. The term embraces almost any preparation produced by the action of diastatic ferments on starch. Maltose is never administered without an admixture of dextrins, which latter, while capable of being further elaborated into maltose, and subsequently into dextrose, have, for the time being, very different chemical and physical properties. This association of dextrins with maltose is a matter of considerable importance and may be assumed to play a large part in the favorable effects of the malt preparations in disturbed conditions. Maltose is not liable to fermentation of certain types. Dextrin remains unfermentable in beer and is immune to fermentation in the intestine until reduced to assimilable maltose.

Maltose in Infant-Feeding

DR. JOHN LOVETT MORSE, Boston: Almost all sugars spoken of as malt are in reality combinations of maltose and dextrin. These sugars are all disaccharids. These are not absorbed as such from the intestines in normal conditions, but are first broken down into their respective monosaccharids by special ferments, maltase, saccharase, and lactase. These are

formed in the mucous membrane of the small intestine. Maltose is the most quickly absorbed of the three saccharids and saccharose next. The disaccharids are all fermentable. It is of considerable importance, in order to maintain the normal fecal flora, to have a considerable amount of sugar in the food of babies fed on cow's milk mixtures. Lactose favors the development of *B. bifidus*, while maltose is especially conducive to the growth of *B. acidophilus*. Under normal conditions, therefore, lactose is preferable to maltose. There is more rapid gain in weight when maltose is added to food poor in sugar than when lactose is added, but this is of no importance since the gain in both instances is due to the retention of water; Finkelstein and Meyer add maltose to their *Eureiss-Milch* after the disappearance of acute symptoms in order to prevent the child from suffering from loss of weight and lack of nutrition. The use of this treatment during the past year has convinced me that there is a variety of intestinal indigestion in infancy which is relieved by reducing the sugars and salts in the food to a minimum and giving large amounts of casein and that the giving of dextrin-maltose preparations can be begun before the patients can take lactose. This type of cases is characterized by a number of stools of diminished consistency, green in color, often frothy, acid in reaction, and not infrequently containing mucus and fat curds. Maltose is contra-indicated in the treatment of diarrhea due to the gas bacillus and similar organisms, and is less useful than lactose in the treatment of those caused by the dysentery bacillus.

DISCUSSION

DR. JOHN HOWLAND, St. Louis: We should do more work on the dextrins. The Germans think that the use of lactose in normal children is dangerous and support their argument by citing their experiments on puppies. However, the puppies that had rickets did well on this feeding; if they are fed on glucose they die, and if they are fed on saccharose alone they die. I cannot agree that lactose is dangerous in dysentery. In large quantities it increases the diarrhea and this should be remembered. The experimental reports showing lactose to be a useful mode of treatment must be accepted.

DR. ISAAC AET, Chicago: I have been using malt preparations for some time and normal children do well on it, so far as gain in weight is concerned. All preparations belonging to the malt-dextrin group cause constipation and some substance should be added to counteract this tendency. Thus far the bacteriology of the intestinal tract is in too indefinite a state to warrant the drawing of any conclusions, much less can one prescribe sugar on the basis of the intestinal flora. We are giving too much attention to sugars alone. It seems to me that the normal child does equally well on malt-sugar, cane-sugar, and sugar of milk.

DR. ROWLAND G. FREEMAN, New York: The warning concerning the use of malt-sugar is timely. All babies should have a chance at normal feeding before being given the abnormal. There is a tendency to place children on malt foods because they grow faster. This class of proprietary foods is responsible for a large percentage of the cases of scurvy.

DR. L. EMMETT HOLT, New York: It is a fact that children fed on maltose develop scurvy. The use of lactose will overcome the constipation from which so many children suffer and the liquid preparations are better than the dried ones. In a recent study of certain sugars it was found that lactose and cane-sugar in solution are practically sterile, but that maltose preparations contain many pathogenic organisms. These organisms are killed only at a high temperature which changes the composition of the sugar. The use of cane-sugar is an advantage where malt-sugar and maltose are not tolerated in diarrheas. This is the secret of success in the use of condensed milk. In the main I agree with the conclusions drawn in the paper.

DR. L. E. LA FETRA, New York: The use of milk-sugar does harm in certain cases. Cases of diarrhea occurring among hospital patients have been found to improve when milk-sugar has been stopped and cane-sugar or one of the dextrin-malt preparations substituted. During the past ten

months I have been using cane-sugar together with the dextrin-malt preparations and have had good results. In cases with acid stools and a large amount of mucus and blood, it is a mistake to resume the use of milk-sugar too soon.

DR. HENRY COIT, Newark, N. J.: There is a chemical as well as a gross difference due to contamination between the commercial milk-sugar and mother's sugar of milk. The former contains bacterial toxins. It should be boiled before using.

DR. J. P. CROZER GRIFFITH, Philadelphia: A large number of cases of scurvy are caused by the use of malt preparations.

DR. ALFRED HAND, JR., Philadelphia: I have always felt that lactose tends to produce diarrhea. Where a child is obstinately constipated, lactose or saccharose has a tendency to regulate the bowels.

DR. THOMAS S. SOUTHWORTH, New York: Starch can be overused in feeding infants and one should be careful as to the amount used and also in regard to the diluents. I have used barley-water largely during the past decade in children who were not doing particularly well on other diluents. I agree with Dr. Abt that the effect of malt-dextrin mixtures is constipating rather than laxative; this is probably due to the extraction of fluid from the tissues.

DR. JOHN LOVETT MORSE, Boston: I have looked into the question of maltose in infant-feeding to find out the primary basis for the wave of this form of infant-feeding that is sweeping over the country. I cannot see a single reason for the use of milk-sugar. Chemically, contrary to the opinion often expressed, it is the same as mother's milk-sugar. Boiling milk-sugar may destroy the bacteria, but it does not seem to destroy the toxic products. During the summer of 1910, in Boston, maltose solutions were employed in the treatment of dysenteric diarrheas and it was felt that nothing but good resulted. It should be remembered that the bacteria we had to deal with might not be the same as those occurring in the diarrheas of children in other cities.

A Case of Retarded Development in a Boy Treated with Thymus Extract

DRS. CHARLES GILMORE KERLEY and S. P. BEEBE, New York: The patient was a boy, aged 16, who was mentally sound, but was undersized and whose penis was small and shrunken, testicles small and resting in the canal the greater part of the time although they could be brought down. At the end of nine months of hygienic and tonic treatment, there was no change in the condition of the sexual organs. Medication was stopped and 15 grains of thymus extract was given daily. During the first six months of this treatment the genitals perceptibly enlarged and after nine months' treatment the first erection occurred. At the completion of one year's treatment hair appeared on the pubis and in the axilla. The testicles have remained in the scrotum during the past six months and the sexual organs are apparently normal. The boy has gained one inch in height.

Serum Treatment of Pneumonia

DR. ROLAND G. FREEMAN, New York: On account of the usually favorable results of treatment with antipneumococcus serum it seemed worth while to try it in a series of cases, using alternate cases as controls. The patients in the series showed high temperature with good chest signs. In none of the cases was there any evidence of irritation at the site of the injection. The serum was rapidly absorbed. The injections were followed by urticaria, but without fever or general disturbance. The average age of the children injected was 20 months, of the controls 11 months. The effect in many cases was an immediate change in the appearance of the child. Children that looked septic in several cases after the injection had a good color, were brighter, took the feedings better and seemed much improved although the condition in the lung was unchanged or seemed to be spreading. In some cases the serum injections appeared to have no results, but in most cases there appeared to be a better reaction on the part of the child after injection than before. The reaction was usually followed by some reduction in leukocytosis and the percentage of polynuclear leukocytes increased. The pneumococcus serum presented a safe way of attempting to influ-

ence the course of pneumonia in children; the addition of antipneumococcus serum seemed to offer no advantage over the use of the pneumococcus serum alone.

DR. MATTHIAS NICHOLL, JR., New York: After a fairly large experience with pneumococcus serum in both children and adults it seems to me that one should give large doses of the serum, at least 100 c.c. In a recent attempt to immunize a series of diphtheria patients against secondary pneumonia there seemed to be no reduction in the death-rate from pneumonia through this attempt at immunization, and it was difficult, therefore, to have a great deal of faith in the curative value of a serum which had so little protective power against the organisms whose activities it was designed to control. In view of the fact that good results seem to follow the use of the serum in some cases, it is advisable to use it in prolonged cases which seem to be daily losing ground, but the dosage should be large. I have seen no bad effects from the administration of the serum even though the doses were very large. I prefer to give it intravenously, but 100 c.c. may easily be given subcutaneously.

AMERICAN GYNECOLOGICAL SOCIETY

Thirty-Seventh Annual Meeting, held at Baltimore, May 23-30, 1912

(Continued from page 53)

The Relation of Thyroidism to the Toxemia of Pregnancy

DR. GEORGE GRAY WARD, New York City: These cases may be classified into (a) cases having no Graves' disease, but without sufficient thyroid secretion to promote the increased metabolism in the liver made necessary by the pregnancy, and probably due to the failure of the thyroid to hypertrophy; (b) cases associated with Graves' disease, which usually causes serious disturbance in the metabolism. Toxemias of the first group are frequently much benefited by the administration of thyroid substance in the form of either the dry extract or the serum. In toxemias of the second group, it is essential to determine whether the Graves' disease is in a condition of hyperthyroidism or hypothyroidism. If the former, rest, application of ice, milk diet, and sedatives should be employed, and if these measures fail, an antiserum should be administered. If the latter, thyroid substance should be given in the form of the dry extract, or, what is more efficient, if possible to obtain, a saline extract prepared from normal human glands for hypodermic administration. Reliance should be placed on the nitrogen partition of the urine as a guide to the severity of the toxemia rather than on the blood-pressure. Induction of labor is very slow and uncertain in these cases, and where the history of former labors is that of dystocia, elective cesarean section is probably the safest method of delivery for both mother and child.

The Treatment of Acute and Fulminant Toxemia

DR. EDWARD P. DAVIS, Philadelphia: One fact stands out preeminently in all fatal cases of toxemia of pregnancy, and that is the disorganized state of the blood, the minute hemorrhages in the liver and other organs, and, when the toxemia lasts for some time, the occurrence of pulmonary edema and of gangrenous pneumonia. The value of milk as a prophylactic diet must be insisted on. A thorough physical examination should give warning of the approach of fulminant toxemia. Should the conditions be unfavorable for spontaneous delivery, and the uterus makes an effort to expel its contents, rapid delivery by abdominal section is the operation of choice. I prefer this to vaginal section because it is free from mechanical difficulty, and does not open the veins above the pelvis and lower portion of the birth canal.

Treatment of Eclampsia

DR. FRANKLIN S. NEWELL, Boston: Limitation of absorption of toxins is only to be accomplished by ending the pregnancy. The method of operative delivery must be chosen to suit the needs of the individual patient and skill of the obstetrician. Prevention of damage by toxins already absorbed should be undertaken, and the control of convulsions by the

free use of morphin to the point of slowing respiration to twelve per minute; also lowering of blood-pressure to approximately normal point by venesection in order to reduce the strain on the heart. Free catharsis should be induced by the use of salines and croton oil in repeated doses until several watery movements have resulted. The lower bowel should be washed out by colonic flushing. Probably most of the toxin is excreted by the intestinal tract, and if not removed it may be reabsorbed and cause a recurrence of symptoms. In these cases and in patients who have reacted badly to operative procedures, direct transfusion of blood should be considered as a possible life-saving procedure.

Discussion on Eclampsia

DR. GEORGE TUCKER HARRISON, Charlottesville, Va.: It is logical to maintain that in cases of acute toxemia in pregnancy, whether with or without eclamptic attacks, the indication for treatment is to empty the uterus as speedily as possible. Forceps should be applied only when the head is fixed in the pelvis. In the case of a primipara, when the cervix is maintained in its entire length, the indication is the vaginal cesarean section. Abdominal cesarean section should be reserved for cases of contraction of the pelvis.

DR. JOHN O. POLAK, Brooklyn, N. Y.: Before the formation of the placenta, the curet is the method of choice, and after this period anterior hysterotomy offers decided advantages. The preeclamptic state, not yielding to dietetic, eliminative and medicinal measures, justifies evacuation. When the convulsions and coma have occurred, the termination of pregnancy improves the chance of the patient's recovery, and the condition of the cervix determines whether delivery be by incision, bag or nature, supplemented by version or forceps. Finally, anterior hysterotomy should always be the choice over manual dilatation, where no effacement of the cervix has taken place.

DR. CYRUS A. KIRKLEY, Asheville, N. C.: To eliminate accumulated toxins, and to restore impaired or arrested function in the eliminative organs is the aim of treatment. Calomel and soda, followed by saline, alkaline diuretics, if not contra-indicated, the hot pack, the hot-air bath, glonoin, massage, pure air, and abundance of pure water are important aids in treatment. The uterus should be emptied as soon as it can be done without increasing the risk to the mother. While cesarean section should not be the *dernier ressort*, we should be absolutely sure that delivery by other means is impossible.

DR. REUBEN PETERSON, Ann Arbor, Mich.: If the patient fails to improve under the prophylactic treatment, the best method is to empty the uterus as quickly as possible.

DR. BARTON COOKE HIRST, Philadelphia: I have used parathyroid extract for five or six years, and I believe that in the rare types of toxemia I get better results than from the thyroid extract itself, but those toxemias that require parathyroid treatment are rare. I am strongly opposed to unqualified advocacy of the operative treatment.

DR. RICHARD C. NORRIS, Philadelphia: My last thirty cases occurred during the period when vaginal cesarean section was discussed by the profession. Of these, there were thirteen actually eclamptic women who had had forty-two convulsions; there were seventeen preeclamptic cases past the seventh month of pregnancy. This group of cases was treated by the conservative plan. One woman died without eclampsia from a wide-spread accumulation of fluid in the serous cavities, chronic Bright's disease, and none of the infants died, most of them being premature.

DR. J. WHITRIDGE WILLIAMS, Baltimore: Vaginal hysterotomy or cesarean section is the method I have employed for some years to empty the uterus for the vomiting of pregnancy. In cases of eclampsia, it is very essential to individualize, but I believe in every case, in which the cervix is rigid, and in which prompt delivery is necessary, vaginal cesarean section is the operation of choice.

DR. CHARLES M. GREENE, Boston: When these patients are put under the usual eliminative treatment, very often labor begins and they deliver themselves and recover without ever having convulsions.

DR. HENRY D. FRY, Washington, D. C.: After putting the woman to bed and taking off all food by stomach and giving nutrient enemata I use inhalations of oxygen, and if I cannot stop pernicious vomiting, I am satisfied I should empty the uterus. If a primipara has a rigid cervix I believe in doing a vaginal cesarean section every time, and not abdominal cesarean section.

DR. GEORGE W. KOSMAK, New York City: It is not fair in the treatment of these cases to assume that convulsions are the deciding factors, and that is why I object to basing a series of statistics on the presence of convulsions.

DR. HUGO EHRENFEST, St. Louis: No matter what method of treatment is resorted to in these cases of toxemia of pregnancy, the patient should be put into a hospital. It is unsafe to resort to operative measures amid unfavorable surroundings. Conservatism should always be kept in mind in dealing with this class of patients.

(To be continued)

Current Medical Literature

American Journal of Public Health, New York

May, II, No. 5, pp. 315-398

- 1 Regulation of Marriage. J. N. Hurty, Indianapolis.
- 2 *Bacterial Contamination of Bread. K. Howell, Chicago.
- 3 Conservation of Food Products by Refrigeration. P. H. Bryce, Ottawa, Canada.
- 4 Method for Bacteriologic Standardization of Disinfectants. T. Ohno and H. C. Hamilton, Detroit.
- 5 Typhoid in New York City, Together with Methods Found Serviceable in Studying Its Occurrence. C. F. Bolduan, New York.
- 6 *New Method for Disinfection of Tuberculous Sputum. W. R. Stokes and W. N. Schmitz, Baltimore.
- 7 Practical Modification of Winslow Dirt Filter. M. C. Schroeder, New York.
- 8 Inexpensive Outfit for Collection of Bacterial Milk Samples. F. O. Tonney, Chicago.

2. Bacterial Contamination of Bread.—With the plan of determining the degree of bacterial contamination of the outside of bread, 100 loaves were collected by Howell from various districts in the north, south and west sides of Chicago. The loaves were about the same size, ranging from 345 to 375 gm. They were oblong in shape. The exposed surface was, therefore, about the same in all the loaves. The shops from which the samples were chosen differed greatly in conditions of sanitation. There was every degree of cleanliness from the clean shop where the bread wrapped in oiled paper was kept in glass cases, to the dirty shops where the bread was kept on a counter, far from clean, freely exposed to dust, flies and to handling by the customers. Each loaf of bread was taken to the laboratory as wrapped when purchased, since this imitated the conditions under which the bread would ordinarily be used. The entire loaf was then swabbed with wet sterile cotton and the cotton thoroughly rinsed in 10 c.c. of sterile water. From this suitable dilutions were made.

The mediums used in the experiments were gelatin, lactose-litmus-agar and lactose broth. The gelatin plates of the first fifty loaves were incubated at exactly 20 C. for seventy-two hours, those of the last fifty at room temperature (which was practically 20 C.) for seventy-two hours, and the lactose-litmus-agar plates at 37 C. for twenty-four hours before making the colony count. The count was much lower when the bread was kept under clean conditions than when the conditions were dirty. All acid colonies were picked and special search made for *B. coli* and streptococci. These were chosen as types, since they are both common and give some indication as to the cleanliness of conditions. *B. coli* was isolated from three loaves. Two of these loaves were purchased in very dirty shops. The third loaf came from a fairly clean store. Streptococci were isolated from thirty samples.

6. Disinfection of Tuberculous Sputum.—The new method of disinfection for tuberculous sputum, which Stokes and Schmitz have found serviceable, rests on alkaline solution of sodium hypochlorite (antiformin) as its basis. The advantage in using this material consists in the quick solution of the mucus and pus contained in the material disinfected.

Various quantities of phenol and lysol have been added to pure antiformin and it has been found that smaller percentages of these disinfectants will destroy the tubercle bacillus in sputum when used in combination with antiformin than when simply dissolved in water. The antiformin by dissolving the mucus seems to allow the antiseptics to come into direct contact with the tubercle bacilli, and the authors believe that this method possesses this advantage over the ordinary solutions of disinfectants used for destroying the tubercle bacilli practically in sputum. It was found that a 3 per cent. solution of phenol in the entire mixture of sputum and antiformin representing a 6 per cent. solution of the phenol in the antiformin itself would destroy the bacillus of tuberculosis in half an hour and a similar strength of lysol killed the tubercle bacillus in two hours. Equal quantities of the sputum and antiformin solution were mixed so that the 6 per cent. solution in antiformin would represent a 3 per cent. solution in the mixture of antiformin and sputum. The viability of the tubercle bacillus was tested by subcutaneous injections into guinea-pigs.

Ophthalmic Record, Chicago

June, XXI, No. 6, pp. 276-329

- 9 Case of Gumma of Eyelid. C. A. Clapp, Baltimore.
- 10 Orbital Cellulitis; Report of Case. F. Holdsworth, Traverse City, Mich.

American Journal of Orthopedic Surgery, Philadelphia

May, IX, No. 4, pp. 527-755

- 11 Care of Crippled Children in United States. D. C. McMurtrie, New York.
- 12 *Treatment of Volkmann's Ischemic Paralysis and Contraction by Method of Robert Jones. R. H. Sayre, New York.
- 13 *So-Called Benign Cyst of Bones. D. Silver, Pittsburgh.
- 14 *Treatment of Flexion and Adduction Deformity of Thigh by Changing Angle of Femoral Neck. A. O'Reilly, St. Louis.
- 15 Dyschondroplasia. C. E. Coon, Syracuse, N. Y.
- 16 Roentgenologic Study of Some Brittle Bones. R. Hammond, Providence, R. I.
- 17 Exercise Treatment of Paralysis. C. H. Bucholz, Boston.
- 18 *Treatment of Spinal Curvatures. E. H. Bradford, Boston.
- 19 Scoliosis and Its Treatment. R. W. Lovett and J. W. Sever, Boston.
- 20 Pelvi-Thoracic Triangle as Means of Recording Scoliosis; a Scoliometer. R. O. Meisenbach, Buffalo.
- 21 *Removable Plaster Corset for Structural Scoliosis. D. Silver, Pittsburgh.

12. **Volkmann's Ischemic Paralysis.**—Volkmann's ischemic paralysis is regarded by Sayre as being the result of a myositis set up by obstruction to the supply of oxygen by pressure either by bandages, splints or sometimes by position and pressure of bone fragments. Shortening of the affected muscles results, the muscles of the forearm being those usually affected, those of the hand occasionally. Massage is too intermittent to produce good results. Shortening of the bones and removal of scars pressing on nerves have given good results. He believes that Jones' method of constant traction on contracted muscles produces results when massage fails as it is a constant instead of an intermittent force. In some cases bone growth at a faster rate than muscle growth may cause recurrence of deformity in a way analogous to the recurrence of equinus in cases of paralysis of the leg and a second stretching may then be necessary.

13, 14, 18 and 21. Abstracted in THE JOURNAL June 17, 1911, pp. 1845, 1846 and 1847.

Journal of Tennessee State Medical Association, Nashville

June, V, No. 2, pp. 49-92

- 22 Membranous Pericentitis and Allied Conditions of Ileo-Cecal Region. J. N. Jackson, Kansas City, Mo.
- 23 Research on Heredity. W. St. John, Bristol.
- 24 Management of Syphilis. W. F. Glenn, Nashville.
- 25 Etiology of Diabetic Glycosuria. W. K. Vance, Bristol.

Journal of Infectious Diseases, Chicago

May, X, No. 3, pp. 259-450

- 26 *Changes in Influenzal Pneumonia. D. J. Davis, Chicago.
- 27 Biometric Study of Milk Streptococci. J. Broadhurst.
- 28 Classification of Streptococci by Their Action on Carbohydrates and Related Organic Media. C. E. A. Winslow, New York.
- 29 *Experimental Therapy of Rocky Mountain Spotted Fever. P. G. Heinemann and J. J. Moore, Chicago.
- 30 Experiments on Disinfection of Water with Ultra-Violet Light, with Laws of Disinfection. M. R. Scharff, Birmingham, Ala.
- 31 *Action of Antistreptococcus Serum in Streptococcus Infections in Man. G. H. Weaver and R. Tunnicliff, Chicago.

- 32 *Transmission of Immunity from Mother to Offspring; Study on Serum Hemolysins in Goats. L. W. Famulener, New York.
- 33 *Properties of Desiccated Rabies Virus and Its Use in Antirabic Immunization. D. L. Harris, St. Louis.
- 34 *Calcium Salts and Onset of Labor. J. H. Kastle and D. J. Healy, Lexington, Ky.
- 35 *Development of Proteolytic Ferments in Blood During Pneumonia. G. F. Dick, Chicago.
- 36 Outbreak of Typhoid in Cedar Falls, Iowa. A. L. Grover, Iowa City, Iowa.
- 37 Comparative Toxin Production in Diphtheria Strains. J. L. Berry and L. P. Blackburn, New York.
- 38 Non-Variability of Diphtheria Bacilli. J. L. Berry and E. J. Banzhaf, New York.
- 39 *Concentration of Antistreptococcal and Antigonococcal Sera. P. G. Heinemann and L. C. Gatewood, Chicago.
- 40 Effects of Chemicals on Division Rate of Cells, with Special Reference to Possible Precancerous Conditions. G. N. Calkins, F. D. Bullock and G. L. Rohdenburg, New York.

26. **Changes in Influenzal Pneumonia.**—Davis holds that influenzal bronchopneumonia occurs in a large proportion (78 per cent.) of all patients dying of influenzal meningitis. As a rule it develops early and may precede the appearance of the meningeal symptoms. The influenza bacilli are found in the lung and bronchial exudate but usually mixed with a smaller number of other organisms (streptococci, pneumococci, etc.). The lungs are probably the atrium of infection in many cases though not in all. The pneumonia is always lobular in character and does not appear to differ morphologically in any essential respect from the lobular pneumonia commonly associated with the respiratory type of influenza or from that associated with other acute infectious diseases.

29. **Rocky Mountain Spotted Fever.**—Horses are susceptible to spotted fever if the virus of guinea-pigs is injected subcutaneously and intravenously. The fever usually takes a mild course and the temperature is not exceedingly high. Normal temperature appears again after seven to nine days. It should be interesting to allow infected ticks to bite horses and determine whether the disease can be communicated in that way. The serum from horses recovered from spotted fever has a protective value. The potency is largest after about twelve days from the time of the reappearance of normal temperature. Repeated injection of spotted fever virus increases the potency of the serum materially, but does not produce a second attack of spotted fever. The serum can be concentrated by the method practiced in concentrating diphtheria antitoxin. The gain in potency may be ten times the original value. The pseudoglobulin fraction of blood-serum contains the bulk of antibodies in immunized horses.

Assuming 0.1 e.e. of guinea-pig virus to be the smallest amount which will invariably produce spotted fever in guinea-pigs, 1 e.e. of a serum was protective against 1,000 doses. Guinea-pigs injected with spotted fever virus and immune horse serum separately into the peritoneal cavity acquire an immunity lasting for at least four weeks. One e.e. immune horse serum protects guinea-pigs injected with spotted fever virus up to, and including, the first day of high temperature. If serum is given later there is no protection. Treatment of guinea-pigs, injected with spotted fever virus, with sodium cacodylate and repeated every day, commencing with the first appearance of temperature, has no effect on the course of the disease.

31. **Streptococcus Infections in Man.**—Alterations in the streptococcus opsonin and in the phagocytic activity of the leukocytes subsequent to injections of antistreptococcus serum were studied by Weaver and Tunnicliff in six cases of erysipelas, two cases of septic scarlet fever and two cases of chronic otitis following scarlet fever. The former eight cases were of a severe type and selected as being likely to run unfavorable courses. All of the six cases of erysipelas terminated in recovery and visible improvement usually began about twenty-four hours after the serum was given. The improvement was shown by falling temperature, recession of the local swelling, subsidence of delirium and betterment in the general condition. In short, the impression on the observers was that recovery was more rapid than could be expected in the usual course of the disease in similar cases. That the rapidly favorable outcome was not accidental was further indicated by the concurrent increase of streptococcus opsonin above that observed in untreated cases. The serum was administered to

two patients with septic scarlet fever. In each there was a leukocytosis and in each the leukocytes showed increased phagocytic activity before the injection. In each, the opsonic index was subnormal, but rose after the serum was injected, and with this rise the temperature fell and the general condition improved. Both patients were desperately sick with a very bad outlook before the serum was given and both made as rapid and complete a recovery as occurs usually in untreated cases of moderate severity.

In two cases of chronic suppurative otitis media following scarlet fever in which cultures from deep in the ear yielded streptococci in almost pure growth, a single injection of 60 c.c. was given. Both children had received diphtheria antitoxin several weeks before and they both developed a severe serum reaction a few hours after the injections. In each case the opsonic and cytophagic indexes rose very considerably and remained elevated several days. The effect on the aural discharge was not pronounced.

The authors have not found that the injection of serum produces an increase in leukocytes. However, a leukocytosis already present falls after the administration of the serum as symptoms abate. The increased activity of the leukocytes following the serum injections does not appear to be specific, as the authors had thought probable in their former study in guinea-pigs. Most of the injections have been made into the muscles to facilitate rapid absorption. No untoward effects were noted after such injections. In very urgent cases the intravenous injection should be considered as likely to yield the quickest results.

32. Immunity Transmission from Mother to Offspring.—To summarize briefly the principal results of Famulener's experiments, it was found that goats actively immunized against sheep blood-corpuscles during gestation passively transmitted the specific hemolysin to their young. The colostrum was the chief agent in bringing about the passive immunization of the suckling. Sucklings which got the colostrum and first milk rapidly acquired a relatively high antibody content in their blood, which was well retained. When the immunization was done during the period of gestation the colostrum contained a high content of specific hemolysin, often much higher than the adult's serum, at time of parturition. The hemolytic antibodies rapidly disappeared from the milk after the mother had been suckled by the young. The blood taken from the newly-born before they were permitted the antibody colostrum showed no appreciable amount of hemolysin by the test used. The placenta played a minor rôle in the passage of hemolysins to young before birth, practically negligible in most cases. Mother goats, actively immunized against sheep-blood-corpuscles immediately after birth of their young, failed to transmit any demonstrable immunity to their suckling young. The milk, in some cases, contained no demonstrable hemolysins, but in others showed fairly large amounts. Apparently a very high degree of immunity is necessary before appreciable amounts of antibodies are excreted through the milk. Older sucklings apparently did not absorb the antibodies in an unchanged condition. The young animals (kids) did not respond to any extent in production of hemolysins following subcutaneous injections of foreign blood-cells (sheep).

33. Properties of Desiccated Rabies Virus.—Harris holds that rabie material may be completely desiccated without destruction of virulence, provided the dehydration takes place at a low temperature. The lower the temperature, the greater will be the amount of virulence preserved. The desiccated virus contains per weight as much infectivity as the fresh virus. The loss of virulence is so slow that the material may be standardized, permitting an accuracy of dosage hitherto impossible. The unit is the smallest amount which, when injected intracerebrally into a full grown rabbit, will produce paresis on the seventh day. The use of desiccated virus in antirabic immunization of animals and persons offers many advantages over other methods.

34. Calcium Salts and Onset of Labor.—It is evident from experimental results obtained by Kastle and Healy that under certain conditions, at least, and so far as they have been

able to ascertain under normal conditions of pregnancy, calcium salts in the amounts and at the concentrations indicated are specific in giving rise to premature onset of labor in pregnant guinea-pigs, within a very short interval following their administration intraperitoneally. In the light of Bell and Hick's observations they do this by causing a rhythmical, expulsive contraction of the pregnant uterus. The fact also that potassium lactate, though greatly slower in its action, can accomplish the same thing is also a matter of interest. That sodium lactate, in the amount and at the concentration employed, does not bring on the onset of premature labor in the pregnant guinea-pig, is what one might naturally be led to expect from the general inertness of small amounts of sodium salts in the animal organism. The fact also that magnesium lactate, in the amount and at the concentration employed, is powerless to bring on the onset of labor is also what one would be led to anticipate from the work of Meltzer and Auer on the physiologic action of magnesium, which, in the form of its soluble salts, greatly inhibits many vital processes and causes complete relaxation, general anesthesia and ultimately death. Thus far fresh, normal colostrum from a healthy cow has failed to bring on the onset of labor in the pig that received the magnesium lactate, indicating possibly a protective action on the part of the magnesium against the calcium salts of the colostrum.

35. Proteolytic Ferments During Pneumonia.—Proteolytic ferments were found by Dick to develop in the blood during pneumonia about the time of crisis. These ferments seem to have special action on pneumococcal protein and may take part in the mechanism of the crisis.

39. Antistreptococcic and Antigonococcic Sera.—The results of the work done by Heinemann and Gatewood show that antistreptococcic sera and antigonococcic sera can be concentrated by the same method as diphtheria antitoxin. The globulin solution may have a potency of 3 to 5.6 times the potency of the original serum, as measured by the opsonic index. They have also shown that in these sera the chief amount of antibody is united with the globulin fraction of horse blood, the same as in diphtheria and tetanus antitoxins and with the antibodies to Rocky Mountain spotted fever. The clinical efficiency of the concentrated sera is being tested and the results will be published later.

Journal of Oklahoma State Medical Association, Muskogee

June, V, No. 1, pp. 1-43

41 Eugenics. A. B. Montgomery, Muskogee.

42 Osteomyelitis of Acute Infective Variety. C. von Wedel, Oklahoma City.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

June, IV, No. 12, pp. 209-231

43 Clinical Study of High Blood-Pressure. A. W. Hewlett, Ann Arbor, Mich.

New York State Journal of Medicine, New York

June, XII, No. 6, pp. 277-340

44 Prevention of Blindness and Instruction of Blind Child. G. E. deSchweinitz, Philadelphia.

45 Prevention of Deafness and Instruction of Deaf Child. G. H. Makuen, Philadelphia.

46 *Movement for Prevention of Tuberculosis in This State. H. Filks, New York.

47 Prevention of Insanity. A. W. Ferris, Watkins.

48 Occupational Diseases of Ear, Nose and Throat. W. S. Bryant, New York.

49 Water-Trip Stomach: Diagnosis, Symptomatology and Treatment. G. R. Satterlee and L. T. LeWald, New York.

50 Acute Poliomyelitis. G. Draper, New York.

51 Diagnosis of Epidemic Poliomyelitis in Preparalytic Stage. R. F. Kennedy, New York.

52 Pathology of Acute Poliomyelitis. F. W. Peabody, New York.

53 Treatment of Infantile Spinal Paralysis. D. E. Hoag, New York.

54 *Prevention and Correction of Deformities by Mechanical Treatment. W. R. Townsend, New York.

55 Surgical Treatment of Deformities and Disabilities Following Poliomyelitis. H. L. Taylor, New York.

56 *Rupture of Kidney in Children. C. L. Gibson, New York.

57 Value of Municipal Control of Child Hygiene. S. J. Baker, New York.

58 Real Things in Health Officer's Life. R. L. Crockett, Oneida.

59 Cooperation. C. F. Abbott, Elmira.

46. Prevention of Tuberculosis.—The time has come, in Folks' judgment, when legislation should be had requiring the employment in every city and town of the state, paid from public funds, of a visiting nurse, for each suitable number

of population. The New York State Grange, representing more than 100,000 farmers, recently adopted a report recommending the employment by local granges of visiting tuberculosis nurses until such time as they could be taken over by the local public authorities. The State Federation of Women's Clubs, representing 223,000 members, has undertaken similar work in a number of the cities and villages. These straws indicate the direction in which the wind is blowing. It is a short step from the performance of public health work by such large and influential groups to its assumption by the largest group of all, the people of the respective cities, towns and villages of the state. The indirect contribution to the public health movement made by the tuberculosis campaign may easily prove to be its most important results. From the numbers of dispensaries, visiting nurses and hospitals already provided or under way, Folks says, they are now able to hold out definite encouragement that, if they keep of good courage, continue to increase the number of active supporters of the movement, and do not lose any of their enthusiasm or determination, they shall, by the end of 1915, be able to announce "No uncared-for tuberculosis in 1915."

54. Correction of Deformities.—Townsend believes that practically all of the deformities following poliomyelitis can be prevented by appropriate treatment. Deformities may occur very soon after the attack. The prevention of the primary deformities tends to greater degree of recovery and prevents the secondary deformities. The early orthopedic treatment of the after-effects of poliomyelitis gives better results than do other forms of treatment, and will enable one more satisfactorily to perform, when indicated, the various operations devised for these cases, and the large number of operations now necessary to correct deformities, in the future will be greatly reduced.

56. Rupture of Kidney in Children.—Attention is called by Gibson to the fact that rupture of the kidney in children is probably commoner than generally estimated; that the lesion is frequently severe, consisting of a complete division of the kidney into unequal halves; that shock and other symptoms may be slight and out of proportion to the gravity of the lesion; that operative interference should be more freely employed and gives good results. Gibson would refrain from immediate operation in (a) all milder cases, presenting no one symptom of any severity and giving a history of injury which is presumably of no great violence; (b) cases of generalized injury with a very bad general condition and absence of urgent kidney symptoms. For the latter class he would urge an exploratory operation with an appreciable increase of any or all symptoms at an early date. Operation in some form, then, is indicated for all milder cases that show a tendency to increase their symptoms and for all other cases, barring those falling in class B. Gibson's attitude in the border-line cases would be, when in doubt operate, believing that by such a routine measure we will not let some seemingly mild case slip through our fingers. As regards the time of operation, in general one should operate as early as possible, but if the main symptom is not that of an increasing anemia (repeated examinations of the hemoglobin) one might well occasionally give the patient a few hours to pull himself together, though such a delay should not be entertained if there are associated intraperitoneal injuries calling for prompt relief.

Bulletin of American Academy of Medicine, Easton, Pa.

June, XIII, No. 3, pp. 127-164

- 60 Teacher's Relation to Health Supervision in Schools. E. B. Hoag, Berkeley, Cal.
- 61 Classification of Feeble-Minded Based on Mental Age. A. C. Rogers, Faribault, Minn.
- 62 School Nurse. F. Allport, Chicago.
- 63 Importance of Early Recognition of Surgical Affections in Children. C. D. Lockwood, Pasadena, Cal.

Virginia Medical Semi-Monthly, Richmond

June 21, XVII, No. 6, pp. 133-156

- 64 How May at Least 100,000 Babies Be Saved from an Untimely Death Each Year and So Lessen Present Fearful Infant Mortality in This Country? E. M. Sill, New York.
- 65 *New Diet for Typhoid. W. W. Garton, Norfolk, Va.
- 66 *More Liberal Diet in Typhoid. C. R. Grandy, Norfolk.
- 67 Gynecologic Diagnosis. C. R. Robins, Richmond.
- 68 Iodin Sterilization. C. C. Hubbard, Farmer, N. C.

65. Published in *Military Surgeon* for March and abstracted in *THE JOURNAL*, April 6, p. 1037.

66. Liberal Diet in Typhoid.—The following diet is given by Grandy: 1. Fluids. 2. Milk, buttermilk, malted milk, whey, junket, plain ice-cream, blanc mange, milk-toast (without crust), soft crackers, cocoa, broths, rice, lactose, eggs (soft boiled or raw), finely minced chicken. 3. Steak, chop, white meat or chicken (in small quantities), toast, bread, cereals, crackers, eggs in any form, mashed potatoes, tomatoes (strained), stewed fruits, oysters. Patients must be told to chew all food well. He generally starts the patient on milk for a day or two and then adds one extra article to the diet each day so that he can watch the effect of each on the symptoms. Thus he first adds a heaping tablespoonful of milk-sugar to each glass of milk and the next day he can try an ounce of cream, which will bring up the calories to 2,000 a day, or if he adds two tablespoonfuls of milk-sugar to each glass, which is seldom objectionable, he gets 2,400 calories a day. Next he adds milk-toast or crackers, using the same preparation of milk, milk-sugar and cream to moisten, though Grandy never objects to the patient eating these articles dry if the crust is cut from the bread. Then bread and butter are added, then eggs, either raw, soft-boiled or in a custard made with milk-sugar, such a custard made after Coleman's recipe amounting to 360 calories, or a raw egg can be stirred in a cup of cocoa. Sweeten everything with milk-sugar, for in that way one can get in a very large amount of nourishment without making it nauseatingly sweet. Thus, a saucer of ice cream can be made to give 500 calories and an orange albumin raised from 50 to 100 calories or more. Sandwiches of scraped beef or finely cut chicken can often be advantageously given a typhoid patient. In the patients Grandy has had on this diet he has had little emaciation, no hunger, shorter convalescence and an apparent avoidance of relapses, which occurred rather frequently last year in patients fed in the old way.

Therapeutic Gazette, Detroit

June 15, XXXVI, No. 6, pp. 381-456

- 69 Treatment of Seasickness: Report of Twenty-Two Cases Treated by Veronal. I. W. Brewer, U. S. Army.
- 70 Dilatation of Prostatic Urethra for Relief of Symptoms of Prostatic Enlargement. E. H. Siter, Philadelphia.
- 71 Administration of Anesthetics, with Special Reference to Chloroform and Ether Anesthesia. W. P. Burdick, Kane, Pa.
- 72 Untoward Effects of Salvarsan Referable to Eye and Ear. S. L. Olsho, Philadelphia.

New Orleans Medical and Surgical Journal

June, LXIV, No. 12, pp. 881-964

- 73 *Effect of Ipecac, Phenol and Salicylic Acid on Amebæ *in Vitro*. R. Lyons, New Orleans.
- 74 Rush Section Diagnosis as Aid to Surgeon. W. H. Harris, New Orleans.
- 75 New Orleans School of Tropical Medicine and Hygiene. C. Wellman, New Orleans.
- 76 Modern Sanitation. O. Dowling, Shreveport, La.
- 77 Diagnostic Value of Reaction Following Intravenous Injection of Salvarsan. A. H. Cook, Hot Springs, Ark.
- 78 Pericentesis. C. D. Simmons, Kansas City, Mo.

73. Ipecac, Phenol and Salicylic Acid Action on Amebas.—Lyons' experiments with ipecac on amebas *in vitro* fail, thus far, to explain its clinical value in the treatment of amebic dysentery. In a few experiments ipecac apparently possessed slight inhibitive power on the amebas, but the results were not sufficiently marked to warrant any definite conclusion. Lyons suggests that it is possible that the action of the ipecac is dependent on some specific change which it undergoes after ingestion into the body. On the other hand, it is highly probable that the amebas grown on artificial media are not the *Entameba histolytica* and may therefore be more resistant to the action of the ipecac. The experiments with phenol show that it has no effect on amebas except in comparatively strong solutions. Its action is chiefly on the symbiotic bacteria. From a clinical point of view the action of phenol is unimportant.

Experiments with salicylic acid revealed a marked destructive action on amebas in dilutions up to 1 to 5,000. Above this point some slight inhibitive effect on their growth was demonstrated in dilutions as high as 1 to 10,000. It is also strongly bactericidal. This marked effect of salicylic acid on

amebas is an additional reason for the administration of ipecac in salol-coated pills in preference to other coatings (e. g., keratin) or methods, as it is well known that salol is broken up into its two constituents in the intestinal tract, yielding about 64 per cent. of salicylic acid. Lyons suggests also the use of salicylic acid as an irrigating fluid in amebic dysentery, in watery solutions of 1 to 4,000 to 1 to 1,000 strength.

Journal of Maine Medical Association, Portland

June, II, No. 11, pp. 815-859

- 79 Modern Obstetrics. E. P. Davis, Philadelphia.
- 80 Cerebrospinal Fluid in Nervous Diseases of Syphilitic Origin. H. W. Hall, Augusta.
- 81 Therapy in Nephritis. R. A. Parker, Auburn.

Journal of Michigan State Medical Society, Battle Creek

June, XI, No. 6, pp. 327-400

- 82 Treatment of Diphtheria Bacilli Carriers. M. L. Holm, Lansing.
- 83 *Resumé of Typhoid and Its Treatment, Based on 400 Cases in South Haven's Epidemics. F. C. Penoyer, South Haven.
- 84 Clearer Diagnosis and Simpler Treatment. L. N. Eames, Muskegon.
- 85 Clearing Our Skirts of Suspicion of Medical Graft. C. M. Williams, Alpena.
- 86 Peep Into Medical Antiquity. N. H. Kassabian, Coopersville.
- 87 Auto-Intoxication. B. A. Shepard, Kalamazoo.

83. Typhoid.—Cold colonic flushes for reduction of temperature in typhoid are recommended by Penoyer. He uses a small colon tube inserted with care just well through the sphincter muscle, 1 to 3 pints of water, temperature 40 to 50 F., passed in small quantities into the colon and allowed to return through the tube. This may be repeated every four to six hours if the temperature reaches 105 F. and is not reduced by the sponge. He has used the method more or less in a considerable number of cases with good results, but only in those severe cases in which one might expect hemorrhage and other serious complications and has seen no bad effects from its use.

Delaware State Medical Journal, Wilmington

June, III, No. 7, pp. 1-24

- 88 Diagnosis and Treatment of Some Common Skin Diseases. J. W. Bastian, Wilmington.
- 89 Chronic Gonorrhea. J. B. Rutherford, Wilmington.

Journal of Kansas Medical Society, Kansas City

June, XII, No. 6, pp. 209-254

- 90 Bladder and Uterine Prolapse. J. T. Axtell, Newton.
- 91 *Medical Dogma and Orthodoxy. F. A. Carmichael, Goodland.
- 92 Typhoid Carriers. S. E. Greenfield, Topeka.
- 93 Acute Infection of Frontal Sinus. H. B. Caffey, Pittsburgh.
- 94 Version; Report of Case. E. A. Reeves, Kansas City.
- 95 Medical Education in Kansas. S. C. Emley, Kansas City.

91. Medical Dogma and Orthodoxy.—Carmichael urges that physicians take a greater and more active interest in their medical societies, that they be willing to devote time and talent to their support. Become an active member, he says, bringing into the society for discussion, the fruits of independent thought, for every worker in the great field of medicine should be an independent thinker and should cultivate that quality of logic that will enable him to champion his views and opinions by sound argument. In this way only, he continues, may we be considered an active unit in the great scheme of medical progression. We must not be content to merely follow, meek disciples of the thoughts and theories of others, but should recognize the fact that precedent is not progress, that it is not always a help, but quite frequently a hindrance. It is better to have our professional friends annihilate our pet theories and throttle our pet hobbies and then hold a respectable wake over the remains than to have blundered through our allotted days without our minds having conceived an original thought or our voices been raised in a single sentence out of strict conformity with public opinion. Therefore, let us all meet in the spirit of true fraternity and mutual helpfulness. Let us bring our theories, beliefs and opinions, the children of our individual mental efforts, that they may receive their baptism of approval from our colleagues, if they be found worthy, or be given at the hands of this society the last sad rites accorded the worthless and fallacious. Who among us wishes to carry enthroned in his confidence, the mummified fetus of an erroneous theory? Who wishes to be the parent of a mental "monster par defectum?"

St. Paul Medical Journal

June, XIV, No. 6, pp. 287-324

- 96 Graduate Instruction in Medicine. L. B. Wilson, Rochester, Minn.
- 97 Practical Points in Anesthesia. F. J. Sykora, Brainerd, Minn.
- 98 Some New and Important Tests for Examination of Milk. E. Klaveness, Sioux Falls, S. Dak.
- 99 Treatment of Tuberculous Lymph Nodes. J. C. Stewart, Minneapolis, Minn.

Journal of Nervous and Mental Disease, Lancaster, Pa.

June, XXXIX, No. 6, pp. 361-432

- 100 *Dysbasia Lordotica Progressiva; Dystonia Musculorum Deformans; Tortipelvis. J. Fraenkel, New York.
- 101 Four Interesting Cases of Emotional Dream State from Psychiatric Wards of Royal Charité Hospital in Berlin. W. J. S. Powers.
- 102 Three Cases of Tumor of Frontal Lobes. R. T. Edes, Reading, Mass.

100. Dysbasia Lordotica Progressiva.—This condition is described as follows: It occurs in children and young adults of the Jewish race and consists essentially of (a) a deformity around the pelvis, and (b) of tonic and clonic myospasms of the musculature around the pelvic girdle associated or not with similar twitchings of other muscles. The difficulty begins frequently with slight symptoms in the upper extremities; but wherever it begins the lower extremities are permanently and severely affected; the musculature of the thigh, pelvis and lumbar part of the vertebral column. In the reclining position most of the symptoms disappear, except a variable degree of deformity around the pelvis. Attempts to stand, particularly to walk, activate the condition. A marked lordosis of the lower dorsal and upper lumbar parts of the vertebral column, with inclination of the pelvis and particular prominence of the buttocks, are, as it were, the stigma of the condition. The most characteristic disturbance is noticed in the gait of these patients, resembling the locomotion of a quadruped; best described as "monkey gait," "dromedary gait." During locomotion the attitude changes continuously, getting clownish in character; the patient soon shows evidence of strain, the face flushes, the pulse-rate is increased and profuse perspiration sets in. In the recumbent position most of the deformities disappear, particularly the lordosis, but the legs even in the supine position do not get entirely relaxed.

Oppenheim believes that it is a disturbance of the coordination of muscle tone, with a state of essential hypotonia. The etiology of the disease is unknown; it runs a chronic progressive course and treatment has no influence. Various methods show transient benefit. Fraenkel reports four cases.

Laryngoscope, St. Louis

May, XXII, No. 5, pp. 707-796

- 103 Local Anesthesia in Oto-Rhino-Laryngology. H. Luc, Paris, France.
- 104 Malignant Tumors of Tonsil. J. Mathews, Rochester, Minn.
- 105 Operation of Tonsillectomy as Performed in Ancon Hospital. H. V. Dutrow, Ancon, Canal Zone.
- 106 Salpingian Curette. S. Yankauer, New York.
- 107 "L" Incision in Submucous Resection of Nasal Septum. E. F. Garraghan, Chicago.

Lancet-Clinic, Cincinnati

June 22, CVII, No. 25, pp. 667-694

- 108 Laboratory Diagnosis of Malignant Tumors. P. G. Woolley, Cincinnati.
- 109 Prevention of Scarlet Fever and Diphtheria. G. B. Twichell, Cincinnati.
- 110 Relation of Orthodontia to General Health and Development of Child. F. S. Stillwell, Cincinnati.
- 111 Contributions to Colloid-Chemical Analysis of Absorption and Secretion. M. H. Fischer, Cincinnati.

Medical Record, New York

June 29, LXXXI, No. 26, pp. 1217-1270

- 112 Neuroses Dependent on Errors of Internal Secretion of Ductless Glands. M. A. Starr, New York.
- 113 *Rice in Dietary of Diabetic. H. Stern, New York.
- 114 Ozena Investigation in United States. E. Mayer, New York.
- 115 Medical Studies of Alcoholic Problem. T. D. Crothers, Hartford, Conn.
- 116 Pharyngeal Abscess. B. DeF. Sheedy, New York.
- 117 Use of Cultures of Staphylococcus Pyogenes Aureus in Curious Outbreaks of Diphtheria. G. B. Lake, U. S. Army.
- 118 *Elimination of Lockjaw. D. Benjamin, Camden, N. J.
- 119 Traumatic Cyst of Pancreas. A. E. Isaacs, New York.

113. Rice in Dietary of Diabetic.—Stern has employed the common rice, *oryza sativa*, in the treatment of diabetes, more

particularly for the suppression of diabetic acetoneuria, for some years; systematic studies of rice with a view to determine its value as a single-type carbohydrate in the anti-diabetic dietary were, however, not undertaken by him until about sixteen months ago. During this period he had occasion to employ rice in nineteen moderately severe and grave cases of diabetes, and in a much larger number of milder types of the affection. Compared with other grains rice is poor in protein, fats and mineral matters. It is preeminently a farinaceous food; alone it cannot be considered a complete aliment unless it be taken in amounts entirely too large for a civilized digestive tract. It must hence be combined with nitrogenous and fatty substances and certain salts, probably of potassium and phosphorus, but at any rate with such mineral matter as is ordinarily furnished by fresh green vegetables. A description of the determination of carbohydrate tolerance by rice and the details of a rice diet in the general run of cases of diabetes, Stern reserves for a subsequent article. He says, however, that rice, i. e., the "polished" product of commerce, furnishes substantially nothing to the organism besides an easily digestible starch. Given in suitable amounts this starch is practically all absorbable and ready to serve as a calorificient. The commercial cereal is therefore peculiarly adapted to supply carbohydrates without any protein or mineral admixture of consequence. The mineral and protein deficiency of rice facilitates the reduction of salts and the calculation of absorbable albumin necessary at every stage of the diabetic affection. Rice, being nearly entirely absorbable, only a comparatively small quantity of it is needed by the diabetic organism; it is not the purpose of the rice to supply the total food requirement as does v. Noorden's standard oat-diet; the cereal may be incorporated with any properly adjusted protein-fat combination. Contrary to the oat diet, rice as a single form of carbohydrate and in suitable combination may be employed by the diabetic for more protracted periods; it may be prepared in a number of different ways and forms that prevent monotony and always furnish a palatable dish for the patient. Sixty grams of the absorbable starch granule of rice generally produce the antiacetoneemic effect of 250 grams of the but partly absorbable oats in the standard admixture. Pronounced cases of acidosis are frequently suppressed by the ingestion of 100 grams of rice. The amount of rice requisite to depress the acetoneuria does not necessarily increase the intensity of the glycosuria. In a large number of cases the glycosuria will even temporarily decline in a marked degree.

118. Elimination of Lockjaw.—It is claimed by Benjamin that lockjaw, due to puncture and injuries, can be entirely eliminated and the death-rate from this disease reduced to nothing. He has never had lockjaw develop in one of his patients, including about 10,000 injuries of all kinds, among them rusty-nail and other punctures of feet and hands. This was accomplished in a locality where lockjaw is endemic, twenty cases having been reported in one year. He says: Sterilize the field of injury, especially the deep edges of the wound. Large and open wounds are irrigated. The vast majority of cases of lockjaw, however, develop from punctural wounds. Insert a few drops of alcoholic solution of cocaine. Have on hand variously sized screws. The threads should be at an angle of about 25 degrees to the axis of the screw, and thin. A set of screws should range from the size of a small probe to 5/16 of an inch in diameter, so as to be ready for all sized wounds, such as nails, pitchfork tines, dog teeth, and so on. In the absence of these special instruments, however, one can often use an ordinary aluminum applicator, which has threads on; or one can procure from any hardware store ordinary screws, which answer very well for many cases. Dip the sterilized screw into an antiseptic solution, say, 2 or 3 per cent. lysol. The liquid is held by the spiral gutter. The screw should be of a size to follow the track of the wound easily. If the skin is hard (like the sole of the foot) and the wound entrance is tightly contracted, it may be nicked with the point of a knife. As the screw is being inserted it is kept turning but held back, so that by the time it has reached the bottom it has been turned enough to have carried it more than twice as far. It is now given a few more turns. In this way foreign

substances and microbes are lifted (screwed) out. The instrument is then pulled out and washed in an antiseptic; then dipped in tincture of iodine, if not a large puncture, and then forced down to the bottom of the wound and given a few turns backward. Then the screw is dipped into carbolic oil (1 minim of carbolic acid to 14 of pure olive oil) and pushed gradually to the bottom of the wound, turning backward, then unscrewed out. These antiseptics have the property of permeating the surrounding tissues. Dress the wound in the usual antiseptic manner. No germs will live in that wound. Benjamin says even when one has immunized with antitoxin, this local treatment should be used in all punctured and Fourth of July wounds, for the good reason that it not only prevents lockjaw by killing the bacilli, but is equally efficacious against streptococci (blood poison and erysipelas) and staphylococci (abscess and inflammation).

Boston Medical and Surgical Journal

June 27, CLXVI, No. 26, pp. 951-986

- 120 Experiences of a Medical Teacher. W. T. Councilman, Boston.
- 121 *Technic of Transfusion. E. H. Risley and F. C. Irving, Boston.
- 122 Operability of Cerebral Endothelioma; Report of Successful Case. G. L. Walton and J. Homans, Boston.
- 123 *Study of Erythrocythemia and Report of a Case with Autopsy. A. L. Hamilton and M. E. Morse, Boston.
- 124 New Mastoid Retractor. P. Hammond, Boston.

121. Technic of Transfusion.—Practically all of the previously advocated instruments and devices for transfusion of blood are held by Risley and Irving to be either too complicated or require too much skill in manipulation or manufacture and are not suited alike to all cases. The use of paraffin-coated glass tubes, as advocated by Brewer and Leggett, and later by Vincent, they regard as being the easiest and simplest method and most likely to succeed in all classes of cases. The glass bulb of David and Curtis is held also extremely simple, safe and affords accurate measurements of the blood transfused. They say it is possible to do transfusion without cannulas or clamps or any mechanical aids, provided enough length of artery and vein are dissected out.

123. Erythrocythemia.—The points of special interest in Hamilton and Morse's case are: (1) The improvement under x-ray treatment. (2) The decrease of the liver from very great size to about normal, apparently due to improvement, but really due to degeneration. (3) The varicosities of the esophageal veins, common in alcoholic cirrhosis of the liver but not expected in this case. (4) The extraordinary and fatal hemorrhage due to. (5) Rupture of the esophageal vein.

New York Medical Journal

June 29, XCV, No. 26, pp. 1349-1392

- 125 Primary Sources of Tuberculous Infection, Their Relation to Eugenics and Cost of Tuberculosis. S. A. Knopf, New York.
- 126 Effects of Salvarsan on Eye. R. C. Reese, New York.
- 127 Neosalvarsan. A. G. Rytina, Baltimore.
- 128 *Use of Olive Oil to Prevent or Relieve Postanesthetic Vomiting. R. H. Ferguson, East Orange, N. J.
- 129 Alopecia Areata; Its Causative Factors and Therapy. P. E. Bechet, New York.
- 130 *Simple and Improved Quantitative Test for Indican. F. C. Askenstedt, Louisville, Ky.
- 131 Care of Health During Menstrual Period and Menopause. A. Parry, New York.
- 132 Theory of Origin of Disease. C. O. Linder, Spokane, Wash.

128. Postanesthetic Vomiting.—Ferguson does not believe that during, or at any one time after an anesthesia the stomach contains a dram of ether nor does he believe that the presence of ether in the stomach is the cause of postanesthetic nausea. If his idea is correct, then olive oil can do no good, a fact borne out by his experience. He says: Supposing that there were in the stomach a certain amount of ether, and that the ether vapor in the stomach and small intestines does cause nausea and vomiting, could any amount of olive oil that would be feasible by mouth, be of any practical use in abolishing nausea? Let us suppose all the ether in the stomach to have been absorbed by this oil. What will become of it? The case is not the same as with ether absorbed by oil in the large intestine for the speedy restoration of the opsonic index. In the sigmoid flexure the oil remains as oil and the ether may be absorbed by this oil and held in suspension so long that peristalsis will be resumed, and the ether be either evacuated with some of the oil, or else, liberated.

slowly, will pass with the normal flatus. In the case of the oil in the stomach the facts are different. It finally becomes saponified and is absorbed as any other digested fat, possibly carrying into the system again with itself some of the ether to be reexcreted, and liberating a part to play again the rôle of irritant. Ferguson suggests a line of experiment which possibly may be of value if either in the stomach does play any important part in postanesthetic vomiting. It is the administering of liquid petrolatum. This drug is inert as a therapeutic agent, nonirritating, will not be saponified, cannot be absorbed, and is an excellent protective to mucous membrane. His experiments are not yet numerous enough to warrant drawing conclusions from them at this time, but his idea is that this bland, nonirritating, foreign body which tends to produce easy stools, if given in sufficient quantities, will slowly but surely pass through the alimentary canal, taking with it any ether and holding it in suspension until it is evacuated at the anus.

130. Test for Indican.—Askenstedt's test is carried out as follows: For preliminary treatment, liberating indican, to 100 c.c. urine add 0.1 gm. corrosive sublimate for every degree of specific gravity above 1000; for example, for specific gravity of 1010, 1 gm.; for 1015, 1.5 gm.; for 1022, 2.2 gm. Dissolve sublimate and set aside until a heavy precipitate is formed; to hasten it, when tardy, expose to cold. Remove sediment by filtering twice through double filter paper, and pour exactly 10 c.c. filtrate into one of the test-tubes. Warm this until the tube begins to feel hot to the hand, then add 10 c.c. of ferric chlorid solution, and mix by inverting the tube once; then add quickly 8 c.c. chloroform, and extract the indigo forming by shaking the tube two or three minutes, holding it in a horizontal position. After this, let the chloroform fall to the bottom of the tube, then pour off most of the supernatant fluid, fill the tube nearly full with water, invert it a few times to wash the chloroform, let this again precipitate in the tube, and pour off most of the water. Repeat this process of washing, taking care that no chloroform escapes with the wash water, and allowing not more than 2 or 3 c.c. of the last wash water to remain over the chloroform. Now add from 13 to 15 c.c. of the alcoholic solution of corrosive sublimate, and mix. A clear, blue fluid should result. If hazy, add 1 or 2 c.c. more of alcohol until the fluid clears up.

Keep this solution in a dark place when not in actual use. Compare the color of this fluid with an equal quantity of a standard solution of indigo blue in the second test-tube by holding the two test-tubes in front of a white surface, preferably a white blotter. This standard solution is made by pouring into the empty second tube, a quantity of water equal to the amount of the fluid in the first tube, and then dropping the stock solution of indigo blue into the water, inverting the tube after each drop, until both solutions have the same amount of blue color. If this requires 4 drops of the stock solution the percentage is 0.0004; if 5 drops, 0.0005; if 6 drops, 0.0006; etc.

The indican extract will usually prove to be slightly greenish in color. By adding one or more drops of the pierie acid solution to the standard solution in the test-tube, this can be made to conform to the color of the extract. Urine containing 0.0025 per cent. or more of indican, or giving a blackish extract, should be diluted with an equal quantity of water and retested.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

June 8, I, No. 2684, pp. 1277-1344

- 1 Chronic Diarrhea in Adult. R. Hutchison.
 - 2 Relations of Biology to Pathology. H. Gilford.
 - 3 *Ulcerous Lesions of Tongue. J. H. Evans.
 - 4 *Action of Salvarsan and Neo-Salvarsan on Wassermann Reaction. J. E. R. McDonagh.
 - 5 Roentgen-Ray Treatment of Exophthalmic Goiter. W. H. Hooton.
 - 6 Dermoids of Tongue. R. Ollerenshaw.
 - 7 Case of Viper Bite in Epping Forest. B. F. Pendred.
 - 8 Enormous Parotid Tumor in Chinese Woman. H. Balme.
- Means of Employing Them. (Concluded.) E. A. Cooper.

- 9 Perforated Intestinal Ulcer: Operation: Recovery. W. Washburn.
- 10 Bactericidal Action of Cresols and Allied Bodies and Best Means of Employing Them. (To be continued.) E. A. Cooper.

June 15, I, No. 2685, pp. 1345-1408

- 11 Evolution of Obstetric Medicine. J. Byers.
- 12 *Wertheim's Operation for Cancer of Cervix Uteri. J. D. Malcolm.
- 13 *Fracture of Lower End of Humerus in Child Treated by Immediate Wiring. L. A. Parry.
- 14 *Endothelioma of Hypophysis Cerebri with Infantilis. G. E. Rennie.
- 15 Appendicitis Dilemma and Pre-Operative Diagnosis. W. Ewart.
- 16 New Methods for Culture of Bacteria. G. Mann.
- 17 Bactericidal Action of Cresols and Allied Bodies and Best Means of Employing Them. (Concluded.) E. S. Cooper.

3. Ulcerous Lesions of Tongue.—Evans found that cancer of the tongue is of frequent occurrence in males over the age of 40 who may be addicted to alcohol or tobacco, who frequently partake of irritating condiments, or who practice any of the different habits of chewing. He says that any long-continued wart, hard lump, or unhealed ulcer on the tongue or gums is liable to become the seat of cancer. Close attention to the cleanliness of the mouth and the brushing of the teeth is advisable. There is no more frequent precursor or accompaniment of cancer of the tongue than syphilis. Any decayed tooth, any roughness of the teeth or of a denture demands a visit to the dentist, whereas, for any soreness early medical advice should be sought, as such alone leads to the early recognition of cancer and is the keynote to success.

4. Action of Salvarsan.—Taking all stages of syphilis, McDonagh found that from three to seven injections are necessary to cure most cases of syphilis. There is no doubt that many cases in the tertiary stage can be cured with neo-salvarsan which failed to be cured with salvarsan. Liable to change as these conclusions may be, he cannot but admit that the alterations in the Wassermann reaction as the result of treatment are most constant, and that when tested at short intervals gives a much safer guide to regulate treatment than by saying that just so many injections will be required, or, as the old syphilologists used to teach, that a three years' pill treatment was sufficient for all cases alike. As there is a possibility of fallacy, he advises his patients to have a provocative injection of neo-salvarsan six months or a year after they have been discharged and the blood tested forty-eight hours, the seventh, fourteenth, twenty-first and twenty-eighth day after that injection. All McDonagh's patients for some months past have had three to nine injections of salvarsan, given at seven to fourteen days' interval, or three to seven injections of neo-salvarsan, given at not more than seven days' interval, with not a single bad manifestation or a recurrence of symptoms.

12. Wertheim's Operation.—Wertheim's method of operating is considered by Malcolm a very great advance on any other.

13. Wiring Fracture of Humerus.—On the fourth day after the accident Parry cut down the broken ends of the bones and wired them together with silver wire. The result is excellent; the patient has the power of full extension, perfect pronation and supination, and the only limitation of movement is in the direction of flexion, which is very slightly impaired. A week or so after the operation it was noticed that the muscles supplied by the musculospiral nerve were paralyzed. This may have occurred before it was discovered, for the arm was in splints. Parry thinks this was caused by some bruising of the nerve during the operation. The muscles have quite recovered under electric treatment.

14. Endothelioma of Hypophysis.—A boy, 16 years of age, was admitted to the hospital in 1907, with a history of headache for some considerable time, accompanied by a feeling of drowsiness and disinclination for any kind of food, with some wasting. The diagnosis in Rennie's case was extremely difficult, and the only points to guide him were the high arterial tension, the large amount of pale urine of low specific gravity, the headache and vomiting. In the absence of optic neuritis and any localizing symptoms of brain tumor a diagnosis of chronic interstitial nephritis was made. The patient was discharged from the hospital slightly improved in general

health. He remained in fair general health till readmission to hospital in August, 1909. He had not apparently grown in height or developed but he was about 2 pounds heavier. He complained still of headache and occasional vomiting of cerebral type. His memory was defective and had been getting worse for the last year. He was quite intelligent, but could not fix his attention. Headache was constant day and night; it disturbed his sleep, and was made worse when he tried to read. Everything seemed a trouble to him. The pupils were small and equal; they reacted to light and convergence and the ocular movements were normal. Examination of the media showed a post-neuritic atrophy in both disks and investigation of the fields of vision revealed a very definite bitemporal hemianopsia. His vision was 6/9 in each eye. There was no other cranial nerve affection.

His muscular power was feeble, as all his muscles were but poorly developed; he could not walk except with assistance as he tended to fall backwards. There was no disturbance of sensation. His knee-jerks were increased, more so on the right side than the left; there was no ankle-clonus and the plantar reflex was flexor in type. There was now no excess of urine; it was alkaline, specific gravity 1.020, and contained no albumin and no sugar. His temperature on admission was subnormal, pulse 90 and respiration normal. Six days later he had two or three fits, in which he became completely unconscious, breathing stertorously and sweating profusely. The limbs became rigid, the reflexes were exaggerated and a Babinski reflex was present on both sides, but was easily exhausted. He had incontinence of urine during the fits. The temperature rose to 103 F. and remained high for some days, varying from 99.8 to 105 F. Lumbar puncture furnished some cerebrospinal fluid which did not escape under pressure and microscopic examination showed only a few lymphocytes, but no organisms; the fluid was sterile on culture. There was marked prostration, with dry brown tongue, sores on the lips and general hebetude.

From this state he gradually recovered, but there was a definite weakness on the right side and on his discharge from the hospital there was ankle-clonus on the right side and double Babinski reflex. He died in his own home a few months later, but he was seen at intervals from the time of his discharge from the hospital up to the time of his death, and no material change took place in his condition. The pituitary gland was replaced by a large neoplasm, the size of a large walnut. Histologic examination showed that the growth was an endothelioma, which had invaded the gland and only very little of the glandular tissue remained. It was not possible from examination of the tissue to say which lobe of the pituitary gland had been first invaded.

Lancet, London

June 8, I, No. 4632, pp. 1515-1588

- 18 *Acute Infective Processes Due to Streptococcus. W. G. Ball.
- 19 *Clinical Notes on Blood-Plates. E. M. Brockbank.
- 20 *Is There a Directly Rheumatic Form of Ulcerative Endocarditis? C. F. Coombs.
- 21 Congenital Stenosis of Aorta. R. O. Moon.
- 22 Two Cases of Splenectomy for Rupture of Spleen; Recovery. W. F. Jones.
- 23 Hemopericardium of Traumatic Origin; Operation. E. B. Gunson.
- 24 Dermatitis Caused by "Di-Nitrochlor Benzole." M. H. Bernstein.
- 25 Bilateral Operation for Inguinal Hernia. E. W. Roughton.

June 15, CLXXXII, No. 4663, pp. 1589-1664

- 26 Some Moot Points in Pathology and Clinical History of Pneumonia. P. Kidd.
- 27 Pathology of Immunity, as Illustrated by Behavior of Fluid Exudates from Tissues and Various Body Cavities, in Acute and Chronic Bacterial Infections. L. S. Dudgeon.
- 28 Presence and Intensity of Syphilis in Past and at Present Day. N. Moore.
- 29 Abdominal Drainage in Treatment of Peritonitis. C. Wallace.
- 30 Syphilis D'Emblée. J. E. Lane.
- 31 Relief Following Bilateral Nephrotomy and Drainage for Acute Nephritis Attended by Suppression of Urine and Uremic Convulsions. W. G. Spencer.
- 32 Tetanic Spasms in Chronic Ulceration of Leg. M. D. Roberts.
- 33 Accessory Uterus Distended with Menstrual Fluid in Right Broad Ligament. J. Oliver.

18. Infective Processes Due to Streptococcus.—In Ball's opinion the ideal method of approaching a case of infection due to the streptococcus is: First, the clinical diagnosis should be accurate to the smallest detail, the signs and symptoms

being carefully noted both as regards the local and general condition of the patient. The help of the bacteriologist should be sought for in all cases, however trivial they may appear to be in the early stages, and as soon as it is recognized, that he can give some information both as to diagnosis, prognosis and method of treatment. Having dealt with the lesion surgically the necessity for the use of the artificial methods of stimulation of the machinery of resistance must be discussed, and if decided on it must be requisitioned as soon as possible. Serum should be given at the earliest possible opportunity for its action to be effective. It can be used locally as a dressing, intravenously, subcutaneously, or by the rectum. Intravenous inoculation in combination with normal saline solution should be used where it is desired to get a rapid effect. The doses should be as large as 75-100 c.c. and repeated if necessary. This should be followed by subcutaneous injections of 50-100 c.c. per diem.

The type of serum that should be used is that which most nearly approaches the autogenous variety. The serum obtained from the blood of a patient who had recovered from an acute streptococcus infection has been successfully utilized in the treatment of a similarly infected patient on more than one occasion, and still further, friends have been known to artificially immunize themselves against the microorganism causing the disease, and submit to a withdrawal of their own serum. Following the use of the serum, or in combination with it, a vaccine should be injected as soon as it has been prepared. As a general rule an autogenous agent is preferable for the reasons already given, but it may be replaced by one prepared from a mixture of streptococci of the same type of lesion from which the technic used has failed to isolate it. Moreover, stock vaccines may be used during the preparation of the autogenous agent. Should a mixture of different bacteria be found in the lesion a vaccine prepared from such a mixture is always indicated.

With regard to the dosage, Ball says it is impossible to lay down an absolute rule. There are indications that if a patient is seen in the very earliest stage of the disease and maintains a good general condition while the focus of infection is still localized, then a relatively large dose of vaccine may be given; but, on the other hand, if the general condition is bad, and the lesion is becoming generalized, then a small dose is indicated as the initial inoculation. In other words, the more acute and the more generalized the lesion the smaller should be the dose introduced. Having obtained no effect as the result of the smaller dose it should be increased gradually until such is reached which will produce the desired reaction. On the other hand, if a harmful effect is observed, then a smaller dose is indicated, or even vaccine-therapy contraindicated. If this course be adopted then Ball thinks it will be realized that vaccine-therapy and serum-therapy are at least useful adjuncts to our ordinary methods of surgical treatment, not only in those cases in which these have failed, but as a routine.

19. Blood-Plates.—As a result of a prolonged series of observations, Brockbank concludes that the bodies met with in blood-smears which have been fixed and stained in the ordinary way and known as blood-plates, all arise from the interior of red corpuscles, many of which manifestly burst as the blood-plate material escapes from them.

20. Rheumatic Form of Ulcerative Endocarditis.—The hearts from seven cases of streptococcal ulcerative endocarditis were subjected to a thorough histologic examination by Coombs. The findings in all the cases were substantially identical, in spite of wide clinical differences in their virulence and in their relation to previous rheumatism. No histologic evidence of a directly rheumatic origin was forthcoming, even in those cases in which the rheumatic factor was most in evidence clinically.

Medical Press and Circular, London

May 22, XCIII, No. 3811, pp. 525-550

- 34 Counter-Irritants in Treatment of Pulmonary Tuberculosis. R. Brunon.
- 35 Latent Surgical Disease. V. Z. Cope.
- 36 Three Cases of Acute Hepatic Intoxication Following Abdominal Section in Which Jaundice Was a Marked Feature. V. Bonney.

- 37 Mental Derangements in Their Relation to Marriage. E. S. Reynolds.
38 Herpes and Brachial Neuritis. G. M. Smith.
May 29, XCIII, No. 3812, pp. 551-578
39 Abdominal Section. J. M. G. Swainson.
40 Congenital Malformation of Rectum Associated with Sacro-Coccygeal Meningocele in Adult. E. W. Lewis.
41 Village Water-Supplies. H. Kenwood.
42 Ionization in Treatment of Diseases of Skin. W. K. Sibley.
43 Para-GOB: an Annotation. C. F. Marshall.
June 5, XCIII, No. 3813, pp. 579-604
44 Myopathies. F. S. Palmer.
45 Some Medicolegal Cases Met With in General Practice. H. N. Hardy.
46 Instruction of Young in Sexual Hygiene. E. Pritchard.
47 Balneologic Aspects of Radium. E. Welss.
June 12, XCIII, No. 3814, pp. 605-632
48 Rational Treatment of Uterine Prolapse. H. Jellett.
49 Carcinoma of Colon. V. Z. Cope.
50 Chronic Visceral Pain in Relation to Surgery and Psychotherapy. T. A. Williams.
51 Roentgen-Ray Diagnosis of Aneurysm of Thoracic Aorta. M. R. J. Hayes.

Clinical Journal, London

May 22, XL, No. 7, pp. 97-112

- 52 *Varieties of Cough and Treatment for Relief of Them. Sir D. Duckworth.
53 Some Common Disorders of Nutrition in Infancy. H. C. Cameron.
May 29, XL, No. 8, pp. 113-128
54 So-Called Delayed Chloroform Poisoning. E. M. Corner.
55 Bacilluria. C. Williams.
56 Some Common Disorders of Nutrition in Infancy. H. C. Cameron.
57 Electric Colloids in Major Infections, Surgical and Puerperal. H. Duvernal.
June 5, XL, No. 9, pp. 129-144
58 Treatment of Joint Effusions and of Some Fractures. Sir F. Wallis.
59 Ultramicroscopic Causes of Disease. R. T. Hewlett.
60 Some Common Disorders of Nutrition in Infancy. H. C. Cameron.
61 Ionization in Treatment of Diseases of Skin. W. K. Sibley.
June 12, XL, No. 10, pp. 145-160
62 Shock. C. B. Lockwood.
63 Traumatic Neurasthenia. H. C. Thomson.

52. Varieties of Cough.—The cough excited by laryngeal disease, Duckworth says, is more appropriately dealt with by local treatment, inhalation of vapors of benzoin, menthol, eucalyptol or thymol, singly or in combination, or sprays of liquid paraffin containing menthol, camphor and oil of cinnamon, the latter being more useful in chronic laryngitis. Lozenges of black currant and ammonium chlorid give relief, and small blisters, the size of a shilling, applied on either side of the thyroid cartilage, are helpful in tuberculous disease of the larynx. In plastic bronchitis, the severe cough induced by the occlusion of the smaller bronchi is best removed by iodid of potassium, which commonly succeeds in preventing the formation of the casts, and cures the disease. Cough dependent on aneurysmal pressure is relieved by appropriate treatment for the primary disease and iodid of potassium with reduced diet is indicated for this purpose and is generally effectual. Whooping-cough is restrained by inhalations of benzoin, creosote and other tar-products, while belladonna with bromid of sodium, together with a good dietary, are the most efficient agents. Tussis hysterica is best not treated as a catarrhal symptom in most instances. It should be ignored if tolerated and not allowed to incur sympathy. Faradism to the neck and thorax repeated as required, may prove very effectual.

Bulletin de l'Académie de Médecine, Paris

June 4, LXXVI, No. 23, pp. 403-421

- 64 *Operative Measures Capable of Modifying Intra-Ocular Tension. F. Lagrange.

64. Treatment of Detachment of the Retina and Other Conditions with Abnormal Tension in the Eyeball.—Lagrange reviews recent international literature showing that his method of sclerectomy to relieve the hypertension in glaucoma is finding universal acceptance. In treatment of detachment of the retina the aim is the reverse, namely, the purpose is to dam up the fluid in the eyeball, the escape of which is an important factor in many cases of detachment of the retina, especially the traumatic and those following choroiditis or occurring in the course of progressive myopia. In order to prevent the further loss of the fluid, he aims to induce the production of fibrous

tissue to dam the points where there is liable to be transudation, and he calls the method "colmatage." This is an agricultural term which designates artificially raising the level and fertilizing low land. After experimenting with various measures to accomplish this result in the eye, he found the most effectual and harmless method to be by superficial galvanocauterizing with a thin, flat blade applied over the surface of the anterior segment of the sclera after a circular equatorial incision of the conjunctiva and turning back of the flap. The posterior segment is treated only with injection of 10 per cent. salt solution; this supplies irritation enough for the purpose. By this means the routes for filtration in front and for transcleral excretion at the rear are blocked; no point for escape of the fluid is left except along the optic nerve. The tension in the eyeball gradually increases, and this aids in restoring the retina to place. He has been applying the method extensively for a year and the results are encouraging although not conclusive to date. In every case the tension of the eyeball was raised, and although this alone is not sufficient to cure the detachment of the retina yet it is an invaluable adjuvant. In the myopic or after trauma, this colmatage of the eye plus injections of salt solution into the capsule of Tenon and compression have often proved all that is necessary, but when the detachment is of inflammatory or congestive origin, blood-letting, mercurial inunctions and mercurial treatment in general are indicated, besides, to aid in removing the cause. The primary cause, he adds, should always be borne in mind in treating the eye.

Bulletins de la Société de Pédiatrie, Paris

April, XIV, No. 4, pp. 193-248

- 65 *Hernia in Young Infants. (Traitement de la hernie chez le nourrisson.) M. Savariaud.
66 Sclerema Neonatorum in Patches. (Sclérème adipeux en plaques.) H. Triboulet, Ribadeau-Dumas and Debré.
67 Familial Achondroplasia. (Une famille d'achondroplases.) H. Triboulet and de Jong.
68 *Urea Content of Cerebrospinal Fluid in Infants. (L'urée dans le liquide céphalo-rachidien des nourrissons.) P. Nobécourt, Sevestre and Bidot.
69 *Foreign Body in Bronchus. (Symptomatologie des corps étrangers des voies aériennes.) H. Abrand.

65. Hernia in Infants.—Savariaud remarks that attempts to treat hernia in infants by the same technic as in adults are almost certain to fail, as conditions differ so widely, while a special simple technic worked out by Lorthioir for infants ensures certain and superior results. He has applied this technic in hundreds of cases in the last three years, and extols the advantages of radical operation which is always justified and is indicated in nearly every case, certainly after the age of 6 months. The technic described requires only five or ten minutes, and healing by primary union in twenty-four hours is the rule. The incision in the skin is only 2 cm. in length, except for large hernias. The subcutaneous cellular tissue is separated and the testicle is pushed aside, with the spermatic cord and the hernia. The tissues over the cord are incised, the sac is isolated and resected as high as possible, with or without preliminary ligation of the sac. The skin incision is then closed with minute clamps which can be removed in a day or so. The anterior wall of the inguinal canal is never incised, and no dressings afterward are needed. Savariaud has often been impressed with the rapid subsidence of digestive disturbances after the hernia had been corrected in this way, the colics and discomfort disappearing and the children commencing to thrive at once. The roundness of the body of young infants renders it difficult to keep a truss in place, and excoriation and eczema are liable to result, while the hernia frequently escapes from under the truss and serious damage may result. He does not hesitate to recommend this operative treatment for every hernia in an infant unless it is merely incipient, and even then when it does not subside under an appropriate truss.

68. Urea in the Cerebrospinal Fluid of Infants.—A large proportion of urea was found in the cerebrospinal fluid of the infants with severe gastro-intestinal derangement out of fourteen examined. The infants in this class generally displayed also a tendency to sclerema and albuminuria, but not all of them had kidney disease or it was very slight; most of them had some serious liver affection.

69. **Foreign Body in the Bronchus.**—Abrand reports a case noticeable for the total absence of any signs or symptoms at any time suggesting the presence of a foreign body in the air passages. It was supposed to have been swallowed but roentgenoscopy disclosed it in a bronchus of the third size and it was extracted by the mouth. The defensive reflex reactions grow progressively less and less as the distance from the mouth increases and they are less needed, so that in the ramifications of the bronchi there may be no reaction at all to the presence of a foreign body until inflammation develops from the irritation. Bronchitis with purulent expectoration and enlargement of the bronchus should always suggest the possibility of a foreign body, and bronchoscopy will clear up the diagnosis.

Grèce Médicale, Syra, Greece

XIV, No. 9-10, pp. 17-20

- 70 Operative Treatment of Cholelithiasis. (2 cas de chirurgie des voies biliaires.) A. Antipas.

Presse Médicale, Paris

May 29, XX, No. 44, pp. 465-472

- 71 *Treatment of Backward Curvature of the Knee. (3 cas de genu recurvatum.) E. Kirmisson.

June 1, No. 45, pp. 473-484

- 72 *Hemolytic Tuberculosis. (Bacillo-tuberculose hémolysante.—Etude pathogénique des anémies tuberculeuses.) L. Landouzy, H. Gougerot and H. Salin.

- 73 *Echinococcus Cysts of the Lungs. (Kystes hydatiques du poumon.) E. Desmarest.

71. **Genu Recurvatum.**—Kirmisson gives illustrations of three cases of this deformity in his service recently at the same time. One required a wedge resection of an exuberant osteofibrous mass back of the knee, the result of a gonococcus arthritis entailing ankylosis and proliferation. The deformity was of traumatic origin with suppuration in the second case, and the resection of the joint caused a transient flaring up of the suppuration. In the third case the genu recurvatum was the result of muscular contracture left from hip-joint disease; it was corrected by subcutaneous section of the femur, leaving the knee intact. The outcome was excellent in each case.

72. **Tuberculous Anemia.**—Recent research suggests that the anemia in tuberculosis is sometimes the result of direct destruction of red corpuscles, with or without a tendency to jaundice. Two cases are reported; in the first the reds were exceptionally fragile and there was no hemolysin in the serum; in the other case the serum was rich in a hemolysin to which the reds—although apparently normal—succumbed. In other cases on record these two conditions seemed to alternate. The data suggest that the tubercle bacilli do not generate the hemolysin directly; it seems to be secreted by the tissues under the influence of the infection. This explains the anemia as due to destruction of reds formed in normal proportions while the proportional number of whites persists normal or above.

73. **Echinococcus Disease of the Lung.**—Desmarest reports the case of a butcher of 42 to emphasize the difficulty of diagnosis even with exploratory puncture, radioscopy and laboratory tests; also the necessity for immediate operation, the diagnosis once certain; and the way in which even very large cysts promptly heal. The exploratory puncture in this case had failed probably because the needle had been too short; one 7 or 8 cm. long would have been better. The fixation of complement test was also negative and there was no eosinophilia. The cyst was in the lung proper and two or three liters of fluid gushed from it when it was opened after section of the eighth rib. The cyst membrane could not be detached and was left; it was spontaneously thrown off and was extracted, as it presented the fifteenth day, after which the patient rapidly recovered.

Revue de Gynécologie, Paris

May, XVIII, No. 5, pp. 465-560

- 74 *Technic for Making Artificial Vagina. (De la création d'un vagin dans les cas d'absence congénitale par dédoublement de l'espace intervésico-rectal suivi soit d'autoplastie par manchon cutané, soit de transplantation intestinale.) E. Juvara.
- 75 *Firearm Wounds of the Spleen. (Les plaies de la rate par coup de feu.) M. Guibé.

74. **Artificial Vagina.**—Juvara gives thirteen illustrations of two technical methods and of their application in two cases. In both the operation was successful. In the first the new vagina was made of a roll of skin taken from the back of the thigh. The patient was a girl of 16. The second patient was a woman of 28 and the vagina in this case was made from a loop of small intestine.

75. **Firearm Wounds of the Spleen.**—Guibé has compiled 108 cases of this kind, with a mortality of 58 per cent. When the thorax is involved in the injury the mortality was much higher, while in the twenty-three cases in which the spleen alone was injured, the mortality was only 30 per cent. Prompt operative treatment arrests the hemorrhage and thus averts the main danger. The symptoms of injury of the spleen are vague and uncertain, the course of the bullet and signs of internal hemorrhage being the only guide.

Beiträge zur Geburtshilfe und Gynaekologie, Leipsic

XVII, No. 2, pp. 137-286. Last indexed Feb. 3, p. 379

- 76 *Premature Separation of Normally Located Placenta. (Vorzeitige Lösung der normal sitzenden Placenta.) P. Barchet.
- 77 Research on Pigeons Fails to Show That the Mother Can Influence the Fecundated Ovum. (Vermag die Mutter das befruchtete Ei zu beeinflussen?) H. Selheim.
- 78 *Embedding of Ovum on Stump of Fallopian Tube. (Fall von Einimplantation auf dem Stumpfe einer wegen Tubargravidität früher exzidierten Tube.) F. Benzel.
- 79 Pregnancy Changes in the Blood. (Zur Frage der Blutveränderung bei Schwangeren und Gebärenden.) S. Adachi.
- 80 Rectovaginal Fistula from Pessary. (Mastdarmscheidenfistel nach Zwanck-Schillingschem Flügelpessar.) R. Bassot.
- 81 Influence on Fetus of Beriberi in the Mother: Six Cases. (Einfluss der mütterlichen Kakke auf den Foetus.) J. Ogata and S. Iizuka.
- 82 Technic for Cesarean Section. (Schnittführung bei der Sectio caesarea.) F. A. Kehler.
- 83 Embryonal, Fetal and Infantile Pelvic Organs. (Embryonismus, Fötalismus und Infantilismus.) F. A. Kehler.
- 84 *Acute Mastitis. (Zur Prophylaxe und Therapie der akuten puerperalen Mastitis.) S. Eicher.
- 85 Inherited Syphilis Affecting the Vessels in the Liver. (Eine neue Art von Gefässerkrankung der Leber bei congenitaler Lucs.) B. Lüthmann.
- 86 *Predetermination of Sex. (Zur Frage der Vorausbestimmung des Geschlechts beim Menschen.) O. Schöner.
- 87 Putrid Endometritis: Bacteriologic Research. G. Sackenreiter.

76. **Premature Separation of the Normally Located Placenta.**—Barchet states that this occurred in nine cases during the last three years at the Tübingen clinic, as he reports in detail. The hemorrhage may distend the uterus until some vessel may rupture. The interruption of the fetal circulation did not prove fatal in these cases as the child was delivered at once, all happening to be in readiness for delivery. The danger for the mother is increased by the fact that the cervix is not usually dilated enough for delivery at once. Mechanical factors are generally responsible for the premature separation, the collapse of the uterus walls after the fluid of a hydramnion has escaped or one of a pair of twins has been delivered; transverse presentation may also bring it on. In ten cases on record the premature separation occurred in women with eclampsia, in others pregnancy toxicoses were evident, hemophilia in another case and a hemorrhagic diathesis in others. The findings in these placentas suggest a toxic influence from the products of the fetal metabolism, evidences of which were also apparent in other organs, degenerative processes in the kidneys, liver, etc. Treatment should aim to evacuate the uterus without delay and with the least injury. The mother's interests should be paramount, as the child seldom survives.

78. **Embedding of Ovum on Stump of Tube.**—Benzel reports a case of this kind, the third on record. They teach the necessity for wedge excision in removing the tube on account of a tubal pregnancy. This alone guarantees against such happenings.

84. **Acute Mastitis.**—Eicher states that at Basel the woman's breasts after the birth of a child are kept constantly covered day and night with a little pad of gauze moistened with a 4 per cent. boric acid solution. A piece of rubber tissue overlaps the pad and sticks to the skin, and a towel is then laid over both breasts. The pads are renewed each time after the infant nurses. By this simple means since 1904 the proportion of cases of puerperal mastitis has dropped from 6 to 0.9 per cent., and suppuration occurred in only

0.2 per cent. in 8,528 parturients. The mastitis is treated with 5 per cent. phenol-glycerin dressings and ice, suspending the breast to ensure keeping it still, drawing the milk with a breast-pump, and evacuating pus through a minute incision, introducing the finger or forceps to reach all the foci. Bier's method of suction hyperemia has not maintained a place in treatment of mastitis, he says. Its only advantage is that it spares the incision, but this is outweighed by the liability to local erysipelas, etc.

86. **Predetermination of Sex.**—Schöners' theory was mentioned in THE JOURNAL April 12, 1912, p. 1220. Here he states that further experiences have confirmed it and that it is within the power of every physician to test its truth. His work is based on three series of families through several generations.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXIII, No. 1, pp. 1-199. Last indexed June 15, p. 1885

- 88 *The Spleen as an Organ for Defense Against Tuberculosis. (Rolle der Milz als Schutzorgan gegen tuberkulöse Infektion.) G. Schröder, K. Kaufmann and H. Kögel.
- 89 *Tuberculin Treatment. (Ueber Tuberkulinbehandlung.) G. Schröder.
- 90 *The Graduated Pirquet Tuberculin Reaction in Prognosis and in Tuberculin Treatment of Pulmonary Tuberculosis. (Ueber die Pirquetsche Hautreaktion in abgestuften Dosen in bezug auf die Prognose und die Tuberkulintherapie bei der Lungentuberkulose.) H. Kögel.
- 91 *Pseudoleukemia and Its Connection with Tuberculosis. (Ueber Hodgkinsche Krankheit in ihren Beziehungen zur Tuberkulose; kasuistischer Beitrag.) K. Kaufmann.
- 92 *Mixed Infection in Tuberculosis. (Ueber die Frage der chronischen Mischinfektion bei Lungentuberkulose—Eine klinisch-bakteriologische Studie.) H. Kögel.
- 93 *Curability of Laryngeal Tuberculosis. (Ueber Dauererfolge bei Larynx-tuberkulose.) L. Brüll.
- 94 Experimental Induced Pneumothorax. (Ueber die Veränderungen der Pleura und Lunge gesunder Hunde durch künstlichen Pneumothorax.) K. Kaufmann.

88. **The Spleen as Defense Against Tuberculosis.**—The resisting powers of rabbits to infection with human tubercle bacilli did not seem to be reduced by splenectomy in the researches reported. Chopped spleen, however, seemed to display a curative action in the experimental tuberculosis.

89. **Tuberculin Treatment of Tuberculosis.**—Schröder states that three years of further experience have confirmed his views in regard to tuberculin treatment; they differ in some points from those currently in vogue. He does not believe that tuberculin is of any use for the early diagnosis of active tuberculosis in adults. The fact that a patient becomes non-sensitive to tuberculin by no means proves that the tuberculosis is cured. Non-susceptibility to tuberculin toxin seems to be accompanied by a tendency to more serious recurrences. Physical and dietetic measures should be the main reliance in treatment; tuberculin is merely an adjuvant. It may be serviceable in the severer cases but only when given in minute doses at long intervals. He warns expressly against the use of tuberculins in general practice.

90. **The Cutaneous Tuberculin Reaction in Prognosis and Treatment of Tuberculosis.**—Kögel expatiates on the great diagnostic importance of the Pirquet test when applied with graduated doses of tuberculin. The outcome of the test depends in large measure on the exact technique. Instead of dropping the tuberculin on the skin, he transfers a drop with a glass rod to the tip of the punch or needle. He used different strengths, according to the Ellermann and Erlandsen technique, and repeated the test at long, regular intervals, comparing the findings each time with the clinical course of the disease. The outcome is given in a number of large tables, classified according to the progress of the disease. Certain deductions may be drawn from the findings over long periods, so that the prognosis can be based on them. He thinks that this graduated method is destined to prove particularly useful when it can be applied on a large scale and over long periods; his premises have been confirmed by the later history in his cases.

91. **Hodgkin's Disease in Relation to Tuberculosis.**—Kaufmann reports three cases; in one there did not seem to be any etiologic connection with tuberculosis but in the others there was a complicating or causal pulmonary tuberculosis. In the first case there were evidences merely of fibrinous bronchitis. The patients were all men between 32 and 36.

One succumbed; one improved after resection of some mediastinal enlarged glands causing suffocation.

92. **Mixed Infection with Pulmonary Tuberculosis.**—Over eighty-four pages are devoted to this clinical and bacteriologic study of eighteen cases and review of the literature. Many varieties of germs were found, and Kögel emphasizes the importance of the findings on washing the sputum and inoculating a blood-plate with it to differentiate the various germs. The germs thus cultivated permit specific vaccine therapy. His experience confirms the fact that the hemolytic properties of the cocci show that the resisting powers of the body are at a low ebb; none of the patients with hemolytic cocci long survived.

93. **Laryngeal Tuberculosis.**—Brüll found the ultimate outcome of laryngeal tuberculosis unexpectedly favorable in a number of the 290 patients treated at the sanatorium in the ten years ending 1908. In only seven cases was the laryngeal process responsible for the patient's death of all the 170 who have died since; twelve patients still have trouble in their throats, constant or recurring, but eighty patients have been permanently cured; the other twenty-nine patients have been lost to sight. Of the 221 patients with open tuberculosis, 25.8 per cent. were cured, while 57 per cent. of the others were cured. Treatment was conservative, or with cauterizing or operative measures as needed. This experience shows that laryngeal tuberculosis in all its forms is curable. The prognosis depends mainly on the extent and prospects of the pulmonary disease and especially on whether there is fever or not. A well planned method of treatment based on strict individual indications will certainly give results. The details of the eighty cured patients are tabulated in full. It is a strict rule at the institution never to operate when the patient has fever, and this restriction is probably an important factor in the results attained. Cauterizing (lactic acid) is a far less serious procedure than mutilating operations; it gave 35.7 per cent. permanent cures among the forty-two patients thus treated up to 1905, and 55.2 per cent. permanent cures in the twenty-nine patients since that date. Of the total patients, 58 per cent. were regarded as clinically cured when they left the institution and 31 per cent. have remained cured since. When recurrence took place it was always during the first two years afterward. Lactic acid seems to display an ideal elective action, destroying diseased tissue and this alone, thus limiting the caustic action to the exact points where it is needed, while with operative measures much sound tissue has to be sacrificed.

All the articles in this number of the Beiträge issue from the sanatorium for pulmonary diseases at Schöenberg, of which Schröder is director.

Berliner klinische Wochenschrift

June 3, XLIX, No. 23, pp. 1069-1116

- 95 *Diagnosis of Contusion of the Spleen. (Experimentelle Beiträge zur Diagnostik der subcutanen Pankreasverletzungen.) J. Wohlgemuth and Y. Noguchi.
- 96 Cases Demonstrating Disturbances in Internal Secretion. (Zur Kasuistik der Störungen der inneren Sekretion.) A. Bittorf.
- 97 *Influencing of Opsonic Index by Drugs. (Die pharmakologische Beeinflussung des opsonischen Index.) A. Strubell.
- 98 Prognosis of Puerperal Fever. E. Rosenthal.
- 99 Lupus of the Tongue. (3 Fälle von Lupus vulgaris linguae.) O. Strandberg.
- 100 *Foreign Bodies in Upper Air Passages and Esophagus. (Neuere Erfahrungen über Fremdkörper-Extraktion aus den oberen Luft- und Speisewegen.) G. Glücksmann.
- 101 *Phimosis and Hydrocele in Infants. (Phimose und Hydrocele im Säuglingsalter.) J. Peiser.
- 102 *Serodiagnosis of Syphilis. (Von der klinischen Bedeutung der Syphilisreaktion von Hermann und Perutz verglichen mit Wassermann.) V. Jensen and J. Feilberg.
- 103 Toothache After Salvarsan. (Eine Salvarsanreaktion an den Zähnen.) F. Zimmern.
- 104 Neurofibromatosis and Acromegaly. G. Wolfsohn and E. Marease.

95. **Diastase in Blood and Urine as Sign of Injury of the Pancreas.**—Wohlgemuth and Noguchi experimented on dogs and found that after contusion of the pancreas, diastase could be found in both blood and urine. The severer the injury the more rapidly it appears and the larger the proportion. They found also in two clinical cases that diastase was present in blood and urine after an operation on the liver or intestines; this indicated that the pancreas had been injured more or less during the operation, although the proportions were

comparatively small as the injury had been slight. Twenty-four hours after the operation there was considerably more diastase in the urine and blood than before the operation. This experience compels them to publish it as a new test for injury of the pancreas in case of abdominal contusion. All that is necessary for the test is ten test-tubes, two pipettes and a 0.1 per cent. solution of starch (Kahlbaum's soluble starch), and a 1 to 50 normal solution of iodine. The test is made by adding 2 c.c. of the starch solution to each of the test-tubes which contain graduated amounts of the urine or serum. The set is then heated in a water-bath to 38 or 40 C. for thirty minutes, then cooled and the solution of iodine is added a drop at a time to each of the test-tubes until the stain ceases to vanish as the drop falls. The test-tube in which the iodine first turns the fluid purple is the standard. The test-tubes contain respectively 1, 0.5, 0.25, 0.125 c.c., etc. This test for diastase is very simple, and should be applied, they insist, in every case of severe abdominal contusion as it will show whether the pancreas has been injured or not.

97. Influencing of the Opsonic Index by Drugs.—Strubell states that some of the common drugs have the effect of sending the index up or down; different drugs have a different influence in this respect according to the chemical composition of the drug, but no action could be detected from salt. Iodine and bromine salts are active in this respect as also urea. In his experiments the latter had a marked influence in reducing the opsonic immunity to staphylococci. This became apparent in fifteen minutes and reached its maximum in an hour. Arsenic, on the contrary, had an opposite effect, rapidly raising the index, in conformity to its therapeutic action.

100. Foreign Bodies in the Upper Air Passages.—Glücksman reviews a number of experiences in this line, one case showing that a small tooth-plate can pass through the wall of the esophagus without injury. The esophagus is entirely empty while roentgenoscopy shows the plate near by. Pick has encountered a similar case in which a tooth can be seen encapsulated near the esophagus. In another case a boy of 13 aspirated a pencil cap, 16 mm. long and 8 mm. in diameter. Roentgenoscopy disclosed it in the right lower lobe, but the next day it was found in the left lower lobe, evidently having been partly coughed out and aspirated anew. It was extracted by bronchoscopy under control of roentgenoscopy. This combination of the two methods is peculiarly advantageous. In conclusion Glücksman urges the necessity for quiet and tranquil procedures. There is no need for precipitate haste as a rule. Immediate suffocation generally proves fatal before the physician arrives. If the patient survives the first hour, there is no further need for precipitation; quiet consideration of the case is then possible. He warns further that the injury done by the entering foreign body can only be aggravated by further manipulation and traction. The foreign body at rest causes no further damage for a time, so the aim should be to extract it with the least possible commotion and the fewest possible instruments, and, when practicable, under control of combined direct visual inspection and roentgenoscopy.

101. Phimosis and Hydrocele in Young Infants.—Peiser declares that active treatment is seldom necessary for either of these. The phimosis may be regarded as physiologic to a certain degree in young infants, and it corrects itself later. Hydrocele also generally subsides spontaneously in the course of the first or second year. In none of his seventy-three cases did the hydrocele increase; in thirty-four it disappeared during the first year in all but three, and in these before the end of the second year. The more carefully the digestion is regulated, the rarer will operation for phimosis be regarded as necessary; the trouble is generally congestion in the abdomen and pelvis from constipation. The urinary disturbances are more often of neuromuscular origin. He regards it as possible for irritation from the rectum to induce spasmodic contraction of the musculature of the pelvic floor and thus impede the voiding of urine.

102. Serodiagnosis of Syphilis.—Jensen and Feilberg reiterate that the Perutz technic for serodiagnosis of syphilis is simple and accurate and can readily be applied by the general

practitioner. All that is needed is a mixture of sodium glycocholate 2 parts, cholesterol 0.4 part and 100 parts of 90 per cent. alcohol. The second reagent is a 2 per cent. aqueous solution of glycocholate. Comparative tests with this and the Wassermann technic gave constantly negative findings with both in sixty-three cases free from syphilis, while in ninety syphilitics the findings with this and the Wassermann technic paralleled each other in 48 per cent., but the Wassermann gave a positive reaction in an additional 18 per cent. The Perutz technic may therefore be regarded as reliable when it is positive, and it seems to be a welcome simplification of the Wassermann principle.

Deutsche medizinische Wochenschrift, Berlin

June 6, XXXVIII, No. 23, pp. 1073-1120

- 105 *Treatment of Chronic Nephritis. E. Romberg.
- 106 Experimental Syphilis in Rabbits. (Histopathologische Veränderungen bei der experimentellen Kaninchensyphilis.) P. Uhlenhuth, P. Mulzer and M. Koch.
- 107 *Immunization Against Tuberculosis by Dialysis from Sac of Killed Tubercle Bacilli. (Ueber Tuberkuloseschutzimpfung mittels toter, in Schilfröhrrückgeheu eingeschlossener Tuberkelbazillen.) J. F. Heymans.
- 108 Improved Technics for Romanowsky Stain for Blood. (Einige moderne Romanowsky Blutfärbungen.) S. Szecsi.
- 109 *Roentgenoscopic Findings with Chronic Colon Spasm. (Die objektiven Symptome des chronischen Colospasmus.) G. Singer and G. Holzknicht.
- 110 Increased Elimination of the Uric Acid at Crisis in Pneumonia. (Ueber die erhöhte Harnsäureausscheidung bei der Krise der Pneumonie.) Y. Nukada.
- 111 Plastic Operation on Urethra Utilizing Saphenous Vein. (Ersatz eines Harnröhrendefektes durch die Vena saphenea.) R. Mühsam.
- 112 Crude Coal Tar in Dermatology. (Anwendung des rohen Steinkohlenteers bei Hauterkrankungen.) E. Müller.
- 113 Mountain Air and Diatheses in Children. (Die kindlichen Diathesen und das alpine Hochgebirge.) A. v. Planta.
- 114 *Symposium on Roentgenotherapy of Goiter. (Therapeutische Wirkung der Röntgenstrahlen auf Struma und Morbus Basedowii.) Berger and M. Schwab.
- 115 *Prophylaxis of Scarlet Fever. (Zur Frage der Scharlachprophylaxe.) von Drigalski.

105. Chronic Nephritis.—Romberg concludes this postgraduate lecture on chronic nephritis with the remark that although we are not able to cure it, yet recent progress has made it possible to relieve the patient and ward off danger much more effectually than ever before. We have learned to spare the kidneys unnecessary work, especially sparing the pathologic element, while keeping the general condition at its possible best, and cautiously exercising the diseased organ, gradually training it to better functioning. The elimination of water and salt is more important for the organism as a whole than albumin, blood or tube-casts in the urine. The elimination of water and salt depends on the action of the heart, the absorption of water in the intestines and its elimination through the intestines, skin and lungs, as well as on kidney functioning. In treatment all measures should be avoided as a rule which induce marked fluctuations in the blood-pressure. In the diet the main point is moderation; meat up to 100 or 150 gm. a day can generally be allowed and the prejudice against red meat and eggs is unfounded. The total amount of fluid in any form during the twenty-four hours should not surpass two liters, and the amount should never be less than one-half liter. Too much fluid throws unnecessary work on the kidneys. He regards alcohol, especially beer, as unconditionally contra-indicated; vinegar, too, had better be dropped. Much salt should be avoided, but enough to render the food palatable should be taken as long as the kidneys are working fairly. Sweating procedures are useless and dangerous while the kidneys are still sufficient. The same is true of courses of mineral waters, although the latter may be indicated for certain complications. Persons with insufficient kidneys should never be sent to a dry, hot climate, like that of Egypt, from much farther north, although a milder climate in winter is an advantage. Von Hösslin has recently stated that sodium bicarbonate without much fluid reduces albuminuria, and Straub and Schlayer have called attention to a possible connection between the carbon-dioxid tension of the blood and the elimination of albumin in the urine. Treatment for syphilis should always be given a trial if there is the least cause for suspicion, especially with contracted kidney in the young. With edema or any signs that the kidneys are becoming insufficient, the patient must avoid

physical and mental exertion, he must stay in bed, and the output of water and salt should be recorded, the curve showing the progress up or down, the intake of salt accordingly restricted or not as indicated. The limit of tolerance varies widely in different patients, but the majority can take the ordinary daily average of 10 to 20 gm. salt without harm unless there is a tendency to edema. He warns against calomel in chronic nephritis, as it has an irritating action on the kidneys. Diuretics and digitalis sometimes act better when combined, and restriction of salt may not benefit until some kidney tonic is given at the same time or vice versa. Copious venesection may give great relief in severe uremia.

107. Inoculation of Tubercle Bacilli in Sacs.—Heymans has obtained encouraging results in his experimental inoculation of rabbits with killed tubercle bacilli in sacs introduced into the peritoneum. The sacs are made from a membrane obtained from reeds, and hold 1 gm. of the bacilli bodies. Substances dialyze through the sac and set up an action which immunized the animals in his experiments. He thinks this method of preventive and curative immunization is superior in many ways to all other techniques to date. It may prove useful in vaccination against typhoid as it permits the introduction in the most harmless way of large amounts of killed bacilli. The reed sacs are less porous than collodion sacs, and are preferable for several other reasons.

109. Motor Neuroses of the Colon.—Singer and Holzknecht give the roentgenoscopic findings in a number of cases of spastic constipation and call attention to other objective findings in this condition. Such patients generally have a retracted abdomen with occasional protruding loops of intestine, especially at the sigmoid flexure, contraction of the sphincters, which close tight on the palpating finger, difficulty in introducing a sound into the rectum, and fragmented stool, which may be normal, constipated or diarrheic, with or without mucus or blood. Massage, exercise and electricity increase the disturbances, while belladonna, atropin, opium, warmth, relief from anxiety and sedatives generally relieve. Small doses given by the rectum are peculiarly efficient, as also mechanical dilatation of the lower bowel. Roentgenoscopy shows an alternating contraction and dilatation in the colon, atony at certain parts, and excessive motility of the upper third of the large intestine. The bismuth suspension is passed along so rapidly that it may reach the rectum in six hours; normally, in this period it reaches only the hepatic flexure at most.

114. Roentgenotherapy of Goiter.—Question-blanks were sent to a number of German clinicians asking for their experiences in this line. They have no favorable reports to make of roentgenotherapy for simple goiter and generally advise against it, but for exophthalmic goiter the majority regard it as fully equal to any other therapeutic method. The thyroid subsides under it, and likewise the specific Basedow symptoms, the exophthalmos, tachycardia, other symptoms on the part of the heart and nervous system, while the general health improves and the patients gain in weight. Krause urges routine histologic study of thyroids when they are removed or inspected at necropsy after exposures to the Roentgen rays.

115. Prophylaxis of Scarlet Fever.—Drigalski urges that the medical inspectors of schools should keep a special oversight of children recently recovered from scarlet fever. He found nephritis in thirty-five children who had apparently entirely recovered, among the 1,102 scarlet-fever children at Halle during the last four years. The nephritis was found almost invariably in children who had had no or very brief medical care.

Deutsche Zeitschrift für Chirurgie, Leipsic

May, CXV, Nos. 1-2, pp. 1-204

116 *Advantages and Wide Applicability of Momburg Belt Constriction for Hemostasis. (Die Momburgsche Blutleere.) A. Haehner.

117 *Non-Operative Injury of Thoracic Duct. (Die nicht operativ entstandene Verletzungen des Ductus thoracicus.) D. G. Zesas.

118 *Hyperemic Treatment for Tendon Sheath Phlegmons; 127 Cases. (Zur Klinik der Sehnenscheidenphlegmone unter bes. Berücksichtigung der Stauungsbehandlung.) W. Keppler.

119 *Sand-Bath Treatment of Infected Wounds. (Weitere Mitteilungen über die Sandbehandlung infizierter und infektionsverdächtiger Wunden im sterilen Sandbade.) A. Thies.

120 *Incubation Period for Peritoneal Infection. (Weitere Untersuchungen über die Inkubationszeit nicht angezündeten Keimmaterials bei der peritonealen Infektion.) G. Magnus.

116. Hemostasis by Belt Constriction.—Haehner devotes 48 pages to discussion of Momburg's method of hemostasis by winding a rubber tube around the waist, commending the simplicity of the method and its certainty and the fact that no assistance is required. He urges that a six-foot tube of the kind should always be in the first-aid box in emergency stations and army kits, and cites von Kamptz' two cases in which the patients' lives were undoubtedly saved by this measure after an accident. Another great advantage is that the hemorrhage is arrested without touching the wound; with other methods of hemostasis the wound is generally contaminated by measures to arrest the bleeding. The patient must be lying flat and the tube be wound as tight as possible, one turn over another, until the pulse in the femoral artery is no longer perceptible. Generally the femoral pulse stops after two or three turns; it is important to use as few turns as possible to obtain the desired effect. A constricting band is applied to each thigh beforehand to render less abrupt the changes in the circulation when the constricting belt is removed. Momburg advises at need to expel first the blood from the limbs with an Esmarch bandage. He warns expressly against raising the pelvis before applying the constricting belt. The method makes considerable demands on the heart and should not be attempted in case the cardiovascular apparatus is not sound. Its main field is for obstetric and traumatic hemorrhage and on the battle field. Patients with arteriosclerosis or exophthalmic goiter or when weakness of the heart from any cause is suspected should be excluded, and the constriction should always be as brief as possible. Haehner states that the experiences in several hundred surgical and obstetric cases now on record have fully established the feasibility of the method. Hoehne is experimenting with a splint laid over the ureter region on each side to prevent injury of the ureters during the constriction, but his results have not been conclusive to date. The various by-effects that have been observed were in persons whom Momburg would have excluded from the measure, or the technic was defective or the constriction was released too suddenly—Momburg has always warned that the circulation must be only very gradually restored. (The method was shown in an illustration in *THE JOURNAL*, Oct. 30, 1909, p. 1519.) Some persons find the constricting belt very painful while others do not seem to mind it much. A little morphin will obviate difficulty from this source. For operations, it may be well to wait until the patient is under the influence of the anesthetic before applying the tube. The tube from a gas stove can be used in an emergency.

117. Non-Operative Injuries of the Thoracic Duct.—Zesas has traced the literature on the subject back to 1663, and summarizes here the twenty-four cases he has found recorded. Twelve of the patients died from compression of the lungs or from inanition from loss of chyle. He does not advise puncture, as aspiration of the fluid leads only to reaccumulation. Thoracotomy with resection of ribs is preferable if the effusion recurs. He says that the closure of the wound in the duct is scarcely feasible; in Helferich's case the chyle ceased to accumulate after thoracotomy, while preceding punctures had seemed merely to maintain it.

118. Phlegmons of Tendon Sheaths.—Keppler thinks the time has now come for a detailed report of the experiences at the university clinic at Berlin, in charge of Bier, with his method of treating tendon sheath phlegmons by multiple small incisions and stasis hyperemia for twenty or twenty-two hours daily. He has been applying this method since 1905, and Keppler here reviews 127 cases in the last two and one-half years in which he has personally supervised its application. This material is reviewed and classified from various standpoints. Comparing the results with those of former methods confirms its advantages anew, he insists, as the best and least mutilating treatment known to date. Even if the ultimate outcome were not so favorable, the relief of pain by the stasis

hyperemia justifies its adoption in these cases. The functional results were exceptionally good; the earlier treatment was begun, the better the outcome.

119. Sand Bath Treatment of Infected or Suspected Wounds.—Thies utilizes the capillary attraction of fine sand sterilized by boiling for half an hour in a bag or steaming for an hour and a half. The part affected is kept in the dry sand for ten or twelve hours during the day with frequent intermissions, in some cases both day and night. The limb is placed in a long, deep pan without ends and one or three quarts of sand is poured over it, the patient shoveling up fresh sand over the lesion as the sand in contact becomes moistened with secretions. The limb can be moved freely in the sand bath as desired. A layer of gauze or chiffon over the lesion will keep the sand out of it. In some of his cases, Thiersch flaps all healed in place in the sand bath, without loss of one. He has found the method particularly useful for phlegmons of the hands or tendon sheaths, first releasing the pus with multiple small incisions. He gives the details of thirty-four cases in which he has applied the measure. He uses the same sand for two or three days unless there is much secretion, in which case he renews it daily. The dry sand keeps the wound dry without the necessity for changing dressings; it is much more effectual for the purpose than bolus alba or sponges. A disinfectant can be mixed with the sand if desired. (His first communication on the subject was summarized in *THE JOURNAL*, May 6, 1911, p. 1372.)

Medizinische Klinik, Berlin

June 9, VIII, No. 23, pp. 933-974

- 121 Constitutional Inferiority. (Die Konstitution als Grundlage von Krankheiten.) D. v. Hansemann.
- 122 Occult Perforation of Gastric Ulcer. (Ueber gedeckte Magenperforationen und über die Entstehung der penetrierenden Magengeschwüre.) J. Schnitzler.
- 123 Oculorecurrences in Syphilis After Salvarsan. (Ueber die syphilitischen Rezidive am Auge nach Salvarsanbehandlung.) O. Fehr.
- 124 Walking Tours for Children. (Einfluss gesteigerter Marschleistungen auf die Körperentwicklung in den Pubertätsjahren schwächerer Kinder.) F. Meyer.
- 125 Tests of Liver Functioning. (Funktionsprüfung der Leber.) R. Ronbitschek.
- 126 Operations on Nose to Correct Deformity. (Korrektive Nasenoperationen.) E. Köhler.
- 127 Immunity to Diphtheria. (Aktive und passive Immunität bei Diphtheritis in der ärztlichen Praxis.) P. Dittrich.
- 128 Roentgenoscopy of Oxygen in the Tissues. (Die Darstellung der Sauerstofforte im tierischen Gewebe.) P. G. Unna.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XXIV, Nos. 4-5, pp. 607-884. Last indexed April 27, p. 1320

- 129 *Acromegaly and Hypertrophic Bone and Joint Disease. (Zur Lehre von der Akromegalie und Osteoarthropathie hypertrophante.) F. Schultze and B. Fischer.
- 130 Pathology of the Hypophysis Cerebri. R. Tölken.
- 131 Blood-Borne Infection of Follicles in the Appendix. (Experimentelle hämatogene Infektion der Lymphfollikel des Appendix.) H. Stoeber and W. Dahl.
- 132 The Liver and Pancreas in Experimental Chloroform Poisoning. (Zur Frage der zentralen Leppchennekrosen der Leber und deren etwaige Beziehungen zur Pankreasfettgewebsnekrose.) W. Hildebrandt.
- 133 *Results of Experimental Thymectomy. (Wirkung experimenteller Ausschaltung der Thymusdrüse.) H. Matti.
- 134 Collateral Arterial Circulation in the Kidney. (Experimenteller Beitrag zur Bildung arterieller Kollateralbahnen in der Niere.) K. Isobe.
- 135 Influence of the Thymus on Blood Production. (Untersuchungen über den Einfluss der Thymusdrüse auf die Blutbildung resp. das Blutbild.) F. Seiler.
- 136 Diagnosis of Gastric Cancer. (Zur Diagnose des Magencarcinoms.) M. Feurer.

129. Acromegaly and Hypertrophic Osteo-Arthropathy.—In the first of the cases reported by Schultze and Fischer the patient was a girl of 15 with a hypophysis tumor, acromegaly and partial obesity. The first symptoms had been observed at 11. In a second case the patient, a man of 56, succumbed to hemorrhage from a myoma in the stomach. He had complained of symptoms on the part of the stomach since a contusion of the region seven years before. Then the acromegaly developed and a tumor was found in the hypophysis. The adrenals in both cases were enormously enlarged, all the viscera having grown to unusual size, the adrenals to five times normal. Some other cases are compared with these and the etiology discussed, especially of the benign tumors in the hypophysis.

133. Thymectomy.—Matti devotes 155 pages to the description of his experimental research on the physiology and pathology of the thymus. The work was done at Basel and Bern,

and it confirms the assumption of a close connection between exophthalmic goiter and persisting large thymus. The thymus and the thyroid seem to have the same, not antagonistic, functions and hyperfunctioning of both magnifies the evil from each.

Münchener medizinische Wochenschrift

June 4, LIX, No. 23, pp. 1257-1304

- 137 *Dislocation of the Shoulder. (Die Distorsion des Schultergelenkes.) F. Lange.
- 138 Treatment of Flat-Foot. (Zur Plattfußfrage.) A. v. Bacyer.
- 139 Mixed Anesthesia in Otology and Rhinology. (Zur Pantopon-Skoplaminnarkose.) J. Fleischner.
- 140 Improved Technic for Mathieu Test of Stomach Functioning. (Eine neue Modifikation der Restbestimmung nach Mathieu-Rémond.) J. Grossmann.
- 141 Diphtheria at Berlin Public Hospital, 1910-11. K. Blühdorn.
- 142 Low Transverse Tracheotomy in Diphtheria. (Die Tracheotomia inferior mit kleinen queren Hautschnitt bei Diphtherie und ihre Nachbehandlung.) W. Leede.
- 143 Emergency Esophagotomy. (Dringliche Indikation zur Oesophagotomia mediana gleichzeitig als Beitrag zur Frage: Tracheotomia transversalis oder Tracheotomia longitudinalis mit transversalem Hautschnitt.) H. Hans.
- 144 Milk Hygiene in Rural District. (Zur Milchversorgung auf dem Lande.) A. Weber.
- 145 Familial and Hereditary Cataract. (Schichtstarbildung durch vier Generationen einer Familie.) R. Hilbert.
- 146 Disagreeable By-Effects with Tuberculin Treatment. (Unliebsame Vorkommnisse bei der Tuberkulinbehandlung.) P. Junker.
- 147 Reactions of the Blood-Serum. (Ueber die Reaktion des Bluteserums bei normalen und pathologischen Zuständen.) F. Rolly. Commenced in No. 22.
- 148 Diagnostic Importance of Ocular Muscular Reactions. (Zur Bewertung der Augenmuskelreaktionen bei Labyrinthreizung und der Reaktionen bei elektrischen Kleinhirnerregungen nach experimentellen Untersuchungen am Affen.) W. Uffenorde. Commenced in No. 22.
- 149 The Physician's Certificate for Trauma Affecting the Skull. (Zur Unfallbegutachtung Schädelverletzter.) C. Hirsch. Commenced in No. 22.
- 150 *Necessity for Labeling Specially the Chemicals Used for Routine Roentgenoscopy. (Vorschlag einer Nomenklatur des Baryum sulfuricum für Roentgenzwecke.) G. Schwarz.

137. Dislocation of the Shoulder.—Lange calls attention to the pathognomonic contracture of the joint—extreme inward rotation—which may occur with sprains, dislocation or even with effusion or slight inflammation in the shoulder; the joint is abducted and pivoted forward by 30 or 40 degrees. This position is not due to the action of the peripheral part of the joint, the upper arm, but to torsion of the central part, the scapula. The swelling, atrophy of the deltoid and tenderness of the joint are important for differentiation. If only the region of the subacromial bursa is tender, the joint itself is probably not injured; tenderness of the entire anterior capsule speaks for dislocation. To bring the scapula into place, the patient should raise and abduct the arm until the scapula stands even with its mate. Then an assistant should hold the shoulder girdle firm while the passive movability is tested; if it proves difficult to lift the arm backward and twist it outward, the diagnosis of dislocation is certain. Treatment should aim to rest the joint and promote absorption of blood or effusion for a few days, and then efforts should be made to exercise the anterior capsule to ward off atrophy. He gives illustrations of the simple exercises which he has found best adapted for this; they are done for five minutes several times a day. The seated patient is fastened to the chair with a band passed over the shoulder and the lower rung of the chair, while a second band below the axillæ fastens the trunk to the back of the chair. The arm is drawn backward by a loop passing around the arm above the elbow, with which a weight is drawn up over a pulley some distance to the rear, on a level with the top of the patient's head. This combats the tendency to inward rotation. Another exercise is with the pulley on a level with the elbow and the loop passed over the wrist, the arm tied back above the elbow to the back of the chair.

150. Prophylaxis of Mishaps in Roentgen-Ray Work.—Schwarz proposes that the barium sulphate which is proving such an important aid in roentgenoscopy, should be given some special name to distinguish it so that poisoning cannot occur from mistakes in dispensing it. The recent fatal poisoning from barium sulphid (BaS) which was administered by mistake for the non-toxic barium sulphate (BaSO₄) illustrates the necessity for giving the chemical used in skiagraphy some distinctive and unmistakable name. He suggests "skiabaryta," from the Greek *skia*, shadow, and that it should always be stained bright yellow. Something of the kind must be insisted

on at once before any further fatalities occur. One was reported from Germany about six months ago; the latest mentioned above occurred at Prague (Jurasz).

Therapie der Gegenwart, Berlin

June, LIII, No. 6, pp. 241-288

- 151 *Duodenal Ulcer. (Zur Diagnose und Therapie des Ulcus duodeni.) A. Albu.
- 152 Digitalis Preparations. (Die hohe Bedeutung der Folia Dig. titrata und ihre Vergleichung mit andern Digitalispräparaten.) C. E. Focke. Commenced in No. 5.
- 153 Treatment of Flat-Foot by the General Practitioner. (Zur Plattfussbehandlung durch den praktischen Arzt.) P. Lengemann.
- 154 *Endonasal Treatment of Eye Disease. (Ueber die endonasale Behandlung von Augenerkrankungen auf Grund der neueren endonasalen Operationsmethoden.) P. Stenger.

151. Duodenal Ulcer.—Albu's advice is practically the same as in the recent article on the subject in THE JOURNAL, June 22, p. 1943. He emphasizes, however, that duodenal ulcer is of more frequent occurrence than hitherto recognized, and remarks that the clinician and the practitioner unfortunately have to make their diagnosis without direct inspection, while the surgeon can wait until the organ is exposed. It does not seem that the diagnosis has been much promoted by surgical autopsies; nearly every case manifests itself in a different way, with different peculiarities. Only one feature seems to be common to all, namely, the periodic recurrences of intense abdominal pain. When the pain develops three or four hours after a meal it can be ascribed to duodenal ulcer only when the pain is intense and keeps up for hours, especially when it recurs often at night and may, sometimes but not always, be relieved by a little food. Similar symptoms occur with hyperchlorhydria and nervous hyperacidity except that the pains are not so intense. Albu also calls attention to the rapid loss of flesh, such as is witnessed otherwise only with malignant disease. Intermittent motor insufficiency is pathognomonic, he says, when it occurs. The cause is a reflex spasm of the pylorus; it may last for days or weeks, but when the contraction of the pylorus subsides, the pains and the retention of food in the stomach disappear with it and the patients may have peace for weeks and months. In one of his cases, a physician 46 years old had complained for three years of gastric distress, keeping up for four or six weeks, after errors in diet. He was much emaciated and had an acid taste in his mouth, with eructations. No objective findings could be obtained until finally a tender point was found to the right of the umbilicus, with 100 c.c. of solid food content in the fasting stomach, free hydrochloric acid, occult blood in the stool, and gastric dilatation. The assumption of a duodenal ulcer was confirmed by the operation, as in two other cases in which the diagnosis was based likewise on the intermittent motor insufficiency. Spasm of the pylorus seems to occur more readily with duodenal than with gastric ulcer. Chronic recurring cholecystitis may induce a similar picture, as also the gastric crises of tabes, and neurasthenia of the stomach. The latter may deceptively simulate duodenal ulcer and long study of the case may be necessary to exclude it. Albu protests against the prevalent idea that patients with a chronic affection of the kind must be turned over to the surgeon at once, before a systematic, energetic course of internal treatment. Drugs alone are not able to cure duodenal ulcer, but this can often be accomplished by several weeks of bed rest, continuous hot applications and a simple diet. He reports the complete cure of a man of 49 who had complained of digestive disturbances at intervals for nine years. The last attack of pain and vomiting had lasted for four weeks; the fasting stomach contained 30 c.c. of food and fluid, but there was no blood in the stool. Under three weeks of bed rest and other internal measures, all symptoms subsided, and there has been no trace of recurrence during the five months to date. Gastro-enterostomy alone does not seem to be the logical treatment unless the pylorus is excluded at the same time; better perhaps is the removal of the ulcerated region by transverse resection. This removes at the same time the cause for the reflex irritation of the pylorus. He adds that two male patients in the prime of life, operated on recently for duodenal ulcer by gastro-enterostomy, died in consequence, one from postoperative pneumonia and the other from recurring hemorrhages.

154. Endonasal Treatment of Eye Disease.—Stenger comments on the recently acquired appreciation of the causal connection between nose and eye disease, and the possibility of curing the latter by appropriate operations on the nose or its sinuses. Besides the direct connection, there may be reflex nervous irritation; acute inflammation in the orbit, in the lacrimal canal, glaucoma, cataract and optic neuritis may all have a causal connection with some nasal trouble, as also disturbances in the optic nerve. In one of the cases reported a young woman found vision declining during the last five weeks, with headache on the left side. A chronic ethmoidal sinusitis was found and treated and in three weeks normal vision was restored. In this and some other cases a severe coryza had preceded by two months the visual disturbances and scotoma, while normal conditions were restored by treatment of ethmoidal sinusitis. A child under four had suppuration of both ears and became totally blind in the course of three weeks. The nose seemed normal, except for adenoid vegetations and swelling of the mucosa. No benefit was observed under four days of conservative treatment and the diagnosis of ethmoidal sinusitis was made by exclusion. The prompt benefit after resection of the middle turbinate bone and clearing out of the ethmoidal sinus confirmed its correctness. The sudden onset of the blindness in these cases, with fever and headache, gave the clue to the source of the trouble. In all his cases of glaucoma he always found the nose pathologic on that side, and he is convinced that incipient glaucoma might often be benefited by prompt correction of pathologic conditions in the nose. He insists in conclusion that the nose should not be left apart in an exclusive specialty, but should be regarded as important for the organism as a whole. Even the functioning of the heart and lungs depends on the normal physiologic functioning of the nose.

Wiener klinische Wochenschrift, Vienna

June 6, XXV, No. 23, pp. 867-906

- 155 Carcinoma Cells and Carcinoma Reaction. R. Kraus.
- 156 *Influence of Salvarsan on Wassermann Reaction. (Einfluss der Salvarsanbehandlung auf die Wassermannsche Reaktion.) R. Müller.
- 157 Eosinophilia with Glaucoma. T. Kleczkowski.
- 158 Duodenal Diverticulum. T. Bauer.
- 159 "Abdominal Angina." E. Hoke.
- 160 General Diagnosis in Relation to Laryngology and Rhinology. (Die Laryngologie und Rhinologie in ihren Beziehungen zur allgemeinen Diagnostik.) O. Kahler.
- 161 History of Diabetic Coma. (Zur Vorgeschichte des Coma diabeticum.) E. Ebstein.

156. Influence of Salvarsan on the Wassermann Reaction.—This communication from the dermatologic clinic at Vienna in charge of Finger was read at the recent International Congress for Dermatology. In 144 cases of syphilis in its secondary phase, eighty-five of the patients were kept under observation for months after salvarsan treatment. The Wassermann test gave a negative response in from four to eight weeks after the injections in the majority of cases, but in more than half of these the reaction became positive again from three to twelve months later. In some cases the disease ran a malignant course with a constantly negative Wassermann reaction. One patient had been persistently treated for over two years with every known means of combating syphilis, but has never been free from manifestations of the disease for a single week and yet the Wassermann test was always negative throughout. In another malignant case mercury proved ineffectual, but under salvarsan the manifestations of the syphilis temporarily subsided, while at the same time the previously constantly negative Wassermann findings became positive. Finger explains his fifteen cases of neurorecurrence as the result of primary injury of the capillaries by the salvarsan; this creates a point of lessened resistance which invites the still lingering spirochetes to settle there. The experiences related suggest on the whole that although salvarsan has a more rapid action on the syphilis than mercury, yet it does not ensure a permanent cure. In two children recently examined nearly two years after treatment of one with mercury and of the other with salvarsan, the seroreaction is now strongly positive in both. In another family, four children between 9 and 14 were infected all at the same time by an older sister. Two were treated with

mercury and two with salvarsan. The manifestations of the disease were remarkably alike in all; they rapidly subsided and the seroreaction became negative under salvarsan, while they subsided more slowly and the seroreaction persisted under the mercury. Two months later all the four children had an apparently identical recurrence and the seroreactions were positive again. Under repetition of the former treatment the same phenomena occurred as before, and once more, a few months later, the same course and phenomena were observed anew, alike in both the mercury and the salvarsan cases.

Zeitschrift für Urologie, Berlin

June, VI, No. 6, pp. 461-540

- 162 Colon-Bacillus Infection of the Urinary Apparatus. (Experimentelle und klinische Studie der Colon Bacillus Infektion des Harnsystems.) I. S. Koll (Chicago).
163 Misleading Case of Tuberculosis of Kidney. (Ein seltener Fall von Nierentuberkulose.) A. Heymann.

Zentralblatt für Chirurgie, Leipsic

June 8, XXIX, No. 23, pp. 769-808

- 164 *Operative Treatment of Fistulas into Stomach or Intestine. (Zum operativen Verschluss der Magen- und Darmfisteln.) V. v. Hacker.
165 *Aluminum Clips for Ligating Arteries. (Eine Ligaturklemme für Aluminumagraffen.) E. Schepelmann.
166 *Inflatable Air Cushion for Raising Trunk for Gall-Bladder and Other Operations. (Einfache Vorrichtung zur Lagerung des Kranken bei Gallenblasen- usw. Operation.) Schultze.

164. **Operative Closure of Rebellious Fistulas.**—Von Hacker gives an illustration of the technic with which he promptly healed up two old and chronic fistulas which had resisted all other measures. Both were on the median line, opening into the stomach, one of over one and the other over two years' standing. He excised the exuberant "lips" of the fistula and made a short incision 1 cm. above and below the round hole thus left. Through these incisions he ran a silver wire loop under the fascia on each side, thus encircling the hole, about 1 cm. distant, and brought each end of the wire out separately through the skin some distance to right or left of the point above and below where the two loops crossed. The ends of the wire were each tied over a metal plate and bead, and traction on the loops puckered up the fistula mouth, quite obliterating it. He has applied the same technic with equally prompt success in closing an artificial anus in the cecum.

165. **Ligating Clamps for Arteries.**—Schepelmann gives an illustrated description of his tiny, nearly triangular, aluminum clamps. The clamp is fitted over the artery with long slender forceps which automatically clamp it and it can thus close the lumen even in the blind depths of a cavity where it is almost impossible to throw a ligature around a vessel.

166. **Technic for Cholelithiasis Operations.**—An air cushion folded flat lies under the patient's lumbar region; the base of the cushion is flat and solid. It can be inflated with a bicycle pump to raise the lower part of the trunk a foot or more, with ease and no discomfort for the patient.

Zentralblatt für Gynäkologie, Leipsic

June 8, XXXVI, No. 23, pp. 729-760

- 167 Momburg Belt Versus Instrumental Hemostasis. (Momburg'scher Schlauch oder Tourniquet?) W. Sigwart.
168 Operative Treatment of Post-Partum Hemorrhage. (Zur Operativen Behandlung der Post partum-Blutungen.) A. Labhart.
169 Hydrorrhea During Pregnancy. (Ueber Hydrorrhoea gravidarum annialis bei intraamniärer Entwicklung der Frucht.) W. Beckmann.

Zentralblatt für innere Medizin, Leipsic

June 8, XXXIII, No. 23, pp. 573-596

- 170 Destructive Action of Radium Emanation on Xanthin Bodies. (Die Zersetzung von Oxypurinen durch Radiumemanation.) P. Mesernitsky.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 4, XXXIII, No. 67, pp. 705-712

- 171 *Trauma as Factor in Pulmonary Tuberculosis. (Il trauma come fattore di tubercolosi polmonare.) T. Oreste.
172 Pneumonia in Children. (Sulla diagnosi e prognosi della polmonite infantile.) Mouriquand and Geuty.

June 6, No. 68, pp. 713-720

- 173 *Treatment of Fistula of Duct of Steno. (Contributo alla cura delle fistole del dotto di Stenone.) G. Giovannetti.

June 9, No. 69, pp. 721-736

- 174 Phenol in Treatment of Anthrax. (10 casi di carbonchio curati con le iniezioni di acido fenico puro.) U. Ragusa.

171. **Trauma as a Factor in Pulmonary Tuberculosis.**—Oreste's patient was a man of 30 who had been kicked in the chest by a horse after which a pulmonary process developed with tubercle bacilli in the sputum and slight evening fever. Six months after the accident an abscess formed in the subcutaneous tissue of the chest wall and after release of 1.5 liters of pus the symptoms gradually subsided until there was no further trace of anything wrong in the lungs. Oreste explains the abscess as the direct work of the tubercle bacilli which had been developing since the trauma, the suppuration coming on a few days after a five-hour ride with much jolting over rough roads. The jolting, he thinks, caused conditions inducing the sudden formation of the abscess; there had been no signs of it when the patient had been examined two days before. The case confirms anew the mild, curable character of traumatic pulmonary tuberculosis.

173. **Treatment of Fistula in the Duct of Steno.**—Giovannetti reports a case of postoperative fistula in which conditions were rapidly restored to approximately normal after he introduced a cannula into the duct from within the mouth draining the saliva into the mouth and thus permitting the fistula to heal from without inward.

Policlinico, Rome

June 2, XIX, No. 23, pp. 817-856

- 175 Operative Injury of Ureters. (Patologia e clinica delle lesioni chirurgiche dell'uretere.) D. Leonardo. Commenced in No. 22.
176 Abortive Diphtheric Angina. (Angine ditteriche fruste.) R. Petrucci.

Riforma Medica, Naples

May 25, XXVIII, No. 21, pp. 561-588

- 177 Abscess in the Liver. (L'ascesso del fegato.) D. Giordano.
June 1, No. 22, pp. 589-616
178 *Lymphadenitis. (Sulla diagnosi delle tumefazioni delle linfoglandole.) A. Alhaique.
179 Abdominal Contusions. (Le contusioni dell'addome con rottura sottocutanea della parete.) M. Dardanelli.

178. **Differentiation of Lymphadenitis.**—Alhaique reports a case to show that microscopic examination of an excised scrap may prove the only means to differentiate lymphadenitis in the neck. The patient was a woman of 36 and there were features suggesting that the tumefaction low at the side of the neck might have been tuberculous, syphilitic, or due to actinomycosis or ordinary inflammation. The microscope revealed the structure of a metastatic carcinoma. Another metastatic tumor developed later in the liver, but the primary tumor has given no signs to date.

Semana Medica, Buenos Aires

May 9, XIX, No. 19, pp. 869-912

- 180 Conservative Operative Treatment of Uterine Fibroma. (Cirugia conservadora en los fibromas del utero.) O. L. Bottaro.
181 Operative Treatment of Hemorrhoids. (Tratamiento quirurgico de las hemorroides—procedimiento del Dr. N. Repetto.) A. Kuperman.

Hospitalstidende, Copenhagen

June 5, LV, No. 23, pp. 637-668

- 182 Experimental Poliomyelitis in Monkeys. II. (Experimentelle Undersøgelser over Poliomyelitis.) O. Thomsen.

Norsk Magazin for Lægevidenskaben, Christiania

June, LXXIII, No. 6, pp. 809-960

- 183 Suppurative Middle Ear Disease. (Den tympanogene suppurative labyrinth.—Komplikationer, prognose og behandling.) V. Uchermann.
184 Case of Primary Sarcomatosis of the Peritoneum. K. Motzfeldt.
185 Traumatic Injuries of the Bone Aside from Fractures. (Traumatisk bendaannelse.) K. Motzfeldt.
186 Complications of Appendicitis. (Appendicit med komplikationer. samt Appendicit i forhold til gynækologiske lidelser.) H. Natvig.
187 Anaphylaxis. M. v. Krogh.
188 Prognosis of Psychoses in the Young. (Prognosen for juvenile psykoser behandlet i Kristiania kommunale sindssykeasyl 1849-1900.) A. Horne.
189 Physiology of Acetone Bodies. (Om acetonlegemernes fysiologi.) H. C. Geelmuyden.

Ugeskrift for Læger, Copenhagen

June 6, LXXIV, No. 23, pp. 859-888

- 190 Vaccine Therapy of Staphylococcus Infection. (Videre Erfaringer om Vakcinebehandling af Stafylokoklidelser.) V. Jensen.

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THE PRESENT STATUS OF LIGATION OR EXCISION OF THE PELVIC VEINS IN THE TREATMENT OF SEPTIC THROMBOPHLEBITIS OF PUERPERAL ORIGIN *

C. JEFF MILLER, M.D.

NEW ORLEANS

The task of formulating the indications for the surgical treatment of puerperal septic infection still affords a source of prolific discussion. It seems impossible to agree on established rules as has been done in suppurative appendicitis, gall-bladder infection, or suppurative otitis media. Some of the confusion has undoubtedly arisen from the fact that we have no reliable clinical or laboratory guide to aid us in determining a reasonable prognosis, from the difficulty of differentiating the complex lesions, and to a certain extent, from the antipathy for serious surgical operations on the lying-in woman. It must be said, however, that our ideas are gradually crystallizing, that conservatism prevails, and that, owing to a better conception of puerperal processes in general, surgical measures are adopted with more care and discrimination.

During the past ten years the possibility of saving by operation the lives of women suffering from puerperal pyemia has received a great deal of attention. The idea is by no means new, as John Hunter suggested it, and scattered reports of cases of successful ligation of the veins of the extremities can be found in the literature of the middle of the past century.

Pyemia, as a surgical wound infection, has long since disappeared from our hospital wards. It is seldom seen now except as a complication of middle-ear and puerperal infection. The aural surgeon has made very satisfactory progress in eradicating it from his domain and many of our most distinguished pathologists and surgeons are insisting that active surgical measures will materially reduce the mortality in the puerperal variety if the patients are properly classified and operated on at the proper time.

Every one who had the pleasure of hearing Trendelenburg's logical discussion and enthusiastic prophecy, in 1907, was undoubtedly convinced of the feasibility of arresting septic thrombosis by ligation, or excision of the involved veins, but there was certainly no unanimity of opinion as to the ability to differentiate the conditions requiring operation and the indications for interference.

Professor Trendelenburg was unable to present sufficient material to prove conclusively all that was claimed for operation, but it is quite evident that many concur in his opinion, for the reports of operations are rapidly accumulating and it will be only a matter of time until it will be possible to estimate the true merits of surgical intervention.

The keen interest in this subject was undoubtedly aroused by the success of the aural surgeons in the treatment of all otitic pyemia by exposing and clearing out the thrombosed transverse sinus with or without ligation of the jugular vein.

Prior to Zauful's publication, the mortality of otitic pyemia was generally estimated to be 90 per cent. Numerous observations have confirmed the efficacy of his method, as is partially shown in Viereck's paper in 1901, in which he reviewed 170 cases. Excluding the unsuccessful cases in which operation was done on account of complicating meningitis, brain abscess, etc., or hopeless cases, due to delay, there remained 108 cases in eighty-nine of which there was recovery. Such results leave no difference of opinion as to the correct treatment of the otitic variety.

It is quite natural to inquire why the same plan of treatment is not applicable to cases of puerperal origin. There is no marked pathologic difference between the two forms. Both present the pure forms of thrombophlebitis; the clot formation extends in the same manner; the bacteriologic findings are practically the same; the same variability in the clinical picture exists in both, and the mortality-rate is practically identical.

Profiting by Zauful's teachings, Sippel attempted to improve on the distressing results of hysterectomy by additionally ligating the involved veins. Freund, in 1898, basing his conclusions on autopsy findings, conceived the plan of ligating only the thrombosed veins. The result of Freund's idea may be studied at length in the subsequent contributions of Lenhartz, Bumm, Trendelenburg, Bardeleben, Williams, Seitz, Leopold, Opitz and others.

Trendelenburg, in 1907, collected reports of seven cases in which operation resulted in cure. Seitz, in the same year, published a statistical study of thirty-seven cases. In 1909, Williams collected reports of fifty-six cases. I have endeavored to collect all the reported cases to date, and succeeded in finding eighty-one. The list includes every suggested variety of operation, and while the number is still insufficient for final deductions, it at least furnishes sufficient evidence to prove that the ligation of thrombosed septic veins cannot longer be rejected on theoretical grounds.

Unfortunately, these statistics cannot be accepted literally, as they include every pathologic phase of thrombosis and many of the patients were beyond hope of recovery when operated on. In fact, it may be said

* Because of lack of space this article is somewhat abbreviated in THE JOURNAL. It appears in full in the Transactions of the Section and in the author's reprints.

* Chairman's address before the Section on Obstetrics and Gynecology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

that in some instances the operation was little more than an autopsy.

The chief value of the present available material lies in the opportunity afforded to establish a clearer picture of the clinical syndrome of pyemia, the most frequent site of the lesions, a comparative estimate as to prognosis according to veins involved and the number of veins ligated.

There are four phases of this subject that practically cover the points at issue between those who favor and those who disapprove of surgical intervention.

1. Can septic thrombophlebitis be recognized clinically?

2. Do the pathologic and post-mortem findings justify surgical interference?

3. What are the correct indications for operation and the surgical technic to be employed?

4. Has the mortality been reduced by operation?

I. CLINICAL SIGNS AND SYMPTOMS

The first question raised by the skeptic is whether or not septic thrombosis can be recognized with sufficient certainty to justify a major surgical procedure.

Unfortunately, the diagnosis is not always possible until the time for operation has passed.

Correspondence with many of our leading obstetricians showed that the difficulties of diagnosis formed the leading objection to operation. Some stated, in answer to my query, that they had never positively recognized a case of uncomplicated septic thrombophlebitis of the pelvic veins.

It is interesting to compare such opinions with those of many leading German clinicians. Seitz insists that a diagnosis is possible in the majority of cases. Bumm, Lenhartz, Trendelenburg, Opitz, Bardeleben and Veit practically make the same assertion. It must be admitted that there are no cardinal symptoms.

The most important diagnostic feature is unquestionably the occurrence of chills. Williams states that the occurrence of frequent chills and a hectic temperature render the diagnosis fairly probable, which becomes assured whenever the thrombosed vessels can be palpated as irregular worm-like masses high up in the outer portion of either broad ligament. Lenhartz found this possible in thirty-one out of thirty-nine cases.

The next most important symptom is the marked elevation and depression of temperature within twenty-four hours, often as much as 6 degrees in a few hours.

Unfortunately, the repetition of chills may exhibit a great variability in type and time of appearance and may even be conspicuously absent altogether, or may appear days or weeks after the condition is no longer in doubt.

This is also true of the physical signs. In some patients with thin abdominal walls the thrombosed veins are palpable in the region of the broad ligament, or along the ovarian veins. Latzko insists that compact, doughy masses found in the course of puerperal processes are unquestionably phlebitis. Lenhartz determined positively the one-sided nature of the affection before operation in the majority of his cases.

Pain is usually absent, especially in pure septic thrombophlebitis, the patient being so comfortable between chills as to confuse the situation.

Unfortunately, bacteriologic investigation of the blood has proved of little value, except as a factor in prognosis. The findings may be negative during life and even at autopsy. Lenhartz speaks discouragingly of blood-cultures, yet they were negative in only three of his sixteen cases.

Bardeleben offers the most acceptable explanation of the variable blood-picture in his monumental study of streptococcus and thrombosis. He found that the local process was only an incident in the course of the virulent septicemia, since there were large numbers of bacteria in the blood. In chronic cases the streptococci are benign, or, for other reasons, have a tendency to adhere to the intima and remain localized. For this reason, blood-cultures are usually negative in chronic pyemia. For the same reason, the presence of bacteriemia is most important from a prognostic standpoint. Veit is guided principally by the positive blood-findings and insists that whoever knows the significance of bacteriemia must admit that the patients reported as cured by ligation were saved by the operation.

The frequency of septic thrombophlebitis is also of diagnostic value. A condition found at autopsy once in every three severe infections during the puerperium should at least warn the medical attendant of such a possibility.

Summarizing these various features, it may be said that a case may be safely classed as septic thrombophlebitis when there is high temperature with pronounced remissions, severe chills, absence of pelvic exudates and peritonitis and with the uterus empty and correspondingly involuted.

II. PATHOLOGIC FINDINGS

Do the pathologic findings justify operative intervention?

The first attempt to arrest puerperal pyemia by ligation was based on autopsy findings that showed a normal genital tract with the exception of thrombosed ovarian veins. If Freund's premises are correct, the value of operation would depend on whether or not the infection remains confined to the veins, and to the frequency of septic thrombosis.

The basic principle underlying ligation of veins to arrest septic invasion depends on the behavior of streptococci when introduced into the blood-stream. Bardeleben has proved the specific power of resistance of the vessel-wall to the streptococcus. It is an obstacle even to the highly virulent, and an insurmountable wall to the more benign streptococci. This resistance of the vessel-wall is possessed by no other tissue and the status of the vessel-wall will enable a uniform estimate to be made of the manifold streptococcic thromboses. The condition of the venous system of the uterus brings it about that infection from the cavity will almost always cause thrombosis.

The frequency of septic thrombophlebitis can be fairly well estimated. Williams estimated that one-third of all women dying of puerperal infection showed septic thrombosis. Lenhartz placed it at 50 per cent.; Trendelenburg the same and Kneise somewhat less. Another important point was established by Seegert, viz., that these thrombophlebitic processes are, in the majority of cases, pure; in other words, confined to the veins. In thirty-one cases he found only five times a combination of thrombophlebitis with lymphatic processes, the rest being pure pyemia.

This fact deserves all attention as far as our question is concerned, for if it did not usually run a pure course, and arise, almost without exception, from the placental site, operative measures would be based on faulty conclusions.

The complex autopsy findings cannot be urged as an objection to surgical efforts since perivenous abscesses, peritonitis and metastases indicate terminal conditions,

and may prove only that the patient had died because of delay in operating.

In view of our present knowledge of the gradual clot extension, the behavior of the bacteria, and the limited number of veins involved, it is difficult to believe otherwise than that the infection can be arrested by blocking the involved vessel.

III. INDICATIONS FOR AND TECHNIC OF OPERATION

What are the indications for operation, and the proper technic to be employed?

If we can be sure of our diagnosis in a given disease, we are usually sure of our pathology and fairly certain of our prognosis. We also know what we can do, or at least what we are justified in attempting to do. Since the diagnosis of septic thrombophlebitis is difficult, it necessarily follows that the indications for operation figure conspicuously in our discussions.

Practically all agree that intervention must be undertaken at the earliest possible time after a diagnosis can be made. Trendelenburg would operate after the second chill, a position no other authority seems willing to share, since it is impossible to eliminate acute septicemia in so short a time.

Bueuras, of Chrobak's clinic, insists that we can presume with certainty the existence of septic thrombophlebitis only after five chills. Leopold believed that operation was useless if not undertaken within three days after the process was established.

Bumm originally advised excluding all acute cases, but the question immediately arises, How are the acute and chronic cases to be differentiated?

Olshausen admits a difference, but insists that no definite line can be drawn, and only partially answers the question by stating that chronic pyemia is characterized by a stricter localization of the process and a greater constancy of symptoms.

The only practical deduction to be gathered from the discussion so far is to operate in the acute stage if the general septic features do not predominate and to watch constantly for signs of localization.

Williams would operate in the absence of physical signs if the patient is seriously ill and the clinical symptoms show no sign of improvement, provided, of course, that peritonitis, or broad ligament abscess, has not developed.

This is essentially the position taken by the aural surgeon, viz., that the diagnosis very often depends on direct exploration of the transverse sinus, and Trendelenburg sees no reason why it should not apply to the puerperal form as well.

The fact remains that no dependence can be attached to the number of chills in deciding the acuteness of a given case. Many patients die without a chill, but the time at which chills first appear is of great prognostic value. The prognosis is much more favorable if chills do not occur until ten days or two weeks after the delivery or abortion.

A strong stereotyped argument often advanced is: Prove that the patients reported as cured would not have recovered without operation. Perhaps the infection was dying out when the operation was performed.

It is difficult to refute such an argument, but examination of the available material must convince one that it was something more than a mere coincidence that caused all active symptoms to disappear promptly in over 25 per cent. of the cases.

Ligation is of little value except in the pure forms of thrombosis.

Practically all agree that inflammatory exudates contra-indicate operation, owing to the probability of lymphatic involvement and peritonitis. Slight metastatic changes in the lungs have not been considered a contra-indication, unless pneumonia or abscess is present. The case is then hopeless, the same being true of kidney abscesses and endocarditis.

Some oppose operation on the ground that pyemia subjects are poor surgical risks. This does not hold good in chronic pyemia. The quality of the heart usually remains good to the last in protracted cases. Only one patient is reported as having died during operation (Opitz), an instance of serious valvular disease.

Veit insists that one of the fundamental principles already established is that laparotomy in pyemia is practically without danger.

Cava thrombosis is, as a rule, a late complication. In the reported cases the duration of the infection varied from thirty-two to fifty-four days. It may develop early, but not often, which furnishes another incentive for early operation. Trendelenburg believes it possible to even ligate the vena cava above the thrombus and thus save patients; in fact, he has recently successfully tied this vessel in an acute case, and states that the venous stasis was no more after than before ligation of this main venous trunk. The vena cava has been repeatedly tied successfully while removing renal tumors. Lejars mentions six patients, of whom four recovered. If gangrene occurs only once in fifty-three cases of femoral ligation, as shown by Fraenkel, some of our apprehension as to the direful results of obstructing the large venous trunks is not supported by facts.

Much confusion can be avoided in establishing indications for operation by applying the same rule that governs our attitude in other serious acute abdominal lesions, viz., to make an exploratory incision in order to clear up the diagnosis and give the patient the benefit of the doubt.

There is now sufficient evidence available to show that the transperitoneal route, advocated by Bumm, is the preferable technic. Trendelenburg was still in doubt on this point in 1907. The advantage is largely in favor of laparotomy, both from the stand-point of technical difficulties and ultimate results. The extraperitoneal route requires more time, larger incisions, and the anatomic difficulties are manifold. Experienced anatomists have tied ureters and arteries while believing that they were isolating a thrombosed vein at the proper level.

The only argument left in favor of the extraperitoneal operation is protection of the peritoneum, an advantage of little consequence in pure thrombophlebitis and of still less consequence when complications may need accurate examination.

The number of veins involved and the most frequent site of the lesion is further proof of the advantages of the transperitoneal route.

This cannot be accurately estimated yet because of the small number of cases. Autopsy reports would again be misleading. Lenhartz found a single ovarian vein involved in 13 per cent. Trendelenburg found thrombosis limited to the vessels of one side in one-third of his cases. In the eighty-one cases viewed at operation, the thrombi were limited to one or both the ovarian veins twenty-four times. Many cases were far advanced, but the number gives a fairly accurate idea of the usual site of the lesion.

Whether the thrombosed vein is to be simply ligated or ligated and excised depends on circumstances.

In pure septic thrombophlebitis ligation is now considered sufficient.

Excision is reserved for cases presenting perivenous processes, abscesses, ulcerating veins and periphlebitic cicatricial conditions resulting from edema, as described by Thorn.

The ideal operation would demand that all the infected material be removed by resection, or else shut out by the ligation of every possible outlet, but neither is possible.

Bumm first suggested ligation of all four of the veins, and Bardeleben approved it, but the records show that it has not met general approval. Veit believes that the number to be tied depends on the duration of the attack. The earlier the operation the more veins should be ligated.

Such a routine operation carries extra risk and an extra search for the median iliac vein and does not conform to the present accepted rule which advises disturbance of the puerperal processes as little as possible. Some good authorities believe that, if the process is so extensive as to require ligation of the hypogastriacs, the prospect of recovery is slight, and will be further reduced by operation. While the risk is much greater, the above contention is by no means true.

It is not necessary to dwell at length on J. W. Taylor's and Latzko's method of reaching the thrombosed veins *per vaginam*. The same objections against the extra-peritoneal route holds good here, only more so.

It only remains, now, to show whether or not the mortality has been reduced.

The mortality under expectant treatment has been variously estimated to be from 50 to 100 per cent. Sippel placed it at 100 per cent., von Winckel at 95 per cent., Curschmann, in corrected statistics, at 66 $\frac{2}{3}$ per cent., Graefe at 82 per cent. and Opitz at 50 per cent.

Trendelenburg believes 85 per cent. would be a fair estimate of even chronic cases. Even though the lowest figure is correct, the condition would still be the most serious malady that may attack the lying-in woman and should demand the consideration of any measure calculated to reduce such a frightful mortality.

It must be confessed that the available figures of operations, taken as a whole, are not encouraging. Seitz found only 38 per cent. of recoveries in his thirty-seven collected case-reports. He adds, however, that they were all of the gravest type and not more than 30 per cent. could have recovered under expectant treatment. Such an experienced observer as Lenhartz did not hesitate, after studying the cases, to state that perhaps all would have succumbed without operation.

A detailed analysis of the cases, however, throws a different light on the subject. It is necessary to eliminate the hopeless cases, for some of the operations were practically autopsies.

If we deduct cases of cava thrombosis, acute pyemia, peritonitis, faulty ligation of vessels, as has been done by von Herff, Seitz and Williams, we obtain figures worthy of consideration. In Williams' list there were twenty-six cases remaining, after correcting the tabulation, that could be used for establishing an estimate of operative results. The general mortality in these cases was 21 per cent., which dropped to 8.5 per cent. when only one or both ovarian veins were ligated, but reached 31 per cent. when one or both hypogastriacs required ligation.

The operative results in the cases since Williams' paper appeared, practically confirm his figures in so far as I could obtain the details.

The meager material at our command, reported by numerous operators, who have operated without definite indications and without a definitely established technic, is sufficient to show that the procedure is feasible and should be given a fair and unbiased trial in septic thrombophlebitis.

The remaining issue of magnitude seems to be how early should operation be performed.

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THE LIGATION OR EXCISION OF THE OVARIAN OR DEEP PELVIC VEINS IN THE TREATMENT OF PUERPERAL THROMBO- PHLEBITIS *

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Ten years have passed since Trendelenburg reported the first successful case of ligation of the ovarian veins in the treatment of puerperal thrombophlebitis. The operation was first suggested by Sipple in 1894. Between this time and the year 1902 Freund reported two cases, Bumm three cases and Trendelenburg four cases, in all of which the patients died after operation. During the last ten years operators have continued to report cases and now literature reveals a series of 110 cases. The high mortality which has accompanied this procedure is discouraging, but when a careful analysis is made of the cases in which operation has been done, and when reviewing one's experience of cases treated conservatively, no doubt remains that the question of treatment still deserves most careful consideration.

In discussing this subject we find good men who are enthusiastic supporters of operative treatment and men equally wise and with experience second to none who hold that better results can be obtained by conservative methods. This has been true in the development of most operative procedures during the last quarter of a century, and it is well that sane conservatism exists in the ranks of our profession.

The discouraging results in treating these cases conservatively have led me to attempt operative measures when the opportunity presented. These cases are uncommon, and it is seldom the privilege of an operator to report a large series. Having operated on four patients with thrombophlebitis of the ovarian veins, one complicated with lymphangitis with pus formation, I venture to make this report with the hope that it may assist in a further elucidation of this most important subject.

The form of puerperal infection most likely to be confused with thrombophlebitis is septicemia. From a study of case histories reported and from personal observation I believe that there is a chain of clinical symptoms which differentiate the two forms in the majority of instances. Thrombophlebitis is characterized by irregular intermittent fever, with intervals of normal or subnormal temperature. The pulse-rate is generally

* Because of lack of space this article is somewhat abbreviated in THE JOURNAL. It appears in full in the Transactions of the Section and in the author's reprints.

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in ratio with the temperature. When the temperature is low the patient feels quite well, and the general appearance would lead one to think the condition not serious. Except when the temperature is very high the mind is perfectly clear. In the latter stages there may be metastasis with abscess formation. In septicemia the temperature is usually continuous, but there may be intermissions. The pulse is rapid and out of proportion to the elevation of temperature. In the later stage it is irregular and small. The patient rapidly assumes a toxic appearance. Delirium is more common. On the whole, this variety of infection shows few signs of temporary improvement.

Emphasis is not placed on the recurrence of chills as diagnostic symptoms. There can be no doubt that chills are corroborative evidence of great value in the majority of instances, but they occur in so many other conditions complicating the puerperium that to place them first in the list of symptoms is to cloud the picture and make the diagnosis more uncertain. Taken into consideration with other symptoms, they are of value. Bucura gives the following data from Chrobak's clinic: Out of 28,750 puerperal histories, 2,541 patients had a rise of temperature which could be accounted for by some infection of the genitalia; of this number seventy-eight suffered severe chills; there were twenty-four cases of pyemia of which one-third ran the course without chills. In my experience and in careful study of the cases reported, chills followed by high temperature (103-105 F.) are present in the great majority of cases, and at the onset are of sufficient prominence to call attention to the possibility of thrombophlebitis. Here, as elsewhere, we meet with the atypical case, and the clear, definite picture presented by the atypical case should not cloud the vision to the possibility of the presence of this form of infection, even in the absence of cardinal symptoms. If one-third of the cases of thrombophlebitis run their course without chills, it is readily seen that we cannot place too much reliance on the presence or absence of this symptom. Trendelenburg advised operation after the second chill; Bucura after the fifth. It would be better to modify this rule and operate even before the second or fifth chill providing the other symptoms are sufficiently well marked to justify the probability of the presence of this variety of infection. Blood-cultures may be of value; a positive blood-culture without the presence of local signs or the above-mentioned clinical symptoms of thrombophlebitis favors the diagnosis of septicemia. Blood-counts are of value only in a general way. There is much that is characteristic in the history. Often there is a mild grade of infection present from the early days of the puerperium. This has perhaps given no cause for alarm and for a week or ten days the patient runs an uncertain course with some elevation of temperature and accelerated pulse. The patient suddenly becomes worse and the temperature rises to 104, preceded possibly by a chill; the temperature is likely to fall to normal quickly and then rise again. A period of two or three days of this variety of temperature with increasing chills gives strong presumptive evidence of pyemia and is the danger-signal for an infection of this variety, which may be either deadly acute or chronic in its form. In the early stage there is often an aggravating absence of local symptoms. Repeated bimanual examinations will usually reveal a mass located at some point along the course of the pelvic veins leading from the uterus. Unfortunately there is no pain; but careful examination may reveal tenderness in the infected part. If there is a para-

phlebitis present or if the infection extends into the surrounding lymphatics, the degree of tenderness and pain rapidly increase in severity.

It is undoubtedly true that the diagnosis is aided by the negative results of examination and by excluding other probable conditions. Both general and local signs are sometimes conspicuous by their absence. There can be no question that in the early stages blood-cultures are negative. In the four cases below reported the blood-culture has been negative in every instance. Late in the disease it may be different, when large quantities of infected material are being thrown into the bloodstream. Much which is helpful to an early diagnosis may be learned by the careful study of cases recently reported.

The distinction between lymphangitis and thrombophlebitis is sometimes difficult, and it is quite probable that the two are combined in many instances.

The treatment consists of ligation or removal of the infected veins in the first instance and drainage of the infected lymphatics in the second. If infection begins in the uterine sinuses extending into the uterine, ovarian and iliac veins, removal of the uterus and broad ligament may become necessary. Fortunately, this is not often the case.

It is difficult to make an estimate of the frequency of this form of infection. Trendelenburg found it present in twenty-one out of forty-five autopsies in women dying from puerperal infection. Grossman reports fifty-one autopsies as follows: fourteen cases of thrombophlebitis, twenty-four cases of pure lymphangitis, thirteen cases of mixed form. Kueise in eighty-seven autopsies found thrombophlebitis in twenty. Lenhartz maintains that pyemia occurs in half of his patients dying from puerperal infection. From reports of men in the best position to know in this country and in Europe, thrombophlebitis is found at autopsy in at least one-third of the women dying from puerperal sepsis. The mortality rate as reported by different observers varies: Opitz, 50 per cent.; Seegart, 61 per cent.; Seitz, 66 $\frac{2}{3}$ per cent.; Herff, 60 per cent.; Winkel, 95 per cent.; Olshausen, 61 per cent. Bumm states that out of twenty-three cases of chronic pyemia extending over the first three weeks of the puerperium, only four women came out with their lives. Other men are more conservative and place the mortality lower.

From my experience I should advise exploratory laparotomy in every suspicious case, when the diagnosis is in doubt. If a simple thrombophlebitis of the ovarian or deep pelvic veins is found, ligation will be sufficient; if there is edema of the tubes, broad ligaments or fluid present in the retroperitoneal space about the ovarian veins, free drainage should be instituted in addition to the ligation. After the infected veins have been ligated from within, the median incision may be closed and an extra median incision made down to the peritoneum, pushing it forward until the seat of infection is reached. This is not difficult, and drains can be inserted to the region of the ovarian vein and below to the deeper veins within the broad ligament. The only certain way to avoid the ureter is to make sure that the vein is dissected from it at the point of ligation. The ordinary incision made into the broad ligament to explore the ureter when operating for cancer of the uterus will give a good exposure of the internal iliac veins. It is well to remember also that, as Kownatzki has shown, in some instances there is another vein to be dealt with. He has named it the median iliac vein. This vessel carries the blood from the bladder, middle and lower segments

of the uterus; ordinarily it empties into the internal iliac, but occasionally it remains a separate vessel. It is always necessary to make sure of the median iliac, and in case of doubt the common iliac should be ligated.

Better service will be rendered by a complete report of cases than in a review of the literature. Williams has recently covered the subject and made careful analysis of the first fifty-six cases in which operation was done. Forty-one cases in which the transperitoneal method was used gave a mortality of 21.4 per cent. after excluding those not susceptible to cure and those in which there was faulty technic. Fifteen cases treated by the extraperitoneal method gave a high mortality. Since the publication of Williams' paper, fifty-four additional cases have been reported—thirty-three by Latzko and twenty-one by other operators. Latzko reports a total of thirty-seven cases, four of which have been previously reported by Williams. Fourteen patients recovered; this he considers a good showing for the reason that many were extremely ill. It is interesting to note that ten of the operations were vaginal and ten were combined with hysterectomy. He urges earlier diagnosis and believes that operation is the best method of treatment.

OPERATIONS BY OTHER SURGEONS

	No. of Cases	Recovered	Died
Koblanck	7	2	5
Leopold	2	1	1
Bell	2	1	1
Seeligman	1	1	0
Brettauer	1	0	1
Henkel	1	0	1
Michels	2	1	1
Vineberg	4	2	2
Miller	1	1	0
	<u>21</u>	<u>9</u>	<u>12</u>

The mortality remains high, but there are evidences of improvement. Analysis of the cases reported by operators in this country show results that are encouraging: Williams, five cases with four recoveries; Miller, one case with recovery; Seeligman, one case with recovery; Vineberg, four cases with two recoveries; Brettauer, one case with death. If we include my four cases with one death, we have a total of sixteen cases with five deaths. In order to do justice, we should deduct from this series Brettauer's case, in which the patient was operated on very late in the course of the disease; two of Vineberg's cases, in one of which the patient died after operation from diphtheria, the other being a case too late for operation; one case of mine, which was complicated and in which operation was done as a last resort in the presence of grave kidney disease. The deduction of these cases leaves twelve patients operated on with but one death.

Progress made early in the surgical treatment of phlebitis complicating ear disease was very slow and the mortality high. It is interesting to review the history of ligation of the vein for sinus thrombosis with involvement of the jugular vein. This operation was first suggested by Zaufel, in 1884. The first operation was carried out by Lane, in 1888, with recovery of the patient. Eight years later, in 1896, Hessler was able to collect eighty-eight cases, in which the lateral sinus was incised seventy-six times and the jugular tied thirty-two times. There were fifty-two recoveries and thirty-six deaths, a mortality of 40.9 per cent. This was considered a great improvement. More brilliant results were shown by MacEwin, who reported a fatal termination in only eight out of twenty-eight cases operated on. The mortality in these cases previous to this time had been extremely high. I have been told by two of the

leading men in this country, who are doing ear surgery, that formerly a mortality of 75 per cent. was expected. To-day, if the case is seen early the mortality should not be more than 10 per cent.

My experience in treating conservatively phlebitis of the pelvic and ovarian veins following labor or abortion has been most discouraging; and that fact alone has led to the employment of surgical treatment in the last four cases encountered. Many obstetricians advise conservatism in the treatment of thrombophlebitis. The high mortality which has followed the operative treatment is presented as an argument against it. Study of the subject leads to the belief that the results obtained in the great majority of operations do not argue against the advisability of surgical procedures. When we consider the desperate condition of many patients at the time of the operation due to long-continued delay, the various methods of operation employed, the lack of familiarity with the pathology, poor results are not surprising. Many of the patients were operated on at a stage when cure could not be looked for. In others, the technic was faulty, and such accidents as ligation of the ureter occurred. Few men have operated on more than five patients with this disease; a high mortality is to be expected in view of the above conditions. Earlier diagnosis, perfected technic and better knowledge of the pathology may lead to lower mortality. Bumm, Leopold, Trendelenburg, Latzko, Henkel, Williams and others unite in the belief that we should operate and operate early. They are enthusiastic over the hope that lies in the operative treatment of thrombophlebitis, if undertaken early and proper judgment used in the operative technic.

There is no doubt that ligation of veins within the abdomen or pelvic cavity is difficult. This is no reason why it should not be undertaken. If the operation is done by an experienced operator before the condition of the patient is hopeless, the chances for recovery will not be lessened. It should be recognized that the danger from thrombophlebitis is far more threatening than the risk from operation if done early. I have seen no immediate ill effect from the opening of the abdomen. Admitting that in many mild cases the patients recover if treated conservatively, I believe a rule may be formulated that if the improvement is not continuous, and if the condition of the patient does not keep well within the lines of safety, operation should be done. It is not so dangerous as the uncertain outcome if left to Nature's efforts. There is no doubt that in many mild cases the patients recover under medical treatment; also that many cases diagnosed as cellulitis, or lymphangitis within the broad ligament are really cases of thrombophlebitis. The indication for operation must rest with the judgment of the individual operator. The diagnosis once made, it is not difficult to select the case which is growing steadily, even though slowly worse, and no man, however skilled, can predict the ultimate result.

In the future, we will not be justified in watching these cases day after day for weeks, trusting that the resistance of the patient will finally triumph in a battle which is acknowledged the world over as a one-sided struggle. As always in the development of new operative procedures, there will be those who may be too enthusiastic and operate on cases which might recover under conservative treatment. On the other hand, there is considerable opposition to the operation. I predict a brilliant future for this operation when done at the proper time and in well-selected cases.

CASE REPORTS

CASE 1 (Gyn. No. 295).—*History*.—The patient, Mrs. V. R., aged 18, was admitted Dec. 2, 1910, having been referred by Dr. Schill, complaining of chills and fever. Family and past medical history are negative. She had been married one year and had one living child. Menstruation began at 16, was always regular and lasted four to five days, with slight dysmenorrhea. Fourteen days prior to admission the patient gave birth to a child, being attended by a midwife. Labor was normal and the patient was well until six days afterward when she began to have chills and fever and some pain in the lower abdomen. The chills were accompanied by vomiting; the bowels were constipated; lochia normal in character and amount.

Examination.—There was tenderness in the lower abdomen and upper right quadrant; tenderness over both lumbar ganglia; uterus easily palpable above the symphysis; liver and spleen not felt; uterus large and boggy with a mucopurulent discharge from the cervix; smears and cultures showing staphylococci and a Gram-negative bacillus. Blood-cultures were negative. Blood examination showed nothing unusual. During seven days' observation the temperature ranged between 99 and 104 F. Chills occurred at irregular intervals. The patient complained of tenderness at a point on a level with the umbilicus. At the outer border of the right broad ligament there was considerable thickening and some tenderness. With this exception there was nothing present in the pelvic cavity to account for the symptoms. A diagnosis of thrombophlebitis was made and operation decided on.

Operation.—The operation was performed Dec. 10, 1910, sixteen days after the beginning of symptoms. The tubes, ovaries and appendix were normal. There was a mass beginning at the outer end of the right broad ligament and extending up to the kidney which apparently consisted of the ovarian vein surrounded by a considerable amount of exudate, swollen softened lymph-glands and a thrombosed vein. It was ligated proximally and distally removed, and the abdomen closed.

Postoperative History.—The patient reacted well but a septic temperature of 104 F. developed on December 13 and the wounds were partially opened and the drains removed and replaced by new ones. Some broken-down tissue was removed. A septic temperature with occasional chills continued and on December 16 the patient had developed a pneumonia at the base of the left lung, pleurisy with effusion and acute pericarditis. December 19, the left chest was aspirated and 400 c.c. bloody fluid withdrawn, which contained a Gram-positive diplococcus and streptococci. The patient began to improve and the sutures were removed from the abdominal wound December 21. December 22, a second aspiration of the chest was performed and 400 c.c. of non-turbid fluid withdrawn. Patient was discharged, Jan. 17, 1911.

Laboratory Report.—The section of tissue removed at the operation showed a thrombosed vein with organization of the thrombus and acute inflammatory exudate surrounding the vein. Culture from the vein showed streptococci.

CASE 2 (Gyn. No. 368).—*History*.—Mrs. F. N., aged 28, was admitted March 23, 1911, referred by Dr. Everhart. She complained of chills, fever, pain and tenderness in the right abdomen. She had been married four years and had one child 3 years old, living and well. Her menstrual history was negative during her married life. About one month prior to admission the patient had what was pronounced to be an attack of gastritis. Fifteen days prior to admission she underwent unusual physical exercise and ten days prior to admission had a miscarriage which she thought was the beginning of her regular menstrual period. The next day she began to have chills and the following day was enretted. She continued to have chills at intervals with irregular temperature and rapid pulse.

Examination.—There was a soft blowing systolic murmur over the tricuspid area, probably a hemic murmur. There was a little tenderness over the right lower quadrant of the

abdomen. On palpation there was slight tenderness along the course of the right ureter beginning about two inches below the umbilicus and extending to the costal margin. There was slight rigidity of the muscles on the right side. The liver was felt below the costal margin; no masses were felt. The patient was perspiring and had been running a septic temperature since admission. Pelvic examination showed the uterus to be about normal in size, the left adnexa normal, no exudate or masses in left side. To the right side of the uterus there was considerable thickening of the broad ligament at the outer margin. The patient complained of tenderness in this region. During the next few days tenderness extended a short distance above the umbilicus and the mass at the outer end of the broad ligament still remained tender. Blood-cultures both before and after admission were negative. A diagnosis of thrombophlebitis with lymphangitis was made and operation considered. There were much albumin and many granular casts in the urine.

Operation.—A median incision was made extending 2 c.c. above the umbilicus. Examination of the left ovarian and deep pelvic veins showed no enlargement. The right tube was adherent and the outer portion of the right broad ligament was thickened. Beginning at this point and extending upward the ovarian vein was thickened by considerable exudate. This continued to a point on a level with the lower border of the kidney near the entrance of the vein to the vena cava. In pushing the intestines upward in order to clear the field, the peritoneum covering the vein was torn at a point on the level with the anterior superior spine. About 3 ounces of purulent foul-smelling fluid escaped. There were enlarged glands along the course of the vena cava on the right side and much necrotic tissue surrounding the vein, which at some points was bathed in pus. The peritoneum was incised over the entire course of the vein and ligation done at its upper portion about 3 cm. from the vena cava, well above the thickened and thrombosed area. The vein was then separated from the ureter and removed down to and including the right broad ligament, together with the tube and ovary on the same side. The peritoneum covering the vein was partially closed; the ureter was closely adherent to the vein and surrounded by the necrotic tissue. An incision was made through the abdominal wall to the outer side of and above the anterior superior spine, and five gauze drains inserted, one to the lower pole of the kidney and one into the pelvis; the median incision was then closed. Smears from the pus which escaped at the time of the operation showed streptococci as did also pus from the vein.

Postoperative History.—The temperature was 105 F. just before the operation and then fell to 99. The patient did fairly well for a few days and then grew worse and died March 31. No autopsy was permitted and the exact cause of death and the extent of the disease could not be determined. There were no symptoms of peritonitis and the temperature did not rise above 100 after the operation. The conclusion seemed inevitable that the patient was suffering from a loss of kidney function due to a chronic nephritis. It was impossible to secure more than a few ounces of urine, which was loaded with albumin and casts.

Pathologic Report.—Sections of the ovarian vein and broad ligament showed thrombophlebitis with pus in the ovarian vein. Sections of the tube showed thickening of the wall and inflammatory exudate around the tube but not in it. Sections of the ovary showed a mild inflammatory reaction with some round-cell infiltration.

CASE 3.—*History*.—The patient, Mrs. B. J., was admitted March 25, 1912, being referred by Dr. Stanton. Three or four hours before admission, when the family physician called, the patient had been in labor for twenty hours and the husband and a midwife had a sheet across her abdomen and were pulling down on it. When admitted she was in active labor and the feet of the child were protruding from the vulvar orifice, having been so for a few hours. The patient was fatigued, respirations were rapid, pulse 160 and the patient was perspiring profusely. Fetal heart sounds and movements were absent.

Examination.—The patient was obese, the abdomen pendulous and prominent, and at each uterine contraction bulged down over the pubis. The lower portion of the abdomen was edematous while the portion over the bulging was very thin and the uterine wall could be felt all around and posterior to it, indicating rupture of the uterus.

First Operation.—A median incision was made and when the peritoneum was opened the uterus presented with the hand of the child and the placenta bulging through a rent in the anterior uterine wall in the lower uterine segment extending across the whole anterior surface. Placenta and child were rapidly delivered through the opening in the uterus, the broad ligaments tied off and the uterus amputated. Gauze was pushed down into the pelvis and three gauze drains brought out through the abdominal incision. Saline solution was given intravenously and the patient was placed on a Gatch bed and continuous enteroclysis employed.

Subsequent Course.—The patient progressed favorably for some days and then began having an irregular temperature and some diarrhea, and a little pus was removed from the culdesac. The chills, elevation of temperature and rapid pulse increasing a diagnosis of thrombophlebitis, probably in the ovarian veins, was made and preparations for a second operation were made.

Second Operation.—A low median incision was made. Adhesions were found in the pelvis at the site of the previous operation and the appendix was adherent to the stump of the right broad ligament. Extending upward from the stump of the right broad ligament for about 3 inches the ovarian vein was felt to be thickened. This was exposed, the vein clamped above the thrombosed portion and the vein excised. The stump of the left broad ligament was examined and the ovarian vein leading from it seemed to be normal. The stump was, however, ligated and removed. Counter-incisions were made on each side opposite the anterior superior spine and drains were inserted.

The elevation of temperature persisted in a less degree for some days after the operation, but the patient improved gradually.

Pathologic Report.—The vein was filled with pus. There were many streptococci in pus cultures.

CASE 4.—History.—The patient, Mrs. N. C., aged 32, referred by Dr. Vaux, was admitted April 10, 1912. Five days previous to admission the patient gave birth to twins by instrumental delivery. Three days later she had two chills, with some tenderness in the left side of the abdomen low down, with a little vomiting. Retained secundines necessitated instrumental cleansing of the uterus. The patient had been married one year. Her menses had always been regular. Her father died of a "stroke."

Examination.—The region over the uterus and left broad ligament was tender to palpation. The uterus was hard and about three finger-breadths below the umbilicus. No mass could be made out in either broad ligament or the ovarian region. April 12 on the left side at the outer margin of the broad ligament there was a small mass which was somewhat tender on bimanual examination. The tenderness extended upward along the course of the ureter to a level with the anterior superior spine. There was no evidence of pus, and blood-cultures were negative. On account of the great probability of the presence of a thrombophlebitis of the left ovarian vein operation was decided on.

Operation.—The abdomen was opened through a low median incision and the left broad ligament was found thickened to the size of two thumbs. A cord-like vein was felt in the broad ligament and the tube was swollen and edematous. The left ovarian vein was thickened and filled with clot for a distance of $2\frac{1}{4}$ to 3 inches. It was ligated and the peritoneum closed over it with catgut. The thickened broad ligament was ligated with a double ligature. On account of some thickening of the tissues with the broad ligament caused by lymphangitis it was feared that later trouble might be caused by pus formation. An oblique incision was therefore made opposite the anterior superior spine, the peritoneum stripped back and the broad ligament exposed extraperitonically in order to secure drainage. The right

ovarian vein was also tied off in the right broad ligament as a prophylactic measure. The patient had considerable purulent discharge from the wounds and there was some lung complication in the form of a bronchopneumonia, which retarded her recovery. The final recovery was good.

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ABSTRACT OF DISCUSSION

DR. H. M. VINEBERG, New York: I agree with Dr. Huggins that although the results are not especially encouraging, the operation is based on sound logical foundation, and is worthy of further consideration, and while the results may never be as brilliant as those obtained by the aural surgeons in a similar condition in the ear, I am confident they will be vastly improved. First we need to learn to diagnose the condition at an early stage. The occurrence of chills, on which so many lay great stress, I have found unreliable as a guide. What is of much greater diagnostic value is great variation in the temperature curve in twenty-four hours. The temperature rises abruptly to 105 or higher and as abruptly falls to normal, or even to subnormal. The patient does not seem very ill even when the temperature is high and the pulse remains good for a long time. Marked local signs are absent. In but few instances have I been able to palpate the thickened thrombosed veins. Diagnosis has been by exclusion. In some cases, especially in the early stages, the uterus was found much enlarged, soft and flabby. When we have made the diagnosis our greatest problem is still to be solved. Will the thrombosis become self-limited and undergo a spontaneous cure, or is it malignant and sooner or later will extend to the vena cava and end in death, or will it be attended with numerous embolic detachments, leading to the most severe type of pyemia, which, if not fatal, may leave the patient a physical and nervous wreck? We have no reliable guides in the solution of this problem. No rules as yet can be laid down when to operate and when not to operate. When the diagnosis can be made comparatively early and an operation is indicated, in addition to the ligation of the affected veins, the uterus should also be removed, because, in these cases the venous sinuses of the uterus are the seat of purulent thrombi. In fact, the cases (four in number), in which I have, thus far, been able to save the patients, have been cases that were diagnosed comparatively early and in which the uterus was also extirpated. The uterus, in each instance, showed marked involvement of the venous sinuses and in two cases, the entire uterine wall was studded with abscesses, varying in size from that of a pea to that of a walnut. In the more advanced cases, the uterus seemed normal to the naked eye and was left *in situ*. The operation in these instances was attended with only temporary improvement. Had the operation been done a week or two earlier the lives of the patients would, in all probability, have been saved. The operation, particularly when it includes the removal of the uterus, has been strongly condemned, either because of the natural reluctance one must feel to remove the uterus in a young woman, or because of the belief that an operation of such magnitude will be attended with such profound shock as to destroy what little chance the patient may have to recover. The latter argument is fallacious. In fact these women seem to withstand a major operation with less shock and with less subsequent abdominal distention, than the non-septic and afebrile patient. If surgical intervention turns the balance in the wrong direction, the patient is so near death that any surgery is contra-indicated. As to the danger of spreading the sepsis to adjacent tissues, while the structures in the female pelvis are different from those elsewhere, with a fair degree of experience and with care in technique, we ought to work in these parts with the same share of confidence in septic conditions that the general surgeon does in other fields.

DR. H. J. BOLDT, New York: So far as concerns the treatment of thrombophlebitis, I do not believe that any one who has given careful attention to the subject will be much at variance with those who favor surgical intervention. The factor which is in my opinion of greatest importance is the diagnosis. We have heard to-day that the diagnosis is princi-

pally based on the subjective symptoms, and I believe that that is thoroughly correct, because so far as concerns the objective symptoms, the palpation of the thrombosed pelvic veins, I agree with Dr. Vineberg that it is very difficult; it is only in exceptional instances that we can palpate those veins. The best way is by rectovaginal palpation and even by that method the diagnosis is not easy. I believe that the condition of the blood is not a good guide at all. The mere presence of microorganisms in the blood is not a criterion as to the prognosis. Microorganisms may be circulating in the blood of a patient who recovers without treatment. I have seen a number of such instances and have watched them carefully. Again, there may be other instances in which we may not be able to establish the presence of microorganisms in the blood and those patients will die, undoubtedly of a septic infection. I believe that while the examination of the blood is important in establishing the presence or the absence of a bacteremia, it does not give us an exact prognosis. I believe that when we have such instances as Dr. Vineberg has reported, multiple abscess in the uterus complicating the condition of thrombophlebitis, there is only one course, that mentioned by him, extirpating the uterus at the same time. On the whole, I believe that in this subject we are still in doubt. We cannot come to a definite conclusion until we have made further research, until we have gained further information from the laboratory. On the matter of vaccines I am at a loss to give an explanation. We have instances in which we have treated our septic patients with vaccines and some recover. By continuing with the work which has been laid out for us, with the surgical intervention wherever we can make our diagnosis, and give heed to what the laboratory may tell us in regard to vaccines, in the course of time we may be able to give a more definite opinion as to our treatment in this condition.

DR. C. O. THIENHAUS, Milwaukee, Wis.: Agreeing fully with the views taken by Dr. Huggins I would like to add to the literature of the subject reports of two cases which happened in my own practice. In the first case, which I saw eight days after confinement, the woman had had four chills on the sixth day and five chills on the seventh day. Being certain that the physician who called me into consultation could not have overlooked remnants of placenta left within the uterus, I advised immediate laparotomy. I found thrombophlebitis present, and not only ligated the veins but removed the uterus in the wall of which I found numerous small abscesses. The woman recovered. I believe that in such acute cases as this the best procedure is not only to ligate the veins, but to remove at the same time the locus primæ formations of infection, that is, the uterus. The second patient I operated on six weeks after confinement, the woman suffering from chills irregularly every second or third day since the fifth day following confinement. During examination I found the uterus freely movable, the right ovary slightly enlarged and very painful to touch, but also freely movable. On opening the abdomen I found thrombophlebitis and an ovarium on the right side. I ligated the veins and removed the right ovary. The chills, however, continued and the patient died fourteen days after the operation. It is interesting to know that a pyovarium may be freely movable.

DR. T. J. WATKINS, Chicago: A feature of this subject that has not been considered is the question of the estimate of results. The operation for phlebitis as done by the aurist is always done in connection with the mastoid operation. Consequently, it is extremely difficult to estimate how much value is obtained from the mastoid operation and how much value is obtained from the ligation of the veins. In thrombophlebitis affecting the leg, one never thinks of operating. What is accomplished by ligating the vein in thrombophlebitis? Does the ligature prevent the extension of the bacteria or of the toxins, or limit the extent of the blood-clot? It would seem not to accomplish any of these results. The injury to the intima of the vein and the strangulation of some tissue in the ligatures would seem to do more harm than good. Those who are advocating ligation for thrombophlebitis should give us some accurate information as to what the operation accomplishes.

DR. R. R. HUGGINS, Pittsburgh: I have tried to emphasize the importance of the clinical symptoms in the diagnosis of thrombophlebitis: the presence of high temperature, falling in a few hours to normal or below; the recurrence of chills, not necessarily present, however; the falling of the pulse with the lowered temperature; the improvement in the general appearance of the patient with the change of the above symptoms. In septicemia the pulse runs much higher than the temperature and there is not the disposition to periods of improvement. There are but two points to consider in the discussion; the first is diagnosis and the second indication for operation. There is no doubt that many patients with mild attacks recover and certainly many of those with severe attacks die. The first case to which I have called attention is that of a woman admitted to the hospital after an eight days' illness, with a temperature ranging between 99 and 104.5, with frequent recurrence of chills; she was studied carefully. Blood-cultures were negative; there was no evidence indicating a localized infection in the pelvis. Clinically it was not a case of septicemia; there was slight tenderness at the outer margin of the right broad ligament, extending upward along the inner side of the anterior superior spine. In view of the doubt, an exploratory laparotomy was done which revealed a thrombosis of the right ovarian vein. Because it was feared that there might be some infection outside of the vein, the midline incision was closed and an extraperitoneal incision made. The second case is one in which cesarean section was done for a ruptured uterus. The temperature remained up for several days following the operation, blood-cultures were negative, and there were no pain or other local symptoms. After the second chill, operation was done and thrombosis of the right ovarian vein was found. If Dr. Watkins had been present at the operation and witnessed the pus and filth within the vein, he could understand why placing a ligature above the point of infection was a rational procedure.

TUBERCULOUS MENINGITIS

A PATHOLOGIC REPORT OF NINE CASES *

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I recently had the opportunity of examining histologically nine cases of meningitis, seven (Cases 1, 2, 3, 4, 5, 6 and 7) of which had been diagnosed clinically and pathologically as tuberculous meningitis. Case 8 had been diagnosed as one of tuberculous meningitis from which the patient recovered only to succumb a month later to an attack of pneumonia.

The findings are interesting as showing the histologic features in a recovered case of meningitis.

Case 9 was diagnosed clinically and pathologically as pneumococcus meningitis and is of interest in comparison with the findings in the tuberculous cases.

As far as possible the material was taken from those regions of the cortex where the tubercles were not found. While all the sections were stained for the tubercle bacillus, none was discovered in any case after careful search. It should be mentioned that some of the specimens were hardened in Kaiserling, which may have affected its staining properties for the tubercle bacillus. The results were interesting and instructive and, though they do not permit the drawing of any positive conclusions, they suggested some ideas which are worthy of mention.

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It seemed possible that the lesion which was fairly uniform in its histologic character was caused not alone by the tubercle bacillus, for reasons which will be developed later on in this paper. It further seemed possible that the meningitis was due to a mixed infection. If this could be proved it would seem but a step further to obtain a vaccine which might operate against such a process. If this could be successfully combated, there then would remain the tuberculous process alone, which in itself may be looked on as less fatal than the mixed infection, and within the possibility of cure.

Experiments are now on foot, in conjunction with Dr. Herbert Fox, with this end in view and a report will be made later, embodying the results of these experimentations.

I am indebted to Dr. J. Crozer Griffith, Dr. J. C. Gittings and Dr. Alfred Hand, for the privilege of reporting some of these cases, and Dr. C. Y. White for the pathologic material from these cases from the Children's Hospital.

CASE 1.—Patient.—A. P., aged 12, was admitted to the Children's Hospital Sept. 14, 1905. The family and personal histories were negative. The symptoms dated from the day before admission and consisted of fever, delirium, persistent vomiting, headache, drowsiness and slight stiffness of the neck. On admission the abdomen was distended and there was obstinate constipation. Examination of the lungs was negative and also of the heart except that it was rapid. The pupils were dilated and equal. Kernig's sign was present. The head was retracted and *tache cérébrale* was demonstrated. Numerous dark-brown spots scattered over the body were seen. Later the legs became rigid, the face was drawn to the right, and deafness ensued. Examination of the eyes, by Dr. William Campbell Posey, was negative, except that the pupils were dilated.

An irregular temperature marked the course of the disease ranging from subnormal to 104 3/5. The patient was most of the time in a semistuporous state, and died November 26.

Autopsy.—The dura was opaque and thickened. The pia-arachnoid was also opaque and thickened, and areas of exudate were observed on the base, the convexity and along the sylvian fissure. A few miliary tubercles were observed. No tuberculous process was seen elsewhere.

Microscopic Study.—The pia was the seat of a round cell infiltration, the cells being mainly of connective-tissue type, though there were some mononuclear round cells. Connective-tissue formation enclosing blood-pigment and numerous blood-cells was also observed. The connective-tissue cells showed in places vacuolization and some contained blood-pigment. The intima of the arteries and veins was thickened and showed proliferation of the connective-tissue cells. The pia of the medulla was the seat of a marked round cell infiltration, the cells consisting of small mononuclear cells and large polynuclear cells. In the cortex there was a marked degree of perivascular dilatation but the cortical cells stained well.

This case was of the mixed type, the proliferative type predominating in the pia of the cerebral cortex, and the exudative type in the pia of the medulla. This case was clinically one of tuberculous meningitis and while no tubercle bacillus was found in this or, indeed, in any of the cases of this series, microscopically it coincided with the usual histologic characteristics of this disease.

CASE 2.—Patient.—M. H., aged 13 months, was admitted to the Children's Hospital March 16, 1906. Histories, family and personal, were negative. The patient died March 25, seven weeks after the onset of the disease, though the nervous symptoms preceded death but three weeks. The first symptom consisted of diarrhea with green stools. A month later the child was seized with convulsions affecting the left side of the face, arm and leg. The eyes were turned toward the right and later the right side of the face, the right hand and foot were convulsed. The movements were more or less continuous and there

was some general rigidity which later became very marked, the legs and arms being held in extension. Kernig's sign was not clearly demonstrated. The knee-jerks were not increased. Lumbar puncture was done without effect on the symptoms. The heart was rapid and there was some dyspnea. There were no spots on the body and examination in other respects was negative. The temperature ranged from 99.2 to 104.4.

Autopsy.—There was found general tuberculosis involving the lungs, epicardium, peritoneum, kidneys, stomach, intestines and lymph-glands.

Microscopic Examination.—The infiltration of the pia consisted mainly of cells of the connective-tissue type. Many plasma cells, however, were present. Numerous red blood-cells were found in the thickened pia. The veins were slightly thickened, the intima showing a marked proliferation of the connective-tissue cells. There was a slight perivascular distention and slight perivascular infiltration of the cortex.

In this case in which the nervous symptoms manifested themselves for three weeks only before death, there is evidence clinically of an acute process. The type of cellular infiltration is strikingly proliferative. The presence of blood in the process is worthy of mention as being present in both the exudative and proliferative forms of tuberculous meningitis.

CASE 3.—Patient.—R. S., aged 6½ years, was admitted Nov. 14, 1906, to the Children's Hospital and died November 28. The family and personal histories were negative. Duration of the disease was twenty-two days and began with loss of appetite, headache, slight enlargement of the tonsils and fever. On admission the examination of the lungs and heart, abdomen and spleen was negative. There was marked *tache cérébrale*. The patient was irritable and lay curled up on one side. There developed then rigidity of the neck, dysphagia and general convulsions. Kernig's sign was present on the sixth day. The patellar reflexes were irregular, being sluggish on the right. Paralysis of the left external rectus was present associated with nystagmus. Babinski phenomenon was present and finally Cheyne-Stokes respiration.

Autopsy.—A diagnosis of tuberculous meningitis was made, though no note of any tubercles was made at the time of the necropsy.

Microscopic Examination.—The pia showed the presence of a dense infiltration which contained many mononuclear and polynuclear leukocytes. In other places the cellular infiltration consisted largely of endothelial cells which was very marked around the blood-vessels. Red blood-cells were numerous and a number of plasma cells were observed. Where the tissue was loose the cellular infiltration was composed largely of lymphocytes and leukocytes, but where the tissue was denser the connective-tissue cells predominated. The blood-vessels showed some thickening of the walls, and in places accumulation of round cells beneath the intima was pronounced.

In the cortex there was perivascular distention and slight round cell infiltration around the blood-vessels. Marked encephalitis was observed, the leukocytes predominating in the exudate.

This case illustrates the mixed form, showing the presence of both the exudative and proliferative type of tuberculous meningitis.

CASE 4.—Patient.—M. E., aged 19 months, was admitted to the Children's Hospital April 24, 1906, and died two days after admission. Her mother had died of tuberculosis four months previously, but otherwise the family history was negative. The patient had suffered from a cough and general irritability for four months previously.

Two days before admission she became first dull, then unconscious. She was able to move the left side of the face only and the eyes twitched at times. There was general rigidity, more on the right side. The left eyeball was drawn inward and there was also palsy of the right external rectus. Kernig's sign was not definite.

In the lungs coarse moist and fine dry râles were audible. The spleen was palpable and the liver enlarged. Examination

of the heart was negative. The temperature ranged from 98 to 102.8.

Autopsy.—A diagnosis of general tuberculosis was made, involving the lungs, liver, spleen, kidneys, intestines and meninges. The exudate over the meninges occupied the posterior and superior surface of the cortex posterior to the middle line. The base of the brain was also the seat of infiltration.

Microscopic Examination.—In the pia the infiltration was made up of leukocytes and lymphocytes mainly. In places there was present in the pia large quantities of red blood-cells. The process was mainly of an exudative type. The cortex was invaded in places, the cells in the subcortical layers being of the mononuclear type and containing darkly-staining nuclei, but polynuclear cells and some plasma cells were also observed. Perivascular distention of the cortex and round cell infiltration around the vessels were present. Obliteration of the small vessels with some slight proliferation of the intima in others was noted.

This is an example of the purely exudate type of meningitis. The case was a rapid one, the evidence of meningeal implication lasting but four days.

CASE 5.—Patient.—H. P., aged 2 years, was admitted to the Children's Hospital March 25, 1906, and died March 31. The family and previous histories were negative except that one sister died in spasms. There was no history of tuberculosis. The child had been sick for two weeks before admission, making the duration of the disease eighty-one days. The disease was ushered in with vomiting, constipation, slight cough and somnolence.

On admission the child was unconscious, the eyes were open, the pupils large, reacting sluggishly, strabismus was present and there was rigidity of the neck and extremities. The knee-jerks could not be developed, though ankle-clonus and the Babinski phenomenon were present. Kernig's sign was positive. The temperature ranged from 98 to 100 until just before death when it rose to 105.2.

Autopsy.—A diagnosis of tuberculous meningitis was made and miliary tuberculosis of the lungs, liver, kidneys, spleen, intestines and bronchial glands was present. There was an exudate over the motor region on the right side and also at the base.

Microscopic Study.—The pia was thickened, this being due to fibrous tissue containing many connective-tissue cells and a few round cells. Some red blood-cells were found in the thickened pia. The veins were surrounded by many connective-tissue nuclei, but the blood-vessels themselves were not implicated.

The cortex was invaded by the process. There was some perivascular dilatation and the blood-vessels were distended and showed slight proliferation of the intima.

The proliferation type of tuberculous meningitis predominated in this case. The process was not extensive or very intense, and was evidently, as the clinical story would indicate, a chronic process.

CASE 6.—Patient.—B. P., aged 3½ years, was admitted to the Howard Hospital Jan. 12, 1908, and died January 13. The family and previous histories were not obtainable. Patient on admission showed paralysis of the right side of the face, right arm and leg. The right arm was flexed and was distinctly spastic. The left arm and leg was kept in constant motion. Movements of the head were painful and disordered stiffness of the neck muscles. The right biceps-jerk was increased but the left could not be elicited. Both knee-jerks were increased and equally so. Babinski phenomenon was present on both sides but ankle-clonus was absent. The pupils reacted normally. Temperature ranged from 102 to 105.

Autopsy.—This revealed the presence of tuberculous meningitis and hydrocephalus. Miliary tuberculosis of the kidney and peritoneum was observed.

Microscopic Study.—The pia from the paracentral region was the seat of a dense process which implicated both the pia and the superficial cortical layers. Connective-tissue cells predominated, though there were some trifoil cells but these were mainly perivascular and were present where the infiltrative lesion was less dense. The connective-tissue cells were found

in various states of degeneration many of them showing vacuolization. In the superficial layers of the diseased pia the loose connective tissue was infiltrated with mononuclear and polynuclear cells, and a few plasma cells, and was also the seat of extensive extravasation of blood.

In the frontal region the same condition obtained. In this region the blood-vessels were diseased, the outer walls being the seat of cellular accumulations. The cortex had been invaded slightly in places, the tissue being loose and the seat of some space formation. Just below the pia there was present cellular infiltration, some cells being mononuclear round cells, some being pale and granular without a demonstrable nucleus, some elongated cells, some cells with two nuclei, some trifoil cells and some large cells with many nuclear fragments tending to undergo vacuolization. Phagocytosis was also observed in the subcortical layers.

The cortex of the cerebellum was the seat of a marked encephalitis. The pia of the cord was the seat of a mononuclear round cell infiltration of moderate intensity and the posterior roots were infiltrated with cells of similar nature. The anterior roots were similarly affected, but to a less degree.

This case belonged to the proliferative type of tuberculous meningitis, but the characteristics of the exudate type of the disease was also present to a marked extent, and it therefore more properly comes under the head of the mixed type.

CASE 7.—Patient.—V. S., aged 2 years, was admitted to the Howard Hospital Nov. 4, 1907, and died November 8. The family and previous histories were unobtainable. The child was admitted with tumor of the abdomen which proved to be a distended bladder.

Examination.—The patient was semicomatose on admission. The pupils did not react to light and the eyeballs were moved from side to side constantly there being a tendency to left conjugate deviation, with transient weakness of the left internal rectus. The scalp and the nape of the neck were tender to pressure and the head was retracted. There was general rigidity of the limbs and from time to time a clonic spasm of both arms. *Tache cérébrale* was present. The knee-jerks could not be elicited, probably due to the rigidity, and the Babinski phenomenon was observed on both sides. The examination of the eye-grounds, by Dr. William Campbell Posey, was negative.

Autopsy.—General tuberculosis was found of the lungs, liver, mesenteric glands and also the meninges, though microscopically no tubercles could be observed in the process in the meninges.

Microscopic Study.—The pia was much thickened and contained leukocytes and connective-tissue cells. The cells were mainly of the connective-tissue type, though many plasma cells were present and some red blood-corpuscles. The blood-vessels showed marked cellular proliferation of the walls. Around the blood-vessels there was marked cellular accumulation of connective-tissue cells. The cortex was the seat of encephalitis in places and there was perivascular distention, the cortex being in places rarified.

This case belongs to the proliferative type of tuberculous meningitis.

CASE 8.—Patient.—J. R., aged 6, was admitted to the Children's Hospital Jan. 27, 1906, and died January 30. The family and previous histories were entirely negative. She had previously been treated at the Children's Hospital for an attack of meningitis, which lasted from Dec. 1, 1905, to December 28, when she was discharged as cured, save for paralysis of the external rectus muscle of the left eye.

At that time she had suffered with rigidity of the cervical muscles and of the legs which were held in extension. Kernig's sign was present and there was paralysis of the external rectus of the left eye, which remained paralysed. The knee-jerks were absent and there was no ankle-clonus or Babinski phenomenon present. The pulse was irregular and intermittent. The temperature was not characteristic and ranged from 97 to 104. Examination of the fluid obtained by lumbar puncture showed the presence of intercellular diplococcus and an excess of polymorphonuclear cells. A month after her dis-

charge she returned with symptoms of lobar pneumonia from which she died in a few days.

Autopsy.—The pathologic diagnosis was double lobar pneumonia and acute fibrinous pleurisy. The lung showed some cavity formation and pulmonary tuberculosis was probably present, including some miliary tubercles. Arachnoid was congested except over the frontal lobes.

Microscopic Examination.—The infiltration in the pia was not intensely cellular. There were some leukocytes in small quantities, numerous round cells, numerous connective-tissue cells and some large round mononuclear cells. Many red blood-cells were seen. Some of the connective-tissue cells showed advanced vacuolization and some contained blood-pigment. Other cells stained deeply and contained dark round nuclei. The vessels of the cortex were filled with red blood-cells, the walls were thickened, showing hyaline degeneration and some of the vessels were obliterated. There was perivascular round-cell infiltration of the cortex which was rarified. Fresh hemorrhages were found in the subcortical layers which was also the seat of a slight cellular infiltration.

In this case a diagnosis of tuberculous meningitis had been made, from which the patient made a recovery, having been discharged as cured. It may have been, and probably was, a diplococcus meningitis, though the presence of cavity formation in the lungs leaves some doubt as to whether or not it was not actually a case of tuberculous meningitis after all. This case is interesting as illustrating the alleged cures of tuberculous meningitis, about the exact nature of which, however, it seems to me there is some doubt.

The microscopic findings were similar to those found in tuberculous meningitis of a proliferative type but less marked. Added to this there was evidence of an old process in the fibrous nature of the process and in the presence of degenerated cells.

The cortical lesion was of two kinds, an old process, represented by the rarification of the cortex and degenerated blood-vessels, and a recent process characterized by fresh hemorrhages and some round cell infiltration, perivascular in type.

The older process, I take it, was the remains of the diseased condition from which the child recovered, apparently, a month prior to the onset of the fatal pneumonia. The more recent process could be explained by a meningeal extension of the pneumococcus invasion.

CASE 9.—Patient.—J. S., aged 1 year, admitted to the Children's Hospital September 26, 1907, died October 21. The family and previous histories were entirely negative. The child was breast-fed from birth. The duration of illness was thirty days and began with high fever and vomiting. Shortly after the onset the patient was comatose, the neck became stiff, the pupils were dilated, reacting sluggishly to light, and the reflexes became increased. Except for two vesicles which were found on the cheeks, no eruption was observed.

Later there developed internal strabismus, tremor of the head and body, spasm of the hamstring muscles and Cheyne-Stokes breathing.

On several occasions lumbar puncture was made; the fluid contained, besides pneumococci, many polynuclear cells, leukocytes and red blood-cells. The temperature ranged from 98.2 to 105, rising finally to 107.2 before death.

Autopsy.—Cerebrospinal meningitis was diagnosed. None of the other organs showed any tuberculous involvement. There was marked distention of the fourth ventricle.

Microscopic Examination.—The pia was fibrous and sparsely dotted with cells, mononuclear in type. The nuclei stained poorly in the outer layers of the thickened pia and in some the protoplasm was granular while in others there were two nuclei present. In the inner layers there were many deeply staining, small and irregular nuclei. A few plasma cells were observed. Around the blood-vessels the cellular accumulation was marked, composed mainly of the connective-tissue type of cell. There was also a slight proliferation of the intima of the

small veins. In the cortex capillary hemorrhages were observed and there was some perivascular distention. In some of the cells four nuclei were observed, suggesting karyokinesis.

This case was diagnosed as pneumococcus meningitis, the pneumococcus having been found in the cerebrospinal fluid. It is of the mixed type showing proliferative and exudative characteristics, and it is to be noted that microscopically it differed in no way from the usual picture of tuberculous meningitis.

SUMMARY

Of these cases only one (Case 4) properly belongs to the purely exudative type of tuberculous meningitis. Three (Nos. 2, 5 and 7) are proliferative cases and three (Nos. 1, 3 and 6) are of the mixed type. Blood or blood pigment was found in eight (Nos. 1, 2, 3, 4, 5, 6, 7 and 8) of the cases. Plasma cells were found in six of the cases (Nos. 2, 3, 4, 6, 7 and 9).

Blood-vessel changes to a more or less degree were present in all the cases. Cortical changes were present in all the cases, in three of which marked evidence of encephalitis was observed. The duration of the disease seems to have little if any bearing on the character of the exudate. The duration of the disease in the exudative type was four days; in the proliferative type three weeks, twenty-seven days, eighty-one days and one of short duration; in the mixed type seventy-four days; thirty days, twenty-two days and one of short duration.

In this study an effort was made to investigate the histologic characteristics of the process at those places removed from the tubercles themselves. The lesion in all cases was more or less similar, except in the one case showing a purely exudative type and this was, beyond doubt, one of typical tuberculous meningitis.

Cases 8 and 9 are doubtful cases of tuberculous meningitis but the histologic findings are identical to those found in the other cases.

This brings up the question as to the nature of so-called tuberculous meningitis. I believe that it is possible, if not probable, that the meningeal exudate in these cases is due to a mixed infection and not alone, or at all, to the toxins of the tubercle bacillus.

The rapidity of the course of the disease in these cases, which from its inception till the death of the patient is often but a very few days, is unlike the slow chronic process characteristic of tuberculosis in other organs. Moreover, in cases of tuberculosis of the meninges of patients who succumb to this disease in other organs, the histologic picture is not the usual one found in the tuberculous meningitis of children.

The process in tuberculous meningitis, I believe, does not necessarily originate solely from the tubercle bacillus or its toxins. The absence of the bacillus of Koch, which is not unusual, speaks against it. Moreover, the histologic picture of the lesion removed from the tubercle is of a round cell infiltration which, I believe, cannot be said to be pathognomonic of a tuberculous process.

Non-specific or simple inflammatory reactions in tuberculous meningitis have been already described by Villaret and Tixier,¹ Peron,² Hayen,³ Chantemesse⁴ and others.

Diffuse leukocytic infiltration without tuberculous granulations and without definite tubercles and giant cells has also been observed by Siredey and Tinel.⁵

1. Villaret and Tixier: *Compt. rend. Soc. de biol.*, 1905, p. 660.
2. Peron: *Arch. gén. de méd.*, 1898, p. 413.
3. Hayen: In Josué and Salomon (Note 16).
4. Chantemesse: In Josué and Salomon (Note 16).
5. Siredey and Tinel: *Lancet*, London, April, 1907, p. 1033.

That it may be a mixed infection is well illustrated in the observations of Perrin,⁶ who found the diplococci in the cerebrospinal fluid; of Kneass, Hendrickson and Sailer,⁷ who isolated the *Micrococcus tetragenus* in the spinal fluid, as well as the tubercle bacilli in the smears from the tubercles in the meninges; of Griffon and Abrami,⁸ in whose case the cerebrospinal fluid was invaded by the *B. coli*; of Marotte,⁹ who described a case of septicemia of tetragenous origin coincident with tuberculous meningitis; and of Poisseau and Tixier,¹⁰ in whose case were found diplococci not taking the Gram stain.

In two cases in my series, moreover, the diplococcus was found in the cerebrospinal fluid. In this connection, however, should be mentioned the contention of Sicard,¹¹ that the exudate in the pia is not the result of polymicrobial infection and that the bacillus of Koch and its toxins are capable in themselves of creating these granulations.

The experimental evidence is somewhat conflicting. Hektoen¹² failed to produce typical meningitis by injecting tubercles into the carotids of rabbits, though miliary tubercles were observed in the meninges.

On the other hand, Sicard produced experimentally a diffuse process consisting of a leukocytic infiltration and other lesions similar to the diffuse meningeal changes found in man. There is no evidence in these experiments to exclude, however, the existence of a mixed infection.

At the same time the experiments of Martin and Vandremmer,¹³ and Peron,¹⁴ show, according to these observers, that the toxins of tuberculosis play an important rôle in the development of tuberculous meningitis.

CELLULAR CHANGES

The cellular changes have been studied by Diamond,¹⁵ Josué and Salomon,¹⁶ Poisseau and Tixier,¹⁰ Higgs¹⁷ and Siredey and Tinél.⁵

Diamond¹⁵ found that the plasma cells, lymphoid cells, and phagocytic cells formed the principal cell-content of the infiltration of vascular leptomeningitis. He claims to have been the first to have described the presence of the plasma cell in acute tuberculous inflammation. The phagocytes were looked on as transmitting the tubercles from one area to another.

Lymphocytes and polynuclear cells predominated in the cases of tuberculous meningitis in adults studied by Josué and Salomon.¹⁶

In the case cited by Poisseau and Tixier¹⁰ the cellular infiltration was composed of mononuclear lymphocytes and endothelial cells without giant cells and finally, in the case of Siredey and Tinél,⁵ the examination showed a diffuse leukocytic infiltration without tuberculous granulations or giant cells.

The exudate in Higgs' case consisted of fibrin and round cells, mainly large and small lymphocytes, but some polymorphonuclear leukocytes.

The cellular changes of the exudate of tuberculous meningitis are not absolutely characteristic, somewhat similar changes having been described by Spielmeyer,¹⁸ as existing in trypanosomiasis and paresis (Gehry¹⁹), though Gehry concludes that the miliary foci in the pia give the process a typical appearance. While this is true, I think it still may be contended that the cellular makeup of the process remote from the tubercle is not typical of a tuberculous process.

VASCULAR CHANGES

The blood-vessels exhibited, in my cases, more or less change in seven of the nine cases studied. These changes consisted of thickening of the walls of the arterioles and some veins, which in one case went on to obliteration of the lumen of the small vessels. Perivascular round-cell infiltration was observed quite commonly. In some instances the coats of the veins were thickened and in others there was cellular proliferation of the intima. In one case an accumulation of round cells beneath the intima was observed; in another case cellular proliferation of the outer coat was demonstrated; and finally, in still another case the walls of the capillaries, in which the outer coat showed cellular proliferation, had undergone hyaline degeneration.

The vascular changes described by Hektoen¹² which were present in all of his nine cases, consisting of a primary endarteritis and a phlebitis causing thrombosis and obliteration, were not uniformly present in my cases.

Hektoen believes that this primary endarteritis is due to the implantation of the tubercle bacilli on the intima. He describes, (1) a diffuse form in which proliferation of the epithelioid cells occurs between the elastic lamina and the endothelium; (2) isolated miliary tubercle on the intima either singly or in conjunction with diffuse endarteritis, and (3) diffuse changes which proceed from periarterial foci.

He quotes the works of Huguenin, Huttenbrener, Cornil and Hirschberg, who observed tuberculous endarteritis which was looked on as primary and due to the implantation of the tubercle on the intima.

Rindfleisch, Ziegler, Birch-Hirschfeld, Lancereau, Baumgarten, and Guernieri and others believed that the bacilli were localized in the adventitia, and Guernieri and Baumgarten described an endarteritis which they regarded as secondary (Hektoen¹²).

Blood-vessel changes have been described by Raymond,²⁰ who found in the majority of the vessels of the pia an infiltration of the sheaths. Vascular changes have also been described by Diamond¹⁵ and Lartat-Jacob and Sabareanu.²¹ In Dreher's case²² proliferation of the intima went on to obliteration of the lumen, and there was also perivascular infiltration.

Ettinger,²³ on the contrary, said that the absence of obliterating arteritis was striking and that the walls, and especially the external and middle coat, are a little thickened but uniformly so, and that the infiltration of the round cells is regular.

ENCEPHALITIS

A slight diffuse encephalitis is always present in these cases, according to Oppenheim.²⁴

6. Perrin: Rev. méd. de l'est., 1902, No. 34, p. 677.
7. Kneass, Hendrickson and Sailer: Jour. Nerv. and Ment. Dis., 1903, p. 431.
8. Griffon and Abrami: Bull. et mém. Soc. méd. d. hôp. de Paris, 1906, xxiii, 613.
9. Marotte: Bull. méd., 1909, p. 259.
10. Poisseau and Tixier: Gaz. d. hôp., 1909, p. 979.
11. Sicard: Presse méd., 1900, p. 67.
12. Hektoen: Tr. Chicago Path. Soc., 1894-5, i, 69.
13. Martin and Vandremmer: Compt. rend. Soc. de biol., 1898, p. 273.
14. Peron: Arch. gén. de méd., 1898, li, 412.
15. Diamond: Am. Jour. Med. Sc., New Series, 1903, cxxvi, 147.
16. Josué and Salomon: Bull. et mém. Soc. méd. d. hôp. de Paris, 1903, xx, 1133.
17. Higgs: Brit. Med. Jour., 1909, p. 1170.

18. Spielmeyer: Die Trypanosomenkrankheiten, 1908.
19. Gehry: Arch. f. Psychiat., 1909, p. 59.
20. Raymond: Rev. de Méd., 1886, p. 230.
21. Lartat-Jacob and Sabareanu: Bull. et mém. Soc. anat. de Paris, 1904, p. 161.
22. Dreher: Deutsch. Ztschr. f. Nervenhe., 1899, p. 58.
23. Ettinger: Compt. rend. Soc. de biol., 1896, p. 23.
24. Oppenheim: Lehrbuch der Nervenheilkunde, 1905, p. 776.

Distention of the perivascular spaces was noted in seven of the cases under discussion. In three cases there was marked round cell infiltration of the superficial layer of the cortex and in another capillary hemorrhage was found. The cortex was rarified in two cases and the cerebellum was the seat of a marked encephalitis in one case.

In this connection the work of Lhermitte²⁵ is interesting. He described tuberculous meningo-encephalitis and believed it impossible to decide, in a great many cases based on the histologic findings, whether the condition was one of tuberculous encephalitis or a simple (banale) inflammatory reaction. He found in these cases that the plasma cell was present in the cortex.

PLASMA CELL

Studies of the plasma cell in tuberculous meningitis have not been made to any extent until within the last ten years. Wolf believed that they were regularly present in tuberculous meningitis and believed, furthermore, that degenerated plasma cells were found in all cases, though in varying amount, and raised the question whether these did not have some connection with regressive metamorphosis. Gehry¹⁹ believed that the plasma cell played an important rôle in the regressive changes in the nerve-elements.

The rôle of the plasma cell in vascular tuberculous meningitis was described at length by Diamond,¹⁵ who found them present in chronic and acute cases of tuberculous meningitis.

They were not found in all of the cases reported in this paper. In six cases, however, they were present to a greater or less extent.

As to the origin or significance of the plasma cell, this paper does not strictly pertain. Suffice to say that much has been written on the subject and whether the plasma cell originates from the lymphocyte, as Krompecher,²⁷ Marschalko,²⁸ Justi,²⁹ Joannovics,³⁰ Porcile,³¹ Councilman,³² Herbert,³³ Jadassohn³⁴ and Schottlander³⁵ claim, or from the endothelial cell, as is believed by Unna,³⁶ Ehrlich³⁷ and others, is still a matter of dispute.

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CHANGED PERSONALITY DUE TO HEAD INJURY

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Cases of lost personality are by no means rare, but they are always intensely interesting. As a rule, the personality is lost for a single period of time, either long or short. In the case I wish to report, this mental lapse seems to have persisted for about fourteen years, and since it has received considerable publicity, a full report of the medical aspect cannot fail to be of value.

S. C. R. was brought to me late in the evening of Oct. 13, 1911, with the following incomplete history: He had been working in the saw-mill at Port Blakely, one of the near-by

towns, for a period of six months. Nine weeks before his entry to the hospital he had been married. Nothing was known of his previous history, but it was supposed that he had served a number of years in the navy. As far as anyone knew he had been a perfectly normal man. His habits had been exemplary. Tuesday, October 11, while at work, he complained of not feeling well; left work and returned to his home about 10 a. m.; changed his clothes; ate his mid-day meal; and asked his wife what he might order for her from the store. He went to the store, left his order and was not seen again until about 9 p. m. Thursday, when a person living near the outskirts of the village, attracted by the unusual actions of a collie dog, took a lantern and followed the dog into the brush to investigate. The patient was discovered naked, moving around on his hands and toes. Assistance was called; he was seized, handcuffed and taken to the hospital, where he snapped at the attendants and gnawed at his chains until his teeth crumbled and broke. The next morning he was taken before an insanity commission, which decided that he was not insane and sent him to Seattle for treatment.

I saw him first at 10 p. m. Friday. He was in good physical condition; his body showed many scratches, especially over the knees and legs; he did not articulate, but pointed to his ear and then to his mouth, apparently suggesting that he could hear but not speak. Pupils were equal and dilated; they did not react. Head, neck, chest and abdomen were negative. Cremasteric and knee-reflexes were much exaggerated, but equal; on stroking the foot the toes flexed sharply and as sharply extended and spread widely. The pulse was full and slow, with tension much increased—a typical pulse of increased intracranial pressure; temperature and respiration were normal.

A tentative diagnosis of probable uremia being made, suitable treatment was instituted, even though a catheterized specimen of urine showed no albumin.

The next morning his condition was considerably improved; the pulse-rate was between 70 and 80, and the tension but slightly above normal. He was able to enunciate a word which sounded like "clothes," pointing the while to his naked body. I saw him again in the late afternoon. There had been a return of his cerebral symptoms. His pulse had dropped to 50 and was of very high tension. I noted for the first time that he was probably unable to see, since his eyes never focused on any point.

The next morning, his condition being unchanged, Dr. George Swift was asked to make a fundus examination, which he did shortly after noon. He reported a progressing choked disk in both eyes, but more marked in the right. At this time a white-cell count showed 16,000, and the differential count 40 per cent. small mononuclears, with a corresponding decrease in the polynuclears. An immediate decompression was decided on.

Under ether an osteoplastic flap, 3½ inches square, was removed. The dura, which bulged tensely, was opened, disclosing a typical "wet brain," which oozed fluid so rapidly that it trickled in a fine stream from the dependent portion of the wound. The dura was only partly closed, and the scalp wound was closed with drainage. The patient was removed to his room in good condition.

The morning of October 16 the pulse was still somewhat slow; the temperature was normal; and the patient seemed quite normal, except that there was some hernia of the brain. He complained much of headache and was decidedly aphasic, asking with much difficulty—apparently being unable to find the correct words—some few questions regarding himself. When his wife came in to see him he did not recognize her and denied that he was married.

He slept much of the day and when I saw him the following morning he was much improved, there being but a slight aphasia and a lessened hernia of the brain. He evinced much interest in the dressing of his wound, and related to me that a woman calling herself his wife had been in to see him. He said: "Maybe she is, if she says she is, but I have never seen her before this." Dr. Robert Percy Smith, who examined him at this time, reported that "Kelly," as we then called him, was in a condition of "mental confusion." When the patient was questioned he said that his name was not Kelly, but that he could not remember his right name. That evening, for the first time, he said that his name was S. C. R., and that he lived with his "granny" and sister.

The day following—the 18th—he objected to being called Kelly, and denied being married. That afternoon he stated that he must have been unconscious when he was brought to the hospital, as he recollected nothing beyond the evening before, and that he thought he had been in there about two

25. Lhermitte: *Rev. Neurol.*, 1910, p. 49.

27. Krompecher: *Beitr. z. path. Anat. u. z. allg. Path.* (Ziegler's), 1898, xxiv, 164.

28. Marschalko: *Centralbl. f. allg. Path.*, 1899, p. 851.

29. Justi: *Virchow's Arch. f. path. Anat.*, 1897, cl, 197.

30. Joannovics: *Ztschr. f. Heilk.*, 1899, p. 159.

31. Porcile: *Beitr. z. path. Anat. u. z. allg. Path.* (Ziegler's), 1904, p. 276.

32. Councilman: *Jour. Exper. Med.*, 1898, p. 393.

33. Herbert: *Jour. Path. and Bacteriol.*, 1901, vii.

34. Jadassohn: In Krompecher (Note 27).

35. Schottlander: *Ueber Eierstocks Tubercul.*, 1897, p. 81.

36. Unna: In Krompecher (Note 27).

37. Ehrlich: *Virchow's Arch. f. path. Anat.*, 1904, clxxv, 198.

days. On being told by his nurse that he had been in for five days he immediately called for paper and pencil and wrote to his sister.

During the afternoon of Thursday, the 19th, he asked a passing news-boy for "a *World* or *Tribune*." On being told that they would have to be secured from the news-stands down-town, he asked, "What papers have you anyway?" and securing one noticed that it was a Seattle paper. He asked incredulously: "Am I in Seattle? How did I ever get here?" and seemed amazed that he was so far away from home. The nurse drew his attention to the date (Oct. 19, 1911) and on his question being affirmed he broke into tears. That evening I questioned him closely. He told me that he had recognized that he was not in New York City when he first looked out of the hospital windows, but he had thought that he was at New Rochelle or Yonkers. He told me that he had been born in and had always lived in New York; that he had lived both on the east and the west side; that he had attended certain schools and worked at various places; and that on May 1, 1897, he celebrated his birthday. On his way home he was held up, sandbagged and thrown into the river, where he swam until he grabbed some piling, and in response to his cries a rope was let down and he was drawn up. Then he remembered no more until he awakened in the hospital in Seattle. To this story he has persistently clung. We were never able to detect any error, even though our questionings, covering every possible topic, were conducted under conditions calculated to confuse him.

Having in mind that he was supposed to have been in the navy, we took him before the officials of the local recruiting station, where those measures used to detect a deserter, or to detect any familiarity with naval drill or routine were used without eliciting the slightest glimmer of recognition either in the eye or hand. We had fellows, who had known him intimately, come on him suddenly and address him familiarly without detecting any sign that he knew them or the incident of which they spoke.

The people with whom he had lived and associated as "George Kelly" all noted an entire change in the language of the man, saying, "We would not recognize him from his language. He always used refined language and now he talks like a man from the 'Bowery.'" This was generally remarked by the people with whom he had come in contact, from the laboring man to the Presbyterian pastor, a graduate of Princeton and a man much interested in psychologic problems.

We were able to elicit much of his prior history, some of which has a direct bearing on the case. The morning he left work, his wife noted that after he had changed his clothing and sat reading, there was from time to time a sharp muscular contraction throughout his whole body. When he was found, after his disappearance, it was noted that as he passed through the bushes he bunted them out of the way with his head—never using his hands; that he was photophobic, since he avoided the direct rays from the lantern; that his face was very red; that he snapped at those who seized him, attempting to bite them, but never attempting to use his hands, though he was an unusually clever boxer; that as he was dragged to the hospital he attempted always to get into a prone position, especially when passing under the electric lights; that when put to bed he assumed a position on his hands and knees, gnawing at his irons and snapping at any who came near. He was given 1.5 grain of morphin hypodermically and slept only two hours, sleeping so lightly that he would rouse up if any one touched him. While before the insanity commission he pointed to the left side of his head, suggesting, perhaps, that his pain might be located in that region, and if touched there he would quickly draw his head away.

From the naval authorities we learned that while in the navy and "on watch" he was found in a comatose condition, remaining so for a period of two days. On awakening he demanded to know why he was not "relieved," and then recognizing the surroundings was amazed to find himself in the sick-bay. We also learned that he was left-handed; after his operation he used his right hand.

From other sources we were informed that he was subject to severe periodic headaches; at such times he would sleep for several days, arising only in response to Nature's demands; and after awakening he would appear dazed for several more days. He at times apparently had some disturbance of his centers of equilibrium, since as he walked he would suddenly lurch either forward or sideways "just as if he had stubbed his toe."

We were told by his friends that he had stated to them that he had been for several months an inmate of one of the Kansas City hospitals, where he had been unconscious—and later blind—for a period of several months. This, if true, was probably some time in 1902, since our first record of him begins at Kansas City early in 1903.

While he was under observation it was decided that hypnosis might be of some assistance. Accordingly, with no explanation other than that he was to be put asleep, thus guarding against any abnormal mental condition, he was hypnotized for five successive days by Dr. B. L. Baker of this city and while in the hypnotic state reiterated and amplified his story, supplying detail which he had been unable to remember. He further gave a detailed account of his wanderings up to the middle of June, 1902, when as the result of injury or extreme fright he became unconscious. This story was elicited on the second day, he being under the influence for a period of three hours. The subsequent days his story was checked and attempts were made to get him past the episode in June, 1902, but always without success. During the time between these, no reference was made to anything he had said, while in the hypnotic state, until after the last session. He was, however, on awakening, unable to remember any event subsequent to his injury in 1897.

He was kept under observation for a period of ten weeks in the hope that there might be a sufficient return of symptoms to enable us definitely to localize his trouble; there being none, he was permitted to go. Some time after, in a letter, he complained that there had been a return of head-pains, lasting from ten to fifteen minutes, and so severe that he could with difficulty keep his eyes open. This letter arrived about the time of telegraphic reports of his collapse in an eastern city from which he recovered without any change of personality.

ADIPOSITAS CEREBRALIS IN ITS RELATION TO TUMOR OF THE HYPOPHYSIS *

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The term "adipositas cerebialis" is applied to a condition characterized by a general obesity dependent on tumors or other diseases of the brain. The real scientific interest in this morbid accumulation of fat dates from Fröhlich's¹ first publication, in which an anatomico-clinical description of a case is given in detail. It concerned an individual who presented during life optic atrophy with a generalized accumulation of fat, also hypoplasia of genital organs. A tumor of the hypophysis was found post mortem. Although prior to Fröhlich the condition was observed, no special emphasis was laid on the relationship between adiposity and the cerebral manifestations. As Fröhlich's case was so clear-cut and his diagnosis *ad vitam* totally verified by autopsy, an impetus was thus given to the study of the subject and since then a large number of observations has been reported. The literature is now abundant with examples analogous to Fröhlich's case, but it must be said that not in all of them was the hypophysis found to be involved. In some cases the infundibulum alone was affected (Erdheim,² Bartels³). In others, tumors of the pineal gland (Marburg⁴) or of other portions of the brain, also various diseases of the encephalon have been reported in association with the symptom group described by Fröhlich. A critical analysis of all the cases reported, however, shows that in no other organic condition of the brain is the syndrome in question found in a more complete form and more frequently than in connection

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Fröhlich: Wien. klin. Rundschau., 1901, xv, 883.

2. Erdheim: Sitzungsber. d. k. Akad. d. Wissensch. Math.-natur. Cl., 1904, cxii, 537.

3. Bartels, M.: Ztschr. f. Augenheilk., 1906, xvi, 407.

4. Marburg: Arch. Neurol. Inst., Wien., 1908, xvii, 217.

with tumors or other affections of the pituitary body or else in the nearest vicinity of this organ so that pressure or other interference with its function is produced.

Adiposity and genital hypoplasia seem to be the two characteristic manifestations of the so-called Fröhlich's syndrome, otherwise called dystrophia adiposo-genitalis or, as the French call it since Launois and Cléret,⁵ *syndrome hypophysaire adiposo-génital*. It enters into the group of adipositas cerebrealis, to which belong all cases in which the deposit of fat is due to a cerebral cause. Cases of adiposity and genital hypoplasia, especially of the former, have been reported in association with alterations of a number of ductless glands, such as thyroid, thymus, adrenals, but in none of these cases is the occurrence more evident than in diseases of the pituitary gland.

Clinically, two great varieties of conditions have been observed in disturbances of the hypophysis cerebri—acromegaly and gigantism on one hand, adipositas with or without genital hypoplasia on the other. The majority of investigators are inclined to believe that hyperpituitarism is the cause of the former, and hypopituitarism the cause of the latter condition. This contention, however, cannot be considered absolute, as not a few observations can be found in the literature which are manifestly at variance with such a conception. In Arnold's observations on acromegaly 61 per cent. gave no symptoms of hypophyseal involvement. Experimentally the efforts of reproducing the above clinical pictures when based on the assumption of hyper- or hypopituitarism have so far failed in the majority of instances. Grafting, for example, or internal administration of hypophysis (hyperpituitarism) gave no evidence of acromegaly or gigantism. Cushing's series of 150 hypophysectomies shows but three cases in which hypopituitarism may be associated as cause and effect with adiposity and sexual infantilism, while Paulesco's⁶ extensive experience in the same direction shows absence of such disorders.

The physiology of the pituitary body is little known. There are, however, a few facts which undeniably speak for this tissue as being indispensable to life. Narbout has shown that it has a definite function in life and especially during the process of growth. When it is damaged, the result is psychic depression, changes in motor and sensory apparatus, polyphagia and polydipsia. When the hypophysis is removed, the elimination of phosphorus and nitrogen is increased, the interchange of gases is lessened and a great loss of weight follows, especially in nitrogen-containing tissues. Vassale succeeded in ameliorating the morbid manifestations following hypophysectomy by injection of pituitary extract, and Cushing prolonged life by a similar method when the extract was taken from the anterior lobe. The posterior lobe is known to contain elements, the object of which is to raise the blood-pressure, as shown by Howell, Schäfer and Herring.

If the clinical and experimental observations concerning the direct effect of the hypophysis on the production of acromegaly and of the *syndrome adiposo-génital* are not totally conclusive, perhaps the physiologic interrelation between other ductless glands and the hypophysis could be considered with reference to our subject.

There is ample proof of the fact that, when one of these glands is involved, another or several others are simultaneously affected. For example, in acromegaly

not only the hypophysis, but also the adrenals as well as the thyroid have been found altered. In Addison's disease, hypertrophy of the hypophysis was observed together with adrenal changes. In cases in which the thyroid was involved, such as myxedema and others, hypertrophy of the pituitary body occurred; in cases in which the thyroid was removed, changes in the hypophysis took place and *vice versa*; in cases of hypophysectomy alterations in the thyroid gland followed. In cases of acromegaly and gigantism in which the hypophysis was found altered, changes in the genitalia were not infrequently noted, such as atrophy of testicles and ovaries. Experimental castrations have been followed by changes in the pituitary body. On the other hand we are well familiar with the frequent occurrence of enlargement of the thyroid at puberty and pregnancy when physiologic changes appear in the generative organs. The genital organs and the thymus are also physiologically influenced by one another. In myxedema and acromegaly the thymus also undergoes some changes.

These few examples are sufficient to demonstrate the intimate relationship between various glands with internal secretion, but of what this intimate relationship consists, we cannot in the light of our present knowledge determine with scientific accuracy. We cannot go beyond the clinical observations and must content ourselves with the registration of facts.

In adipositas cerebrealis and more particularly in the *syndrome adiposo-génital*, in view of the above mentioned contradictory facts as to the rôle of the hypophysis, it is impossible as yet to say with any degree of certainty what particular gland with internal secretion plays the most influential rôle in the production of the morbid phenomenon, since several of them are found to be altered anatomically at the same time. In cases even of tumors of one of these glands it is difficult to ascribe the pathologic manifestations exclusively to the disturbed function of this special gland as long as other glands are found also to suffer in their functions. It seems that in the majority of these cases some unknown agent affects them all or at least several of them simultaneously, with preference in each particular case to one special gland in which it produces most marked changes either in the form of a tumor or of hyperplasia and hypoplasia. This is only a clinical hypothesis which, although it appears logical in its construction, nevertheless cannot be corroborated as yet, experimentally, as the actual etiologic factor of tumors in general or of hypertrophic and atrophic changes in tissues is still entirely obscure.

Referring to our main subject of hypophyseal changes in connection with Fröhlich's syndrome, the above considerations lead us to great circumspection and to much reservation in our attempts to attribute the entire symptom group to the pathologic changes of the hypophysis.

The following anatomicoclinical case of the *syndrome adiposo-génital* came under my observation:

Patient.—A young man, aged 31, a watchmaker, was an excessive user of tea, tobacco and beer for a period of ten years. He had never contracted venereal diseases. In childhood he had measles and scarlatina. He was apparently well until the age of 23 when he noticed a gradually oncoming drooping of the left upper eyelid. Soon he developed double vision, difficulty of discriminating letters, a peculiar dryness of the left eyeball. His vision of the left eye gradually became weaker and weaker. At the same time he suffered from vertigo and headache which was confined to the left side of the forehead. This condition remained stationary for a period of two and one-half years. During that time he had

5. Launois et Cléret: Gaz. d. hôp., 1910, lxxxiii, 57.

6. Paulesco: Jour. d. phys. et path. gén., 1907, ix, 441.

brief periods of improvement as far as the headache and vertigo were concerned, but the loss of sight in the left eye and the ptosis remained unaltered.

Soon he developed serious mental phenomena. Whether on the street, in his home, at work or even when he was resting, he would suddenly lose consciousness and fall, so that on very many occasions he was picked up on the street and taken to the neighboring hospitals. After each of these attacks he would be confused for several days in succession, so that he was unable to give his name, residence or dates. Should he get other attacks before he recovered from the confusion, the confusional state would last two or three weeks at a time. The loss of consciousness was exceedingly brief and lasted but a fraction of a minute. The attacks were not accompanied by loss of speech or loss of power in the extremities.

As the patient presented at the same time a fine intention tremor of the hands and of the tongue, also increased tendon-reflexes in the lower extremities, the above attacks of uncon-

sciousness in the right eye. The patient still had attacks of unconsciousness although much less frequently than heretofore. Physically, he was a man of middle height, weighing 128 pounds. Heart, lungs and other organs except the kidneys presented nothing abnormal. The urine contained small quantities of sugar. The interesting feature about him was the absence of any sexual desire, which according to him he never possessed. Examination revealed strikingly infantile genitalia; the testicles were of the size of lima beans and the penis was that of a child of 6. Erections occurred very exceptionally. Otherwise the patient could be considered normal as far as the shape and size of other external organs were concerned.

Course.—For a period of three years the patient's condition remained practically unaltered except occasional aggravation of the headache. He was kept on iodids and he felt more or less comfortable. At that time a decided change took place in the life of my patient. He gradually began to lose his vision in the right eye. Signs of atrophy in the right fundus became visible. A parietic condition of the left arm made its appearance. This progressively kept on increasing for a period of four weeks when a similar condition developed in the left

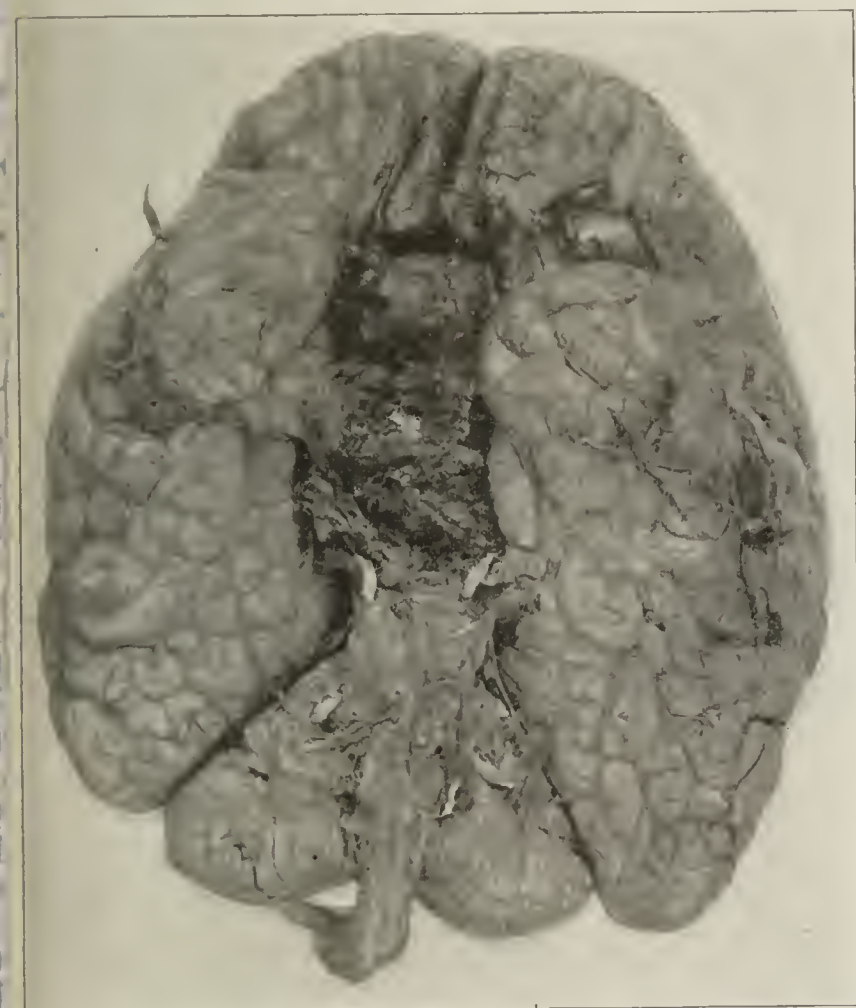


Fig. 1.—Tumor of hypophysis, showing two lobes. Crura and pons are deformed.



Fig. 2.—Sella turcica destroyed by the hypophyseal tumor.

sciousness together with the eye symptoms suggested the diagnosis of parietic dementia. Such a diagnosis was made by several neurologists. As the patient presented nystagmus on lateral movements of the eye-globes, and optic atrophy of the left fundus together with the above-mentioned intention tremor and the state of the reflexes, the diagnosis of disseminated sclerosis was also made by others. Cerebrospinal syphilis was also thought of, in spite of the fact that a Wassermann test was negative.

Examination.—Five years after the onset of his disease the patient came under my observation. I found the following symptoms: He suffered considerably from headache and vertigo, although not constantly. The gait and station were normal. There was some ataxia in the upper extremities. The tendon-reflexes of the lower limbs were exaggerated, more on the left than on the right. No other abnormal tendon or cutaneous reflex was present. The right eye-globe was exophthalmic. The vision in the left eye was poor; he could distinguish objects, but not colors. A bitemporal hemianopsia was distinct. The eye-grounds showed total optic atrophy in the left eye and slight evidences of optic neuritis

lower limb. It was distinctly a progressive descending hemiplegia. In two months the hemiplegia was typical in regard to the gait, tendon-reflexes, toe phenomenon and ankle-clonus. But what was particularly striking was the gradually on-coming adiposity. The patient, being extremely poor, was compelled to rely on charitable contributions. He ate very little; tea and crackers were his main food. At times (and this happened quite frequently) he was actually without food for an entire day, as charity was not forthcoming. In spite of these privations the adiposity kept on increasing so that six months before he died he weighed 235 pounds. He became enormous; he had to get larger clothes and he had difficulty in walking around.

The blindness kept increasing so that during the last six weeks of his life he was unable to distinguish objects or persons. The hemiplegic side of his body became very rigid and atrophy of its musculature developed very rapidly. Soon convulsive attacks made their appearance. They were at times generalized, at others confined to the left side. At first they were only occasional, but during the last two weeks they occurred ten or fifteen times a day. The patient gradually

grew stuporous, was unable to swallow food and finally expired following one of the convulsive seizures.

Among other odd symptoms which the patient presented during the last two years of his life were excessive perspiration and loss of the sense of smell in the right nostril. The perspiration occurred even in winter and without physical exertion. The olfactory loss was the most striking. The most intense odors such as ammonia remained without reaction when placed in front of and close to the right nostril.

The diagnosis of the case when he came under my observation, five years ago, was not very difficult as to the nature of the disorder. Intracranial pressure suggested itself in view of the history of headache and vertigo, also of attacks of unconsciousness and of the condition of the fundi, but the localization of the suspected neoplasm was somewhat perplexing. The bitemporal hemianopsia pointed to a basal condition at the level of the chiasma. But when the adiposity began to appear and kept on increasing in spite of the extremely small amount of food which the patient consumed, the nature and the localization of the morbid condition became evident. A neoplasm of the pituitary body suggested itself, as it explained clearly the entire symptomatology of the case.

Necropsy.—This was performed six hours after the patient died. A large vascular tumor dark in color was found at the base of the brain lying against and destroying the bony tissue of the skull. It extended backward as far as the foramen magnum and forward to the sphenoidal fissure. Downward it destroyed the sella turcica and penetrated, through the opening thus formed, the posterior nasal spaces, filling out especially the right one; in the latter it pressed also upward on the floor of the orbital cavity, thus explaining the right exophthalmos and the total loss of smell in the right nasal cavity. The tumor consisted of two portions, anterior smaller, posterior larger. Both covered the basal portion of the brain between the orbital lobes and the pons in the middle line. It pressed backward and disfigured enormously the pons and the structure of the posterior portion of the medulla, which could be seen also on microscopic sections. The chiasma and the optic tracts suffered most and were actually destroyed. The crura cerebri were compressed and deformed. The anterior perforated spaces, the chiasma, the interpeduncular spaces, the lamina cinerea, the tuber cinereum, the posterior perforated space were all covered and pressed on by the bilobar tumor which was evidently hypophyseal. The posterior lobe was curved and in its anterior portion pressed against the lower surfaces of the right temporal lobes.

Histologically the tumor proved to be an angiosarcoma; no healthy tissue of the hypophysis could be found in either lobe. Microscopic sections of the entire central nervous system showed a unilateral involvement of the pyramidal tract below the cerebral peduncles, viz., in the medulla and spinal cord, but not in the internal capsule. This corresponded to the left descending hemiplegia observed during life. The tracts and other elements in the posterior portion of the medulla and pons were hardly distinguishable; they were displaced and deformed.

Among other post-mortem findings worth mentioning were the exceedingly thickened scalp and thinned bones of the skull. Finally the thyroid gland was found considerably enlarged. The same can be said of the adrenals. No permission was given for the removal of the latter two glands, and therefore a histologic examination of them could not be made. That they were in a pathologic condition was indicated by their size.

The case presents several interesting features. The most interesting one is the irregularity in the evolution of the morbid symptoms, which explains the diversity of diagnosis made by several neurologists. Paresis, disseminated sclerosis, cerebrospinal syphilis were each in turn thought of. The correct condition began to be manifest when the patient's adiposity made its progressive appearance. The latter together with the bitemporal hemianopsia and the sexual infantilism constituted clearly one of the forms of adipositas cerebri, called Fröhlich's syndrome. The deposit of fat kept on

increasing in spite of the exceedingly small amounts of food which the patient consumed.

Among other interesting phenomena in the case is the glycosuria, which, although slight, was nevertheless evident through all the five years of my observation. From the fact that transient glycosurias have been observed in fractures of the base of the skull, it seems not illogical to assume that the sugar secretion was probably due to some trauma of the hypophysis. This assumption may find its corroboration in the well known observation that operative manipulations of the hypophysis, especially of its posterior lobe, were followed by temporary glycosuria and if actual damage were done to the hypophyseal tissue, permanent glycosuria was observed. Sweet and Pemberton have noticed, and this is corroborated by Goetsch, Cushing and Jacobson,⁷ that the posterior lobe of the pituitary body and adrenals act in an identical manner with regard to the excretion of pancreatic juice, that is, they inhibit it. It is possible, therefore, that the effect of the hypophyseal secretion on the pancreas is the main factor in the production of the glycosuria in diseases of the hypophysis. Moreover, Borchardt has demonstrated on rabbits and Goetsch, Cushing and Jacobson⁷ on dogs that hyperglycemia followed administration of extract of pituitary body. This interrelation of various glands finds a point of support in my case, in which besides the tumor of the hypophysis there was also a notable hypertrophy of the adrenals and of the thyroid gland.

Another interesting symptom in the case is the profuse perspiration from which the patient suffered intensely. It occurred without exertion and even in the coldest days of the winter. Was this excessive secretion of the sweat-glands any relation to the increasing deposit of fat under the skin which thus stimulated these glands, or is perspiration under control of the glands with internal secretion such as the adrenals or the hypophysis? Perhaps the above-mentioned property of the posterior hypophyseal lobe with regard to raising blood-pressure has something to do with the stimulation of the sweat-glands. While all these symptoms are but conjectures, nevertheless they appear to have their *raison d'être* in view of the association of the phenomenon with a tumor of the hypophysis. The subject of glands with internal secretions is, generally speaking, as yet obscure; nevertheless, the association of their pathologic states with various morbid manifestations during life, unexplainable otherwise, is probably more than a coincidence. Accumulation of correctly recorded clinical observations together with experimental investigations will eventually clear up many heretofore obscure phenomena.

NOTE.—In addition to the articles previously cited, the following may also be found of interest:

Lyon, I. P.: Adiposis and Lipomatosis, *Arch. Int. Med.*, 1910, vi, 28.

Tilney, F.: *Memoirs Wistar Inst.*, 1911, No. 2.

7. Goetsch, Cushing, Jacobson: *Bull. Johns Hopkins Hosp.*, xxii, No. 24.

Differentiation of Nystagmus.—Nystagmus of vestibular origin is differentiated from that of the ocular type by the fact that in the latter form, the two components of the movement are equal in velocity while in the former one is quick and the other slow. The slow movement is the reaction from the stimulation of the canals and the quick is the act of recovery, coming from the brain. In anesthesia, the reaction or stimulation is produced as it is normally but the recovery is slow, and for this reason it has been erroneously supposed that anesthesia reverses physiologic nystagmus. The direction of nystagmus is considered that of the quick component.—E. F. Davis, in *Oklahoma Med. Jour.*

THE ATROPHIC FORM OF LITTLE'S PARALYSIS

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The usual type of congenital or early cerebral paralysis is accompanied by a more or less normal growth of the body. The type to be described differs from the foregoing in the fact that there is a lack of development accompanied by an atrophy of all the parts of the body except the bony skeleton, which atrophic condition modifies the symptomatology. While the atrophic type of cerebral palsy, which is of fairly rare occurrence, has been parenthetically noted by various writers, it has not generally been allotted its place in the classification of cerebral palsies.

The special pathology of this atrophic form is dependent on a lower cortical involvement than the ordinary type. The abnormalities involve the pituitary body and the pons, but, strangely, do not markedly affect the cranial nerves. The pathology of Little's disease has never been very satisfactory and remains questionable. In the form which I shall describe in this paper, however, we find supplemental lesions which have a specific modifying influence on the clinical picture.

The three patients whom I have seen presented prenatal histories. The feeble motions *in utero* were



Fig. 1.—Characteristic posture of child with Little's paralysis of atrophic type.

responsible for extended pregnancies. One patient presented a history that showed evidences of being authentic, claiming an intra-uterine existence of eleven months.

At birth the children are fleshless. The facies and general appearances are those of wrinkled, old men. The eyes are specially alert and active; the hearing is acute from the first day. In fact, the special sense development is so marked that the children's abilities cause comment—they sense like infants 6 months old. In disposition they are usually happy. In spite of this marked sense development one sign of backwardness is noticed from the first, namely, that the child does not take the nipple during the first three or four days and sometimes it is impossible ever to get the child to nurse the breast.

During the period of infancy the patients seem to have exceptional immunity from gastric disorders and appear to be able to overcome pathologic conditions easily. For instance, the methods of feeding necessitated by the difficult deglutition induce inhalation pneumonias which are fought with remarkable expedition, or, the exanthemas attacking such a child are very easily borne. It probably is true that the vital forces, not being drawn on to any extent in the ordinary directions of child activities, are specially acute in preserving normal health.

DEVELOPMENT DURING INFANCY

These atrophic children are exceptionally backward in development. Many of the babies are looked on as marasmatics or as victims of malnutrition during the first year, until the real nature of their disability is discovered. The bony skeleton alone seems to grow with normal activity. At the end of the third year the child measures 36 inches, which compares favorably with the heights of most 3-year-olds. The skull also develops normally, whatever discrepancies there are being due to the fat-impooverished integument.

The bony growth, however, is unaccompanied by muscular development. The muscles are boggy and atrophic. The back spinal muscles are but flabby fibers entirely incapable of holding the spine erect or of maintaining the head. In fact, there is complete general muscular non-development, and hence the name "non-developmental" or "atrophic" form of Little's disease. As a result of this lack of muscular development the weight curve is exceedingly disappointing. At 1 year, the weight is only a pound greater than at birth; at 2 years, the child weighs about 11 pounds and at 3, 14 or 15 pounds (Figs. 1, 2 and 3).

The first sign of spasticity is the bilateral athetosis, as in the usual type without atrophy; a similar condition is present in both feet, modified, of course, by the flexion of the legs on the thighs. The spastic contractions affect mainly the flexor groups of the limbs, with so slight an involvement of the extensors that permanent contracture deformities soon appear: The legs are flexed on the thighs, the feet on the legs, the toes on the feet, while in the arms the forearm soon becomes fixed at an acute angle with the arm and the hand when flexed assumes a claw-like position with the fingers in oblique contortions. In the neck, the sternocleidomastoid and the platysma, becoming spastic, cause constant backward tilting of the head, crowding, as it were, the mastoid axis down onto the vertebrae (Fig. 2). I have never seen any marked spasticity of the trapezius, splenius or semispinalis colli groups, except in the general rhythmical contractures, that elicits opisthotonos.

The spasticity in this class of Little's disease is not uniform nor constant. All spasticity passes off during deep sleep and the spastic muscles become soft and flaccid. The slightest extraneous stimulation during sleep, however, is capable of reestablishing the prior condition. A relaxed child in deep sleep is easily aroused to spasticity by slight movements of the bed-clothing, by the barking of a dog across the street, or by the turning on of an electric light. I shall mention later the condition of sleeplessness so common to these children, but in this connection I have noticed that the children seem to be subject to the same sort of phenomena in passing off to sleep as are the sufferers from joint tuberculosis. The



Fig. 2.—Inequalities of the spasticities of the limbs in a case of the atrophic type of Little's palsy.

relaxation from the spastic condition is probably a gradual process, and often just at the moment of transition from light sleep to deep sleep there is an involuntary sympathetic contraction of the affected muscles which immediately throws the tired muscles into their old spasticity. The child cries out with one of those piercing, mad cries, flexes his limbs and may even assume a slight opisthotonos; then, overcome by the light sleep he lapses back into relaxation. It is quite common to notice a dozing child repeat this agonizing procedure several times before passing into deep sleep. Naturally, the children dread bedtime, and even the entrance into a dark room in daytime arouses fear and crying.

It has been interesting, on the other hand, to note that excitement or loud noises do not seem to intensify the spasticity during the hours of wakefulness. In one case the mother believed that her child would almost completely relax for several minutes after the pavilion band began a noisy selection.

FUNCTIONAL MANIFESTATIONS

As a result of the non-development of certain muscle groups and of the spasticity the children are unable to hold their heads up or sit erect. No child with the atrophic form of Little's disease has ever, to my knowledge, attained an age sufficient to encourage attempts at standing.



Fig. 3.—Posterior view of child in Figures 1 and 2.

It has been mentioned that the patients dread the dark. This dread soon accustoms them to staying awake during the dark hours of the night. They will not attempt sleep until natural daylight appears; they will not accept artificial light as a substitute. At daybreak, after several paroxysms while attempting to relax, they pass off, utterly weary, into deep slumber. It is usual for them to sleep, if undisturbed, from 4 or 5 a. m. till noon. The period of sleep can appreciably be lengthened if the nurse will occasionally turn the child over when he becomes restless at his inability to change from a tiresome position. All the various hypnotics and sedatives have a limited field of usefulness in producing night-sleep. They can be administered by strategy, but it is noticeable that any one hypnotic is only serviceable for a very few times, and soon the entire list is exhausted. Finally, the habit of sleeping in the daytime will have to be tolerated and the child's night turned into day.

On account of the inability to swallow any solid substances these children must subsist on liquid foods. They tire of any one food easily, and the greatest diversity of liquid foods—taxing the ingenuity of the nurse to the utmost—is required. Sometimes semisolid foods can be coaxed down in the course of feeding liquids, but it is found that they remain mostly undigested and act only as irritants. The patients are invariably constipated. Presumably the absence of the ordinary movements of children and their sedentary existence

contribute to the cause. Cathartics are valueless. Bowel movements can best be secured by suppositories or injections. The sphincters are never involved. Thymus and thyroid extracts, even in small doses, have a peculiar, violent, excitant effect—so much so that they are impossible.

These children perspire excessively. While they are awake the skin is constantly moist and one finds the underclothing damp, but when they are asleep this excretion is much more markedly increased and great beads of perspiration stand out on the head while the clothing is literally soaked. This profuse perspiration seems to have no relation to the amount of urine excreted. The secretion of saliva is also excessive, causing continuous drooling from the mouth.



Fig. 4.—Base of brain, showing anomalies of the atrophic form of Little's paralysis.

The reflexes and reactions to galvanic stimulation are the same as in the usual type of Little's disease. Sensation, however, is less acute. Mothers report that when diaper-pins are inadvertently thrust through the skin the accident is often not discovered until the removal of the diaper. It is common for the pupils to be constantly dilated. Mental development is most backward in every instance. One case was complicated with epilepsy.

PROGNOSIS

Prognosis in the atrophic form is more grave and positive than in the other forms. All my patients have died between the third and fourth years. One child died from pure inanition, another from tuberculous meningitis, and the third from no discernible cause.

AUTOPSY FINDINGS

The one case coming to autopsy showed the usual absence of gross pathologic derangements with the one exception that the pituitary body was absent. There was not even the depression for the sella turcica in the sphenoid (Fig. 4).

CONCLUSIONS

1. The atrophic form of cerebral palsy is a distinct entity.
2. The characteristic difference between this and the usual form of Little's disease is in the lack of development of all parts of the body except the skeleton.
3. Owing to the difference of the condition the patients exhibit a train of symptoms not present in the usual cerebral spastic palsies.

CASE REPORTS

CASE 1.—History.—The patient, L. F. R., a male child was first seen when 6 months old. There was a history of natural and easy birth. The mother believed that pregnancy with this child continued for ten months and twenty days. Weight at birth was 7 pounds. The new-born child had the facial expression of a 2 months' infant. He did not nurse till the fifth day and then very feebly. From the first there was marked muscular spasticity and athetosis in the limbs. Early motions in the limbs were feeble. The patient preferred to be placed on the left side when in bed. Growth during the first year was very slow. At one year, he weighed 13 pounds, could not sit erect or hold up his head more than for a moment at a time. The patient had been seen by several physicians who had diagnosed the case as one of marasmus or cretinism. After the fourteenth month the child would occasionally suffer spastic general convulsions, the body held in opisthotonos and the limbs flexed at the knees and ankles, and especially at the elbows and wrists. Most of these convulsions occurred at night.

Examinations.—At the beginning of the second year the patient was a fleshless child of 15 pounds, 31½ inches in height. The abdomen was full but not protruding; the ribs were plainly visible but not misshapen or beaded. The head and face were not so emaciated as the body; the eyes were bright and glistening and very intelligent. His fourteen teeth were all in good order. The child drooled from the mouth; he could laugh but not talk. The occipitofrontal circumference of the head was 18 inches. Hearing was very acute; sight was normal. The limbs were of normal length but little larger in circumference than the bones themselves; the skin and muscles were merely soft flabby tissues. The reflexes were all markedly increased. All the leg and thigh flexors were in spastic contractions. The athetosis and spasticity were less noticeable in the left arm than in the other limbs. The child perspired profusely during examination. The mother added that he perspired most profusely when asleep. During this examination the child had three rhythmical spastic contractions more or less epileptical in character.

At 3 years of age the child weighed only 16 pounds, 1 pound more than at the age of 2. He was 34 inches high (Figs. 1, 2, 3). The spasticity had deformed the ankles, throwing the feet into equinovarus. The knees were more or less rigid in flexion and the knee-joints were enlarged. The arms in flexion deformities were distorted and the hands were claw-like. The head and facial expression were not markedly changed from the previous year. The epileptic seizures were more frequent than a year earlier. There was practically no muscular development below the head and neck. The child could only with difficulty hold his head up when his back was supported. No fat was discernible in the integument and the body was emaciated extremely.

The child died Thanksgiving day, 1910, after three weeks' acute illness with typical tuberculous meningitis, aged 3 years and 3 months.

Necropsy.—Dr. J. R. Brown of Tacoma reported that there were no gross macroscopic defects except the meningeal lesions along the central sinus, and the absence of the pituitary body;

there was no depression for the sella turcica but in its stead a prominence of the sphenoid, bulging backward from the olivary process. A microscopic examination of the cortex revealed no marked abnormality.

CASE 2.—History.—A. L., a male, aged 2 years and 9 months, was referred to me by Dr. Tilzer. The child was of Jewish extraction. The parents consulted a physician because the child perspired so freely with such bad odor and because he did not grow. The former complaint seemed to cause more anxiety to the parents than the latter. History of the case was typical of Little's paralysis.

Examination.—With his clothes removed the child weighed 18 pounds; he was 33 inches in height. The ribs showed and the body and limbs were markedly emaciated. The tissues about the head and face also shared in this atrophy. The child's face resembled that of a late tuberculous adult. The scrotum and testicles were large; the mother stated that very often the penis was found erect. The skin was moist and cold; the perspiration was fetid in odor. The child could only with difficulty sit erect, and when placed on a table on his buttocks the back resolved itself into a broad curve, the thorax being supported on the front of the pelvis. The patient could hold his head up. The flexors of the right lower limb were spastic, as were also the flexors of the upper limbs, although to a lesser degree. All the reflexes were increased in the limbs. The child could bear no part of his body-weight on his legs; he could lean forward on a chair and partially straighten his legs into a standing posture, but he had made no progress in this regard since the end of the first year. As far as could be determined the child had never had epileptic attacks.

Course.—The child was treated medicinally and hygienically but did not improve; in fact, his decline was quite rapid. He gradually became less and less active and died of inanition about four months later, at the age of 3 years and 1 week. No autopsy was allowed.

CASE 3.—History.—J. L. W., a male, aged 18 months, was the second child. There was a history of instrumental delivery after a protracted pregnancy. At birth, the condition of the child was such that artificial respiration was necessary for three hours. The mother said that the child had "lots of teeth" at the tenth month. Intelligence was good. There were no alimentary troubles except excessive drooling from the mouth.

Examination.—The child could hold his head erect but would sit with the back rounded. His face and head were not markedly involved in the general muscular and fatty atrophy so that he did not look badly with his clothes on. The patient had fair control of his limbs; he could flex and extend the toes on the foot and the foot on the ankle. There was a characteristic spasticity on standing or on attempts at walking. The reflexes were exaggerated. The child weighed 20 pounds. The height, which was not taken, was nearly normal. The mother stated that his head was only a little larger than that of her more recent four-months-old babe. The body was emaciated and fleshless. The parents said that when the child was crossed or not tended to, he would stiffen out and arch up on his head and heels. They also said that the child's weight had been stationary since the twelfth month. This patient was seen but once.

I later learned that the child had suddenly died a year after this consultation of no discernible cause, aged 30 months.

1103 Fidelity Building.

The Enforcement of Public Health Laws.—We have a good set of medical and public health laws, particularly the former, and it would seem a simple matter to have them enforced. It is no trouble to get a crap game raided, or set the whole police force on the trail of a murderer or thief, in common acceptance of the terms, but it is quite a different matter when an advertising quack is fleecing victims by the hundreds and, doubtless, committing assault and murder at the same time, without even a license to practice legitimate medicine. Let the medical profession wait until the laws governing the practice of medicine attain the dignity of those forbidding crap shooting in the eyes of the police, and quackery will hereafter reign supreme in the land.—*Texas State Jour. Med.*

XANTHOMA TUBEROSUM MULTIPLEX VULGARIS MISTAKEN FOR MYOMATOSIS CUTIS DISSEMINATA *

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According to Unna,¹ the myomatous tumors of the skin all arise from non-striated muscular tissue. Of the various classifications proposed, that of Victor Babes,² is probably the best and most scientific, although Besnier's³ division, in which the growths are separated into two general classes, simple myomas and dartoie myomas, has been widely adopted. Crocker,⁴ also, would recognize only two varieties, superficial and deep. Neumann's⁵ suggestion that the various types be grouped, pathologically, under true myomas and cavernous myomas has not met general acceptance.

Babes would distinguish:

I. Myomas springing from the vessel wall by proliferation of the muscular elements (angiomyoma cutis). These growths are usually circumscribed, solitary and deeply seated. In relation to the nerves they sometimes form irritable tumors (ganglion dolorosum myomatousum).

II. Hyperplasias of the arrectores pili:

1. As portions of vascular nevi (Virchow).
2. Forming multiple tumors.

III. Neoplasms derived from the deep muscular layers of the skin (*myoma dartique* of Besnier):

1. Diffuse, as forms of elephantiasis lymphangieetoides and pachydermis myxomatodes.
2. Circumscribed. These may be polypoid, telangiectatic or multiple, and in the latter case are painful.

The so-called dartoie tumors are seen more frequently by the surgeon than by the dermatologist, and properly belong to the domain of surgery. Although myomas developing from the pilary muscles and from the muscular coats of the corial blood-vessels are of very great interest, both clinically and pathologically, they are exceedingly rare, only thirty instances having been recorded since Verneuil⁶ first described the condition in 1858. This is excluding the two cases reported by Wolters,⁷ which were, as Crocker⁴ has stated, very probably examples of xanthoma tuberosum multiplex and xanthoma diabeticorum, respectively.

A condensed review of the case reports that have been published is of interest. In some instances the data are incomplete.

It would appear that the condition is more common, or has oftener been recognized, in London than in any other city, examples having been recorded by Crocker,⁴ Pringle,⁸ Morris and Dore,⁹ Little¹⁰ and McCleod.¹¹ Other English cases have been reported by Leslie Roberts,¹² of Liverpool, and Wallace Beatty,¹³ of Dublin.

On the Continent, France, Germany, Russia and Italy are represented, Verneuil,⁶ Besnier,³ Arnozan and Vaillard,¹⁴ Briggidi and Marcacci,¹⁵ Hess,¹⁶ Jadassohn,¹⁷ Nobl,¹⁸ Huedachinsky,¹⁹ Fritz,²⁰ Neumann,⁵ Brolemann,²¹ Jarisch,²² Marschalko,²³ Lukasiewicz,²⁴ Krzysztalowiez²⁵ and Sobotka²⁶ having contributed to our knowledge of the affection.

In America, Hardaway,²⁷ Herzog,²⁸ Charles J. White²⁹ and Heidingsfeld³⁰ have reported examples of the condition.

The average age of the patients was thirty-four and one-half years. The sexes were equally affected. In 55 per cent. of the cases the limbs were involved, in 40 per cent. the face, and in 30 per cent. the trunk. More than half of the patients suffered from paroxysmal attacks of pain in the affected region, while in 15 per cent. of the cases the tumors were painful only on pressure. Fifty per cent. of the growths were believed to have originated in the arrectores pili muscles, and 16 per cent. in the muscular coats of the blood-vessels. In only one instance, the patient being Jadassohn's, did any of the tumors disappear spontaneously. The superficial growths gave rise to little or no discomfort, as a rule, but the more deeply situated ones were painful (probably, in a measure, the result of pressure).

Clinically, the individual lesions varied in size from a pin-head to an English walnut. The superficial growths in some instances were grouped to form irregular patches, the number of tumors in each collection varying from two or three to 100 or more, and bearing considerable resemblance to fibromas. In cases presenting more than a single group of lesions, the arrangement was asymmetrical, and the distribution of the tumors appeared to bear no relation to Heitzmann's lines of cleavage, although, in some instances, as in Beatty's case, the eruption appeared to be confined to certain nerve areas. The more deeply situated tumors were usually single, and round or oval in shape. The overlying skin was unbroken and apparently normal. The color of the affected areas varied from chamois to dark red. The tumors were of firm consistence, and exhibited no tendency to break down or give rise to adenopathy. They developed slowly, were always benign and never became adherent to subcutaneous structures. The peculiar paroxysmal pains, which were present in a very considerable percentage of the cases, seldom developed before the growths had attained the size of a pea. Hardaway's case was an exception to this, however, pain preceding the appearance of the tumors.

Histologically, the tumors consist of smooth, spindle-shaped, nucleated muscle fibers, aggregated into narrow bundles and running in various directions in a more or less abundant connective tissue stroma.³¹ The fibers contain the characteristic rod-shaped nuclei with

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Unna: Histopathology of the Diseases of the Skin, Walker's translation, Macmillan & Co., New York, 1896, p. 858.

2. Babes: Ziemssen's Handbook of the Diseases of the Skin, William Wood & Co., New York, 1885, p. 609.

3. Besnier: Ann. de dermat. et de syph., 1880, p. 25.

4. Crocker: Brit. Jour. Dermat., 1897, p. 1.

5. Neumann: Arch. f. Dermat. u. Syph., xxxix, 3.

6. Verneuil: Bull. Soc. anat. de Paris, 1858.

7. Wolters: Arch. f. Dermat. u. Syph., xxv, 414.

8. Pringle: Brit. Jour. Dermat., x, 163.

9. Morris and Dore: Brit. Jour. Dermat., xiii, 8; Brit. Jour. Dermat., xiv, 56.

10. Little: Brit. Jour. Dermat., xvii, 265.

11. McCleod: Brit. Jour. Dermat., xx, 84.

12. Roberts: Brit. Jour. Dermat., xii, 115.

13. Beatty: Brit. Jour. Dermat., xix, 1.

14. Arnozan and Vaillard: Jour. de méd. de Bordeaux, 1881.

15. Briggidi and Marcacci: Ann. de dermat. et de syph., 1882.

16. Hess: Virchow's Arch. f. path. Anat., cxx, 321.

17. Jadassohn: Virchow's Arch. f. path. Anat., cxxi, 88.

18. Nobl: Arch. f. Dermat. u. Syph., 1906, p. 31.

19. Huedachinsky: Inaug. Dissert., Berlin, 1905.

20. Fritz: Arch. f. Dermat. u. Syph., xcix, 45.

21. Brolemann: Arch. f. Dermat. u. Syph., 1904, p. 163.

22. Jarisch: Dermat. Ztschr., 1895, p. 609.

23. Marschalko: Monatsh. f. prakt. Dermat., 1900, p. 313.

24. Lukasiewicz: Arch. f. Dermat. u. Syph., xxiv, 33.

25. Krzysztalowiez: Monatsh. f. prakt. Dermat., 1906, p. 303.

26. Sobotka: Arch. f. Dermat. u. Syph., lxxxix, 352.

27. Hardaway: Am. Jour. Med. Sc., 1886, p. 511—microscopical examination by Bremer. Supplementary report, Jour. Cutan. Dis., 1904, p. 375.

28. Herzog: Jour. Cutan. Dis., 1898, p. 527.

29. White: Jour. Cutan. Dis., 1899, p. 266.

30. Heidingsfeld: THE JOURNAL A. M. A., Feb. 16, 1907, p. 562.

31. Hektoen and Riesmann: American Text-Book of Pathology, W. B. Saunders Company, Philadelphia, 1902, p. 182.

rounded extremities, imbedded in a matrix of finely fibrillated protoplasm, with no distinct line of demarcation between the cells.³⁰

The striking manner in which this disease may resemble another and far different condition is beautifully illustrated in the following reports. When I first began studying these cases, it was in the belief that they represented the disorder just described, and it was not until very recently that I became convinced of my error. In extenuation, I will only say that the microscopic preparations were examined by a large number of men, the majority of whom were skilled pathologists, both here and abroad, and, in nearly every instance, an independent diagnosis of unstriped muscle tumor was made. That the problem was finally solved correctly is largely due to the efforts of Dr. Otto Leslie Castle, of Kansas City. Although Dr. Castle frankly acknowledged his inability to identify the specimens, he absolutely refused

Present Illness.—Five years prior to the time of consultation, a small, painful nodule appeared over the left clavicle. This lesion gradually increased in size, and other similar tumors appeared on various parts of the body and extremities. The growths occasionally gave rise to severe paroxysmal pain, particularly when the patient was exposed to cold, and were always tender and painful on pressure.

Examination.—The patient is a well-nourished young woman, 5 feet and 7 inches tall, and weighs 146 pounds. She is a brunette, and her skin is soft, clear and free from blemishes of any kind. The Wassermann and tuberculin tests are negative. None of the lymphatic glands are palpable. At various points on the tongue, body and limbs are slight, round or oval, pinkish elevations. On palpation, these nodules are found to mark the sites of small cutaneous tumors, varying in size from a small bean to an English walnut, and firmly imbedded in the skin. The epidermis is unbroken, and the affected skin is not bound to the subcutaneous structures. The tumors are irregularly distributed over the head, body and limbs, the tongue, the left clavicular region, the right forearm, the left popliteal space, the inner side of the right thigh, the lower abdomen and the middle finger of the right hand. On manipulation, the tumors, which are firm but somewhat elastic, are painful, the discomfort persisting for some time after pressure

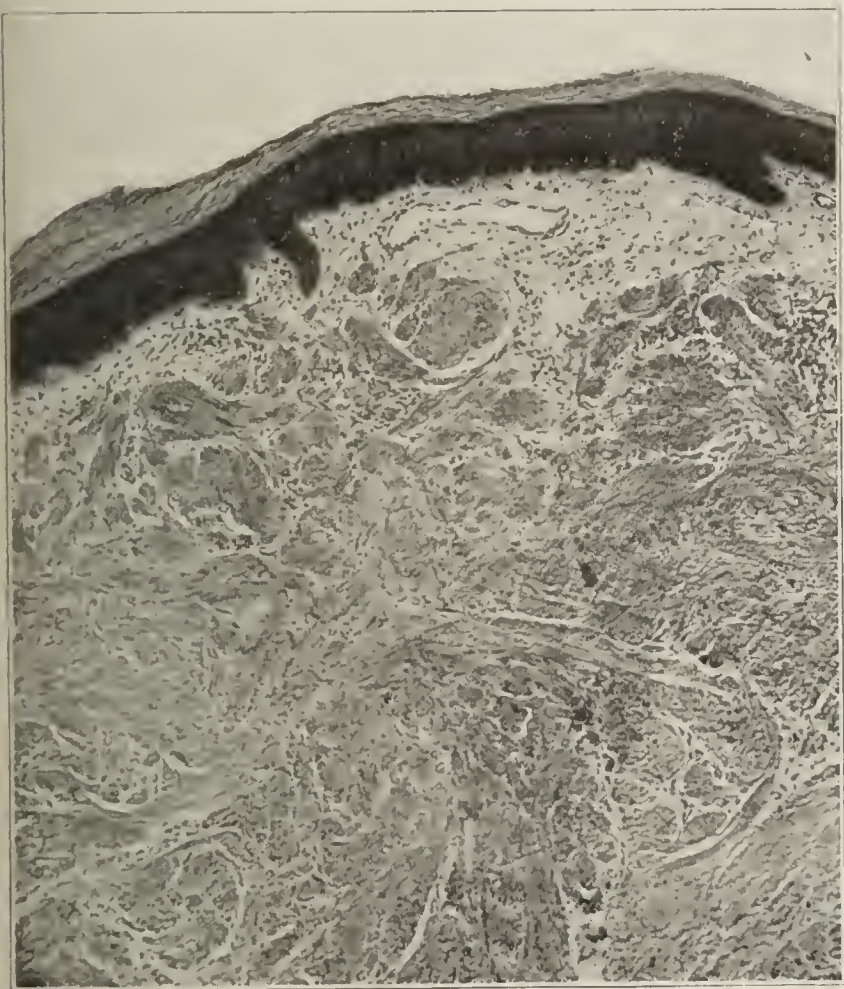


Fig. 1.—Myomatosis cutis disseminata (Dr. C. J. White's case. Hematoxylin-eosin, Spencer, $\frac{1}{4}$ objective, no ocular).



Fig. 2.—Xanthoma tuberosum multiplex vulgaris showing character of xanthoma cells (hematoxylin-eosin, Spencer, $\frac{1}{4}$ objective, no ocular).

to accept the diagnosis of muscle tumor. Finally, he forwarded some of the preparations to Dr. William H. Welch, of Baltimore. Dr. Welch at once recognized the condition as xanthoma tuberosum multiplex vulgaris.

For permission to present these cases, I am indebted to my friend, Dr. Leon Rosenwald, of Kansas City. Patient 1 first applied for treatment to Dr. Rosenwald, who believed the condition to be one of myomatosis and advised excision of the lesions. Later, after I had made the same diagnosis, from an examination of some unlabeled sections, the patients were kindly referred to me in order that I might study the cases.

CASE 1.—History.—The patient, G. S., is a married woman, housewife, aged 29. Two brothers are similarly affected; otherwise the cutaneous history of the family is negative. The patient's health has always been excellent. Aside from the diseases of childhood, she has experienced very little illness. She has never been jaundiced, and, so far as known, her urine has never been excessive in amount, or contained sugar.

is removed. The patient describes the pain as "shooting" in character, and states that it sometimes occurs apparently without cause, particularly in winter. The mucous membrane overlying the lingual growth is smoother than that on contiguous areas, and the presence of the tumor, which is oval, and about the size of a small soup bean, is at all times perceptible to the patient, although it gives rise to but little acute pain and is not an impediment to speech.

Pathology.—The growths on the trunk and limbs were excised, under ether anesthesia, by Dr. Rosenwald. Portions of the tissue removed from the shoulder, the forearm and the finger were fixed in formaldehyd solution, and a number of sections made, both the freezing and celloidin methods being employed. For staining purposes, methylene blue (Unna-Pappenheim), hematoxylin-eosin, van Gieson and Gram-Weigert, with Weigert for elastic tissue, were used.

The following description of the histologic appearance of the sections is abstracted largely from Dr. Welch's communication, and is appended because of its conciseness and lucidity. The epidermis is intact over the entire surface of the sections and, save a slight increase of wandering leukocytes and chromatophores, shows no abnormality. The papillae are much flattened, and in places obliterated. There are, however, a few irregular, narrow downgrowths of the interpapillary epithe-

lium, which, probably in consequence of the direction of the section, may appear detached from the epidermis.

The connective-tissue bundles of the corium are separated into irregular, coarser and finer trabeculae, between which lie the tumor cells in strands, columns and masses. In some fields these cells are so numerous that the fibrous bands are reduced to relatively scanty delicate strands, and in general, in the layers just beneath the epidermis the fibrous trabeculae are more delicate than in the deeper parts and run perpendicularly to the surface, provided the tumor cells reach the epidermis. While varying in size, these cells are on the average large and possessed of an abundant cytoplasm and round or oval, rather large nuclei with nuclear membrane and one or more nucleoli. The cells vary in shape, this being influenced by mutual pressure, but the tendency is to spherical, oval and sometimes much elongated shapes. While some of the cells are sharply delineated, often the cellular boundaries are indistinct so that they appear almost as protoplasmic masses with scattered multiple nuclei. Giant cells, of either the tuberculous or the foreign body type, are not recognized.

The texture of the cytoplasm is that characteristic of xanthoma cells, although this cannot always be made out distinctly. Where it is distinct, the cytoplasm is occupied by a network enclosing either small empty spaces or finer or coarser granules. More often the cell bodies present merely a coarsely granular appearance. Although it cannot be demonstrated conclusively on these sections, it is to be assumed that the cells contain fat in the form of small droplets or granules. Occasionally, cells are seen with larger droplets of fat, although the yellow pigment which is sometimes, although not necessarily, seen in xanthomas, is apparently absent. It is interesting to note that the xanthoma cells, where the tumor is best developed, actually reach the rete layer of the epidermis, or at the most are separated from it by only a minimal amount of connective tissue.

None of the sections included the subcutaneous fat, but the tumor cells extended to the lower limits of the sections, so that it is probable that the cutis is greatly thickened. There is no sharp demarcation of the tumor from the more nearly normal adjacent cutis into which strands and nests of cells can be traced for varying distances.

Although hair-follicles, sebaceous and sweat-glands are abundant in the cutis surrounding the tumor, they are very scanty in the area occupied by the growth itself. Their mode of disappearance cannot be distinctly traced in the sections, although in one place the coil of a sweat-gland can be seen undergoing atrophy. The sweat-glands seem to be better preserved in the tumor than the other glandular appendages of the skin, but even the former, although occasionally seen enveloped by tumor cells, are exceedingly scanty.

A careful study of the elastic tissue was not made, but in a few places degenerated and fragmental elastic fibers could be made out. This alteration, however, was not a conspicuous one, as it is in the so-called "pseudoxanthoma elasticum."

In one or two places xanthoma cells had lost their nuclei and disintegrated, leaving behind a fatty debris, but this was a very inconspicuous part of the pathologic picture.

CASE 2.—The patient, L. S., was a man aged 22. In this case the tumors, eighteen in number, were asymmetrically distributed over the trunk and forearms, particularly the right forearm and hand, and the left thigh. The lesions, which varied in size from a small pea to a large butter bean, extended only slightly above the surface, and were pinkish in color. They were painful at times, and appeared to be quite susceptible to temperature changes, particularly cold. None of the growths was ever removed, and no microscopic examination was made. The patient was recently killed in an accident.

CASE 3.—*History.*—M. S., male, married, physician, aged 36, is the father of three healthy children, aged 10, 7 and 3, respectively, all of whom are healthy and well. None has ever had a skin disease of any kind. The patient's health has always been good. He has never been jaundiced, and, so far as he knows, his urine has never contained sugar.

Present Illness.—The first tumor appeared on the right forearm, 5 cm. below the anterior fold of the elbow, twenty-one years prior to the time of consultation. Since then it has

slowly increased in size. A similar growth became apparent on the inner side of the right thigh, ten years later, and, four years ago, a third tumor developed on the index side of the middle finger of the right hand, just back of the first phalanx. The lesion on the forearm is frequently the seat of rather severe, paroxysmal pain.

Examination.—The patient is a slender but well-proportioned man, 5 feet and 11 inches tall, and weighs 158 pounds. The surface of the skin and mucous membranes is smooth and unbroken. There is no perceptible adenopathy. All of the tumors are oval in outline, very slightly elevated and slightly elastic on palpation. The one on the forearm is the largest, and is about the size of a peanut. The digital growth is much smaller, not larger than the half of a soup bean. The tumor on the thigh is intermediate in size.

Although the patient objected to a biopsy at the time of consultation, he acknowledged that it would be a question of only a few months until the tumor on the arm and the one on the hand would have to be removed, as the larger one was exceedingly painful at times, and the smaller one was so tender that it frequently materially interfered with the use of the hand.

CONCLUSIONS

The clinical resemblance of xanthoma tuberosum multiplex vulgaris to multiple leiomyomas of the skin as exemplified in the cases here described requires no comment. The occurrence of the former disease in two or more members of the same family has several times been noted.³² On the other hand, Morris and Dore⁹ have recorded an instance in which a father and daughter both were affected with cutaneous myomas, and, bearing in mind the probable congenital origin of growths of this character, it is surprising that other similar examples have not been encountered.

The color and distribution of the lesions and the history of these cases all would indicate muscle rather than xanthomatous tumors, while the occasional presence of the peculiar, shooting pains so characteristic of myomatosis cutis disseminata and so unusual in tuberosus xanthomas (I have failed to find a reference to similar subjective symptoms in any of the reported cases) is also very misleading. Even more deceiving is the almost total absence of fat in the sections. The size and contour of the cells, and the shape of the nuclei should have been sufficient to have barred a diagnosis of smooth muscle tumor, provided the observer had been familiar with the microscopic appearance of xanthoma multiplex. One dermatologist who examined the sections had previously reported a case of generalized xanthoma, but failed to recognize the condition, probably because the example studied by him was of the diabetic type. When the sections are compared with the drawings and microphotographs illustrating the more carefully worked out cases of xanthoma tuberosum multiplex vulgaris,³³ there is left no doubt regarding the correctness of Dr. Welch's diagnosis.

The much-discussed questions of the etiology of xanthoma and the composition of the xanthoma cell-subjects which have been given a fresh interest by the valuable and exhaustive studies of Stoerk and Tanzer, whose researches have been confirmed by Chvostek,³⁴ Aschoff³⁵ and others,³⁶ cannot be taken up here, because of lack of time, but must be reserved for a future contribution.

32. Thibierge: *Internat. Atlas of Rare Diseases of the Skin*, p. 41. Crocker: *Diseases of the Skin*, P. Blakiston's Son & Co., Philadelphia, 1908, Ed. 3, p. 742. McKenzie: *Tr. Path. Soc. London*, 1882, p. 370, and others.

33. Lehzen and Knauss: *Virchow's Arch. f. path. Anat.*, cxvi, 85. Carry: *Ann. de dermat. et de syph.*, 1880, p. 64. Chambard: *Arch. de physiol. norm. et path.*, 1879, p. 691.

34. Chvostek: *Ztschr. f. klin. Med.*, 1911, p. 479.

35. Aschoff: *Beitr. z. path. Anat. u. z. allg. Path.*, 1910, p. 22.

36. Pick and Pinkus, Pringsheim, Kammer, etc.

PRIMARY CARCINOMA OF THE LUNG*

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Lately, much work has been done and considerable has been written on the question of lung cancer, particularly that of primary pulmonary carcinoma. This condition is not so extremely rare as is generally supposed.

Fraenkel¹ has recently stated that of the tumors affecting the thoracic cavities primary tumors of the lung are the most frequent, whereas those of the pleura are the most infrequent; that of these tumors carcinoma occurs four times as often as sarcoma, and that he has opportunity to observe a number of such cases every year.

On the other hand, the condition is not one of common occurrence. Oerström,² in his recent excellent contribution to this subject, gives 0.31 as the percentage obtained by Karrenstein on reviewing 10,272 necropsies in the records of the Charité pathologic institute of Berlin between the years 1900 and 1907. The detailed reports of the clinical and post-mortem findings in seven cases of primary lung carcinoma from the records of the pathologic institute at Upsala which Oerström submits in his contribution are, indeed, of considerable interest and of great value.

Lapeyre,³ in a recent publication, states that Fuchs was able to collect reports of only eight cases in 12,307 necropsies at the pathologic institute of Munich between 1854-85, a percentage as low as 0.065, and that Reinhard and Kurt Wolf found only forty-five in 20,116 cases from the statistics of the hospital of Dresden between 1852-94, which is a little less than two per thousand. In his paper, Lapeyre reports a case in which was made a clinical diagnosis of primary carcinoma of the lung. This, however, was not confirmed at necropsy, so that many of us who realize how frequently we fail in our clinical diagnoses are bound to remain rather skeptical as to such a report.

Practically the same comment may be made on the last of the three cases reported by Musser.⁴ Here also there was no opportunity of confirming the clinical diagnosis either by histologic examination of one of the enlarged supraclavicular glands or by necropsy, so that although one might have felt sure about the presence of a tumor in the lung and the involvement of the supraclavicular and cervical glands, yet one could not have been absolutely certain either that this growth was a carcinoma or that it was primary in the lung. Only in the presence of such evidence as Musser has in his other two cases can there be no doubt as to the exact nature of the pathologic process. In cases in which there is doubt as to whether the carcinoma is or is not primary in the lung, the situation is correctly presented by Brenken⁵ and by Harris.⁶ The former states that his case is probably one of primary carcinoma of the left lung, and that is really all one could say about it. The latter admits, and is even inclined to believe, that in his case the primary cancer may have been in the adrenal and that the nodules in the lungs were metastatic. It is only fair to admit the possibility of such a sequence of events. Gérard,⁷ however, in reporting a case similar

in many ways, fails to suggest that possibility. He seems to be convinced that what he reports was really a case of primary carcinoma of the left lung with metastases to one of the adrenals.

As already stated reports of undoubted cases of cancer originating in the lung, although not abundant are by no means exceedingly scarce. Besides those already given there are several mentioned by Aufrecht⁸ in his contribution to Nothnagel's "System." Other isolated case-reports have appeared quite recently by Garbat,⁹ Thévenot and Rebattu,¹⁰ Renou, Géraudel and Marre,¹¹ and several others.

Very recently also Rieux and Savy¹² have published an excellent review on the subject of lung cancer, especially with reference to carcinoma of bronchial origin. They also contribute the complete report of a very instructive case in which clinically the diagnosis was made of probable neoplasm of the brain. At necropsy there was found primary carcinoma of the right lung with hemorrhagic pleurisy, and metastases to the brain and other organs. Curiously enough, the tumor was limited to the lower lobe of the right lung and was definitely circumscribed.

In Boecker's¹³ case also a wrong clinical diagnosis (apoplexy) was made. At necropsy he found a carcinoma of the right lung with metastases to the tracheal and cervical glands. This primary tumor also was well circumscribed and involved the greater part of the lower lobe.

Another valuable review of this subject, with a contribution as to the possible origin of these cancers, has been published very recently by Ravenna.¹⁴ He found a carcinoma involving the left lower lobe with metastases in the mediastinal glands and the peritoneum. As his illustration shows, the tumor in that case was undoubtedly derived from the bronchial epithelium. A case of flat-cell carcinoma arising from the trachea and involving the right upper lobe is reported by Packard.¹⁵ Fraenkel,¹ in reporting his three cases of endothelioma and a fourth case of "pleura-endothelioma" of the lung, also recalls the case of a patient, aged 40, who had a carcinomatous nodule in the right upper lobe of his lung. Aufrecht tells of a case of diffuse carcinoma of the right lung involving the lower and a part of the middle lobe. In one of Musser's cases the growth was found in the right lower lobe with a few scattered nodules in the other lobe. In Garbat's patient the lower and middle lobes of the right lung were found to be extensively and almost completely invaded by a massive carcinomatous growth, with some nodules in the upper lobe as well.

Indeed, as Hare¹⁶ points out, primary pulmonary carcinoma is "commonly unilateral," and it usually involves "most or all of a lobe or an entire lung," whereas secondary carcinoma is commonly bilateral and is "often widely disseminated." Moreover, primary carcinoma not infrequently seems to be fairly well circumscribed. Secondary foci in other structures frequently develop, particularly in the lymph-nodes, liver and brain. Rieux and Savy give some valuable data as to the frequency

* From the Department of Pathology and Bacteriology of the State University of Iowa.

1. Fraenkel: *Deutsch. med. Wchnschr.*, xxxvii, No. 12, 1911, p. 531.

2. Oerström: *Upsala Läkaref. Förl.*, 1908, new series, xiv, 507.

3. Lapeyre: *Jour. de méd. et de chir. prat.*, 1910, lxxxI, 449.

4. Musser: *Univ. Penn. Med. Bull.*, 1903, xvi, 289.

5. Brenken: *Am. Jour. Med. Sc.*, 1903, cxxvi, 1020.

6. Harris: *New Orleans Med. and Surg. Jour.*, 1910-11, lxiii, 769.

7. Gérard: *Echo méd. du nord*, 1909, xlii, 247.

8. Aufrecht: Chapter on Carcinoma of the Lungs, Nothnagel's *Encyclopedia of Practical Medicine*, Am. Ed., 1903, iv, 708.

9. Garbat: *Am. Jour. Med. Sc.*, 1909, cxxxvii, 857.

10. Thévenot and Rebattu: *Prov. méd.*, 1910, xxi, 272.

11. Renou, Géraudel and Marre: *Presse med.*, 1910, xviii, 401.

12. Rieux and Savy: *Arch. gén. de méd.*, 1909, xcix, 805.

13. Boecker: *Virchows Arch. f. path. Anat. u. Phys.*, 1910, ccli, 38.

14. Ravenna: *Arch. de méd. expér. et d'anat. path.*, 1909, xxi, 87.

15. Packard: *Med. News*, 1905, lxxxvi, 303.

16. Hare: Chapter on New Growths of the Lung, *Osler's Modern Medicine*, 1907, iii, 773.

of metastatic carcinoma of the brain secondary to primary carcinoma of the lung. It is also very surprising to find how much more frequently the condition seems to affect the right lung. In six of Oerström's² seven cases the primary cancer was on the right side. In the twenty odd cases which I have been able to review I have found right-sided cancer to be approximately about twice as frequent as left-sided primary pulmonary carcinoma. This discrepancy in the frequency of its occurrence on the one side or the other is very unusual, and, I may add, is as difficult to explain as the problem of malignancy itself.

The strange fact that primary lung carcinoma is more frequent (3 to 1) in men is said by Hare¹⁶ to be in harmony with Aufrecht's⁸ view that traumatism is a very important etiologic factor. In each of the latter's cases and in some of the others there was a clear history of previous injury. It must be said, however, that too much emphasis should not be placed on this relationship of traumatism as a possible cause of lung carcinoma. Although it is true that in some of the cases there does seem to be a definite history of injury at some former time, yet in very many—perhaps in most—of the cases no such history is to be obtained. In the cases in which it does occur the injury may possibly act as a predisposing factor, but in all other cases there seems to be absolutely nothing that could be regarded as a definite cause or predisposing factor, and just such a case was my own.

This case, which I have the privilege of reporting with the permission of Prof. Campbell P. Howard, presented certain very striking clinical manifestations and later remarkable pathologic findings.

History.—The patient, H. K., white, farmer, aged 50, was admitted on Oct. 15, 1911, into the Iowa State University Hospital in the service of Dr. Howard. His complaint was shortness of breath, weakness and cough. The family history and past history were unimportant. His trouble began about two years before admission with a severe cold which he said he caught at that time. Since then he has been coughing quite a good deal, but he has not had much expectoration, and there has never been any hemoptysis. About six months before admission he began to be troubled with shortness of breath on exertion. He noted also then, for the first time, that he was becoming considerably weaker. His cough, however, became no worse. In spite of more or less continuous treatment since the onset of his symptoms he seemed to be growing progressively worse. During the past two years he had lost 30 pounds in weight, he said. About two months before admission the patient was seen by a consultant, and a needle was introduced into the right axilla, but no fluid was obtained. Three or four days before admission he entered the State Tuberculosis Sanatorium, at Oakdale, and from there he was transferred to the University Hospital.

Examinations.—The patient was found to be strikingly emaciated. His pupils were equal, the right a little irregular; they responded promptly to artificial light, but practically not at all to accommodation; there was incomplete loss of vision. Over the lower thorax there were numerous marks of counter-irritation. There was practically complete absence of the respiratory movement on the right side. With the patient flat on his back the upper limit of dullness on the right side extended up to the fourth interspace both in front and in the axilla, and with the patient in the sitting posture it extended up to the level of the sixth dorsal spine. Over this area of dullness the vocal fremitus was absent and the vocal resonance and the breath sounds were feeble and rather faint. On the left side the respiratory movement was exaggerated, and at the apex an occasional fine crepitant r  le was heard. Otherwise the physical examination on admission revealed nothing worthy of note. The urine was negative. The blood showed 4,150,000 red cells, 21,200 white cells, and hemoglobin 47 per

cent. (Sahli). Repeated careful examinations of the sputum failed to reveal tubercle bacilli or anything of diagnostic importance. Pleural tapping was done on the day of admission. Considerable resistance was encountered in the attempt to introduce the needle. In all, about 500 c.c. of bloody fluid were obtained from the right pleural cavity. This fluid showed the presence of one definite acid-fast bacillus which was interpreted as being *B. tuberculosis*. Soon after admission the patient became rather delirious, wandering about the ward. He vomited quite frequently and refused to take nourishment. The second morning after admission, October 17, when seen on ward rounds, he was lying quietly in bed with his right eye partly open. Owing to his resistance careful examination of the eyes was impossible. They seemed, however, to be deviated toward the left side. His head was found to be somewhat dorsally flexed and there was rigidity of the muscles of the neck, so that on attempting to move the head, especially forward, there was resistance. His legs were held stiffly, and there was present a positive Kernig's sign on both sides. Both knee-jerks were exaggerated; the Achilles reflexes were active and equal. No definite rectus or ankle-clonus was obtained. Definite, well-marked positive Babinski, Gordon and Oppenheim signs were obtained on both sides. The signs in the lungs were unchanged except that now fine moist r  les were heard at both apices.

Treatment and Course.—Lumbar puncture was done that day. About 6 c.c. of perfectly clear, colorless fluid were withdrawn. This showed the presence of occasional lymphocytes but no polymorphs and no microorganisms. At 10:30 that night it was noted that the patient's left arm and leg were moved convulsively, and that on the right side there was no movement of the leg or arm and only very slight movement of the fingers. The patient did not answer readily, but after repeated, urgent interrogations he muttered the incoherent statements that he "loaded marmite all day" and "did the chores all night." The following morning, however, his mentality seemed to be somewhat clearer. He responded to questions and remarked that he "felt all right." It was again noted that he did not move his right arm or leg.

The following day (October 19) when seen on ward rounds the patient was still semiconscious. He was then found to have incontinence of urine. There was still present the retraction of the head and the marked rigidity of the muscles of the neck. There was marked spasticity of the right arm, and there were seen occasional clonic movements of the right ankle. The left arm seemed to be perfectly flaccid. The reflexes of the upper extremities were all active and equal on the two sides. Though not so well marked as heretofore there were still obtained positive Babinski, Gordon and Oppenheim signs on both sides. No change in the condition of the pleural effusion could be made out on examination of the chest.

That afternoon a second lumbar puncture was done. About 15 c.c. of perfectly clear, colorless fluid were withdrawn. Careful examination of this fluid again failed to reveal anything pathologic. There was no increase in the cellular elements and there were no bacteria present.

The following day it was again noted that the patient still did not move his right arm and leg. The general muscular rigidity was still present. The tendon reflexes were not so active. The Babinski sign was almost lost, and no definite Gordon or Oppenheim sign could be obtained on the right side. He soon became unconscious and from then on he failed rather rapidly. A bed-sore appeared over the sacrum. There appeared also a mucopurulent discharge from the eyes. His breathing became deep and loud, but was regular. His pulse, however, still remained good, and his temperature continued to vary but little from the normal, as it had done all along. Very soon, however, his pulse became more rapid and of small volume. Typical risus sardonicus and trismus appeared. The pulse continued to fail steadily, the respirations became labored and infrequent, and finally, on the morning of October 25, the patient died. A clinical diagnosis was made of tuberculous pleurisy with effusion and tuberculous meningitis.

Autopsy (abstract).—No. 116, University Hospital No. 2212, Oct. 25, 1911, noon. Anatomical diagnosis was primary

carcinoma of lung; secondary involvement of bronchial lymph-nodes; hemorrhagic pleurisy; hypostatic congestion; acute bronchitis; healed apical tuberculosis; focal encephalomalacia; anemic infarcts of kidney, and arteriosclerosis.

The body had been embalmed shortly after death. It was extremely emaciated and weighed about 120 pounds. Eyes were deeply sunken; pupils were equal and widely dilated. There was pronounced rigor mortis and well-marked livor mortis. A small superficial decubitus sore was present over the sacrum. The subcutaneous fat was almost entirely absent. The right pleural cavity contained a fairly large amount of hemorrhagic fluid. The other serous cavities were negative. The heart weighed 250 gm. On its surface there was hardly any fat to be seen. No organic cardiac lesions were found. The aorta was elastic, although it was studded throughout its course by small subintimal patches and streaks of thickening.

The left lung appeared voluminous. It weighed 700 gm., much of which was caused no doubt by the amount of preserving fluid which it contained. Its apex was tied down to the chest-wall by a few very firm fibrous adhesions, but everywhere else the pleural surface was free and smooth. At the apex a small, round, calcareous nodule was found imbedded in the lung tissue. A small area of hypostatic congestion was found in the posterior part of the lower lobe. Otherwise the lung was entirely negative. The weight of the right lung was 870 gm. Its upper lobe seemed rather small and somewhat shrunken, but felt light and air-containing throughout. The rest of the right lung appeared solid (Fig. 1), and felt very hard and firm. The pleura was considerably thickened, and only a narrow margin of the lung next to the pleural surface seemed to be air-containing. On cutting into the lung its hardness became even more evident. The cut surface had an opaque dull-grayish color, and was quite markedly mottled by irregular reddish areas of various sizes. A whitish, frothy, mucopurulent—almost caseous-looking—material could be squeezed out. The bronchi were congested and seemed to be filled with this mucopurulent secretion. The whole affected area seemed to be completely walled off from the upper lobe by the greatly thickened pleural membrane between the middle and upper lobes, forming, as it were, a definite and well-developed fibrous wall. The glands at the hilum were large, hard, and adherent. Both lungs showed considerable anthracotic pigmentation.

The spleen weighed 160 gm.; it contained a number of phleboliths, but was otherwise negative. The liver weighed 1,250 gm. Its surface was smooth and regular, and its capsule was not thickened. Nothing definitely abnormal was to be found anywhere in the liver. The gall-bladder and the biliary ducts were negative. The pancreas was normal throughout its whole length, and the ampulla of Vater was not occluded. The stomach was moderately distended, being partly filled with dark-green, odorless fluid in which there was practically no mucus and no solid matter. The gastric mucosa showed some congestion and post-mortem discoloration. Otherwise the stomach was perfectly negative. The intestines also showed some congestion and discoloration of the mucosa, particularly that of the large bowel, but nothing else worthy of note. The mesenteric glands were not especially enlarged.

The left kidney was apparently negative. Its weight was 160 gm. In the right kidney was found a small, wedge-shaped, pale-grayish area extending from the surface into the kidney cortex almost opposite the renal pelvis. This area was surrounded by a definite zone of congestion. Near this was another area, measuring about 3 by 1 cm., which extended from the surface to a depth of about 0.5 cm. into the cortex. This area also was of a pale, light-grayish color, but seemed to be firmer, and was not surrounded by an area of congestion. Otherwise the right kidney also was negative. The bladder was moderately distended, containing clear, yellowish urine, and seemed to be perfectly normal. The prostate, seminal vesicles, and testes showed nothing in any way definitely abnormal.

The organs of the neck likewise did not reveal anything significant. The brain was removed without difficulty. Its

weight was about 1,480 gm. There was no increase in the amount of intracranial fluid, and neither over the convexity nor at the base of the brain was there any exudate whatever. The internal surface of the dura was perfectly smooth and free, and the pia-arachnoid seemed to be everywhere delicate. On the left hemisphere around the fissure of Rolando and directly adjacent to the great longitudinal fissure there was noted an area of discoloration measuring about 5.5 by 1.5 cm. which felt distinctly softer than the rest of the brain surface. On section there was found directly beneath this discolored surface a rather rounded area of about the size of a ten-cent piece. This had a distinctly pinkish-yellow color, and was very much softer than the surrounding brain substance. It was studded particularly around the periphery with a number of discrete and confluent minute hemorrhages. This process of softening involved not only gray but white matter also to some extent. A second small area of softening measuring about 8 mm. in diameter was seen about 0.5 cm. below this large area, and a third small patch of softening in which were scattered a few pin-point hemorrhages was found about 1.5 cm. to the left of the first area of infarction. Everywhere else the brain was entirely negative. The cord and its meninges throughout the entire length seemed to be perfectly normal.

Microscopic Examination.—The true nature of the pathologic process in the right lung was not determined until its histologic structure was studied. Then it was seen that the solidification of the lungs was due to a diffuse invasion and infiltration of the middle and lower lobe by a massive epithe-

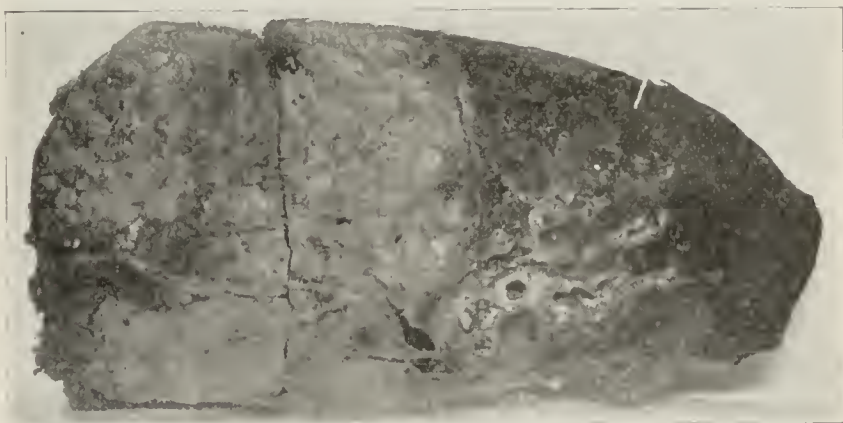


Fig. 1.—Photograph of longitudinal section through right lung, showing new growth involving lower and middle lobes and apparently walled off by the thickening of the pleura between the middle and upper lobes.

lial tumor. The cells composing this tumor mass were of the squamous type and histologically seemed to be practically identical with the squamous epithelial cells that normally line the pulmonary alveoli. Some of these cells had a rather coarse, faintly staining protoplasm with small, dense nuclei (Fig. 2), and others had a deeper staining protoplasm with large, vesicular nuclei (Fig 3). Very many of these epithelial cells showed some form of karyokinesis, many of them contained double nuclei, and some even three nuclei (Fig. 2). Most of the alveoli throughout both of the involved lobes were more or less completely filled by these carcinomatous cells. Where the new growth was dense the tumor cells were so abundant that there was hardly any trace left of the original pulmonary tissue, but even here the cells seemed to be arranged in a definite alveolar form. In the sections cut next to the pleural surface, there were still present a number of air-spaces some of which were apparently quite normal and no doubt functioning, but most of which were entirely or partly filled with a serous or hemorrhagic exudate. Many of the blood-vessels, both arteries and veins, and many of the lymph-vessels contained within their lumina small and large aggregations of epithelial cells, so much so that some of these vessels were almost completely occluded. Although its gross appearance (Fig. 1) would seem to indicate that the tumor was definitely walled off and limited entirely to the middle and lower lobes, sections through the thickened fibrous wall between the middle and upper lobes with some of the lung tissue on either side showed that there was a definite invasion by the carcinomatous cells

evidently by way of the blood- and lymph-channels into the apparently uninvolved lung-tissue of the upper lobe which was just above this fibrous wall. The lymph-nodes at the hilum showed the presence of a very large amount of foreign pigment, and almost complete replacement of the normal lymph-nodular structure by the squamous epithelial cells.

The histologic examination of the brain lesion was disappointing in that there was found nothing that would enable us to correlate with absolute certainty these lesions with the pathologic process in the lung. There was found some slight thickening of the overlying pia mater. Scattered irregularly throughout the brain tissue were many groups of free red blood-cells, evidently fresh small hemorrhages, and quite a number of leukocytes, both mononuclear and polynuclear cells. The brain substance immediately around the hemorrhagic areas was distinctly necrotic, and in it were found some phagocytic cells loaded with dark brownish pigment derived no doubt from the disintegrated erythrocytes. The blood-vessels were for the most part engorged, and there was quite a marked perivascular cellular infiltration here and there. No tumor-cells were found in the brain substance or in any of its vessels.

Here, then, was a case of carcinoma which was primary in the lung, and in which shortly before death there developed around the left Rolandic fissure several areas

The question of the origin of primary lung cancer is such an important one that it cannot be passed over without at least some discussion. It is taught at present that such cancers may arise (1) from the bronchial epithelium, or (2) from the alveolar epithelium, or (3) from the epithelium of the bronchial mucous glands. Fraenkel¹ maintains that they are derived mostly from the bronchial epithelium, and, indeed, this view seems to be mostly in favor. Until more is known about the cause and nature of new growths the morphology of the cells of which they are made up must serve as the criterion on which to base the diagnosis of the particular variety of neoplasm with which one is dealing. It is the opinion of Rieux and Savy,¹² that so long as this is the case a correct diagnosis will be practically impossible, because the constituent cells undergo decided transformation in their wild, unrestricted growth and from the effects of the associated inflammatory changes induced in the tissues invaded by these cells. In many cases it must no doubt be difficult to decide this question from the histologic examination alone. In some cases, however, the microscopic appearance of the tumor cells seems to be so strongly suggestive and so distinctly

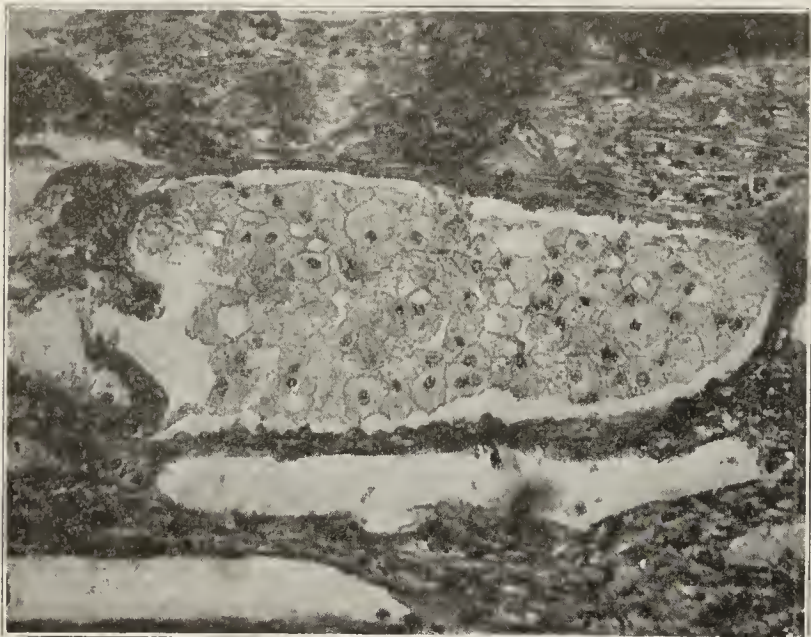


Fig. 2.—Alveolus filled with squamous epithelial cells having faintly staining protoplasm with small dark-staining nuclei. Mitotic figures are abundant. Magnification 187 diameters.

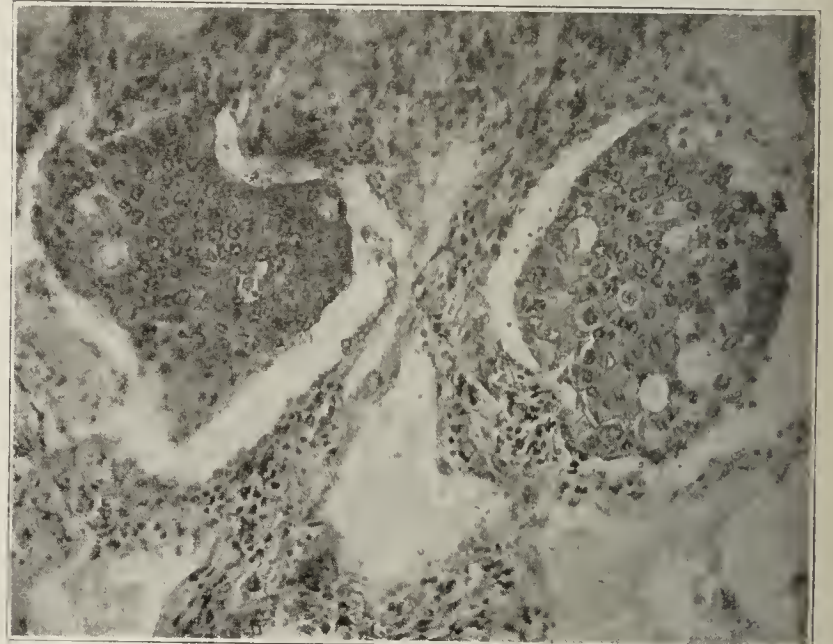


Fig. 3.—Section shows invasion of alveoli by squamous epithelial cells having deep-staining protoplasm with large vesicular nuclei. Serous exudate of other alveoli also shown.

of cerebral softening. The presence of these lesions explained the striking mental and nervous phenomena manifested by the patient. The cause of these lesions will have to remain rather obscure. It is generally accepted that thrombosis or embolism is the etiologic factor of such lesions. Thomas,¹⁷ in his recent discussion of this subject, confirms this general belief. In view of this and the fact that there were found so many groups of the carcinomatous cells within both the arteries and veins of the affected lobes, it is conceivable that some of these clumps of cells may have been transported from the pulmonary veins through the heart, the aorta, and the successive arteries until they finally reached some of the smaller vessels of the brain where they became lodged, and thereby caused the formation of these foci of softening. The same sequence of events could explain the formation of the small, fresh kidney infarct. In spite of careful search, however, no such emboli could be discovered anywhere, so that this explanation is by no means as convincing as it might be.

typical as to justify what may be regarded as a correct diagnosis. At any rate, in this case, the identity of the tumor was very easily established. The striking resemblance of many of the tumor-cells to the squamous epithelial cells that normally line the air-spaces seems to indicate in a clear and thoroughly convincing way that these latter cells have for some unknown reason assumed malignant characteristics and in the course of their wild, unrestrained growth have invaded most of the alveoli of the affected lobes. I believe, therefore, that I am justified in regarding this case of primary lung cancer as of alveolar origin. It is interesting, in this connection, to recall Grünwald's case of primary squamous carcinoma originating from the alveolar epithelium mentioned in Nothnagel's "System."

The occurrence in the pleural effusion, which is nearly always found in association with this condition, of large epithelial cells so distinctly characteristic as to be diagnostic of this condition was mentioned long ago by Quincke,¹⁸ and has since been emphasized by many others. The finding of such cells in the pleuritic fluid

17. Thomas: Chapter on Diseases of the Cerebral Blood-Vessels, Osler's Modern Medicine, 1910, vii, 327.

18. Quincke: Deutsch. Arch. f. klin. Med., 1882, xxx, 580.

in an obscure case in which the signs and symptoms point to involvement of the lung certainly ought to arouse suspicion, and if suspicion had already existed it should serve with a reasonable degree of certainty to clinch the diagnosis. In reviewing some of the cases on record one finds mentioned an occasional case in which the diagnosis was definitely established in just that way.

CONCLUSIONS

1. There is abundant evidence of the occurrence of primary carcinoma of the lung as a definite pathologic entity.

2. This tumor originates mostly in the epithelium of the bronchi, not infrequently in the alveolar epithelium, and sometimes in the epithelium of the bronchial mucous glands.

3. It is about three times more common in men than in women.

4. The right side is affected about twice as often as the left side.

5. It may involve part or all of a lobe or an entire lung; it is usually unilateral, and often fairly well circumscribed.

6. The bronchial lymph-nodes are practically always involved, but other parts, principally the brain, which seems to be especially susceptible, may become involved by secondary metastases.

7. Pleural effusion, mostly hemorrhagic in character, occurs quite constantly in association with this condition.

8. In suspected cases the presence in this pleuritic fluid of large epithelial cells may be regarded as of diagnostic importance.

For his kindness in allowing me the opportunity of recording this case, I am indebted to Prof. Campbell P. Howard; for many helpful and valuable suggestions I am deeply grateful to Prof. Henry Albert; and for his cooperation in getting the microphotographs I wish to thank Dr. Mark F. Boyd.

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ASEPTIC INTESTINAL ANASTOMOSIS

AN EXPERIMENTAL STUDY *

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No other surgical operation has been more thoroughly studied than has intestinal anastomosis. Parker and Kerr,¹ who reviewed the literature in 1908, found that more than 200 methods of performing it had been described! Its basic principles have been established for all time. Asepsis is only a refinement in technic, in many cases impossible to secure. Therefore, surgeons will be slow to adopt aseptic methods which differ widely from non-aseptic methods shown by long trial to be safe and practical. For these reasons I concluded that in this experimental study I could best direct my efforts toward improving the technic of well-known methods of lateral and of end-to-end anastomosis so as to make it aseptic, instead of trying to devise totally new operations in a field of surgery in which almost every possible operation has already been described.

To be more concrete, I selected a standard method of lateral and a standard method of end-to-end anastomosis and set to work to devise means whereby I could carry

out aseptically the various procedures necessary to their performance, securing as an end result the placing of practically the same sutures and the same coaptation of serous surfaces as in the original operations. I also studied experimentally the question of invagination of the bowel to determine in what cases it may be used instead of a resection.

Here, at the outset, I wish to discuss briefly two questions: The first of these is whether strict asepsis is necessary in the performance of an intestinal suture. Experimentally it has been shown that the dog can survive the injection of enormous numbers of pyogenic bacteria directly into its peritoneal cavity. When, however, foreign bodies are introduced with the bacteria the animal develops a fatal peritonitis. During the performance of an intestinal anastomosis by the usual methods there is always more or less soiling of the peritoneum with bowel contents, and yet recovery is the rule, if the suture holds. I once heard a well-known surgeon remark that the great danger in these cases is not so much from peritonitis as from infection of the abdominal wound. In a case of traumatic rupture of the bowel without external wound which came under my observation, the tear in the intestine was successfully repaired, but the patient died eight days after operation from a virulent infection of the abdominal wall. Autopsy showed that there was no peritonitis. Infection at the time of operation from bowel contents must therefore contribute to the mortality of abdominal sections, and therefore, especially in cases in which the peritoneum is not already infected, an aseptic method of bowel anastomosis is desirable.

The contents of the stomach and duodenum, except for a short time after the ingestion of food² are sterile or contain comparatively few organisms. For this reason the danger from sepsis in operations on these organs, except, perhaps, in cases of cancer, is not great. This is a fortunate circumstance, because the danger from hemorrhage in this region makes it wise to open the organs freely and control the bleeding by sutures or ligatures, and this procedure would render asepsis well nigh impossible.

The second question is whether an aseptic anastomosis by any suture method is possible. A suture to be secure must engage the submucous coat of the bowel, and in doing this it is liable to enter the mucosa. It is generally assumed that the suture is of necessity infected and that by its capillary action, if it be of silk or linen, it draws bacteria from the lumen of the bowel. F. Gregory Connell³ was the first to investigate the question of the capillary action of such sutures. He found that it is insufficient to draw bacteria or coloring material from the lumen of the bowel, and concluded that the danger from this source had been greatly exaggerated.

Experimenting along the same line, I sought to determine if it is possible to draw a fine silk suture through the intestinal wall so as to engage the submucosa with it and not cause it to be infected. I drew twelve such threads on fine cambrie needles through the wall of the ileum exactly as they would have been drawn in performing an intestinal suture, and then thrust small bits of each thread into sterile agar. In only one of the twelve tubes so treated was there any growth after forty-eight hours of incubation. In the course of five days, however, a slight growth appeared in eight of

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Parker and Kerr: Bull. Johns Hopkins Hosp., 1908, xix, 132.

2. Adami: Principles of Pathology, Ed. 2, i, 383; also Cushing, Welch's Festschrift.

3. Connell, F. Gregory: THE JOURNAL A. M. A., Aug. 11, 1906 p. 405.

the tubes. In a similar experiment I drew the threads, coated with petrolatum to prevent absorption of the organisms into the meshes of the silk, slowly through the lumen of the bowel from one side to the other. In four out of eight tubes so treated no growth appeared in forty-eight hours. From this experiment it seems probable that absolute asepsis in suturing the intestine is impossible, but that the contamination from the suture is so slight that the tissues are well able to cope with it.

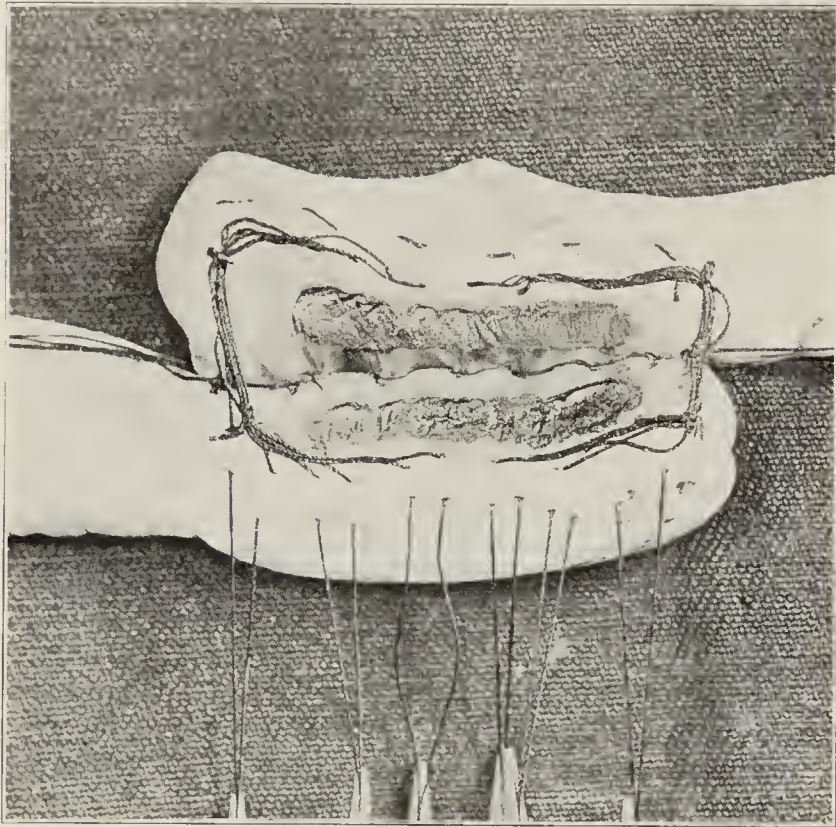


Fig. 1.—Two continuous posterior sutures have been taken, the temporary burning done and the anterior row of sutures placed and pulled aside.

As a further test of this, in twelve cases, in which an "aseptic" anastomosis had been done, I took cultures directly from the line of suture. Every one of these proved sterile. We may, therefore, conclude that asepsis in bowel anastomosis is possible from a practical, if not from a theoretical standpoint.

When, however, the intestine is distended and anemic, its fluid contents may actually appear at the stitch-holes, and it is well known that the fluid in a bowel so distended contains many more virulent organisms than does that in a normal bowel. But it will be generally agreed that under such circumstances no bowel suture is reliable.

ASEPTIC LATERAL ANASTOMOSIS

The suturing in the method I have employed for this operation is practically identical with that of an operation described by Dr. W. S. Halsted,⁴ which, in a modified form, I have seen successfully used many times by Dr. J. M. T. Finney. Similar methods of securing the openings in the bowel wall have been used by many experimenters.⁵ I shall describe the operation by giving directions for the performance of its various steps:

STEP 1.—Milk back the bowel contents from the site of the proposed anastomosis and block them away from the same by means of suitable clamps or tape ligatures. Crush and apply the ligatures to the bowel at the ends of the piece to be resected. Cut this away with the cautery and turn in each bowel end with a purse-string suture. Then unite the two

ends at their mesenteric borders for about 3 inches with a continuous silk or linen suture.

STEP 2.—Along lines situated half way between the free and the mesenteric borders of the intestines mark out with the cautery the proposed openings into the bowel. The burning should be very superficial. Next, place a second continuous posterior suture half way between the one already placed and the cautery marks. Leave the ends of these sutures long, and have an assistant hold up the anastomosis by means of these during the entire remainder of the operation. This will facilitate greatly the subsequent steps.

STEP 3.—Place a line of mattress sutures across the cautery marks (Fig. 1) being careful not to get the lines of puncture of the bowel too near to them. Pull the sutures aside so as completely to expose the cautery marks and complete the burning. The preliminary burning has covered an area sufficiently wide to obviate the danger of injuring the sutures at this time. It is unnecessary to burn entirely through the bowel wall. It is best to expose and thoroughly cook the mucosa. When the anterior row of sutures has been tied it is very easy by placing the thumb on one side of the anastomosis and the fingers on the other to tear through the thin friable tissues and free the opening completely. The operation is finished by tying the anterior row of sutures and reinforcing them with a continuous Cushing stitch. The latter is a continuation of the first posterior stitch, the end of which has been left long for the purpose.

This operation has many points of advantage. The cautery, by stopping hemorrhage, does away with the necessity for much sponging and handling of the bowel

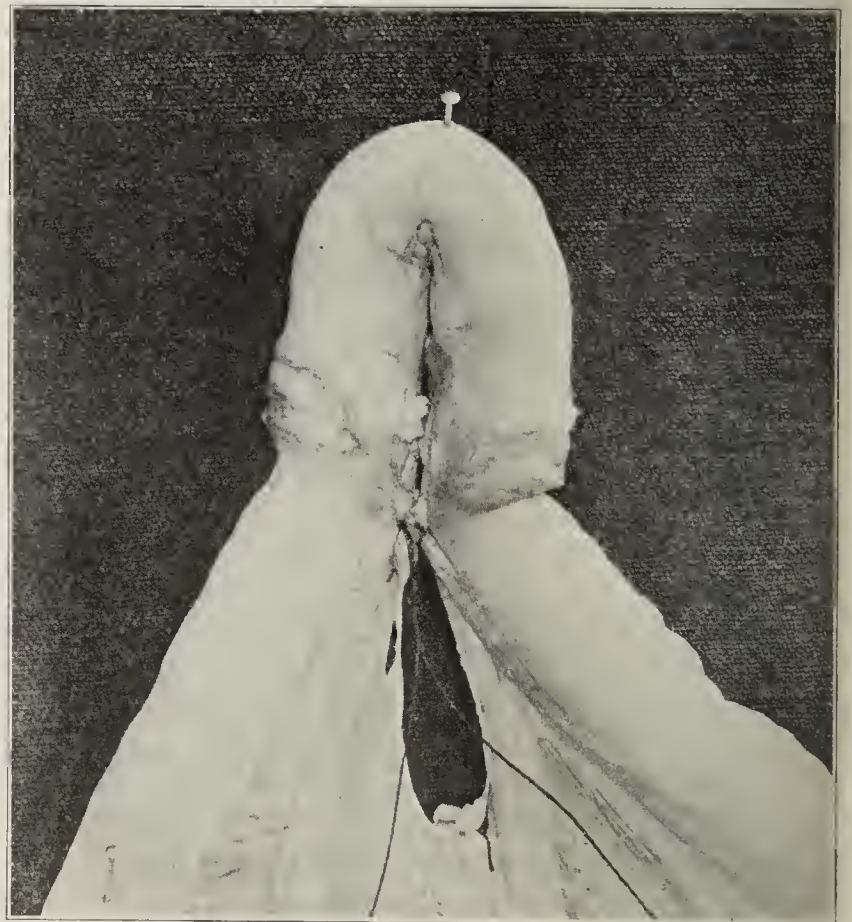


Fig. 2.—Preparation of a piece of bowel for invagination. It has been crushed at its two extremities and its mesentery has been trimmed away. The two ends of living bowel have been united close to the crushed areas by an "interrupted Cushing" suture.

and makes easy the suturing. That the method is aseptic I have proved by taking cultures from the suture line in six cases. All proved sterile. That it is safe I have no doubt, for its suturing is practically identical with that of the eminently safe method on which it is founded. I have myself performed it on fourteen dogs with but one death, and that from no defect in the suture, but from intestinal obstruction from adhesions at the site

4. Halsted, W. S.: Bull. Johns Hopkins Hosp., 1891, ii, 1.

5. Sato: Arch. f. klin. Chir., 1904, lxxiii, p. 84.

of an operation done some days previously. That the technic is not too elaborate to be practical is shown by the following test: Five students, none of whom had ever done an intestinal anastomosis, but who had been taught to do bowel suturing, were asked to perform the operation. Four of the dogs operated on by these students recovered. The one death was due to failure to turn in a bowel end properly.

The lack of a suture uniting the mucous edges of the ends in the bowel causes no trouble. The serous coats

knows of a number of cases besides his own. No one so far as I can discover has ever worked out experimentally the technic of the operation.

In a series of eight dogs I produced descending invaginations of various lengths of intestine and of various parts of the bowel. The technic was as follows:

The blood-supply of the bowel to be invaginated was cut off completely by means of properly applied ligatures. The bowel was crushed on each side of the devitalized loop at places where the circulation was good, and the mesentery was trimmed away between these points. The two ends of living intestine, separated by the devitalized loop, were then sutured together at their mesenteric borders. This suture makes it easy to invaginate exactly the proper length of bowel. The devitalized bowel was next invaginated till the crushed areas were just hidden from view and held in this position by means of a continuous Cushing suture passed just within the limits of living tissue. Then a second similar suture was taken which turned in about $\frac{1}{8}$ inch more of bowel. All the dogs were given morphin enough to prevent their suffering pain at any time.

Only one dog died of the operation, and in this animal 3 feet of bowel had been treated. One dog survived the invagination of $2\frac{1}{2}$ feet of intestine. The digestion of the intussusceptum was apparently complete in every case, as none of the dogs passed pieces of bowel by rectum. The findings, when the animals were killed, were very interesting. In the first dog operated on I did not crush the bowel very thoroughly. As a result of this more or less of the intussusceptum would live, and at autopsy a thick valve-like neck of tissue which was causing considerable obstruction of the bowel would be found. In one dog I discovered a mass in the bowel as large as a hen's egg. This proved to be the entire intussusceptum together with 1 to 2 cm. of untreated

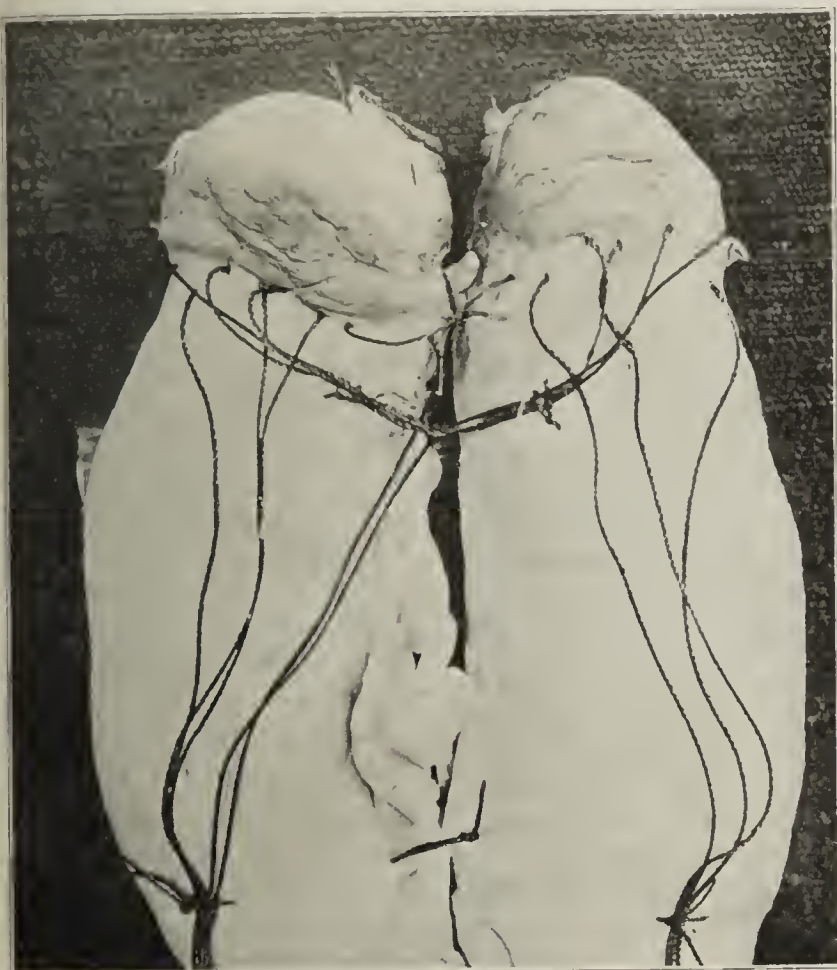


Fig. 3.—Technic for end-to-end anastomosis. A piece of bowel has been resected between ligatures with the cautery. Half an inch behind each ligature the line of suturing has been marked by crushing the bowel. The "interrupted Cushing" sutures have been placed and pulled aside; that at the mesenteric border has been tied.

adhere and the epithelium quickly bridges over the burned surfaces. The two continuous posterior sutures and the cautery effectually control all hemorrhage from cuts in the bowel. If a similar operation, however, were done on the stomach, the larger vessels of this organ might bleed. The bleeding, however, can even here be prevented by securing each vessel of any considerable size before the suturing is done by passing a ligature on a curved needle around it.

INVAGINATION AS A SUBSTITUTE FOR RESECTION

It is well known that Nature in cases of intussusception sometimes resects a piece of bowel and performs an end-to-end anastomosis at the neck of the intussusception. Cases are on record in which 2 to 3 feet of intestine have been removed in this way. Summers⁶ reported three cases in which he invaginated short pieces of bowel instead of resecting them with recovery of all three patients. He found that Guinard, in 1895, reported to the French Congress of Surgery a case in which he had used the same procedure to remove $3\frac{1}{2}$ inches of intestine. Dr. Summers, in a personal communication, informs me that he has used the operation on several other patients since the date of his paper, and that he

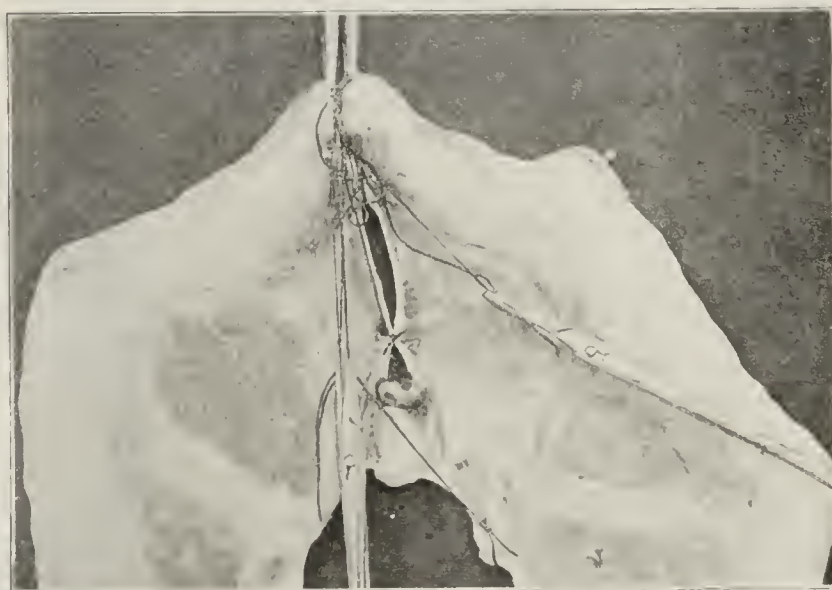


Fig. 4. Final step of end-to-end anastomosis. The ends have each been compressed to a small pedicle at the crush marks close to the sutures, the pedicles grasped with mosquito clamps, and the bowel ends burned away. The sutures are being tied.

bowel in addition. The mass was traversed by a passage about 1 cm. in diameter. The bowel above the obstruction was greatly distended. The dog had lived for three weeks in apparently perfect health. In the cases in which the crushing had been properly done the result was perfect, the line of suture being hardly visible on either the mucous or serous side and free from adhesions to neighboring loops of intestines or to omentum.

Summers did not crush the bowel in the manner just described or trim away the mesentery, though he speaks

G. Summers, J. E.: THE JOURNAL A. M. A., Aug. 8, 1908, p. 472.

of the advisability of so doing. I would strongly advise anyone trying the procedure to attend carefully to this part of the technic.

In a series of six dogs in which ascending invagination by the same technic of from 2 to 5 inches of bowel were produced, three dogs died of intestinal obstruction. In the three which recovered only very short invaginations had been produced.

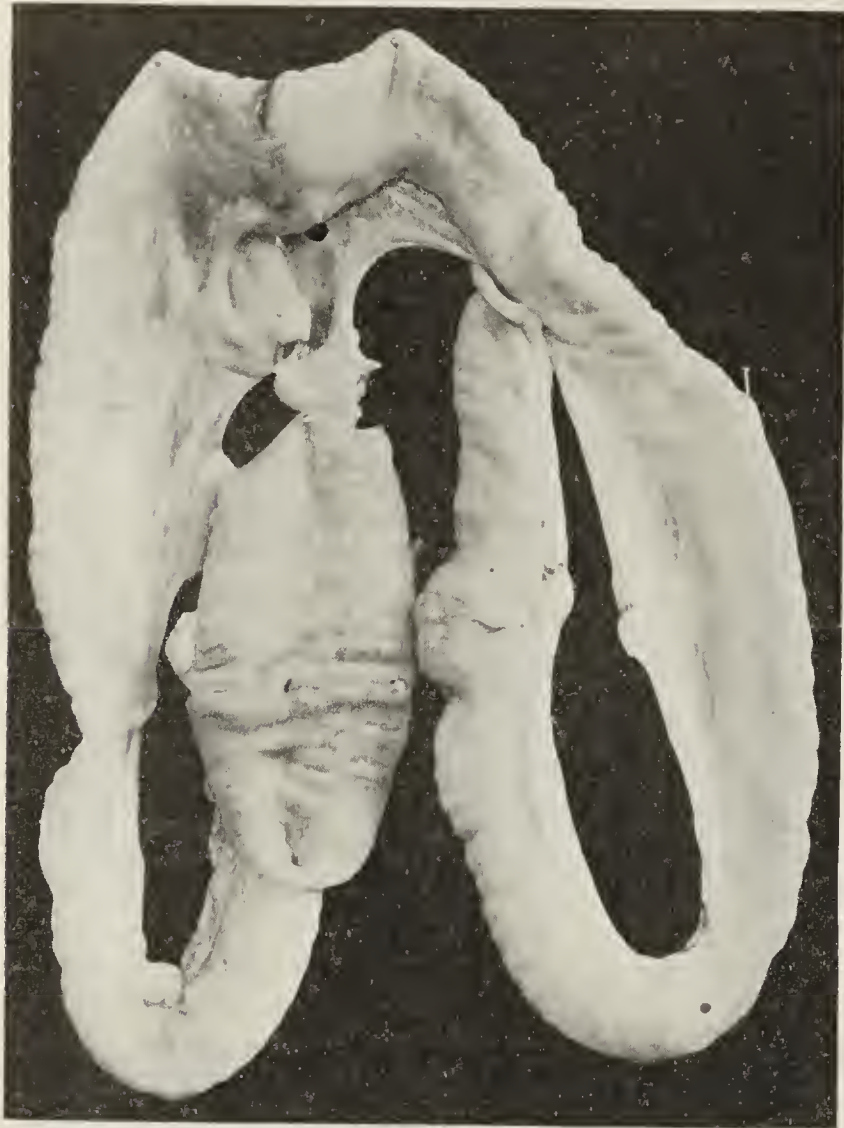


Fig. 5.—Three aseptic end-to-end anastomoses in 21 inches of bowel. One anastomosis has been laid open.

I next tried to apply the invagination method to the total resection of the devitalized loop. The technic was the same up to the time of invagination; then the loop was clamped at points about 1 inch from the crushed areas, the ends invaginated in opposite directions and the two collars so formed sutured together. Three of the six dogs so treated died promptly of obstruction. This result was somewhat surprising to me as I had expected a prompt digestion of the obstructing tissue. At autopsy the invaginated ends were found crumpled together at the line of suture. An ascending invagination blocks the intestinal contents in the way a valve in a vein blocks the backward flow of blood.

SUMMARY

My conclusions in regard to the method of invagination may be summarized as follows:

1. In the dog, pieces of bowel as long as 2½ feet may be successfully removed if treated in the manner described and invaginated downward.

2. Ascending invaginations of all but very short pieces of bowel are liable to cause a fatal obstruction.

3. When the devitalized loop is divided, the ends invaginated in opposite directions and the two collars so formed sutured together, obstruction is liable to occur.

4. The method may have a distinct, though limited, field of use in human surgery in the removal of small areas of gangrene of the bowel, strictures or gun-shot wounds of the same, etc. I would also suggest that it might prove of use in disposing of a short loop of bowel containing several typhoid ulcers on the point of perforation, and that the principles of the method may prove of value in treating irreducible intussusceptions.

ASEPTIC END-TO-END ANASTOMOSIS

The standard method which I have sought to imitate is that of Connell. This, I think, is by all odds the best, both as regards its low operative mortality and its good functional results. The great advantage of the Connell suture lies in the firmness with which it grasps the bowel wall and the accuracy with which it controls the size of the flange to be inverted.

All investigators who have proposed aseptic methods for end-to-end anastomosis have sought in one way or another to close off the bowel ends during the suturing. Parker and Kerr¹ apply a narrow crushing clamp to each end, place a Cushing suture over each clamp and withdraw the latter. Moschkowicz⁷ and Rostouzew⁸ suture directly over clamps. Walker⁹ closes off the ends with temporary ligatures tied with slip knots which are loosened at the close of the suturing, and Halsted¹⁰ uses a collapsible cone of paper over which the bowel ends are invaginated. I have tried all these methods and am indebted to each of them for ideas. They all, when ideally performed, secure as high a degree of asepsis as is possible. One criticism, however, applies to them. This is that the devices used to close off the bowel-ends are liable to cause the inversion of too wide a flange of tissue and thus produce more or less intestinal obstruction. The method I propose obviates this danger, makes easy the suturing and secures with certainty the



Fig. 6.—The mucous side of an aseptic end-to-end anastomosis three weeks after operation. Note the complete absence of a flange.

closure of the bowel ends until all the sutures are tied. The technic is as follows:

STEP 1.—*Preparation of the bowel-ends.*—The intestine is crushed and ligated at the points selected for resection, and

7. Moschkowicz: *Wien. klin. Wchnschr.*, 1909, xxii, 818.

8. Rostouzew: *Arch. f. klin. Chir.*, lxxxii, 462.

9. Walker, F. B.: *THE JOURNAL A. M. A.*, Aug. 15, 1908, p. 546.

10. Halsted, W. S.: *Jour. Exper. Med.*, 1912, xv, No. 3,

the bowel to be resected is cut away with the cautery. Each end is then crushed at an angle of about 70 degrees with the mesenteric border at a point $\frac{1}{2}$ -inch from the ligature. The vessels in the mesentery are here tied and the mesentery trimmed away from here to the end.

STEP 2.—Placing the sutures.—The marks of the crushing furnish a guide to the placing of the sutures, which engage the intestinal walls in healthy tissue in a line with the marks and close to them. The suture used may be called an interrupted Cushing stitch. It is placed as follows: The needle pierces the submucosa of one bowel-end, passes parallel to the mark and emerges $\frac{1}{8}$ -inch from the point of entry; it then pierces the tissues of the other bowel-end in the same manner but in the reverse direction. Such a suture, when tied, has exactly the same grip on the intestinal wall and secures precisely the same coaptation of serous surfaces as a Connell stitch.

The first suture to be placed is that at the mesenteric border. This is tied at once, but its ends are not cut; it secures excellent approximation at this point. The next suture inserted is that opposite the mesenteric border. This is not tied. Traction made on the ends of these two sutures puts the intestinal walls on the stretch and makes easy the placing of the other sutures. The ends of each suture are clamped together as soon as it is in position, to prevent entanglement of the threads. Five or six of these sutures to the inch secure a water-tight line of union. About eight sutures are required for an anastomosis of the intestine of a medium-sized dog.

STEP 3.—Opening the bowel-ends.—The sutures are next pulled aside as shown in Figure 3 so as completely to expose the bowel-ends and marks of the crushing. Ligatures are then wrapped about each end where it has been crushed and close to the sutures. These are not tied, their purpose being to reduce the tissues to a narrow pedicle which is grasped by a mosquito clamp. This having been done each bowel-end is burned off close to the clamp with the cautery. The sutures are then tied, that opposite the mesenteric border being tied last, the clamps being removed at the same time. The tissues are so thoroughly sealed together by the pressure of the clamps and the burning that there is no danger of contamination at this step. If desired the first line of sutures can be reinforced by a continuous Cushing stitch.

This technic may seem complicated, but it is really very easy to carry out. In fact, the placing of the sutures is so easily done that the operation is actually more easy to perform than a Connell anastomosis, and the final result is practically the same. The time required is about ten minutes.

I have subjected the operation to as severe an experimental test as is possible. In two dogs, three intestinal anastomoses by this method were performed at one operation, the space between the points of resection in one case being only 5 inches, and in the other 7 inches. Both dogs recovered, the functional and anatomic results being perfect. On a third dog, five anastomoses were done at a single operation, the interval between the points of resection being in this case about 6 inches. This dog, however, died in two days of intestinal obstruction. Autopsy showed that every suture had held and that the obstruction was not due to any mechanical closure of the bowel at the points of resection. In a series of ten animals, most of them small, and therefore, difficult subjects for an end-to-end anastomosis, on which eighteen resections were done, this was the only death. These multiple resections of the bowel would certainly, I think, have brought out any defect in the method.

CONCLUSIONS

1. Aseptic intestinal anastomosis by any suture method is theoretically impossible, but the amount of contamination can be so reduced that cultures taken at the line of suture are sterile.

2. Descending invagination, if a proper technic be employed, may be used to remove pieces of bowel several inches in length with excellent, immediate and late results.

3. It is possible to perform lateral and end-to-end anastomoses of the intestine aseptically and without the use of special instruments so as to secure practically the same operative results as are obtained by standard non-aseptic methods for these operations, and with no increase in the difficulty of the technic.

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ABSTRACT OF DISCUSSION

DR. F. GREGORY CONNELL, Oshkosh, Wis.: Recent modifications of intestinal surgery have been concerned chiefly with attempts to secure intestinal suture in an aseptic manner. Asepsis is, of course, a relative term. We will admit the possibility of both a secure and an absolutely aseptic stitch, but clinically it is impracticable. The reason that perfect asepsis cannot be obtained lies not with the cut ends of lateral openings, as these may be sealed perfectly with the cautery, but with the sutures that hold the viscera together. In order that these stitches may fulfil their essential requirement, that is security, they must include and necessarily perforate the submucous layer. Because of the relative size of the needle and the submucosa, any stitch which includes part of the submucosa must perforate into the lumen. If it does not include the submucosa, the stitch is unreliable, because insecure. The stitches which penetrate the submucosa are the weak point, from an aseptic standpoint, but are the strong part of the operation, from the standpoint of security. The intestinal suture which does not include the submucosa cannot be relied on as a safe means for maintaining approximation. I would suggest that Dr. Gatch repeat his interesting experiments with pathologic conditions of the intestine instead of under normal conditions, and at different levels of the gastro-intestinal canal, from the stomach to the rectum. I think he will find that his results will vary with the varying virulence of the gastro-intestinal canal. The possibility of such comparatively aseptic methods has been demonstrated under various conditions. The large diaphragm has been the chief objection to such methods in an end-to-end anastomosis. In the method presented to-day the diaphragm is smaller than in previous ones, but still it is larger than in the usual method, in which the open ends are sutured, especially in cases in which a retaining layer of sero-serous stitches is added the diaphragm will be still more extensive. The remaining question concerns the advisability or necessity of going to this additional trouble in order to secure a comparative asepsis. To prevent peritonitis? As a rule, I should say no. To prevent infection of the abdominal wall? Possibly. I can agree with Dr. Gatch regarding the danger of infection of the abdominal wall, especially the fatty tissue, in cases in which the gastro-intestinal canal has been opened. I have endeavored to prevent this by excluding from the operative field, by means of clamps and gauze, not only the skin, but also the connective tissue of the abdominal wall by attaching the protecting gauze with clamps to the cut edge of the parietal peritoneum instead of to the skin. I would emphasize most forcibly the unreliability of all intestinal suturing in an anemic or a congested or an abnormal bowel. In such cases additional bowel must be resected, or if this is not practicable, then only a palliative procedure should be carried out.

DR. FRANK D. GRAY, Jersey City, N. J.: Ever since I read of the penetrating suture for circular enterorrhaphy I have felt that it was the ideal thing, that the single row of through-and-through sutures gave the most secure union, and that it is the most rapid method of intestinal anastomosis. I have, however, felt that the original method advocated by Connell, although eminently successful in his hands, was difficult to carry out. There is just one method by which the single penetrating row of sutures can be applied rapidly

and accurately, and that is by the old Maunsell method of technic which, so far as I know, has fallen into disuse. I am rather puzzled to know why it has fallen into disuse; possibly because surgeons have feared the traumatism—the linear incision in one bowel end—or perhaps because the original Maunsell method, as described twenty years ago and still described in text-books, requires interrupted sutures. If you invaginate the open bowel ends through a linear slit, you have them in most accurate apposition, all the corresponding parts fitting accurately, and then, if you will apply a continuous interlocked suture, beginning at the mesenteric border, enclosing all the leaves of the mesentery with the suture, leaving the tail of the suture long and rapidly following around the circle, you will find that it is a very rapid method of approximation. The sutures lock all coats, secure hemostasis, and the result is a perfect joint. It requires some courage to do the first Maunsell operation. I never did it until the past few months, and I now believe that it will require much more courage to abandon the Maunsell for any other method of anastomosis. There is one point to which I would like to call especial attention, for which the Maunsell method possesses certain advantages when making an end-to-end anastomosis; for instance, when uniting bowel ends of different caliber. I recently had a case of carcinoma of the lower sigmoid. The proximal bowel was hypertrophied and considerably distended. The distal bowel was of normal caliber. It is rather difficult to make these ends fit in an end-to-end anastomosis. I discovered, however, that by taking a somewhat wider bite on the larger of the two bowel ends, in other words, making the rim of the wheel fit the hub, I was able to suture the bowel together firmly and accurately, getting a perfect fit. I know of no other method which does this. I would advocate a revival of the old Maunsell method.

DR. O. C. SMITH, Hartford, Conn.: As to the value of comparative methods of intestinal anastomosis, one feature has been omitted in the discussion, and that is the nature of the condition calling for operation. In an acute intestinal obstruction, from intussusception, volvulus, strangulated hernia, etc., end-to-end anastomosis is usually a failure, while in an elective operation done in clean, sound tissues, the end-to-end anastomosis is usually successful. I have performed it a number of times with satisfactory results in resection of the cecum. It is more quickly performed—certainly the more anatomic operation—and where ample caliber can be secured is preferable to lateral anastomosis.

DR. WILLARD BARTLETT, St. Louis: The question of secondary shrinkage of the opening in lateral anastomosis is one of very considerable importance and one to which allusion has not been made. Ten years ago I did a number of lateral anastomosis experiments on dogs and found a vast difference in the probability of shrinkage; this depending on whether one or two rows of sutures were used. In a lateral anastomosis made according to the Halsted method, in which only one external row of sutures was used, the openings shrunk very markedly; on the other hand, if a second internal row was made, which included the mucous and submucosa, it tended greatly to prevent secondary shrinkage. The periods of postoperative observation on these varied up to ninety days. I would urge this experiment as a suggestion to Dr. Gatch who, I believe, did not use an internal row of sutures. The applicability of dog experiments to the human being depends, not on the operative results, but on the skill in technic, which is to be gained in this way. This latter is the strongest argument we can use for making them. The technic on the dog can be applied directly to the human being, because a successful anastomosis on the dog is so much harder to do. If you can do it on the dog, you will find it extremely easy to do on a human being. It is the best training in the world for a man who is going to do surgery. If you can teach students to do this work right on the dog, they will be able to do it right on the human being. The thing that has been the best possible training for me, better than dog intestinal surgery, has been vascular surgery. That is a hard thing to do on the human being,

but if you learn to do it on the dog you can do it on the human being.

DR. FRED T. MURPHY, St. Louis: I think we are getting confused on this question of intestinal suture. There are two things necessary for a satisfactory intestinal suture; the first is security and the second is simplicity. In speaking of the Connell stitch, the mesenteric stitch has not been emphasized as it deserved. That, to my mind, is an essential feature. We must bear in mind that whatever method we use it must be a good one, and that we must have sufficient practice to be able to carry it out properly. One of the speakers said it took great courage to use the Maunsell method for the first time. I would modify that statement by saying that after having used the Maunsell method once, it took a great deal of courage to continue with it.

DR. W. D. HAGGARD, Nashville, Tenn.: It seems to me that the experiments conducted by Dr. Gatch quite justify animal experimentation. At the same time, I feel that it might be wise for us to utilize a rather harmless way of teaching how to do intestinal anastomosis, and that is by using the viscera of the dead animal. The pig is the best animal on which to practice and learn, and particularly to teach. One can keep the intestines in cold storage and use them at leisure. I think it is a reproach to surgeons who in the past have attempted to do work which would in no way compare with the technic of the younger men. When we consider that we are dealing with life, it is extremely essential that we learn the lesson well. Therefore, I have impressed on my students the ease and simplicity with which pig viscera can be employed for almost any purpose in the domain of surgery. I particularly wanted to throw out that practical suggestion so as to ease down, if possible, some of the objections raised to vivisection.

DR. W. D. GATCH, Indianapolis: I drew the sutures which were tested for the presence of bacteria through the ileum. This part was selected because organisms are more numerous here than in any other part of the intestine. These methods of aseptic anastomosis actually shorten the time of operation because the precautions taken to prevent soiling need not be nearly so elaborate as those taken when the non-aseptic methods are used. The dogs were given enough morphin after operation to prevent their suffering pain at any time. They were given water at once, and liquid food in twenty-four hours. They showed remarkably few ill effects from the operations.

OPERATIVE TREATMENT IN JOINT-FRACTURES *

F. J. COTTON, A.M., M.D.
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Consideration of the operative treatment of joint-fractures in perspective must concern itself first with the contrast between joint-fractures and those fractures of shafts of long bones in which operation and bone-plating are to-day so enthusiastically and widely, if not always wisely, practiced. This contrast seems to me rather a sharp one and depends on broad principles, or rather generalizations, which it may be well to state now.

PRINCIPLES OF OPERATION

In shaft-fractures, fixation is a factor of first importance; in fractures within, into and about the joints, the difficulty in maintaining a reduction once gained, with or without operation, is usually slight. If we operate we often need only to reduce; we do not need the massive hardware so often applied to shaft-fractures and left in (unless and until it comes out). A suture of chromic gut or wire, or rarely a pin of steel or a staple is enough; often we do not need even these, maintenance

* Read in the Symposium on Surgery of the Bones and Joints in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

of position with splints or plaster sufficing. In short, fixation is not the thing we must look to most.

In joint-fracture what first concerns us is the function of the joint—the restoration of the joint as a mechanical unit. Second, we must consider the preservation of alignment of the limb as a whole. Third, the prevention of local deformity must be attended to. Fourth, last, but by no means least, we must take account of the chances of non-union or of delayed or imperfect union in these joint-fractures. With all this at hand, mere fixation becomes rather a secondary consideration.

Maintenance or restoration of joint-function depends first of all on replacement of fragments. Such reposition often enough calls for open treatment, but after all only in a small percentage of cases. We are concerned with a reposition accurate enough so that the original fragments will not get in the way of joint-motion. Remember that no exuberant callus forms within a joint. Absolutely accurate reposition is usually impossible except by open operation. Fortunately such accuracy is not necessary, or even important in practice! Poor reduction may be a cause of loss of joint-motion, but it is not the most common cause. The common cause of lost motion is failure to mobilize early, to avoid the stiffening of the non-bony parts. Adhesions within joints and in tendon-sheaths are rare, relatively, but capsule-thickening and retraction, with or without bone-overgrowth, is common, and muscle-shortening during disuse is universal. These conditions may be met effectively only by early, though careful, mobilization and exercise, with early massage.

Many a broken joint works admirably that is far from exact in articular contour. Many a Colles' fracture twenty years ago was remarkably well reduced, and put up in splints for the statutory four to six weeks, with a resulting stiff and useless hand and wrist. Even to-day one may see such cases, and regularly one may find many cases of ankle-fracture in which conscientious correction and long fixation have resulted in a lamentably stiff and useless joint. Since Sands in 1886 brought out a rather remarkable paper on the harmlessness of joint-fixation, all of us surgeons have been inclined to bury our ostrich-heads in the sand so provided, and forget that he was not talking about traumatic cases, and that in fact fixation in all traumatic cases (save in young children) is a potent cause of loss of joint-motion.

I will state only conclusions here (certain data from investigations have appeared and will appear in print) and will formulate the matter in this way. In joint-fractures in adults, imperfect results are largely due to stiffening, which in turn depends on muscle-shortening, and on scar-formation from stripped-up periosteum and in the capsule itself. All of these results yield best to early massage and active or "active-assisted"¹ (not passive) motion, and are not avoidable by operation.

The avoidance of deformity *per se* is another matter. Deformity (apart from joint-function) concerns itself with two things: First, we must look to the preservation of the general axis of the limb—of no moment to the joint-mechanism, as such, but often of great consequence in the function of the limb as a whole, particularly at ankle and knee. The preservation of this axis is often of esthetic importance also, more particularly in relation to elbow-fractures, "gun-stock" deformity and deformities at the wrist. Second, there is a local deformity (of spurs, lumps and thickenings) that is of legitimate esthetic

importance, though rarely affecting the function. Such local deformities are often unavoidable, but frequently may be averted by careful reduction and treatment, and may often be remedied later by operation even if not avoided at first. These late operations are but few, however, unless early treatment is clumsy.

Non-union is a very bug-bear in certain joint-fractures. Much of the attention paid to the operative treatment of joint-fractures in the past has concerned itself with this class of cases, an important and distressing class best exemplified by the fractures of patella and hip. In regard to this matter of non-union there are certain points I wish to go into in detail. It has always been believed that intracapsular fractures fail to heal because of lack of nutrition of the fragment or because of defective fixation. No doubt fixation is important (perhaps nutrition as well), but for some years I have been convinced from clinical observation that we have neglected a very important factor in these joint-lesions, namely, the presence of synovial fluid; and recently I have had an opportunity to carry out a series of experiments that have confirmed my idea in this regard. We have long known that the presence of synovial fluid checked or prevented clotting of blood within the joint; we have known the character of scarring on joint-surfaces—the characteristic depressed scar in cartilage. Why have we not noted that failure of clotting must mean failure in callus formation (more or less complete), that the presence of synovia in an undrained joint must minimize callus formation, must be a potent factor in defective union, and must result in a considerable percentage of failures in the union of joint-fractures?

The point seems to me so obvious as hardly to need proof, but I have been at some pains to test the question, in a series of operations on cats, in which fractures entirely similar have in some experiments been included within the carefully sutured capsule and in other cases have been excluded from the joint. Regularly, those converted into extracapsular fractures have united with heavy callus; those within the joint have united with a callus distinctly defective if there was a gap between the fragments. When the fragments are closely apposed, callus forms and there is no defect running deeper than the cartilage.

Now to formulate—I believe that the solution of the matter of union in joint-fractures is to exclude synovial fluid and to ensure callus by securing contact. The impacted hip-fracture unites, and if we impact the fragments of a loose broken hip artificially, or drive them together according to the forgotten technic of Senn or by Whitman's abduction method, we get union, because we get contact! Suture a broken patella with sundered fragments and it unites, because we get contact! A patellar fracture without separation unites, because we already have contact of the broken surfaces. In all of these cases, synovial fluid is excluded from the mutual contact of the broken surfaces.

In old hip-fractures without union, we operate, and, whether we spike or pin, or merely put up the joint under traction with or without abduction, we uniformly get union, sometimes only fibrous, to be sure, but always a union of sorts.

Given almost uniform results by any technic, what is the common factor of success pertaining to all the procedures alike? My answer is, "opening the joint," for no hip-joint is ever adequately closed after opening. With the joint drained into the tissues, the bar to callus formation is removed. That, in my belief (with a reasonable fixation added), is the whole story! I have

1. "Active-assisted" motion means movement by the patient's own muscles, the assistance rendered being merely by the support of the weight of the limb by the masseuse, who "follows through" but does not push.

failed, as we all have, in trying to remedy non-union of bone shafts. I cannot recall any failure in cutting down on a joint-fracture to remedy non-union. At least a fibrous union has always resulted.

So much for generalizations! They are important because these principles consistently followed out mean many changes in the treatment of joint-fractures, changes we cannot discuss here, which, intelligently applied, mean so much better non-operative results that we need do primary operations on joint-fractures only when fragments cannot be fairly well reduced, or for occasional non-union.

As to the detail of cases and classes, I shall consider only the major joints and shall omit the treatment of compound fractures, lest we be led too far afield.

INJURIES OF THE WRIST

Our most common lesion clinically is Colles' fracture. The proper operative surgery of this fracture is limited absolutely to the late correction of bad results. In these cases much can be done by osteotomy. When the Thomas wrench will do the work, however, open operation is not called for, but often enough operation is inevitable. No plates are required, not even sutures. Splints do the work perfectly, once reduction is accomplished.

Separation of the radial epiphysis is a different matter. Because of the question of later growth we may not rest satisfied with anything less than perfect apposition, and I have unhesitatingly operated early in these cases when I could not readily reduce. With an open wound, reduction by direct leverage is easy; once reduced, the epiphyseal cap stays in place without trouble in ordinary splints.

But the wrist injuries that most often call for incision are the fracture-luxations of the carpus, of which the scaphoid-fracture is commonest. If accurate reduction is possible, well and good, for the fibrous union that usually occurs in these bones gives excellent clinical results. I have thus satisfactorily reduced a few scaphoid-fractures, one of them associated with mediocarpal luxation backward, with admirable resulting function.

But it may be put down as a hard-and-fast rule that fractures and luxations of the carpal bones in which perfect reduction is not practicable should be operated on. I know of one case of successful operative reduction of mediocarpal luxation with scaphoid-fracture, but as a rule such reduction is impracticable, or is unwise because of doubtful nutrition of the bone. In the rule these are excision operations. In the mediocarpal luxation with scaphoid-fracture, not only the scaphoid fragments, but the semilunar and part of the magnum and of the cuneiform must go in order to give a new even joint-plane. In the luxations of a single bone we remove the single bone. The results of these operations are as successful as the untreated lesions are crippling. Even after the most extensive resections, I have grown to expect a perfectly serviceable wrist for work or play; the exceptions are rare.

INJURIES OF THE ELBOW

At the elbow, fractures of the olecranon with separation are practically always to be operated on, both because of the better final function and because of quicker results. The form of operation is not very important. It is essential to counteract the triceps pull and to secure contact of the fragments. I have usually used kangaroo-tendon or wire sutures. The sutures must run through the bone. We have no tendinous structures strong enough to use as we use those about the patella.

Fractures of the radial head call for operation in many cases. The rule is to wait a few weeks and see. Many cases, even some cases not very promising clinically or as judged by the *x-ray*, do so well that operation is not to be considered as a primary routine. In many cases such natural adjustment fails. Then we must operate. A month is time enough to determine the question.

The results are admirable; apparently the radial head is an entirely superfluous structure! In one case I reduced the split head and neck, sutured and got union and perfect motion. In another, I replaced the entirely split-off radial head after removing and washing it, and jammed it in place and in contact in acute flexion. The result was good, with union of the much-handled fragment.

But after all excision is the routine.

Fractures of the humerus at the elbow are children's fractures in the main. Most common is the supracondylar fracture, from which separation of the whole epiphysis is hardly separable clinically; the displacement in both lesions is almost always backward. Under skillful reduction and proper splint treatment the great majority of these lesions do well. As a rule this treatment is to be tried first.

Such treatment, however, may fail in three ways: (1) there may be unreduced backward displacement limiting flexion by contact of the coronoid with the end of the shaft; (2) there may be rotation of the shaft, throwing a spur in the way of the coronoid in flexion; (3) there may be "gun-stock" deformity from lateral deviation of the lower fragment, carrying with it the bones of the forearm.

In the first two classes we must cut down and cut away the bone-spur that is in the way. My own route of approach is from the outer side; the tool a small chisel; the results good, if not always perfect. "Gun-stock" deformity can be corrected only by supracondylar osteotomy with subsequent correction, retention at first on a straight, then on a right-angled, splint. The results are uniformly excellent.

The other common fracture here is separation of the epiphysis of the external condyle. If this epiphysis can be put into place, it can be held firm by the acute flexion treatment. Often enough, however, the fragment rotates with such disarrangement of surfaces as to cause delayed union, or sometimes it cannot be reduced at all. In such cases open reduction and fixation with a pin, driven through skin and fragment into the humerus, give excellent results. The pin comes out in about two weeks. All of my cases operated on have been late cases of delayed union, but there is a good deal to be said for early operation in this particular class of cases.

Fractures of the internal epicondyle, the remaining type that is usual in childhood, do well in acute flexion, and call for operation only when there is ulnar nerve involvement. The nerve once freed, we may either remove the epicondyle or suture it in place. I have tried both ways with good results.

Fractures of the humerus at the elbow in adults show poorer results, but (save in the rather frequent compound fractures in which loose fragments must come out) the treatment is about the same as in children. There are occasional T-fractures in the adult with wide separation of the condyle fragments that call for operation and wiring or nailing the fragments in position. I have seen no call for plates even in these cases. Kocher's "fracture rotuli humeri," in which the articular face of the external condyle is split off and lies loose in the

joint, calls for removal of the fragment. The lesion is very rare.

Unrecognized dislocations at the elbow, seen late, either in children or in adults, furnish the most difficult of the elbow operations, because of the astonishing amount of new bony tissue formed by the stripped-up periosteum and because of any small fragments from fractures that may have complicated the injury. There is no time to go into detailed technic here. Suffice it to say, that the joint must be pretty well "taken apart" and the condylar surfaces reshaped, before reduction. The results are very good, though rarely perfect. The failures are from lack of sufficiently radical operating.

INJURIES OF THE SHOULDER

At the shoulder there are several classes of injury calling for operation. I do not include fractures of the anatomic neck. These, if loose, are hard to reduce, but the results of even imperfect reduction compare very favorably with operative results; non-union is not unusual, but the results are not half bad. The impacted fractures certainly are to be left alone. We can only make them worse.

Fractures of the surgical neck are a different story. Just because the short strong abductors and rotators pull the upper fragment out and because the long powerful pectoral and latissimus pull the end of the shaft in, a proper reduction is often impossible without incision. The proper thing is to cut down, to reduce by prying leverage and to suture or staple the fragments together. It is usually easy to hold them because of the ragged interlocking fracture-surfaces. Sometimes it is well to secure position in abduction with plaster of Paris, or better with a Monks triangle or the Osgood-Penhallow splint.

Separations of the epiphysis correspond almost exactly to the fracture just discussed, mechanically, but in the epiphyseal cases accurate reposition is even more important. Probably we shall come in time to regard nearly all of these cases as demanding operation, for they are hard to reduce. With an incision to work through, reposition has proved simple; the cap fits back in place neatly, and stays there, and repair and return of joint-function are very prompt.

Fracture of the greater tuberosity does so well alone (despite the *x-ray*) that I have operated in no case of the sort, and have had no cripples as a result of my abstinence.

Dislocations of the shoulder not otherwise reducible should always be operated on, and if several weeks have elapsed it is far safer to cut than to run the risk of frantic efforts at reduction by leverage.

Fracture dislocations are not reducible by other than operative means, and should always be cut down on. If we see them early it is rarely possible to drag the head into place and to suture the fracture. As a rule, unfortunately, we see these cases too late, and when we have freed the head from its bed of massive scar its nutrition is gone. Moreover, there is little left of the short muscles and little of the capsule; most of my cases have in the end come to excision of the isolated head and the imbedding of the end of the shaft in the joint-cavity to make a new joint. This at least relieves the brachial-plexus neuritis usually present, resulting from tension of the nerves over the displaced head, but the later function of the joint is not too good. I have a couple of cases of this sort with practically perfect function, but it must be confessed that as the cases run, the results in old luxations and fracture-luxations at the

shoulder are rather disappointing both as to motion and as to power. The moral is that the fresh lesion should come to the surgeon and should be dealt with early.

HIP-FRACTURES

In the lower limb, hip-fractures have been our peculiar bugbear. Impacted hip-fractures are to be touched only when extreme outward rotation occurs, and then only in young or vigorous patients. In such cases we may break up and reimpact with the mallet or by forced abduction.

In unimpacted fractures we may, and I think should, try for results in the same way. I can see no use in spiking without opening the joint; a foreign body can only hinder repair and is not needed for fixation, and open operation in the elderly patients presenting this condition is a pretty serious measure. If repair does not occur of course we must cut down, if the patient is fit to stand operation.

The best avenue of approach is from the front. The surfaces are to be refreshed and brought in contact. Always I have put pegs of bone and steel in the kit, but have invariably found that I could get approximation by traction and abduction and have never yet used the pegs. In certain cases seen, the pegs have acted as foreign bodies and irritating ones, and are certainly a disadvantage. My series of operated hips is small but shows at least firm fibrous union in all cases.

Fractures through the trochanters may be held competently and repair well, although usually with a clumsy callus. Breaks below the trochanters call for operation when, as occurs not rarely, the upper fragment is so pulled up by the iliac-psoas that it cannot be reduced and held effectively. Such cases call for a plate. Here as elsewhere I have preferred the slightly elastic Sick or Mayo plate. One can so hold with a lighter plate. The Lane plates must be enormously massive to ensure against breaking of the plate or pulling out of the screws, and they offer no real advantage over the lighter apparatus.

INJURIES AT OR NEAR THE KNEE

At the lower end of the femur, also, it is true that some fractures cannot be well handled without incision or well held without plates. We have at this point, moreover, an epiphysis, the detachment of which is not uncommon and often entails lamentable results as we all know. Sometimes reduction and retention succeed perfectly; if they do not, then we must operate. Here as with other lesions at the line of growth, it is important to avoid unnecessary fixation (e. g., plates) and a suture well placed, or at worst a temporary pin, will suffice.

As to the patella the argument for operation is needless to-day. Rather should we argue for caution in the technic of operating, for there is a roll of calamities that is growing a bit too fast. In proper hands and in proper surroundings the operative risk is almost nothing, and the gain in end-results and in the shortened convalescence more than worth while.

A word as to technic. The incision should be the horse-shoe, convex above, to avoid cutting through the tough skin below the knee that like the skin of the foot is nearly impossible to disinfect. The suturing should be of the tendon rather than of the patella since the patella is a sesamoid in the tendon, normally carrying little strain. Bring the surfaces into reasonably accurate contact and they will unite. Wiring of the patella to-day is to be limited to the inveterate cases with wide separation of fragments, in which the strain on sutures

is not only great but is continued far too long a time for other than wire sutures to withstand.

ANKLE-FRACTURES

As to ankle-fractures, I have wished to close with consideration of these injuries, because they best illustrate my general view as to operations. There are a few fractures close above the ankle — fractures of both bones — in which we must both operate and plate. In fractures involving the joint there seems to be no excuse for plates of any kind and in the fresh fractures no excuse for any operation save in one form of lesion, namely, the fracture by inversion (reversed Pott's), in which the large fragment of the internal malleolus is hard to hold and tends toward non-union. In three of these cases I have cut down, replaced fragments and fixed them with a buried staple or a drill used as a temporary pin. In no other ankle-fracture have I found an excuse for incision save for old poor results first seen when referred for correction.

In fibula fractures, in Pott's fracture and in the luxation with fractured malleoli, proper reduction and skilful or reasonably skilful handling of plaster, with early mobilization, give results that leave no excuse for operation. If these cases come to us late with a result that for any reason is poor, operation is called for and can correct any deformity or any disability save the results of overlong disuse, and can correct even these last in part.

Operations conceived to suit the case; based on carefully studied *x*-rays, operations based in general on the bimalleolar osteotomy first developed by Stimson — that is, based not on reproduction of the old fracture, but on a rearrangement of a joint made plastic, so to speak, not only by cutting but by the rupture of limiting ligaments and scar-tissue by great force—such operations, while not easy, give perhaps the most satisfactory average results of any undertaken on fractures of the joints. The maintenance of such correction once attained needs no more than a suture here and there, of chromic gut or tendon, and a properly applied plaster.

SUMMARY

Now that we have gone through all this detail may I sum up in this way? I believe thoroughly in operation on joint-fractures, and such operations have been a considerable part of my work for nine years past, but it seems to me that we have no right to fall back on open work because we have not kept up with the great advance in other methods due to better recent understanding of principles. Good results without operation are the desideratum; and good results do not necessarily mean absolutely exact reduction.

If we cannot reduce sufficiently well otherwise, then surely we must operate and reduce. Once we have so reduced, the question of retention comes up. In joint-fractures more than in shaft-fractures the use of foreign material is most undesirable and is to be reduced to a minimum. Holding reduction in fresh cases is mainly a matter of external apparatus, not of buried metal appliances.

The late operations in and about the joints are essentially corrections and reductions. They very often do not at all involve reproduction of the original joint-lesion. In a word these late corrective operations are carried out along the general lines of orthopedic operating. They do not belong to the orthopedist, but we must borrow his methods in the way of free bone-cutting, the use of much force in correction and the skilful manipulation of correction plasters for the best results.

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THE SURGERY OF BONES AND JOINTS *

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The surgery of diseases of bones and joints has lagged behind. It is an important branch of medicine and will well repay our study. Possibly a wide-spread cult owes its inception to our neglect. No branch of the subject appears to be well established. The pathology, the symptomatology, the diagnosis, the treatment — in each confusion reigns supreme. I venture the opinion that no one statement I could make here to-day would pass unchallenged, whereas in abdominal surgery and in the surgery of various other regions, there is at least a common meeting-ground. Perhaps this difference of opinion is due to our reliance on clinical experience. We owe little in the progress of medicine to clinical experience — too little to justify a blind reliance on it, and yet often a new idea meets strenuous opposition because it seems to conflict with clinical experience.

It is hard to overestimate the importance of correct work on bones and joints. If we remove a normal appendix under a mistaken diagnosis, no great harm will probably accrue to the patient, but if we unnecessarily resect a joint or amputate a limb, we have partially destroyed the patient's usefulness for life.

I approach my subject, then, with some trepidation, and will say in preface that what I shall say is based on a laboratory study of about 100 specimens of bones and joints, checked up by a clinical study of some of the patients and by a study of the case histories. Part of it is not demonstrated fact. Some of it is theory, but theory based on careful pathologic work.

There are six tissues to be studied in bone and joint diseases; namely, bone-tissue proper, marrow, periosteum, cartilage, synovia and ligament.

THE BONE

Bone-tissue is the same wherever it is found and varies only in its arrangement and in its amount. It is not subject itself to inflammation, simply responding to the action of its contained marrow. Usually a mild irritation in the marrow produces a hypertrophy of bone, a stronger irritation an atrophy. If the inflammation in the marrow be very severe, it kills the bone. In almost all diseases of bones, the bone-tissue receives most of our attention, whereas it is of minor importance, like the walls of a factory in which various activities are carried on, or like the shell of an oyster. This passive rôle of the bone-tissue is recognized in some diseases of the shafts of the long bones, but has generally escaped attention in disease of their extremities. Here we are too apt to study the bone instead of its contained marrow. The condition is really the same in the two localities.

When we would find out why any disease locates itself where it does, we study the structure of the tissues in that locality. Thus, carcinoma often starts at a spot where the character of the epithelium changes; gonorrhea affects mucous membranes with a certain kind of cells. As far as I can ascertain, this method of study has never been followed with bone and joint diseases. We go far afield and adduce abstruse and difficult explanations, such as the arrangement of blood-vessels and the macroscopic structure of the bone.

* Read in the Symposium on the Surgery of Bones and Joints in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912. The other papers in this symposium, together with the discussion, will be published next week.

THE MARROW

As you know, there are two kinds of marrow usually found in bone—the red or lymphoid, and the yellow or fatty. You know also where each of these is found. If we will recognize that the marrow is the essential factor in all bone-disease, and if we will bear in mind the situations in which each kind of marrow is found, we shall readily understand why certain diseases affect the shaft of the long bones, certain others their extremities, and possibly still others both shafts and extremities. We shall put aside such vague terms as “rapid growth predisposing to infection,” “congestion following injury” and shall study rather the constituents of the marrow at various periods of life and their vulnerability to certain kinds of infection. We shall lay less stress on “diminished resistance” following chilling of the surface as a cause of acute infectious osteomyelitis, and shall study instead the effect of chilling of the surface on the bone-marrow. When we find that acute pus infection occurs in the marrow of the shafts and tuberculosis in that of the extremities of the long bones, we shall seek the explanation in the different constituents of the marrow.

In chronic joint-disease we shall understand the bony atrophies and hypertrophies if we regard them as mere expressions of changes in the lymphoid marrow and synovia, and for a better knowledge of them shall push our studies in these marrow-changes. Study of the bone-changes themselves has hitherto been practically barren.

A proper comprehension of the location of disease in the meshes of the bone-marrow will soon relegate the popular operation of bone-scraping to the obscurity it deserves. The curet in bone-surgery does much more harm than good.

Bearing in mind that ununited tuberculosis of joints is limited to the synovia and red marrow, we shall not recklessly plunge a knife into a cold abscess, and, by infecting it, convert a strictly localized and comparatively harmless disease into a wide-spread and very dangerous one.

THE PERIOSTEUM

In our study of the periosteum it will be necessary to remember that histologically it consists of two layers, an inner or cellular, and an outer or fibrous layer. The inner layer bears an analogy to the marrow of the subjacent bone and is vulnerable to the same diseases; the outer serves as an envelope for the bone, and in all bone diseases may be disregarded except for its mechanic function. In studying specimens under the microscope one gets the impression that the inner layer corresponds to the synovia, the outer to the ligament.

THE ARTICULAR CARTILAGE

The joint cartilage has been the subject of much discussion. I shall not here attempt to go into details, but shall say simply, as my personal opinion, that the cartilage is not subject to inflammation or directly to disease. I believe that its rôle is always a passive one. It reacts to disease of the subjacent bone-marrow and, to a lesser extent, to disease of the synovia. It changes in its structure according as there is motion or a lack of motion in the joint. It is absolutely unaffected by the presence of fluid in the joint. If layers of fibrin are ever precipitated on its surface (which I doubt), they are without effect on its structure. The cartilage atrophies and hypertrophies very much as do the bone-trabeculae. Only on this hypothesis of the passive rôle of the cartilage can the changes in it be explained.

THE SYNOVIA

The synovia, a lymphoid structure, a connective-tissue membrane, is to diseases of the joint what the marrow is to diseases of the bone. It is an active and important tissue in all joint-diseases. It may be involved by extension in disease of the lymphoid marrow, and *vice versa*. In all operations on the joints or wounds of them it is the infection of this tissue that is to be dreaded.

After destruction of the joint and complete ankylosis, the synovia and the lymphoid marrow disappear, and with them disappear all chronic joint-diseases that existed in them alone, such as tuberculosis and the mis-called arthritis deformans; hence the uselessness in resection of these joints, of attempting the tedious task of dissecting out the synovia and of removing all the infected marrow. All one needs to do is to produce an ankylosis in order to effect a cure.

THE LIGAMENT

The ligament, composed of fibrous tissue, plays a passive part in all joint-diseases and may be ignored except for its mechanical function. It should be regarded as the continuation of the fibrous layer of the periosteum.

In our study of all, or of practically all, diseases of bones and joints, we recognize three active tissues, namely, (1) the marrow of two kinds, (2) the synovia and (3) the inner layer of the periosteum, and four passive tissues, which in our treatment we may almost disregard. We focus our attention on the active tissues, and study the changes wrought in them by operation and by disease.

Our credulity in the matter of joint-diseases is remarkable. The painstaking and brilliant work of Nichols and others attracts little attention, but any enthusiast can get a trial for a panacea the efficacy of which is supported by no real evidence whatever.

The treatment of bone- and joint-diseases must be founded on a correct pathologic base. Until we require one who advances a therapeutic idea to found it on something else than his individual clinical experience, we shall never take the treatment of bone- and joint-diseases out of the realm of empiricism, but shall drift from one sort of injection to another, to trypsin, to thymus-gland extract, to passive hyperemia, to baking, to apparatus, to extension, to drugs, to confusion.

520 Metropolitan Building.

INTESTINAL COMPLICATIONS IN GYNECOLOGIC OPERATIONS *

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The intestinal complications associated with inflammatory diseases of the pelvic organs are the most serious as well as the most common of all the possible complications of gynecologic operations. Not only do these complications affect those portions of the intestinal tract which occupy the pelvis and are normally adjacent to the uterus and its adnexa, but remote portions of the intestines, such as the transverse and descending colon, may under exceptional conditions be involved.

As a rule the pathologic conditions leading to intestinal involvement under this head are inflammatory in

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

character, and consist of adhesions of varied type with the sequelæ resulting therefrom. These adhesions may be flat and spread over a wide area of peritoneal surface; they may consist of bands producing varying degrees of obstruction; or they may cause stricture of the imprisoned bowel, and in rare instances anastomoses and fistulas may follow organized adhesions.

In cases of large tumors extending into the upper abdomen, adhesions to the intestines often present exceptional difficulties in the operative procedure for their removal. This relates more particularly to ovarian tumors, especially cystomas with twisted pedicle and suppurating dermoid cysts. In the enucleation of uterine fibromas that have developed between the folds of the broad ligament and extended beneath the peritoneum, injury to the mesentery such as to necessitate resection of that portion of the intestine which has been deprived of its circulation may be unavoidable. I could refer to several cases in my personal experience in which this procedure became imperative after the enucleation of large tumors with adherent and deperitonized intestines. In the majority of cases of this class it is practicable to release the intestines from the tumor by dissecting away from the tumor some of the cyst-wall or capsule, but in some instances this expedient will fail and the operator will suddenly find himself confronted with lesions necessitating extensive intestinal restoration.

In advanced carcinoma of the ovaries and in tuberculosis of the peritoneum originating from the fallopian tubes, adhesions are universally found matting together the intestines in the diseased area. In these conditions the separation of adhesions is rarely indicated. Interference with the function of the bowels seldom results from tuberculous peritonitis with adhesions, and when malignant disease of the ovaries has extended to the intestine it is beyond the scope of operative intervention. The time limit of this paper forbids any detailed consideration of appendicitis as a complication of operations on the pelvic organs. The frequency with which the appendix is either primarily, coincidentally or secondarily involved in tubo-ovarian inflammations is generally recognized by surgeons, and is one of the most forceful indications for the general application of the suprapubic instead of the vaginal approach to the pelvic organs.

The isolation of a septic focus within the peritoneum by adhesions is one of the most efficient of Nature's safeguards, thus shutting off the general cavity and limiting the infected area. These adhesions are most extensive and dense at the focus, and shade off in thickness and density as the distance increases from the focus in all directions.

The omentum and sigmoid flexure of the colon are the parts most generally, almost universally, involved by adhesions. When a septic focus is established any where within the peritoneum the omentum safeguards the general abdominal cavity. So efficient is this function of the omentum that it has been called the "policeman of the abdomen." The anatomic relations of the omentum to the abdominal viscera provide for this function. Likewise in the pelvic basin, the sigmoid flexure with its long fan-like mesentery performs the same function by forming adhesions about a septic focus and providing a barrier to protect the general peritoneum.

Adhesions to the sigmoid and rectum are so universally associated with inflammatory diseases of the tubes and ovaries as to make this condition distinctly gynecologic. Stricture of the rectum may result, and fistulas

sometimes follow the rupture of an abscess into these terminal portions of the intestinal tract.

A distinct form of peritoneal adhesions for surgical consideration is an extensive gluing together of the intestines subsequent to a storm of general peritonitis. That extensive adhesions, as a rule, are completely absorbed after removal of the septic focus is well known, but in exceptional cases Nature fails to complete this work. This may obtain with neoplasms, such as ovarian cystomas and uterine fibromas, as well as with the more direct infections. These patients suffer with intestinal cramps and distention, and the operative treatment presents exceptional difficulties.

Fibrinous bands producing obstruction may result from incomplete absorption of adhesions. These are most commonly found in the region about the uterus and in the appendical area of the right lower abdomen.

PROPHYLAXIS

1. In so far as compatible with safety, operations should be avoided in the acute stage of inflammatory diseases and deferred to a period when Nature has removed gross exudates.

2. Unnecessary handling, wiping and packing off of peritoneal surfaces should be avoided in operations.

3. The violence of retractors and unnecessary exposure should be avoided.

4. Blood-clots beget granulation-tissue and adhesions and should be gently and carefully removed.

- 5 Drainage, especially with gauze, produces adhesions and should be applied only when definitely and positively indicated.

TREATMENT

In dealing with adhesions in the course of operation, the greatest care should be observed to limit traumatism. Whenever practicable this should be done with the aid of sight, and deliberately. The greatest source of disaster is in unrecognized injury to the intestinal coats, followed by perforation, leakage and general septic peritonitis. A thorough knowledge of modern technic as applied to operations on the intestines should be observed in dealing with injured bowels, and especially with stricture and abscess perforation.

So far as existing knowledge permits, we have no reliable method of preventing secondary adhesions, that is, of agglutination of surfaces separated. Perhaps the most efficient procedure is the application of a layer of sterilized petrolatum over the denuded surfaces.

Atherton Building.

ABSTRACT OF DISCUSSION

DR. J. WESLEY BOVÉE: If one visits the different clinics in this country alone and sees the recklessness exercised in abdominal surgery in the way of traumatism to the contents of the abdomen, he is struck forcibly with the necessity of improvement in their technic; and, perhaps, he himself is more cautious with his own when he gets home. One sees the finest surgeons in the country neglecting this important point. I would especially emphasize the feature of reckless handling of the intestine, frequent sponging and applications of great quantities of gauze in the abdominal cavity when it can be avoided in the way of walling off, the careless walling off at the beginning which requires repetition during the process of operation and occasionally the use of dry gauze for this purpose. We see many surgeons doing abdominal work who do not pay any attention to whether the gauze is wet or dry. If they would stop to think they would realize that the gauze soaked in salt solution is much less

irritating to the serous layer than the dry gauze. Frequent sponging of the area denudes that surface of its outer layer of endothelium and adhesions are liable to follow. I believe that many of the intestinal adhesions we find when we open the abdomen had better be left alone. There are times, of course, when we cannot follow this plan, but we should when we can. At some places, of course, in the intestinal tract, we will feel almost sure there will be strangulation. The important point in the pelvic portion is the manner of covering those surfaces with gauze and using dependent drainage. The adhesions thus formed over the gauze, if the intestines and omentum are laid cautiously over it, are quickly dissipated after the drainage is established.

DR. W. H. WATKIN, Louisville: In operating in the presence of adhesions we should be careful in separation so as not to cause too much traumatism. When the peritoneum is denuded or torn, it should be carefully sutured so as to cover in all raw surfaces. This will prevent adhesions which would otherwise follow. Injury to the intestines or peritoneum can nearly always be avoided, if we have no adhesions before operating, by carefully walling off the intestines from the pelvic cavity before we operate on the uterus or its adnexa. Make a gauze coffer-dam between the intestines and the pelvic structures before beginning to remove the pathologic process. When this is done the operation is free of traumatism to the intestines. Careful sponging will do no special harm when you have a coffer-dam well around the infected area. The sponge can then be introduced to the bottom of the pelvis without injuring the intestines.

DR. J. H. CARSTENS, Detroit: One of my greatest troubles is to have the patient kept profoundly under an anesthetic. If the anesthetizer lets the patient get out even a little, the patient presses down and the intestines come out and come into view and you have to handle them and put them back. Put the patient profoundly under the anesthetic. In the Trendelenburg position the intestines will be out of the way, but insist that the patient be kept under. I firmly believe that more persons have died from injury and infection of intestines, caused by insufficient anesthesia, than by too much. I use aristol or subgallate of bismuth for covering over some of these raw surfaces that I cannot cover with peritoneum. I agree with what Dr. Bovée has said about adhesions. I sometimes separate a little and dig down into the culdesac and let the rest alone.

DR. H. O. MARCY, Boston: I am more and more inclined to the return to the well-selected sea sponges. They are less irritating than gauze and with care are made aseptic. A large flat sponge helps to make the coffer-dam and walls off better than gauze. One cannot altogether do away with gauze, but when used, as Dr. Bovée suggests, it should be wet with salt solution. The peritoneum should be closed with light running sutures so that there may be no bare surfaces. I use aristol. I do not think it does harm and adhesions seem less likely to take place. Restore the intestines to as nearly a normal position as possible, and replace the omentum so that it gives its normal protection to the intestine. These are little points in technic often overlooked and seldom mentioned in text-books.

DR. LEWIS S. McMURTRY, Louisville: It is apparent from a study of this subject that the last words have not yet been spoken on the treatment of these complications. It is a common observation to observe some painful sequel of an abdominal operation. In almost every instance the patient has been educated to believe that the pain is caused by adhesions. We often attribute to adhesions symptoms due to other conditions. It is not uncommon to see an abdomen after which has passed a terrific storm of acute inflammation, having very few adhesions. In other instances will be found adhesions exceedingly painful, and presenting great difficulty in their operative treatment. I feel confident, therefore, that we have here a subject that still merits study and careful consideration. My object in selecting this subject was to awaken interest with a view to obtain more light than at present obtains.

A USEFUL PROCEDURE IN SUBMUCOUS RESECTION OF THE NASAL SEPTUM

F. CONGER SMITH, M.D., NEW YORK

Surgeon, New York Throat, Nose and Lung Hospital; Assistant Surgeon, New York Eye and Ear Infirmary and Vanderbilt Clinic

Having observed the use of the actual cautery in the hands of Dr. Jacobs of Brussels many years ago in making his initial incision for the total vaginal hysterectomy, I have recently applied the principle in submucous resection of the nasal septum with such uniformly good results that I now use it to the exclusion of all other methods in making the initial incision in this operation. The incision, as described in modern text-books, or any modification of that incision, can readily be made by the cautery electrode which at the usual heat quickly pierces to the cartilage and can be carried in any direction and to the desired extent, especially by previously bending the blade to suit the variety of septum under consideration. The particular technic will suggest itself to one familiar with work in this field and the use of the electric cautery.

The advantages in my hands over former cutting methods may be briefly stated as follows: 1. A greater degree of antisepsis is obtained. 2. There is no bleeding during this step of the operation, and, because of the sealing of the lips of the wound subsequent bleeding is very much lessened. 3. There is no doubt in the operator's mind as to the time when his cautery electrode is carried deep enough since the blade comes against the cartilage with a distinct feeling of resistance. Here the electrode must not be allowed to remain too long, lest it puncture the cartilage and opposite mucous membrane, an accident which I have never had happen, but which is conceivable. 4. From the seared edges of this incision the mucous membrane, as well as the perichondrium, recede slightly so that their elevation is easily and quickly accomplished. I may add that primary union as we see it in the nose is apparently not retarded.

362 West Fifty-Seventh Street.

THYMOL FOR TÆNIA SAGINATA

W. ALLAN, M.D., CHARLOTTE, N. C.

For the removal of *Tænia saginata*, pelletierin is too expensive for poor people, and it is very difficult to prepare the patients properly for aspidium. Thymol is cheap and requires no preliminary starvation or purgation, and during the past year it has seemed to me to be very effectual. I have removed *Tænia saginata* from three individuals, 11, 9, and 5 months ago, respectively, with no recurrence to date. In each instance the worms have been so broken up that the head was lost and not brought into the office, but careful observation of the stools by the patients has failed to demonstrate the passing of any segments, which, according to Braun, have had ample time to reappear.

The thymol was given in the usual way, either with or without salts the day before.

Medical Defense.—It has come to our notice that one of the companies most actively engaged in advertising itself as The Real Thing in the line of Medical Defense has a little clause in its contract which excuses it from participating in the defense of a malpractice suit in case this is brought as a counter suit because of a claim for fees. Now the Medical Defense Committee of the State Medical Society finds that those are exactly the circumstances under which a large proportion of the malpractice suits arise. These suits are just as troublesome and expensive and usually quite as unjust as most of the others. The result is that the insurance provided by the company under consideration does not actually insure. It would be well for those who carry insurance of this character to read their policies carefully to see where they stand.—*Wisconsin Med. Jour.*

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SATURDAY, JULY 20, 1912

THE EFFECTS OF EXCLUSIVE FEEDING—EXPERIMENTAL SCURVY

In searching for the cause of beriberi, highly important observations have been made with respect to the effects of certain foodstuffs on animals. The pioneers in this field were Eijkmann and Grijns, who demonstrated that a polyneuritis can be produced in pigeons and chickens by feeding exclusively with polished rice or highly milled barley (polyneuritis gallinarum).

These results have been confirmed by Holst¹ and others, and Holst especially has extended this mode of study to other animals and different food substances. Thus it may be noted that Holst, on feeding pigeons with white bread, observed neuritis to develop, whereas feeding with rye bread and certain other substances gave no such result. His most important work, however, has been on guinea-pigs which when fed exclusively with various forms of grain or bread die after about one month with pathologic changes in the body that correspond in practically all important particulars with those of human scurvy. There is a loosening of the teeth, hyperemia of the gums with microscopic hemorrhages, extravasations about the costochondral junctions and in the soft tissues about the joints of the extremities, and frequently epiphyseolysis, especially at the upper end of the tibia. The microscopic changes in the marrow of guinea-pigs fed in this way are identical with the changes seen in infantile scurvy. In other words, by limiting the food it is possible to produce an experimental scorbutus in guinea-pigs. Holst and Frölich have seen similar changes in dogs that were fed for some time on oatmeal and beef-fat and in hogs fed with rye bread to which was added sometimes boiled beef, and with rice and dry boiled fish; here were observed neuritic changes in addition to the scorbutic. In the guinea-pigs fed with grain the scorbutic changes begin before there has been any or only when there has been very little loss of weight so that they cannot be assumed to be caused simply by inanition. Furthermore, feeding with cabbage, carrots or dandelions exclusively does not produce any such changes as those described, although there may be considerable loss of weight.

1. Holst and Frölich: *Ztschr. f. Hyg. u. Infektionskrankh.*, 1912, lxxii. 1; also Fürst, *ibid.*, 121, and Frölich, *ibid.*, 155.

Now we know that scurvy may develop in human beings under conditions of nutrition similar to those under which the changes described arise in guinea-pigs. We also know that fresh vegetables and certain vegetable juices have an antiscorbutic action in man, and it is therefore of special significance that in full analogy herewith Holst and his co-workers find that various vegetables prevent the development of scorbutic changes in guinea-pigs and favorably influence their course if given after their onset. Boiling and prolonged drying greatly reduce or annul the antiscorbutic effect, but it has not been possible to determine the exact nature of the substance or substances which exercise this effect; the indications are that different chemical combinations may be concerned, because the antiscorbutic action is retained by some vegetables under conditions when it is destroyed in others. We are reminded by this failure to discover the exact nature of these antiscorbutic substances that so far it has not been possible to determine definitely what it is in rice-polishings that, as shown by Fraser and Stanton,² prevents peripheral neuritis in fowls. We may conclude then that these valuable researches appear to establish quite clearly that the lack of food in certain elements which at present are not fully understood is the cause of scurvy, and that a means is provided for the further investigation into this particular problem in nutrition.

ALLEGED DIAGNOSTIC SIGN OF SCARLET FEVER

Few diseases of children are more justly dreaded than scarlet fever. The younger the child, the greater the danger. No race or country is immune. No other acute contagious disease shows such extensive variations in the severity of its outbreaks. With no apparent reason, the cases are mild one year, and terribly malignant another. As a general rule, the diagnosis is comparatively easy but the malignant possibilities of the disease, its serious complications and sequelæ, and above all the frequent coexistence of some other disease which may for a time mask the presence of scarlet fever, make every diagnostic procedure of the utmost value.

These considerations lend particular interest to the announcement by Döhle³ of the Institute for Pathology at Kiel of the discovery of certain inclusion bodies in the leukocytes from scarlatinal blood. These bodies were found almost without exception in the polymorphonuclear leukocytes from thirty scarlet fever patients, and in a large number of controls, they were present in atypical form in only three. He found none after the sixth day. Döhle was inclined to consider these bodies pathognomonic of scarlet fever.

Kretschmer,⁴ in the Children's Clinic of the University of Strasburg, confirmed Döhle's work, in a similar number of cases, using in addition seventy controls. He mentions the possibility of a streptococcal origin but

2. See Editorial, The Probable Cause of Beriberi, *THE JOURNAL A. M. A.*, June 15, 1912, p. 1859.

3. Döhle: *Centralbl. f. Bacteriol.*, Nov. 23, 1911.

4. Kretschmer: *Berl. klin. Wchnschr.*, March 11, 1912.

states that in one case of general sepsis the bodies did not occur. He also believes the bodies to have diagnostic value.

In the laboratories of the New York Department of Health, Nicoll and Williams³ have recently obtained similar results. The method employed was to make two or three blood-smears from each case. One was stained by Manson's method (after fixation in methyl alcohol and thorough washing, stain one-half minute with 1 gm. Koch's methyl blue to 50 c.c. boiling 5 per cent. borax solution, wash and examine). Another was stained with Giemsa's stain over night, after fixation in methyl alcohol. The inclusion bodies were found chiefly in polymorphonuclear leukocytes, and varied in size and shape from small coccus forms to large irregular masses one-fifth the size of a red blood-cell. Bacillary forms were also seen. When Manson's stain is used, the nuclei take on a deep blue, the cytoplasm a very faint blue, and the inclusion bodies a shade half-way between. They stand out more clearly because the leukocytic granules stain feebly. In fresh cases nearly every leukocyte shows the bodies and in large numbers. They are found at least through the first week and in one case were found on the twenty-eighth day.

Nicoll and Williams examined a series of fifty-one scarlet fever patients and twenty-five controls. Forty-five of the fifty-one cases were positive and six negative. In the negative cases, one patient had been ill for eight days or more, two for ten days or more, one for twelve days, one for fourteen days, and one for thirty days. A great majority of the positive cases were in the first week and most were of less than four days' duration. The controls included three normal persons, twelve measles patients, three diphtheria patients with severe antitoxin rashes, one infant with erysipelas, one luetic adult with pneumonia, one 2-year-old child with follicular tonsillitis, and three patients with German measles. Three of these cases were positive, a complicated measles case, the pneumonia in a luetic adult and the erysipelas. The measles patient in whom examination gave positive results was found later to have had a moderate sore throat and scarlatiniform rash; the case was undoubtedly complicated with scarlet fever.

The New York Department of Health⁴ on the basis of these studies announces that such inclusion bodies are found in scarlet fever usually through the first week and always during the first four days; also that they have not been found in measles, German measles, various toxic rashes including that due to horse serum, and probably not in tonsillitis. Further study is necessary to determine positively if this test will exclude the rashes of sepsis, tonsillitis and influenza. None of the authors noted expresses any opinion as to the nature of the inclusion bodies.

A recent communication from Ahmed⁵ throws doubt on the diagnostic value of this sign since he obtained

positive results in a number of febrile conditions other than scarlet fever. Further investigation will be needed to determine the true nature and significance of these inclusion bodies.

THE EFFECTS OF CASTRATION AND OVARIOTOMY

The renewed attention which has lately been devoted to the subject of sexual infantilism in man lends interest to all the recent experimental work on the development of the secondary sexual characters. As a general rule, these are correlated with the presence of the essential reproductive organs. It is well known that the removal of the latter in the male during early life and before sexual maturity has been reached not only influences the subsequent development of the accessory male organs, but noticeably modifies the conformation of the body as a whole. In castrated individuals the bones of the limbs, for example, tend to become abnormally long owing to an arrest of ossification at the epiphyses. In certain species the characteristic development of the horns in the male fails to manifest itself. The secondary sexual characters are often so completely altered or suppressed as to give an unmistakable suggestion of the female type in the castrated individual.

The changes after ovariectomy in the female are perhaps less well appreciated. There are statements to the effect that in the human female the complete removal of the ovaries, if carried out in early life, in addition to preventing the onset of puberty and the occurrence of menstruation, alters the general form and appearance of the individual, producing a masculine semblance. Definite experimental evidence of the assumption of male characters as a result of ovariectomy are, however, wanting. Facts derived from the domain of experiment on the domestic animals have lately been collected by Marshall¹ on sheep. These animals lend themselves admirably to specific investigation in this direction because the various breeds differ considerably in regard to horn growth. Some are horned in both sexes, though the degree of development of the horns varies according to the sex (whether ram, wether or ewe); some are hornless in both sexes, while others, again, are horned in the male but hornless in the female.

Marshall's experiments make it clear that the development of horns in the males of a breed of sheep in which well-marked secondary sexual differentiation occurs depends on a stimulus arising in the testes. This stimulus is essential, not merely for the initiation of the horn growth, but also for its continuance, the horns ceasing to grow whenever the testes are removed. The removal of the ovaries from young ewes, on the other hand, does not lead to the development of definitely male characters, except possibly in a minor degree.

3. Nicoll and Williams: Arch. Pediat., May, 1912.

4. Dept. of Health, City of N. Y., Month. Bull., May, 1912.

5. Berl. klin. Wchnschr., June 24, 1912.

1. Marshall, F. H. A.: The Effects of Castration and Ovariectomy on Sheep, Proc. Roy. Soc., London, B., 1912, lxxxv, 27; also The Physiology of Reproduction, London, 1910.

IDIOSYNCRASY AND ANAPHYLAXIS

With the discovery of the phenomenon of anaphylaxis or allergy, attention was early called to the similarity between the anaphylactic symptoms and the symptoms of many so-called idiosyncrasies; and it was at once suggested that we had here an explanation of this hitherto mysterious toxic action of substances ordinarily not injurious. With certain of these, notably those proteid in character, this assumption has already been verified, inasmuch as Bruck¹ has demonstrated its truth in the case of urticaria following the ingestion of pork, and, though somewhat less certainly, with that caused by the eating of crabs; and the toxic effects of eggs in certain individuals have been shown to rest on the same basis. But with some types of idiosyncrasy — those toward non-proteid remedial agents — little certain evidence has been adduced to support this theory of their cause, aside from the similarity in symptoms. Bruck,² and following him Klausner,³ applied animal experiments to this problem, and attempted to convey to guinea-pigs passive hypersusceptibility to the agents in question by injection of the serum of susceptible individuals. In this way Bruck and Klausner claim to have shown that idiosyncrasy toward iodoform, antipyrin and the iodids is in the nature of an anaphylactic process, but in the case of idiosyncrasy to other substances, such as mercury and iodoform, they were unable to secure any evidence as to its being anaphylactic in nature.

In a critical and in part experimental review of the work of Bruck and Klausner, Zieler⁴ disputes both the accuracy of their methods and conclusions. His own work was on cases of idiosyncrasy to absinthe, fibrolysin, iodids and antipyrin, thus covering partly the same ground as the earlier workers. His method of experimentation, too, was essentially the same, and consisted in giving to guinea-pigs preliminary doses of the serum of the patient showing the unusual susceptibility, and following these after suitable intervals with large doses of the drug in question. In no case was he able to obtain any decided evidence of the conveyance of hypersusceptibility in this way. It is true that with certain drugs — antipyrin and the iodids — the animals did show to a slight degree symptoms suggestive of a positive reaction, so slight as to be practically negligible in the case of the iodids, but more striking with the antipyrin. But it happened that a control animal that received the dose of antipyrin without the preceding one of serum showed the same symptoms, though to a milder degree. Hence Zieler concludes that the suggestive symptoms were merely those of antipyrin intoxication in the guinea-pig, and had no connection with an anaphylactic reaction.

He further concludes that the results of Bruck and Klausner were in all probability of the same character as his own, that is, instead of an anaphylactic reaction,

the animals in reality gave the symptoms of intoxication with the drug itself. His explanation of the fact that the control animals almost never presented the same degree of reaction as the others is that these latter give the combined effects of an abnormal serum and of the drug, and that such an abnormal serum would probably have a greater effect than the normal used as control.

While the anaphylactic theory of drug idiosyncrasy is not yet firmly established, Zieler's results are by no means sufficient to disprove it. He himself acknowledges that there is a possibility of anaphylaxis having played some part in the production of the symptoms observed in his animals, and his explanation of the greater severity of the symptoms in the previously sensitized animals is hardly decisive. It would seem that it will require much stronger proof than now at hand to cause the abandonment of the attractive view that drug idiosyncrasies are to be explained by mechanisms similar to that operative in anaphylaxis.

THE MENACE OF WOOD ALCOHOL

The wide-spread discussion which followed the series of deaths in Berlin as a consequence of the drinking of liquors contaminated with wood alcohol has again attracted attention to the scientific aspects of the toxicity of methyl alcohol.¹ There has been considerable difference of opinion as to whether the alleged poisonous character of this substance is actually due to the alcohol itself rather than to some of the contaminations, such as acetone, etc., which are almost invariably present in all except the most refined products available on the market. There is a paucity of facts regarding the actual behavior of methyl alcohol in the animal organism, so that the underlying causes of its extreme toxicity are by no means clearly understood.

With respect to ordinary (ethyl) alcohol or grain spirits, the component of our alcoholic beverages, the facts are better appreciated. Ordinary alcohol is, when taken in moderate quantities, largely burned up in the organism. This fact has been demonstrated by numerous calorimeter experiments which have been the subject of wide-spread notice and controversy in the temperance literature. We have no desire at this time to enter into the question as to what extent, if at all, alcohol may function as a real food. The fact is that only very small quantities are lost through the excreta under the conditions of alcohol intake which have just been referred to. Neither does ethyl alcohol accumulate in the system to any considerable extent. The provisions for the elimination of any excess beyond what can readily be burned are satisfactory both by way of the kidney secretion and through the respiratory exchange.

With methyl alcohol, however, the case seems to be somewhat different according to the recent investigations

1. Bruck: Arch. f. Dermat., 1909, xvi, 241.

2. Bruck: Berl. klin. Wehnschr., 1910, xlvii, 817.

3. Klausner: München. med. Wehnschr., 1910, lvii, 1451; 1911, lviii, 138.

4. Zieler: München. med. Wehnschr., 1912, lix, 401.

1. Berlin Letter, THE JOURNAL A. M. A., Jan. 27, 1912, p. 290; Feb. 3, 1912, p. 358; Vienna Letter, Feb. 10, 1912, p. 422; abstract 131, June 1, 1912, p. 1732. For other abstracts see Index, June 29.

in the Institute for the Fermentation Industries at Berlin.² It has been shown that when reasonable doses are administered to animals the participation of the methyl alcohol in metabolism scarcely exceeds 3 per cent. of the total exchange of material, in contrast with a more than tenfold participation of ethyl alcohol under comparable conditions. Furthermore, the elimination of methyl alcohol from the body is distinctly delayed, so that the unconverted residue after a moderate dosage has been given may fail to be eliminated completely even at the end of two days. Accordingly, if the defective destruction of this substance is considered in conjunction with the delayed rate of elimination, it becomes apparent that the repeated ingestion of considerable doses of methyl alcohol may lead to a dangerous accumulation thereof in the body. This factor has heretofore not been duly appreciated.

These subtle dangers associated with the introduction of wood spirits into the organism deserve wide-spread notice because of the increasing danger of the unsuspected presence of methyl alcohol as an adulterant of the cheaper grades of distilled liquors and certain medicinal products. The insatiable demand for cheap liquors among certain of the degraded classes, and the difficulty with which the admixture of the inexpensive methyl alcohol is detected provide a constant temptation to the unscrupulous dealer and a menace to the health of certain classes. However objectionable adulteration may be on general principles, it becomes far worse when some subtle danger is harbored therein.

Current Comment

HISTORICAL NOTE ON THE USE OF BEANS IN BERIBERI

In one of the several comments which have recently been devoted in these columns¹ to the subject of beriberi, the fact was mentioned that decoctions of white beans have lately been found to cure the experimental polyneuritis induced in fowls by the feeding of milled rice and assumed to be closely related etiologically and symptomatically to beriberi in man. Credit for the suggestion that beans should be used, as a preventive against this disease, in the rations of our native troops, Philippine troops, native prisoners and others whose diet by preference consists largely of rice, was given to Chamberlain and Vedder of the United States Army Board for the Study of Tropical Diseases as They Exist in the Philippines. A correspondent, Dr. William H. Jefferys, admitting the importance of the research work alluded to above, has directed our attention to the fact that the use of beans to cure and prevent beriberi has been known and practically applied in China for many years. He states that this practice was first pointed out to him at least

ten years ago by Dr. H. W. Boone of the staff of St. Luke's Hospital in Shanghai.² Dr. Jefferys writes: "We have always considered there, during at least that period of time, that the substitution of beans for rice was a positive cure for beriberi if undertaken before the development of cardiac symptoms. This has been the backbone of our treatment. Moreover, beans have been on our hospital dietary regularly for many years past with the distinct object of preventing the development of beriberi in the wards. The important point to us was that a bean diet cures beriberi, and at the same time is a fairly acceptable substitute for rice with rice-eating peoples. When combined adequately with even a white rice diet, beans prevent the development of the disease. The reasons stated in your editorial are obviously the correct ones, but the investigators you refer to have no claim to priority in teaching the facts." These facts, which are of distinct historic interest, in no way impugn the scientific studies that have been directed towards the real chemical problem evidently involved in this nutritive disorder. It is always an immense advantage to have a rationale to apply to every therapeutic procedure which may find its way empirically or otherwise into the routine of medical practice.

CONTROL OF DISEASE IN THE TROPICS

Whatever influence the demonstration of the value of modern scientific medicine in the control of disease in the Panama Canal may have in this country, it is certainly having a good effect in tropical countries where the tendencies and ravages of tropical diseases are known. President Luco of Chile, in a recent interview in a New York paper, after describing in glowing terms the effect of the opening of the Panama Canal on commercial and financial conditions in South America, said: "The spread of plague and preventable diseases has been one of the worst handicaps of tropical America. With sanitation such as that of Panama, there is no reason why South America should not maintain a vast population and support nations as advanced as any in the world. The Panama Canal opens the gateway to the western coast of the continent and the elimination of disease from the Isthmus renders an even greater service to all Central and South America. . . . We have decided that we would request Washington to lend us several sanitary experts from Panama, the men whose services have won for your country such undying fame at least in South America. I personally would like to have the services of one of Dr. Gorgas' experts." Colonel Gorgas prophesied some time ago that the control of tropical diseases, making tropical countries a safe place of residence for white men, opened up an almost inconceivable field for the civilization of the future. Civilized man now has the knowledge necessary to make him free from many contagious diseases. Those diseases about which exact knowledge is lacking are rapidly being investigated. When the history of the present era is written, the most important facts to be recorded will not be those connected with politics or international relations. The historian of the future will regard as

2. Völtz, W., and Dietrich, W.: Die Betheiligung des Methylalkohols und des Äthylalkohols am gesamten Stoffumsatz im tierischen Organismus, *Biochem. Ztschr.*, 1912, xl, 15.

1. *THE JOURNAL A. M. A.*, Feb. 24, 1912, p. 557; April 13, 1912, 1119.

2. Jefferys and Maxwell: *The Diseases of China*, p. 115.

the most important event of the present period the acquisition, beginning about 1870, by civilized man of the knowledge and control of preventable diseases. The extermination of plagues and epidemics will naturally be pressed most vigorously in tropical countries where the danger has been the greatest. It behooves us in temperate zones and civilized communities to bestir ourselves, lest those nations which we regard as backward outstrip us in the race for better health. That nation which first learns to utilize all the knowledge of modern science for the prevention of disease will rapidly improve, physically, commercially and financially, and will take a long step toward the front rank among nations.

INDUSTRIAL HYGIENE AND THE INTERNATIONAL CONGRESS

The problem of the prevention of injury and disease among industrial workers is receiving more and more attention. The International Congress on Hygiene and Demography, to meet in Washington in September, will devote considerable time to the discussion of industrial and occupational hygiene. Among the subjects on which papers are to be read are the physiology and pathology of fatigue; the deleterious effect of unnecessary noise on workers; caisson disease; accidents and diseases occurring in electric generating works; occupational anthrax; safety devices for the prevention of accidents; the effects of temperature and humidity on fatigue; dust and its effects. Other important topics to be discussed by eminent men are sex and age problems in industrial hygiene; the employment of women and its relation to infant mortality; child labor, etc. These topics will be further elucidated in the exhibit to be held in connection with the congress. The attention given these questions by this important congress will no doubt give impetus to their further effective consideration by government authorities and will result in distinct improvement in the status of these economic conditions.

PLAIN SPEAKING ON SANITARY MATTERS

As the education of the public progresses in sanitary matters, the tendency to criticize officials responsible for conditions that are not as they should be becomes more pronounced. This is a hopeful sign, and means, inevitably, improved conditions. As examples of plain speaking on these matters, two instances may be cited. The headline over an article in a daily paper published in a large western city reads: "One More Baby's Life Forfeited to the Game of Politics." The article contains an account of an epidemic of scarlet fever which was traced to a certain dairy. It specifically attributes the death of a 5-year-old child to the milk from this dairy, and goes on to say: "The milk inspection department, during the time that a milker at the farm was developing scarlet fever, was playing politics. The inspectors were out soliciting votes among such of the dairymen as lived within the city limits, and had a vote May 21. On their shoulders is laid the blame for the infection spread through the city." The other instance also concerns the milk-supply, this time in a large eastern city. The chief inspector of creameries of the state

board of health made an inspection of creameries and dairies in the city and found only three out of the twenty-seven that were up to the standard. He stated to the local board of health that he had no doubt that the impure milk was the cause of the death of many infants, and that if the board did not take immediate action the state board would step in and force the local board to do its duty. With all the agitation and legislation concerning milk it is scarcely possible that milk-producers and distributors do not know the rôle of impure milk in the production of disease and death in infants. A conscience so defective as to permit such conditions to exist in the face of that knowledge requires drastic criticism and vigorous action to penetrate it and get it in a normal working condition. Fearless speaking by the newspapers and the public will surely improve the health situation.

HEALTH CONFERENCE IN MICHIGAN

A recent issue of *Public Health*—the bulletin of the Michigan State Department of Health—contains a report on the health officers' conference held at Ann Arbor, January 30-31. This annual conference of the local and state health officers has come to be an established custom in Michigan. Water-analysis, the need of a state hospital for advanced cases of tuberculosis, water-purification, certified milk, garbage-disposal, hotel-sanitation and occupational diseases were discussed before the conference. While it is important from a scientific standpoint, perhaps the greatest practical value of such a conference is that it brings together, and makes mutually acquainted all of the men in the state who are working directly on public health problems. Perhaps the most serious flaw in our public health work so far has been the lack of close cooperation and mutual understanding between the different detachments of the army that is carrying on this fight. Lack of organization and cooperation means duplication of work with waste of money and effort. Michigan and Kansas are striving to unite the health-workers of the states into a compact and effective body which will render more effective warfare against disease than can the isolated town and county health officers found in too many of our states.

Medical News

CALIFORNIA

Pasteur Institute Installed.—Under the direction of Dr. Wilbur A. Sawyer, director of the State Hygienic Laboratory at the University of California, of Berkeley, a Pasteur institute has been installed on the campus, where virus is prepared and rabies cases will be treated.

New Polyclinic Building.—At a dinner, given June 24, by the San Francisco Polyclinic Board to Drs. George W. Merritt and William A. Martin, retiring members, it was announced that a lot for a new building had been secured on Jackson Street, near Polk Street, and that plans were in contemplation for a building to cost \$25,000.

ILLINOIS

Chicago

Personal.—Dr. Charles Adams returned, June 29, from a trip eastward around the world.—Dr. and Mrs. D. A. K. Steele returned on the same day from a trip westward around the world.—Dr. J. E. Kelly was seriously injured by the overturning of an automobile near Pingree, June 20.—Dr. Ernst

ll. Weichbrodt, Dr. and Mrs. Alfred A. Weber, Dr. and Mrs. Franklin H. Martin, Dr. and Mrs. F. A. Bonthius, Dr. W. L. Ballenger, Dr. and Mrs. Bertram W. Sippy and family, and Dr. J. Murray Washburne have sailed for Europe.—Dr. John B. Ellis was operated on for appendicitis in the Henrotin Hospital, recently.

Visits Medical Schools.—During his recent trip to South America, Dr. Jacob Frank, president of the Chicago Medical Society, made special visits to the medical schools of Brazil, Argentina and Uruguay and obtained valuable data for the Council on Medical Education of the American Medical Association.

Unclean Dairy Men Tabooed.—A new milk ordinance has been presented to the City Council by Dr. W. O. Nance, chairman of the health committee, which requires that milk be sold to the city at a temperature of 60 degrees and provides that all except the product from certified farms must be pasteurized. "Shut-out" lists have been issued giving the names of eighty-seven milk producers who are forbidden to send milk to Chicago and warning dealers against the acceptance of milk from these producers. The health department has also issued bulletins to educate farmers and dairy owners in sanitation and cleanliness as regards the handling of milk and cows.

MARYLAND

Movement for County Tuberculosis Hospital.—Through the efforts of Mrs. Ella McDonald, a movement is well under way for the establishment of a tuberculosis hospital for Allegany County. The county commissioners have promised a site for the institution on the mountain back of the county home, and also, it is said, will aid the project to the extent of \$3,000. Mrs. McDonald is said to have offered to finance the institution for one year.

Baltimore

Hospital Directors Elect Officers.—At the annual meeting of the Board of Directors of the Franklin Square Hospital, Dr. Alexander D. McConachie was elected president; Dr. Frederick C. Caruthers, vice-president, and Dr. Albert T. Chambers, secretary-treasurer.

Personal.—Dr. Howard A. Kelly left for his summer home in Ontario, July 3.—Dr. H. C. Ohle has lost his sight from an infection received during an operation two and one-half years ago.—Dr. Joseph C. Bloodgood who was operated on for appendicitis at Johns Hopkins Hospital, June 27, is reported to be convalescent.

Cancer Hospital Opened.—The new Skin and Cancer Hospital, Baltimore, which occupies the building of the old Atlantic Medical College, was formally opened July 8, with addresses by the mayor and others. Dr. George H. Everhart is in charge of the institution which will have accommodation for fifty patients. The operating room has been built in memory of Mrs. Fanny Flemming.

The Act Relating to Drinking Cups.—The council of the Baltimore Public Service Commission has given out the following statement with reference to the act relating to public drinking cups: "The Public Service Commission of Maryland is a branch of the executive department of the government and may not, therefore, give judicial powers. Insofar as the act of 1912 relative to the use of public drinking cups attempts to confer appellate jurisdiction on the Public Service Commission in prosecutions for violations of the act, it is void, being in violation of the Declaration of Rights Article VIII, which requires that the executive, legislative and judicial departments of the government be kept separate and distinct."

MICHIGAN

State Society Meeting.—The forty-seventh annual meeting of the Michigan State Medical Society was held in Muskegon, July 10-11, under the presidency of Dr. D. Emmett Welsh, Grand Rapids. It was decided that all future annual meetings should be held during the last two weeks of September. The legislative committee was instructed to use its best efforts to have a good definition for the practice of the healing arts placed on the statutes of the state. The secretary was instructed to send a notice to each senator and representative from Michigan regarding the endorsement of the Owen bill by the society and also calling their attention to the necessity of a most thorough enforcement of the national pure food and drugs act. A motion was adopted abrogating the instructions previously given the legislative committee looking toward a set appropriation for the support of the Board of Registration in Medicine. The following officers were elected: president, Dr. Walter H. Sawyer, Hillsdale; vice-presidents, Drs. D. G. Cook, Holland, J. F. Denslow, Muskegon,

Samuel Osborn, Lansing, and Frank Holdsworth, Traverse City; delegates to the American Medical Association, Drs. C. J. Hirschman, Detroit, C. E. Boys, Kalamazoo, and the state secretary; alternates, Drs. H. J. Kinne, Frankfort; H. E. Randall, Flint, and A. W. Hewlett, Ann Arbor; councilor for the third district, Dr. A. S. Kimball, Battle Creek, and honorary members, Dr. John Avery, Greenville, George W. Crile, Cleveland, and George W. McCaskey, Fort Wayne, Ind. The next meeting of the society will be held in Flint. On July 9, Dr. D. Emmett Welsh, president of the society, gave a luncheon in honor of Dr. J. B. Roberts of Philadelphia and other guests of the society.

NEW JERSEY

Bids for Tuberculosis Hospital Rejected.—The Tuberculosis Committee of the Board of Freeholders of Morristown opened and rejected all bids for the construction of the tuberculosis hospital and shacks, June 28, either on account of informalities, or because the cost was higher than the appropriation made.

Jefferson Alumni of New Jersey Organize.—Permanent organization of the New Jersey State Chapter of the Alumni Association of Jefferson Medical College was effected at the new Monmouth Hotel, June 12. Dr. Randle C. Rosenberger, Philadelphia, was the representative of the central organization, and the following officers were elected: president, Dr. Daniel Strock, Camden; vice-president, Dr. L. M. Halsey, Williamstown, and secretary, Dr. Linn Emerson, Orange.

NEW YORK

Personal.—Dr. W. Louis Hartman of Syracuse is at present in a Montreal hospital, where he has had his left leg amputated as the result of the accidental discharge of a shotgun at a camp in the northern part of the state.—Dr. J. Harris Levy, Syracuse, has returned from Europe.—Dr. R. H. Hutchings, superintendent of the St. Lawrence State Hospital, Ogdensburg, who has been ill for nine months, has recovered and resumed work.—Dr. Thomas S. Parker, one of the oldest physicians of Cohoes, was recently presented with a silver loving-cup by his fellow practitioners of the city.—Dr. Alexander Smith, assistant surgeon of the Hospital of the State Soldiers' Home, Bath, has resigned.—Dr. Anthony W. Rusin, Syracuse, sustained severe burns by an electric shock, July 6, but is reported to be improving.—Dr. Alma E. Beale, Schaghticoke, and Dr. W. A. Keegan have sailed for Europe.—Dr. J. C. Jacoby, who has been connected with the Pasteur Institute, Paris, has returned to his home in Rochester.

Deportation of Alien Insane.—Testimony is being taken before the committee appointed by the bureau of deportation to investigate conditions on Ellis Island for the care of alien insane. All the alienists who have testified thus far have virtually agreed that the provisions for the detection and detention of insane persons at Ellis Island are inadequate. They also favor foreign port examination and the presence on ships of one or more trained alienists. It is stated that under present conditions scarcely 10 per cent. of the aliens suffering from various forms of insanity can be detected. Dr. W. B. Mosely of Bellevue Hospital, testified that about 3,500 patients are admitted to the psychopathic ward of that hospital annually and that many of these are aliens. Dr. Fritz Fischerauer, vice-consul for Austria-Hungary, told of the regulations of his country regarding immigrants. He said that steamship companies were not allowed to canvass for immigrants and were held to a strict account for the class of persons that they transported by a rigid system of fines.

New York City

Few Ambulance Calls on the Fourth.—The board of ambulance service announces that on the recent Fourth of July there were 277 ambulance calls, only sixteen more than the ordinary daily average. Last year there were 344 calls on the Fourth.

No Milk Shortage in New York.—Paul E. Taylor, director of the New York Milk Committee, states that the cry of a milk shortage is unwarranted, that the city has at present the best milk-supply it has ever known. Dr. Ledërle declared that the cry of shortage was started by small dealers who are averse to obeying the recently passed ordinances making compulsory the labeling of all milk sold in this state.

Welfare Work Saves Many Babies.—For the week ending July 6, there were 267 deaths of babies under 1 year of age; this is eighty fewer than during the corresponding week of 1911. Since January 1, there have been 416 fewer deaths of infants under 1 year of age than during the corresponding period of 1911. Arrangements have been completed by which

the Welfare Association will become a bureau for placing babies in hospitals, dispensaries and day nurseries. Outing facilities will be handled in the same manner. During the past week 816 more babies were registered than during the preceding week.

School Ventilation.—The Board of Education has decided that the most popular system of ventilation is the type of window ventilation with the addition of flues. It agrees with Prof. C. E. A. Winslow that there is only one principle of ventilation on which authorities are unanimously agreed, that a high temperature is detrimental to mental vigor and to health. It has been learned that the temperature in the classrooms has been as high as 90 degrees and that the windows had not been used as ventilators at all. The report of a special committee to investigate ventilation of schools contains a recommendation that this question be laid open for further investigation.

Personal.—Dr. Mason R. Pratt has been appointed superintendent of the Hospital of the Good Shepherd, Syracuse.—Dr. Guilielma F. Alsop, Brooklyn, has been appointed a medical missionary in the Protestant Episcopal Church and assigned to duty in Shanghai.—Dr. Alexis Carrel has been appointed a member of the Rockefeller Institute for Medical Research.—Dr. Samuel L. Hetrick, New York City, was painfully injured in an automobile collision near Eatontown, N. J., recently.—Prof. A. B. Norton, chief surgeon at the New York Ophthalmic Hospital, was operated on for appendicitis at the Hahnemann Hospital, July 6, and is said to be recovering rapidly.—Drs. C. F. Adams, W. Benham Snow, John Van der Poel, Louis Fischer, William G. Russell and Dr. and Mrs. J. H. P. Hodgson have sailed for Europe.

Infant Milk Stations.—The committee on the reduction of infant mortality of the New York Milk Committee has offered to render assistance to the Department of Health in the conduct of the work of the infants' milk stations. The medical directors of the committee will visit the municipal infants' milk stations from time to time and make reports to the department in regard to the conducting of the work, giving instructive suggestions for such improvements as may seem advisable. The committee will assist in the supervision and checking of the records of the milk stations and in collecting data for reports and public statements. It has already provided an executive secretary for the recently established Babies' Welfare Association, and will further assist the Department of Health in preparing the material for the public and in carrying out plans for meetings and educational exhibitions.

Pushcart Peddlers a Menace to Health.—The Board of Aldermen is to hold a series of public meetings with the object of solving the problem of the pushcart nuisance. It is stated that there is legal provision for the issuance of only about 4,000 licenses while there are about 14,000 men in the business. There is legal provision for the physical examination of men in the pushcart business, and none suffering from tuberculosis or other communicable disease are allowed to obtain licenses, but it seems that certain individuals have obtained large numbers of licenses and have farmed them out without any regard to the fitness of those to whom they lease them. Plans are suggested of providing markets in different parts of the city where these small traders will be segregated, and which can be watched and kept in sanitary condition. It is believed that some plan can be found which will make such markets self-supporting.

NORTH CAROLINA

Architect's Design Accepted.—The trustees of the Patton Memorial Hospital, Hendersonville, have accepted the designs, and the construction work will begin shortly.

Personal.—Dr. W. W. Jones, High Point, has been elected superintendent of the Board of Health of Guilford County.—Dr. A. C. Boyles has been elected health officer of Durham.

Colored Physicians Meet.—The twenty-third annual meeting of the North Carolina Medical, Pharmaceutical and Dental Association was recently held in Raleigh. Dr. P. H. Williams, Raleigh, was elected president; Dr. A. S. Burton, Newbern, vice-president, and Dr. A. A. Wyche, Charlotte, was elected secretary-treasurer for the sixth time.

OHIO

New Officers.—Dayton Medical Society, June 20: president, Dr. J. F. Wuist; secretary-treasurer, Dr. C. O. Bayless.—Association of Past and Present Interns of the Miami Valley Hospital, Dayton: president, Dr. Curtis Ginn; secretary-treasurer, Dr. G. P. Dale.

Personal.—Dr. Stephen A. Douglass has been reelected superintendent of the State Hospital for Tuberculosis, Mt. Vernon.—Drs. William S. Reed, Hamilton; J. W. McKemey, Toledo; J. D. Beer, Wooster; J. P. Hershberger, Lancaster, and L. R. Fast, Paulding, have been appointed local medical examiners for the State Liability Board.—Dr. Otto Landman, Toledo, was given the honorary degree of Master of Arts by the University of Michigan, June 27.—Dr. J. W. Barnes, Columbus, narrowly escaped drowning in Sandusky Bay, July 5.—Dr. J. C. George, Dayton, superintendent of the Miami Valley Hospital, has resigned and in connection with Dr. A. F. Shepherd, formerly superintendent of the Dayton State Hospital, will conduct a private sanitarium north of Dayton.

OREGON

Personal.—Dr. F. E. Moore of Baker has been reappointed osteopathic member of the State Board of Medical Examiners.—Dr. J. H. Robnett, assistant physician to the State Insane Hospital, Salem, has resigned and will take up graduate work in the East.

State Association Meeting.—The annual meeting of the Oregon State Medical Association was held in conjunction with that of the Northwest Medical Association, July 7-8, and the following officers were elected: president, Dr. R. E. Ringo, Pendleton; vice presidents, Drs. J. S. Moore, Portland, F. D. Stricker, Grants Pass and R. W. Stearns, Medford; secretary, Dr. M. B. Marcellus, Portland (reelected); treasurer, Dr. Katherine C. Manion, Portland; councilors, Dr. C. J. Smith and Paul Rockey, Portland, and trustee, Dr. Kenneth A. J. Mackenzie, Portland. Medford was selected as the next place of meeting.

PENNSYLVANIA

Bequeathes Instruments to Institution.—By the will of the late Dr. Albert M. Shoemaker, White Haven, his medical books, instruments and laboratory appliances are bequeathed to the White Haven Sanatorium.

Personal.—Dr. George D. Thomas has been elected treasurer of the board of trustees of Allegheny College, Meadville.—Dr. W. Albert Nason, superintendent of the Nason Hospital, Roaring Spring, was presented with a silver loving-cup by members of the Blair County Medical Society and others, June 25, the occasion being Dr. Nason's fiftieth birthday anniversary, and the twenty-fifth anniversary of his entrance into the medical profession.—Dr. George H. Widder and Edward H. Shell have been appointed members of the Board of Health of Harrisburg.—Dr. Spencer M. Free, Dubois, sailed for Europe, June 26.—Dr. J. A. Singer, East Stroudsburg, has been appointed a trustee of the state normal school in that place.—Dr. Charles A. Hottenstein, Kutztown, has been appointed a trustee of the Kutztown Normal School.—Drs. H. G. McCormick, C. E. Heller and G. Franklin Bell have been elected members of the board of managers of the Williamsport Hospital.—Dr. C. D. F. O'Hern, Bradford, sailed for Europe, July 6.

Philadelphia

Appropriation for Studying Mosquito.—Councils on July 1 made an appropriation of \$5,000, advocated by the mayor, for the scientific mosquito problem. The study includes the whole question of lowlands, stagnant water courses, etc., the abolition of breeding places, and the eventual extinction of the mosquito.

Special Course on Hygiene.—Among the special courses offered in the summer school of the University of Pennsylvania, which opened July 1, is a series of lectures by Dr. Walter S. Cornell, director of medical inspectors of the Philadelphia public schools, on personal hygiene, school hygiene, medical inspection, physical defects of school children and medical deficiency.

Portraits for the University.—The oil portraits of two of its medical leaders were among those added to the collection of the University of Pennsylvania at its commencement day celebration, June 19, those honored being Provost Edgar F. Smith and the late Dr. Joseph Leidy. A fund for the purpose of having painted a portrait of the late Dr. DeForrest Willard has been almost completed by his friends and admirers. To those wishing to contribute to the memory of Dr. Willard the committee will gladly receive for this purpose cheques drawn to the order of Dr. William Pepper, 1811 Spruce Street.

Changes in the Health Bureau.—Dr. Jay F. Schamberg has resigned his position in the Health Bureau of assistant diagnostician and consultant. Dr. J. S. Neff does not intend to fill his place with one man and if the City Councils will consent to the transfer of the one salary to four other men,

the director will divide the work among four inspectors, who have already been assigned to work in scarlet fever, typhoid fever, tuberculosis and children's diseases and will augment their present salary of \$1,400 by giving each \$500 additional. Dr. A. A. Cairns, the chief medical inspector, devotes his time to small-pox and diphtheria and the chief diagnostician and consultant, Dr. William M. Welch, supervises the work, so that this plan would give the department a staff of expert diagnosticians.

Neff Asks Small-Pox Probe.—Dr. Joseph S. Neff, director of public health and charities, has written a letter to Surgeon General Blue, U. S. P. H. & M.-H. Service, calling attention to the fact that no report of small-pox was made by the physicians of the steamship *Haverford* at the quarantine station here, although two small-pox patients had been removed from the steamer at Queenstown on her voyage to the United States and that a death, supposedly from small-pox, occurred at sea. Dr. Neff asked to have an investigation made of this. As a result of the cases here, nearly 20,000 persons have been vaccinated in affected districts. Dr. Neff has also written a letter to John P. Connelly, chairman of Finance Committee of Councils, asking that \$15,000 be appropriated to his department for use in case of emergency, to prevent the possible spread of small-pox during the summer months.

TENNESSEE

New Officers.—East Tennessee Medical Association: president, Dr. O. W. Hill, Knoxville; secretary-treasurer, Dr. H. P. Larimore, Chattanooga. Lenoir City was decided on as the meeting place for next year.—Upper Cumberland Medical Society at Sparta: president, Dr. W. C. Officer, Monterey; secretary, Dr. Z. L. Shipley, Cookeville.

Tuberculosis Notes.—The first building to be occupied by the Chattanooga Tuberculosis Sanatorium is under roof. The building has a frontage of 90 feet and will eventually be made a part of the general dormitory.—More than \$10,000 of the \$20,000 required for the construction and maintenance of the East Tennessee Tuberculosis Sanatorium has already been pledged.—The New Davidson County Tuberculosis Hospital on the Hamilton Road near Nashville, which was opened last month, is rapidly filling and it is reported that the camp which has been established on the 150-acre tract of land belonging to the institution will be required to take care of the number of patients who apply.

Witherspoon Banquet.—At the banquet given July 3 in Washington in honor of Dr. John A. Witherspoon, president-elect of the American Medical Association, Dr. R. E. Fort acted as toastmaster and the following toasts were responded to: Dr. A. B. Cooke, "Playing the Game in a Medical Convention;" Chancellor J. H. Kirkland, "Improvements in Medical Education;" Dr. W. D. Haggard, "The South's Contribution to Medicine;" Mr. F. O. Watts, "Our Boyhood;" Hon. J. T. Lelyst, "Man's Friend, the Doctor;" Mr. Leland Hume, "The Professional Man's Relation to the Community;" Hon. John Bell Keeble, "The Battle Hymn of Achievement," Dr. John A. Witherspoon responded to the toasts. The banquet, as stated in last week's issue, was given under the auspices of the Academy of Medicine and the Nashville Board of Trade. The toastmaster, Dr. R. E. Fort, called attention to the fact that Nashville had given four presidents to the American Medical Association: Dr. Eve in 1857; Dr. Bowling, 1875; Dr. W. T. Briggs, 1891; Dr. Witherspoon, 1912. Dr. A. B. Cooke said that the American Medical Association had been organized as much for the protection of the public as for the advancement of the medical profession. Prevention of disease and public sanitation have been its main purposes. His reference to the Association's fight against nostrums and quackery was heartily applauded. He was proud of the fact that the Vanderbilt University Medical Department was in Class A in the Association's classification of medical colleges. Dr. J. H. Kirkland, Chancellor of Vanderbilt University, discussed the factors working for better medical education and especially the work of the Council on Medical Education. He said that this movement is not simply an intellectual one but has the driving power of a great moral movement for the good of the people. Dr. W. D. Haggard, speaking of the contributions of the South to medicine, referred to the work of Dr. Crawford W. Long, who first used anesthesia in this country, to Ephraim McDowell who first opened the abdomen and to the great work of Marion Sims. The other speakers also paid tribute to the high qualities of Dr. Witherspoon both as a man and a physician. Dr. Witherspoon, in his address, modestly attributed his election more to the section of the country in which he lives than to his personal merits. He gave to Nash-

ville and the South credit for the uplifting and improvement of the medical profession and said that the same patriotism which had been displayed by Southerners in other fields had been shown in the South's fight for a higher plane for surgery and medicine.

TEXAS

Personal.—Dr. J. L. Burgess, Waco, was seriously burned by an explosion of the gasoline tank of his automobile, July 6. —Dr. C. Lee, Tioga, accidentally shot himself through the foot July 2.

Medical Alumni Meet.—The Alumni Association of the Medical Department of the University of Texas held its annual meeting, June 1, and elected Dr. T. Terrell Jackson, San Angelo, president; Dr. C. F. Young, Bowie, vice-president, and Dr. G. C. Kindley, Galveston, secretary-treasurer.

Section Officers Elected.—At the meeting of the North Texas Medical Society at Ennis, June 19, it was voted to hold the next meeting in Dallas on the second Tuesday, Wednesday and Thursday of December and the following section officers were elected: medical—chairman, Dr. Wallace C. Kimbrough, Denton; secretary, Dr. H. E. Griffin, Ennis; gynecology and obstetrics—chairman, Dr. H. H. Doolittle, Dallas; secretary, Dr. J. H. McLean, Fort Worth; surgery—chairman, Dr. F. C. Beall, Fort Worth; secretary, Dr. Charles R. Johnson, Gainesville.

GENERAL

Medical Examiners Elect New Officers.—At the annual meeting of the American Association of Medical Examiners held in Atlantic City, June 3-4, the following officers were elected: president, Dr. Frank W. Foxworthy, Indianapolis; vice-presidents, Drs. Charles Theodore Cutting, Seattle, Wash., Paul FitzGerald, Newark, N. J., James W. Guest, Louisville, Ky., and A. T. Gaillard, Philadelphia, and secretary-treasurer, Dr. George Strohbach, Cincinnati.

The Plague Situation.—Up to July 12 there had been thirty-four cases of plague in the island of Porto Rico and twenty-one deaths. More than 2 per cent. of the rats examined at San Juan showed plague infection, but on these few fleas were found. One focus of infection has been found at Carolina, twenty-five kilometers from San Juan and strenuous efforts are being made to extinguish it. It is of extreme importance that the spread of the infection to the wild rats of the island be prevented, as that would immensely increase the difficulty and prolong the time of its eradication from the island. No new cases were reported from Havana, though in the section of the city where the plague case was found there was a high mortality among rats. On July 8, Surgeon General Blue telegraphed orders to the Marine-Hospital Service officials at all of the Atlantic and Gulf ports to enforce the most stringent regulations against the introduction of plague and to confer with the local health officers and urge the collection, examination and destruction of rats. New Orleans has instituted a thorough "rat survey" and precautions have been taken to prevent the landing of rats from vessels, and the fumigation of all ships arriving at that port has been instituted. Other towns along the Gulf and Atlantic coast are employing similar precautions. Dr. Guitaras is carrying out similar measures in the fumigation of vessels leaving Havana. The rats will be destroyed and the vessels prohibited from going to or lying at the docks or wharves. Surgeon R. H. von Emdorf of the Marine-Hospital Service has been ordered from Mobile to Havana to assist in the outgoing quarantine. Freights will be inspected and certified on bills of health. No crews are to be shipped in Havana and no shore liberty will be allowed crews there. All passengers at Havana must be certified individually prior to their departure for the United States. So far as known no case has occurred in the United States and with the active disinfection and rat inspection, together with the quarantine of all suspected illnesses, it is probable that the plague will gain no extensive foothold in the United States.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, June 29, 1912.

The Parliamentary Committee on Nostrums

The select committee of the House of Commons appointed to inquire into the sale and advertisement of "patent medicines" (THE JOURNAL, June 1, pp. 1690 and 1698) has heard important evidence as to the laws regulating the importation of nostrums into Australia and their supply to the public. Mr. Neal, an

officer of the customs of Australia, stated that under the Commerce Trade Descriptions Act of 1905 regulations might be made prohibiting the importation of any specified goods unless there was supplied with them a trade description as prescribed. Among the articles specified were medicines and medicinal preparations for internal and external use. In the case of proprietary medicines the description must include a statement of their nature and purpose. A "fancy name" would not be accepted because it would not indicate the nature of the goods. The names of certain specified drugs contained in the medicine and their proportion must be given, but in general the formula was not necessary. Such articles as "oxygenator," manufactured in the United States, and "tuberculozyme," manufactured in London, are prohibited entirely. But with regard to the manufacture of nostrums in Australia there are no such restrictions. From time to time the customs office issues orders intended to safeguard the public. For example, an order was issued that there should be on the label of all goods purporting to be a remedy for gonorrhea, a statement that if the disease did not yield to treatment readily a doctor should be consulted.

Mr. Guy Stephenson, assistant director of public prosecutions in England, gave evidence as to the policy pursued in cases of alleged fraud in connection with the sale of nostrums. It is very difficult to obtain convictions in these cases, in which, as a rule, the seller is not the manufacturer of the article. It is necessary to prove that the vendor knew the statement on the labels to be false. In the case of drugs sold for illegal purposes it was specially difficult to obtain evidence, because the persons who bought and used the goods had also committed an offense, and, in accordance with legal practice, their evidence required corroboration. Under the Post-Office Act persons advertising through the mails appliances for the prevention of conception were prosecuted for indecency. With regard to the mere puffing of goods, it has been held by judges that this was not a false description of a kind that could be made the subject of a criminal prosecution. Unless a preparation was proved to be doing serious harm to the health of a number of persons a prosecution could not be made. But in such cases the vendors are able to get people to come forward and declare that the stuff has done them good. There is nothing in the law to prevent any person making up any mixture containing anything except obvious poisons, advertising it as a cure for any disease and selling it broadcast on payment of stamp duty. It is possible to prosecute if somebody comes forward and says that he has parted with his money on the faith of the statement made in the advertisement, and, provided also, that it can be proved that the vendor knew that the drug was not capable of doing what he said it could do. The difficulties are so great that there is practically no remedy.

The Health of Coal-Miners

The dangers and hardships of the collier's life form a frequent theme and often a plea for increased wages. The recent returns of the Registrar General, however, show that the death-rate of colliers is below the average—846 compared with 1,000 of all occupied males. Moreover, their susceptibility to phthisis is little more than half that of other males. Their mortality from influenza, cancer, diseases of the nervous and circulatory systems, and Bright's disease is below the average. There is also a low death-rate from alcoholism, liver disease and suicide, which shows that colliers, as a rule, do not drink to excess. Below the age of 20 and above that of 55, the death-rate of colliers is above the average, but this is due to accidents. The death-rate of the collier is scarcely half that of the copper, tin and lead miner. The improved ventilation and hygienic conditions generally, which legislation has rendered compulsory in mines, appear to be factors, for, while the mortality of occupied males has fallen 16 per cent., that of colliers has fallen 21 per cent. The deaths from fire-damp have much decreased. Of occupations in which the risk of accidental death is greatest, the collier's ranks fourth. It is above that of the railway worker but below that of the seaman, bargeman and fisherman.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, June 28, 1912.

Personal

At the meeting of June 25, the Académie de médecine elected a member of the section of pharmacy, in place of the late M. Caventon, M. Grimbert, professor at the Ecole supérieure de pharmacie de Paris and director of the central dispensary of the hospitals.

Creation of a Central Office of Criminology

Some time ago, the Chamber of Deputies adopted a resolution requesting the minister of justice to study means of organizing in Paris an office of criminal anthropology for scientific examination of criminals and for research of social factors in criminality. A commission was appointed (THE JOURNAL A. M. A., Dec. 9, 1911, p. 1926) which was of the opinion that this might be attempted, but only with condemned criminals.

Continuing the work of his predecessor, the present minister of justice has taken the initiative by recommending to the parliament that necessary funds be provided for the establishment of a central office of criminology. The purpose of this office, annexed to the service of government statistics, would be the complete study of criminals from three points of view: (1) physical and biologic organization; (2) psychic condition, and (3) social influences. By comparing the data thus acquired, the office would be enabled to deduce the laws of the genesis of crime, and thus legislators would have a better understanding of the measures necessary to stop the constantly increasing advance of criminality.

Sanitary Statistics

M. Léon Bourgeois, minister of labor, has instituted, in connection with the general-statistics service of France, an inter-ministerial commission of sanitary statistics to study improvements in the use of statistics of mortality and of morbidity and to prepare outlines for international comparison. He suggested that first the morbidity in the government list be studied. The rôle of the commission, then, is to group documents, the analysis of which will determine the frequency of the principal diseases and chiefly those which, like tuberculosis are developed especially in congested centers of population. The commission will try to arrange means of drawing up statistics of professional mortality and morbidity. Of the eighteen members of the commission five are physicians.

The Consumption of Tobacco in France

The receipts of the sale of tobacco reached, in 1910, almost \$100,000,000 (500,000,000 francs), an increase of over \$2,000,000 over the preceding year. The quantity of tobacco consumed (tobacco for smoking, snuffing and chewing), represents 41,516,935 kg. In 1910, the average individual consumption of tobacco, including all kinds, in France was 1,054 gm., of which 122 gm. was in powder and 932 gm. for smoking or chewing. The expenditure on tobacco has reached the enormous sum of 535,257,534 francs, or 13.73 francs for each inhabitant, including women and children.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, June 21, 1912.

School Hygiene Exhibition

A school museum has been founded in Berlin from the German educational exhibits at the Brussels World's Fair and Dresden Hygiene Exposition. The museum is located in rooms donated by the municipal authorities, and is open to the general public. Of special interest is the exhibit of the association for applied psychology. Here are found directions for testing the special senses, for determining the intelligence, the memory and fatigue phenomena. Other objects show certain phases of the question of heredity; a model room for the school physician is furnished with apparatus for the examination of infectious diseases, arrangements for determining the growth of the body, for diagnosing curvature of the spine and the like, besides a case for bandages and a small library on school hygiene. All kinds of model articles for school hygiene are exhibited, such as washing conveniences that prevent conveyance of infectious diseases, paper towels and the like, and much to interest teachers, pupils and parents in various ways.

Official Investigation of the Declining Birth-Rate in Germany

The fact that even in Germany the birth-rate has been steadily decreasing, naturally receives the earnest attention of the government. As I mentioned some time ago, the Scientific Deputation for Medical Affairs in Prussia thoroughly discussed the subject and as a result, the Prussian government has ordered an official investigation to determine whether the fertility of women has diminished; whether the reduction of births is limited to certain classes of population, those that belong to certain professions or trades, and whether this reduction depends on degeneration which has its origin in

unhygienic conditions in the particular trade or profession, and whether the reduction of births depends on a voluntary limitation of the number of children, and the reasons for this limitation. It may be rightly objected that the answer to these questions requires a thorough knowledge of the habits of living of the population, as well as of the changes undergone in the last few decades. In particular it is to be determined whether and in what classes of the population a voluntary limitation of the number of children was formerly customary or has been lately introduced or is increasing, and whether it depends on social causes, and to what causes it is to be attributed, and especially, whether this limitation is in the interests of the parents (a disinclination to too many births, convenience and luxury of living and the industrial occupation of married women) or in the interest of the coming generation (increase of inheritance and possibility of a better education, etc.), or whether, to a certain extent, the ideas of neomalthusianism prevail or the advertisements in the press of means for prevention of conception have cooperated.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, June 15, 1912.

Improved Rates of Fees for Insurance Examinations

After prolonged negotiations dating back for over ten years, the Medical Councils of Austria have succeeded in obtaining a remarkable success for the profession as regards remuneration for medical work done in the interest of life and accident insurance companies. Hitherto the fees were fairly uniform, 6 kronen (\$1.20) being paid for all examinations of accident cases, including a written testimonial of the principal points of the case, and the same fee was paid by the companies for life examinations up to insurance below \$2,000 (10,000 kronen). For lives insured for a higher sum, 10 kronen, or \$2, was the regular fee, except where specialistic examinations were required. Now the following scale has been arranged: For accident insurances, a fee of 8 kronen for each examination of an injured patient and the report thereon; 6 kronen for every report of the same case required before the patient is cured or otherwise discharged. If the insured sum exceeds 45,000 kronen (\$9,000) a first report has to be paid for at the rate of 10 kronen. For life-insurance, a sum up to \$1,000 entitles the doctor to a fee of \$2; \$2,000 life-insurance pays a fee of \$3, all higher sums only \$4. This improvement is very important, for it is the first time that powerful and very influential corporations have had to submit in this country, to the wishes of the profession. The merit is due to the stiff standing of the organization, which continues to show its most beneficial power in the interest of our profession.

Professor von Noorden Goes on a Lecture Tour to the United States

The famous clinician, von Noorden, well-known for his researches on disturbances of metabolism, has been invited by the New York Post-Graduate Medical School to deliver a series of lectures on "The Progress of the Knowledge of Metabolic Diseases." He has accepted the invitation and will sail in October for New York. He intends to lecture chiefly on the treatment required by excess of fat and its reverse, as well as on diabetes in its modern aspects. Von Noorden goes as official delegate of the Austrian government to the Congress of Hygiene and Demography which will convene in Washington, D. C., but he has not yet decided to lecture anywhere else than in New York, although several other colleges and cities have invited him to do so, for his duties as clinical professor require him to be back in Vienna early in November.

Marriages

ROBERT ALTHA GANS, M.D., New Salem, Pa., to Miss Laura M. Buckley of Omaha, at her summer home in Cordova, Ill., recently.

JOSEPH WINDSOR HOWLAND, M.D., Topeka, Kan., to Miss Annie Elizabeth Saunders of Sedalia, Mo., June 30.

WILLIAM T. LINDLEY, M.D., to Mrs. Margaret Tilley, both of Hamilton, Mo., at Jackson City, Mo., June 25.

FREDERICK C. DRENNING, M.D., to Eva Thayer Niles, both of Duluth, Minn., at St. Paul, Minn., July 2.

JOHN VICTOR REILLY, M. D., Greeley, Neb., to Miss Helen Marie Lennon of Rochester, N. Y., June 26.

PATRICK IRELAND NIXON, M. D., San Antonio, Tex., to Miss Olive Gray Read of Mineola, Tex., July 3.

NEWTON W. HERSHNER, M.D., to Miss Wilma Anna Landers, both of Mechanicsburg, Pa., June 18.

WALTER G. MCCUSTION, M.D., Paris, Tex., to Miss Clyde McKinney of Cooper, Tex., June 26.

FOREST FLYFIELD, M.D., Wausau, Wis., to Miss Gertrude Knehne of La Porte, Ind., June 24.

GEORGE EDWARD MCGINNIS, M.D., Logan, Pa., to Miss Mabel St. Clare of Clarendon, Pa., July 2.

DANIEL CURLEY ROSS, M.D., Ambridge, Pa., to Miss Anna C. Forcey of Clearfield, Pa., July 2.

WILLIAM A. MEIERDING, M.D., to Miss Alma Bendixen, both of Springfield, Minn., June 26.

CLARENCE JAMIE NEILSON, M.D., to Miss Pearl E. Downs, both of Philadelphia, July 2.

FRANK A. UPPENDAILL, M.D., to Miss Mildred J. McGraw, both of Peoria, Ill., July 3.

ALBERT EHRENFRIED, M.D., Boston, to Miss Grace Waterman of Bangor, Me., July 3.

WILLIAM DAVID BLACK, M.D., to Miss Olga Endres, both of St. Louis, June 28.

EDWARD O. MORROW, M.D., to Miss Ida M. Steiner, both of Canton, Ohio, June 1.

MORRIS TUCH, M.D., Hartford, Conn., to Miss Fannie E. Cohen, June 30.

Deaths

Henry Giles Anthony, M.D. Rush Medical College, 1884; a member of the American Medical Association and a well-known specialist on skin and venereal diseases; died at his home in Chicago, July 10, aged 52. He was the son of the late Judge Elliott Anthony and after his graduation in medicine, spent five years abroad in the study of his chosen specialty. In 1890 he was made assistant professor of skin and venereal diseases in his alma mater and professor of skin and venereal diseases in the Chicago Policlinic. He was also physician to the Children's Memorial Hospital. He had suffered for several years from tuberculosis of the hip, and his death was due to a toxemia, complicating the tuberculosis.

Frank Fife, M.D. Medical College of Ohio, Cincinnati, 1892; for ten years a member and once president of the School Board of Dayton, Ohio; later assistant surgeon at the National Military Home and thereafter assistant superintendent of the Dayton State Hospital for three years; died at his home in Dayton, June 29, from uremia, aged 47. At his funeral the pall-bearers were brother practitioners.

Newton Morse Collins, M.D. Hahnemann Medical College, Philadelphia, 1883; local surgeon of the New York Central and Pennsylvania systems, Rochester & Eastern, Rochester, Syracuse & Eastern, Buffalo and Lockport & Rochester railroads; surgeon of the Homeopathic Hospital, Rochester; died in that institution, June 22, from intestinal hemorrhage, following an attack of typhoid fever, aged 52.

John Kurtz, M.D. George Washington University, Washington, D. C., 1870; a member of the Medical Association of the District of Columbia; formerly assistant chief surgeon of the Northern Pacific System and a pioneer practitioner of the Red River Valley; a resident of Moorhead, Minn., from 1873 to 1892, and thereafter a practitioner of Washington, D. C.; died at his home, June 30, aged 65.

William H. Weirick, M.D. University of Pennsylvania, Philadelphia, 1866; formerly a member of the American Medical Association; a member of the Illinois State Medical Society; assistant surgeon of the Two Hundred and Thirteenth Pennsylvania Volunteer Infantry during the last year of the Civil War; died at his home in Washington, Ill., June 28, aged 70.

William Porsons Ivey, M.D. University of Maryland, Baltimore, 1883; a member of the Medical Society of the State of North Carolina; formerly a member of the State Board of Health, and for many years assistant superintendent of the Morganton State Hospital; died at his home in Lenoir, June 28, from cerebral hemorrhage, aged 55.

William Guy Richards, M.D. College of Physicians and Surgeons, New York City, 1878; for many years a member of the medical staff of the Mutual Life Insurance Co., New York City; formerly a member of the Tarrytown, N. Y., board of education; died at his home in that place, June 30, from acute gastritis, aged 61.

Edwin Taylor Davis, M.D. University of Vermont, Burlington, 1888; a member of the American Medical Association; representative in the Connecticut Legislature in 1905; for many years health officer and a member of the School Board of Ellington; died at his home, June 26, from bronchial pneumonia, aged 48.

Charles Gifford Jenkins, M.D. University of Michigan, Homeopathic College, Ann Arbor, 1894; a member of the Michigan State Medical Society; for several years a member of the School Board of Lansing; died in Rochester, Minn., June 21, after an operation for malignant disease, aged 47.

Henry Delos Blanchard, M.D. Albany (N. Y.) Medical College, 1882; of Portlandville, N. Y.; formerly secretary, treasurer and president of the Otsego County Medical Society; died suddenly in a restaurant in Oneonta, June 26, from fatty degeneration of the heart, aged 57.

Jules Frederick Billard, M.D. Howard University, Washington, D. C., 1884; acting assistant surgeon, U. S. Navy, throughout the Civil War and thereafter a resident of Laurel, Md., until 1903, when he moved to Washington; died at his home in that city, June 29, aged 74.

James A. Miller, M.D. Cincinnati College of Medicine and Surgery, 1870; a member of the New Mexico Medical Society; for several years a member of the Pennsylvania State Board of Medical Examiners; died at his home in Santa Fe, June 30, from heart disease, aged 68.

Allen Duncan Sherman McArthur, (license, Ohio, 1896); a member of the Ohio State Medical Association; a practitioner of Ohio for more than fifty years; a veteran of the Civil War; died at his home in New Lexington, June 27, from heart disease, aged 76.

William DeKalb Wylie, M.D. New York University, New York City, 1888; of Richburg, S. C.; a member of the American Medical Association and formerly a member of the State Board of Medical Examiners; died in Eureka Springs, Ark., June 26, aged 46.

George W. Henry, M.D. Jefferson Medical College, 1885; a member of the Medical Society of New Jersey; a member of the New Jersey House of Assembly for two terms and once coroner of Camden County; died at his home in Camden, July 2, aged 54.

James Henry Hutchins, M.D. Rush Medical College, 1871; New York University, New York City, 1881; a member of the Iowa State Medical Society and a veteran of the Civil War; died at his home in Hampton, June 23, from cerebral hemorrhage, aged 67.

Juan Garcia Puron, M.D. Spain; for many years in charge of the Spanish department of D. Appleton and Company, New York City, and author of a number of Spanish textbooks; died in his native town, Llanes, Asturias, Spain, June 9, aged 58.

William Dietrick Nelson, M.D. Rush Medical College, 1884; (license, years of practice, Ill., 1878); for more than sixty years a resident of Fulton County, Ill.; died at the home of his daughter in Bryant, Ill., June 18, from senile debility, aged 87.

Ellis Vanderslice Ivey, M.D. University of Pennsylvania, Philadelphia, 1910; an intern in Bellevue Hospital, New York City; was instantly killed in a collision on the Delaware, Lackawanna & Western road at Gibson, N. Y., July 5, aged 26.

John Augustus Logan, M.D. Rush Medical College, 1878; a member of the Illinois State Medical Society; a veteran of the Civil War; a practitioner since 1872; died in his office in Canton, Ill., June 28, from heart disease, aged 65.

John Russell Goodloe, M.D. Vanderbilt University, Nashville, Tenn., 1893; of Demopolis; a member of the Medical Association of the State of Alabama; died in an infirmary at Selma, Ala., July 1, from chronic nephritis, aged 42.

Henry Edwin Spalding, M.D. New York Homeopathic Medical College, New York City, 1866; of Boston, formerly a lecturer in his alma mater, and a veteran of the Civil War; died at his home in Hingham, Mass., July 4, aged 68.

Alfred W. Henckell, M.D. University of Buffalo (N. Y.), 1889; a member of the American Medical Association and Rochester Pathological Society and Academy of Medicine; died at his home in Rochester, June 30, aged 46.

Milton Adolphus Smith, M.D. Tulane University, New Orleans, 1907; of Mount Herman, La., was shot and killed from ambush, July 3, on a public road in a portion of the Bogue Chitto swamp near Mount Herman.

Pembroke S. Thomas, M.D. Louisville (Ky.) Medical College, 1888; of Wichita; while crossing the Santa Fe tracks in that city, July 5, in his automobile, was struck by a passenger engine and instantly killed, aged 54.

Edmund Enquist Hill, M.D. Cooper Medical College, San Francisco, 1895; formerly coroner of San Francisco, and mayor of Nome, Alaska; died at his home in Nome, June 22, from cerebral hemorrhage, aged 43.

Malcolm Ney McNaughton, M.D. University of Buffalo, N. Y., 1868; since that time a practitioner of Villisca, Ia.; president of the First National Bank of Villisca; died at his home in that city, June 23, aged 63.

Allen Gideon Tripp, M.D. Syracuse (N. Y.) University, 1900; of Cicero; a member of the Medical Society of the State of New York; died in the Hospital of the Good Shepherd, Syracuse, June 28, aged 43.

Norman Frederick Cunningham, M.D. Bellevue Hospital Medical College, 1877; professor of medicine in Halifax (N. S.) Medical College; died at his home in Dartmouth, N. S., June 1, aged 63.

Robert W. Baird, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1881; of St. Louis; died at his home July 3, from the effects of strychnin, self-administered, in mistake for calomel, aged 56.

William M. Biddle, M.D. University of Nashville, Tenn., 1871; formerly mayor and a member of the Board of Health of Columbia, Tenn.; died at his home in that city, June 25, aged 65.

William R. Trotter, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1882; died at his home near Fort Des Moines, Iowa, June 29, from cerebral hemorrhage, aged 61.

James I. Norman, M.D. Indiana Medical College, Indianapolis, 1876; a member of the Indiana State Medical Association; died at his home near Parkeville, Ind., June 29, aged 59.

Samuel Houston, M.D. Queens University, Dublin, 1863; for forty years a custom house broker of New York City; died at his home in Yonkers, N. Y., June 25, aged 67.

Thomas Claire Buchanan, M.D. University of Pennsylvania, Philadelphia, 1900; died suddenly at his home in Reading, Pa., June 26, from angina pectoris, aged 36.

Isaac Newton Smith, M.D. Eclectic Medical Institute, Cincinnati, 1875; a veteran of the Civil War; died at his home in Westerville, Ohio, June 27, aged 70.

John Odum, M.D. Queens University, Kingston, Ont., 1880; formerly a member of the City Council of Woodstock, Ont.; died at his home in that city, June 27.

Robert Morris Butterfield, M.D. University of Toronto, 1910; M.R.C.S. and L.R.C.P. London, 1911; died in London, England, April 19, from typhoid fever.

Alexandria Kenner, M.D. University of Louisville, Ky., 1867; a Confederate veteran; died at his home in Hopkinsville, Ky., June 25, from nephritis, aged 69.

Charles H. Liebert, M.D. Philadelphia University of Medicine and Surgery, 1871; died at his home in Philadelphia, May 29, from pneumonia, aged 70.

Augustus Gallaher, M.D. Chattanooga (Tenn.) Medical College, 1898; died at his home in Decatur, Tenn., June 26, from cerebral hemorrhage, aged 45.

Aaron Myers, M.D. Medical College of Ohio, Cincinnati, 1870; of Hamilton, Ohio; died recently, aged 76, and was buried in Hamilton, June 22.

George Buckingham Smith, M.D. Hahnemann Medical College, Philadelphia, 1863; died at his home in New York City, June 8, aged 72.

Peter Van Buren Stroud, M.D. University of Pennsylvania, Philadelphia, 1861; died at his home in Marlton, N. J., June 23, aged 75.

Calvin Smith, M.D. American Eclectic Medical College, Cincinnati, 1880; died at his home in Farmland, Ind., July 2, aged 67.

A. G. Grugett, (license, Ky., 36 years practice, 1893); died at his home near Golo, June 29, from senile debility, aged 80.

Hext M. Perry, M.D. Jefferson Medical College, 1872; died at his home in Greenville, S. C., June 9, aged 60.

William King, M.D. Louisville (Ky.) Medical College, 1882; died at his home in Chicago, July 4.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

AMERICAN AND BRITISH LABELS

How the Food and Drugs Act is Protecting the American Public

The federal Food and Drugs Act, popularly known as the "pure food law," contains this clause:

" . . . the term 'misbranded' . . . shall apply to all drugs . . . the package or label of which shall bear any statement . . . which shall be false or misleading in any particular . . . " [Italics ours.—Ed.]

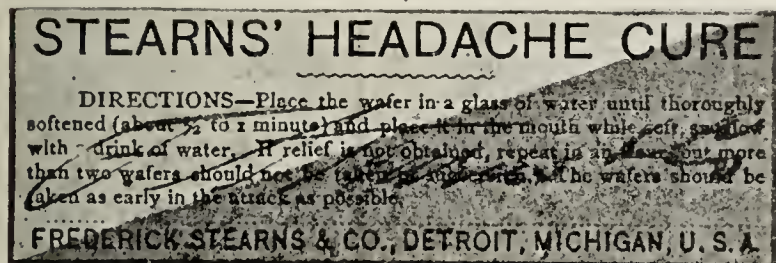
For nearly five years after this law was passed, the courts held, and the "patent medicine" manufacturers and the people believed, that this statement naturally meant that it was illegal to make any kind of false claims on the label. Then came the Supreme Court's decision declaring that what the law really meant was that false statements regarding composition

of the Atlantic. For the English label of to-day is the American label of six years ago. The British law, while protecting the purchaser of haberdasheries or groceries from misrepresentation and fraud, is a dead letter so far as its application to the sale of "patent medicine" is concerned. We are giving in this article photographic reproductions of labels and cartons from American "patent medicines" purchased within the past few weeks in London and Chicago, respectively.

STEARNS' HEADACHE CURE—SHAC

Frederick Stearns & Co., of Detroit, are manufacturers of pharmaceutical products. They also make many so-called ethical proprietaries; that is, preparations for use in physicians' prescriptions. Naturally they cater to the physicians' patronage, at least in the United States. For that reason, when they put out "patent medicines" as a side line, they do so not under the name of Frederick Stearns & Co., Detroit, but as the Zymole Co., New York. In Great Britain, they are not so particular, for, as will be seen by the photographic reproductions of the labels, their acetanilid headache powder is there sold under their own name. Before the Food and Drugs Act went into effect, this preparation was known and sold in the United States as Stearns' Headache Cure. As it is not a "headache cure," Frederick Stearns & Co. had to adopt a new name for their product. "Shac" is the new name.

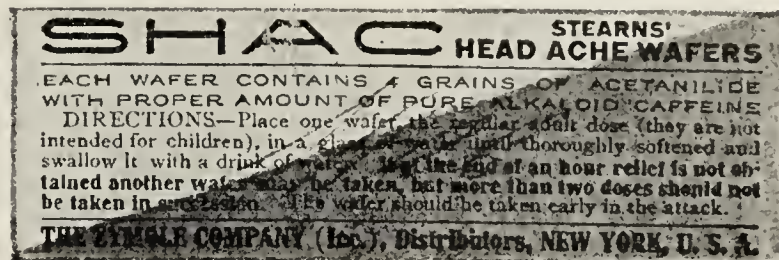
BRITISH LABEL



A Speedy, Certain and Safe Cure for Headaches of all Origins, whether Sick, Biliary, Nervous or Hysterical. Also a Positive Relief in Neuralgia.

THESE WAFERS contain nothing injurious and are warranted free from Antipyrine, Morphine, or Opium

AMERICAN LABEL



A speedy relief for headaches—sick, biliary, nervous or hysterical. Also a great relief in neuralgia.

These Wafers contain no other medicinal ingredients than those mentioned on the box top and are warranted free from antipyrine, morphine, chloral or opium.

Fig. 1.—Photographic reproduction of the English label (left) and American label (right) of Stearns' Headache Cure. The British public is given no hint that these wafers contain the dangerous heart-depressing drug, acetanilid; on the contrary, it is told that the preparation is "a safe cure" and "contains nothing injurious," two dangerous falsehoods. These false statements are eliminated from the label of the product as sold on the American market, and the American public is further safeguarded by the admission that they contain acetanilid and "are not intended for children."

and source of origin were prohibited, but that no cognizance should be taken of falsehoods that were confined to the curative effects claimed for nostrums. The decision was not unanimous, three out of the seven Supreme Court justices dissenting therefrom.

In the meantime, between the passage of the act and its interpretation by the Supreme Court, many "patent medicine" manufacturers changed their labels so as to eliminate the grosser untruths and thus avoid prosecution by the federal authorities. It is instructive to note the changes that were made in the labels of some of the most widely advertised American nostrums.

In spite of its many weaknesses and in spite of the limitations that have been put on it by the Supreme Court's interpretation, the American public has much to thank the Food and Drugs Act for. Most of us do not realize the changes that it has brought about. In one phase alone, that of truthfulness in labeling, the results have been marked. We know of no better way of showing what the law has done to protect the American consumer than by comparing the labels on "patent medicines" to-day with the same labels of six or seven years ago. This comparison is most easily made by placing in juxtaposition the American and English labels of those nostrums made in the United States that are sold on both sides

In Great Britain, they continue to falsify as they did in this country before untruthfulness became illegal. Study the two labels, American and British. In the first place the British public is given no hint of the composition of the wafers; the American public is advised that "each wafer contains 4 grains of acetanilid." The British public is not told that such preparations as this should never be given to children; the American public is. The British public is told that these wafers are "a Speedy, Certain and Safe Cure for Headaches of all Origins"; the American public is told, more truthfully, that they are "a speedy relief for headaches." For the British, they are "a Positive Relief in Neuralgia"; for the Americans they are "a great relief in neuralgia." The Briton is told "these wafers contain nothing injurious"—a statement as dangerous as it is false; the Americans are spared this lie.

Thus the American Food and Drugs Act, in this instance, has protected the American public by making Frederick Stearns & Co. disclose the presence of a dangerous heart-depressing drug in their nostrum and further by compelling them to eliminate false claims as to composition and curative effects. The fact that, in those markets where the law does not demand truthfulness and candor, the company still persists in falsifying and in repressing information that the public has the right to be given, does not speak well for the firm.

If Frederick Stearns & Co. were common, every-day "patent medicine" makers conducting a business that was wholly and entirely fraudulent, the course they have taken might be expected; but for a company that, in the main, does a high-class and honorable business, to persist in tactics that are both mendacious and disingenuous is neither good morals nor good business.

SYRUP OF FIGS—AND ELIXIR OF SENNA

Syrup of Figs is a laxative whose chief advertising asset is its name. For years, the general public has held the idea that figs possess a particularly valuable laxative effect and the manufacturers of Syrup of Figs have attempted to capitalize this popular fallacy. For years, their preparation was put out

sold on the American market, has had to be modified so as to incorporate in it the words "elixir of senna." The British label still contains the claim that it will "permanently overcome habitual constipation"; the American label more conservatively claims that it will merely "assist in overcoming habitual constipation."

DOAN'S KIDNEY PILLS

"Doan's Kidney Pills" or, as they are sold in the British market, "Doan's Backache Kidney Pills" are, in this country, sold as a "remedy"; in Great Britain, they are a "specific." The difference, is that between truth and falsehood. The British label also differs from the American label in having a larger list of diseased conditions for which the nostrum is



Fig. 2.—The laxative principle of Syrup of Figs is not figs but senna. The British purchaser is not told this; neither is he told that the stuff contains alcohol. Thanks to the Food and Drugs Act, the American public is given this information. The upper illustrations are reproductions of parts of the British and American bottle labels; the lower are reproductions of the British and American cartons.

labeled "Syrup of Figs." The impression was given that the laxative effect of the "patent medicine" was due to the figs in it. Such was never the case. The purging action of this nostrum has been, and is, due to senna, which, in the form of an elixir, makes up 25 per cent. of the preparation. The British public, not insisting on truthfulness, is still in ignorance of the fact that the product is a senna preparation; the American public, thanks to the Food and Drugs Act, is told not only that it contains senna but, also, that it has 6 per cent. of alcohol in it. More than that, the name of the product, as



Fig. 3.—In Great Britain Doan's Kidney Pills are sold as a "specific." They are not a "specific," and to avoid prosecution under the Food and Drugs Act the preparation on the American market is labeled merely a "remedy."

recommended. Across the Atlantic, Doan's Kidney Pills are sold as a "specific" for the following conditions, which are not mentioned on the American label: "lame back," "cold in the back or kidneys," "gravel," and "retention and incontinence of urine." While the labels on the Doan product as sold in the United States are inferentially misleading, they at least avoid the "lie direct."

KILMER'S COUGH CURE—OR REMEDY

Dr. Kilmer & Co., Binghamton, N. Y., are best known by their most widely advertised preparation, "Swamp Root." They have another product, however, that apparently is sold in large quantities—"Dr. Kilmer's Cough Remedy." That is the name by which the preparation now goes in this country. In Great Britain, it goes by its older designation "Dr. Kilmer's Indian Cough Cure." So many outrageous falsehoods have been eliminated or toned down since the Food and Drugs Act taught Dr. Kilmer & Co. the elements of truthfulness, that we cannot do better than place in parallel columns the claims as they appear on the British and American labels:

BRITISH LABEL

"Dr. Kilmer's Indian Cough Cure—Consumption Oil."

"The quick cure for colds, coughs, catarrh, croup, bronchitis, asthma."

"This great specific cures hoarseness, tickling in the throat, cough, colds or cankered throat, catarrhal irritation, quick breath, wasting flesh, quick pulse, hemorrhage or spitting of blood, loss of voice, night sweats, croup, tightness across chest and all affections of the throat, chest and lungs."

"It gives quick relief."

AMERICAN LABEL

"Dr. Kilmer's Cough Remedy."

"The quick help for colds, croup, coughs, catarrh, bronchitis."

"This great remedy for hoarseness tickling in the throat, colds or cankered throat, coughs, catarrhal irritation, croup, tightness across the chest, and irritated conditions of the throat and chest."

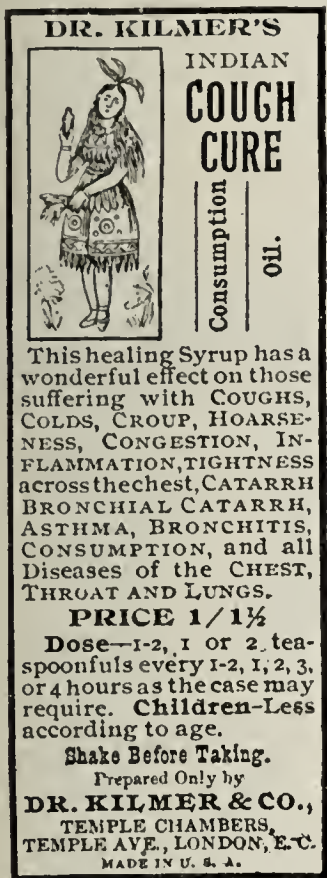
"It usually gives quick relief."

"It will not only help but cure the most chronic and complicated cases."

[No reference to alcoholic content.]

"This healing syrup has a wonderful effect on those suffering with coughs, colds, croup, hoarseness, congestion, inflammation, tightness across the chest, catarrh, bronchial catarrh, asthma, bronchitis, consumption and all diseases of the chest, throat and lungs."

BRITISH LABEL



"It will not only help but often overcomes the most severe cases."

"Contains 10 per cent. of pure grain alcohol."

"This healing syrup is intended for coughs, hoarseness, colds, tickling in the throat, croup, congestion, inflammation, tightness across the chest, catarrh, bronchial catarrh and bronchitis."

AMERICAN LABEL

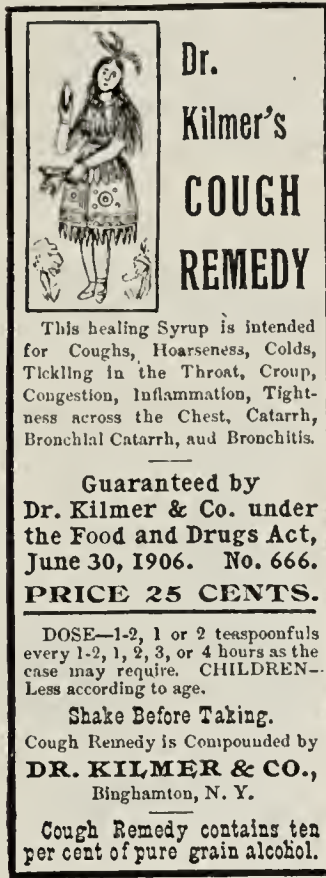
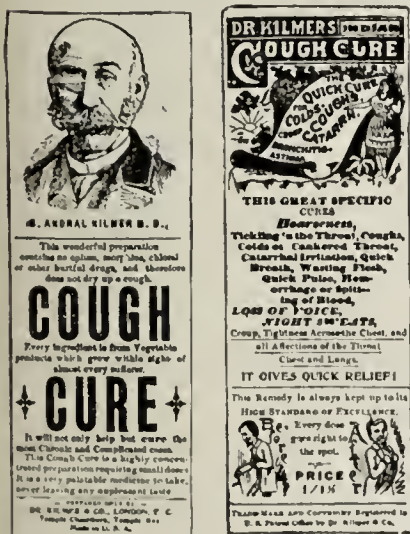


Fig. 4.—English and American labels from bottles of "Dr. Kilmer's Indian Cough Cure—Consumption Oil." It is not "Indian;" neither is it a "cure" nor a "consumption oil," and the manufacturers have eliminated these claims from the American label. The English purchaser is told that the stuff "has a wonderful effect on those suffering with" various complaints; the American buyer is, more conservatively, notified that the stuff "is intended for" various—though not as numerous—complaints.

BRITISH LABEL



AMERICAN LABEL



Fig. 5.—The carton in which Kilmer's Cough Remedy is sold on the American market differs as widely from the carton of the same product sold on the English market as do the labels on the bottles of the stuff. The "Indian Cough Cure" of the British Isles becomes a "cough remedy" in America; the "quick cure" becomes the "quick help;" the "specific" becomes the "remedy," and the symptoms of consumption for which it is recommended, on the British label, are eliminated entirely from the American label.

As will be seen by the reproductions, the British label differs from the American, also, in bearing one of those "before and after using" illustrations that are much affected by quacks in certain lines.

SWAMP ROOT

No less mendacious than those made for its "cough cure," are the claims made by the Kilmer concern for its worthless fraud, "Swamp Root," when sold to the British public. In fact, the British labels are the same as those used in this country before the federal Food and Drugs Act caused Dr. Kilmer & Co. to assume a conservativeness of statement entirely foreign to its nature. While the company approximates truthfulness on its American labels, this is, apparently, not due to any inherent honesty in the concern for it is still falsifying on the British labels as much as ever. We know of no better way than by the use of the "deadly parallel" to make clear the power for comparative righteousness that is wielded by the pure food law, as exemplified in the case of Dr. Kilmer & Co., of Binghamton, New York:

BRITISH LABEL

"Swamp Root, Kidney, Liver and Bladder Cure."

"Cures acute and chronic kidney, liver, bladder and urinary disorders, Bright's disease, dropsy, swelling of the feet, pain in the back, joints, bones or rheumatism."

"Restores disordered liver to a healthy condition, corrects constipation."

"Enriches the blood, kills hereditary taint of scrofula, erysipelas, salt rheum, cancer humor or old ulcers."

"It cures skin diseases and all disorders arising from an impure state of blood."

[No mention of alcoholic content.]

"This great specific cures . . . Bright's disease."

"Dissolves, expels gravel, stone in bladder."

"It heals and cures irritation, inflammation, ulceration or catarrh of bladder."

"Builds up a run down constitution and is the best remedy and most reliable for liver complaints, torpid liver and biliousness."

"Expels gallstones."

"It cures enlargement of prostate gland, seminal weakness, spermatorrhea, impotence, generative debility and general languor."

"Drives malarial poison out of system."

"Cures when all other remedies have failed."

"It purifies the blood."

AMERICAN LABEL

"Swamp Root, Kidney, Liver and Bladder Remedy."

"Numerous testimonials are to the effect that it has been used with benefit in cases which have been diagnosed as acute and chronic kidney, liver, bladder, urinary disorders, pain in back, joints, bones and rheumatism and Bright's disease."

[Statement eliminated.]

[Statement eliminated.]

[Statement eliminated.]

"Swamp Root contains 9 per cent. pure grain alcohol."

"This is recommended for troubles which often lead to Bright's disease."

[Statement eliminated.]

"It proves of great value in most cases that are diagnosed as irritation, inflammation, ulceration or catarrh of bladder."

"It is intended as a remedy for a run down constitution, liver complaint, torpid liver and biliousness."

[Statement eliminated.]

"It will be found very beneficial in cases of debility."

[Statement eliminated.]

[Statement eliminated.]

[Statement eliminated.]

These few examples make one point clear: "Patent medicine" manufacturers, as a general rule, will sell their products under fraudulent claims unless the law specifically prohibits such claims. The argument that extravagant statement and misrepresentation are merely unhealthy growths that have gradually attached themselves to the "patent medicine" business and will be removed as soon as the attention of the firms making them has been called to it, does not hold water.

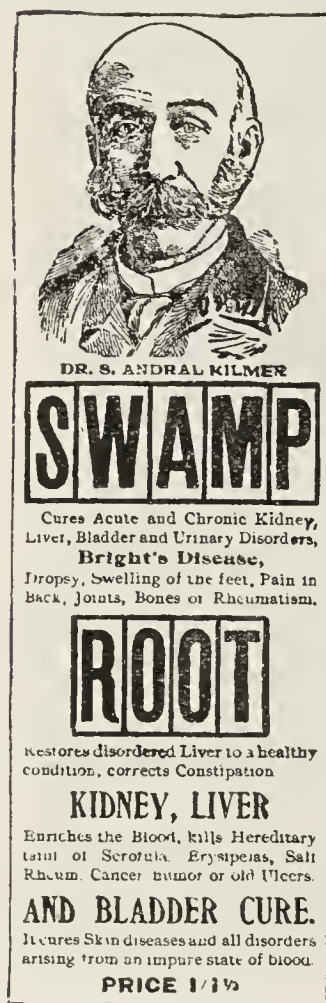
For nearly six years every one of the "patent medicine" makers referred to in this article have had their attention vigorously directed to the false claims under which the various products were being sold. In those English speaking countries that do not demand that the labels shall tell the truth, the same old lies obtain. In the United States, the "lie direct" has given place to the "lie by inference" and this has been brought

about by the presence on the statute books of a law that presumably made lying illegal as well as immoral.

Much yet remains to be done to strengthen the Food and Drugs Act so as to eliminate falsehood—inferential and direct—from drug exploitation. Much has been done and the American people may congratulate themselves on what has been accomplished. It should be borne in mind, however, that the Food and Drugs Act as it now stands does not prohibit false statements regarding therapeutic effects; the Supreme Court has so interpreted it. It, therefore, behooves the peoples' representatives in Congress so to amend the act that its meaning in this connection shall be so plain as to admit of no discussion. In addition to this, the act should be further strengthened by extending the scope of the definition of "misbranding" as to include statements made not only on the labels but wherever the products may be advertised. More people read the claims made by "patent medicine" manufacturers in the newspapers than read labels on the bottles after

BRITISH LABEL

AMERICAN LABEL



DR. S. ANDRAL KILMER

SWAMP

Cures Acute and Chronic Kidney, Liver, Bladder and Urinary Disorders, Bright's Disease, Dropsy, Swelling of the feet, Pain in Back, Joints, Bones or Rheumatism.

ROOT

Restores disordered Liver to a healthy condition, corrects Constipation

KIDNEY, LIVER

Enriches the Blood, kills Hereditary taint of Scrofula, Erysipelas, Salt Rheum, Cancer tumor or old Ulcers.

AND BLADDER CURE.

It cures Skin diseases and all disorders arising from an impure state of blood.

PRICE 1/10



DR. KILMER'S

SWAMPROOT

CURES KIDNEY, LIVER & BLADDER

THIS GREAT SPECIFIC CURES

Acute and Chronic Diseases of the Kidneys, Liver, Bladder or Urinary Organs, Kidney Complaint and all Uric Acid Troubles.

BRIGHT'S DISEASE

Dissolves, expels Gravel, Stone in Bladder. It heals and cures Irritation, Inflammation, Ulceration of

CATARRH OF BLADDER

Blood or Mucus in Urine, Retention of Urine, Pain in Urinating, Frequent Calls, Highly Colored Urine, Brick Dust in Urine, Stoppage of Urine, Thick, Stringy, Scanty Urine.

Builds up a run-down Constitution and is the Best Remedy and most reliable for Liver Complaint, Torpid Liver and Biliousness Expels Gall Stones.

DIABETES, DROPSY

It cures Enlargement of Prostate Gland, Seminal Weakness, Spermatitis, Impotence, Generative Debility and General Languor Drives Malarial Poison out of system.

GRAVEL

It removes the causes producing Nervousness, Sleeplessness, Headache, Neuralgia, Stomach Fever, Inward Heat and Thirst and cures when all other remedies have failed.

IT PURIFIES THE BLOOD!

This remedy is always kept up to its High Standard of Excellence

PREPARED ONLY BY
DR. KILMER & CO., LONDON, E. C.

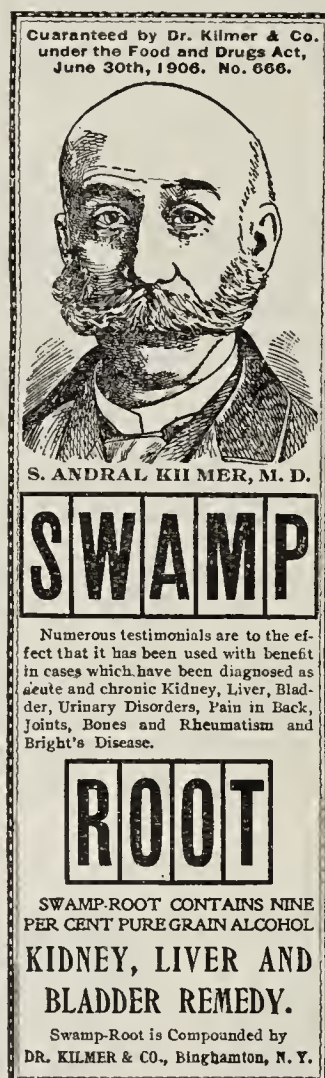
10 Old Bailey

SOLD BY ALL CHEMISTS.

MADE IN U. S. A.

NOTE: The above picture and printed matter on this label package of Swamp-Root is now the same as the large size—changed 1904

TRADE MARK AND COPYRIGHT Registered in U. S. Patent Office by Dr. Kilmer & Co.



Guaranteed by Dr. Kilmer & Co. under the Food and Drugs Act, June 30th, 1906. No. 666.

S. ANDRAL KILMER, M. D.

SWAMP

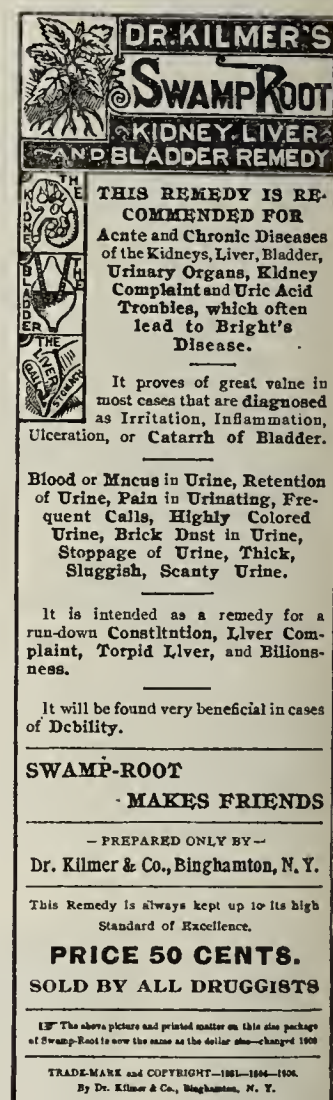
Numerous testimonials are to the effect that it has been used with benefit in cases which have been diagnosed as acute and chronic Kidney, Liver, Bladder, Urinary Disorders, Pain in Back, Joints, Bones and Rheumatism and Bright's Disease.

ROOT

SWAMP-ROOT CONTAINS NINE PER CENT PURE GRAIN ALCOHOL

KIDNEY, LIVER AND BLADDER REMEDY.

Swamp-Root is Compounded by
DR. KILMER & CO., Binghamton, N. Y.



DR. KILMER'S

SWAMPROOT

KIDNEY, LIVER AND BLADDER REMEDY

THIS REMEDY IS RECOMMENDED FOR

Acute and Chronic Diseases of the Kidneys, Liver, Bladder, Urinary Organs, Kidney Complaint and Uric Acid Troubles, which often lead to Bright's Disease.

It proves of great value in most cases that are diagnosed as Irritation, Inflammation, Ulceration, or Catarrh of Bladder.

Blood or Mucus in Urine, Retention of Urine, Pain in Urinating, Frequent Calls, Highly Colored Urine, Brick Dust in Urine, Stoppage of Urine, Thick, Sluggish, Scanty Urine.

It is intended as a remedy for a run-down Constitution, Liver Complaint, Torpid Liver, and Biliousness.

It will be found very beneficial in cases of Debility.

SWAMP-ROOT

MAKES FRIENDS

— PREPARED ONLY BY —
Dr. Kilmer & Co., Binghamton, N. Y.

This Remedy is always kept up to its high Standard of Excellence.

PRICE 50 CENTS.

SOLD BY ALL DRUGGISTS

NOTE: The above picture and printed matter on this label package of Swamp-Root is now the same as the large size—changed 1904

TRADE-MARK and COPYRIGHT—1881—1904—1906. By Dr. Kilmer & Co., Binghamton, N. Y.

Fig. 6.—Here are the American and British cartons for Kilmer's Swamp Root. The British labels (on the left) are the American labels of ante-pure-food-law days. Practically every statement on the British label is a falsehood. While the American label is not free from inferential untruths, it is a great improvement over the old American label (present British label), besides containing the not unimportant information that the stuff contains 9 per cent alcohol.

purchasing. A law, therefore, which while prohibiting falsehoods on the label still permits the wildest mendacity in newspaper advertisements, is but a partial protection. When truthfulness is required on all "patent medicine" advertising wherever it may appear, a vast number of these preparations will be relegated to the limbo of forgotten frauds.

Antivaccinationists as Extra Insurance Risks.—Persons who refuse to be vaccinated or to allow their children to be vaccinated, writes Powell in *The Practitioner*, are an appreciable danger to insurance offices and to the public, inasmuch as they add much to the fatality from small-pox and favor the spread of that disease. In all cases, therefore, an addition of five or three years according to the age of the applicant should be required unless he accepts vaccination and brings satisfactory evidence of its performance.

Medical Journal in Chinese and New Public Health Service

To the Editor:—I am sending a copy of a new medical journal—*Chung Wa I Po*—which has just been started under the auspices of the South China Branch of the China Medical Missionary Association. At the present time there is no other medical journal being published in the Chinese language, so far as I have been able to ascertain, and as a number of schools exist in which medicine is taught in Chinese, it has seemed very desirable that such a paper be published. The editor in chief is Dr. W. W. Cadbury of the faculty of the University Medical School in Canton, which is the foreign work of the Christian Association of the University of Pennsylvania. This association is managed by a board of American directors including six physicians. The other members of the

editorial staff of the *Chung Wa I Po*, the new journal, are Yue Hin Chi, M.D., Kung I Medical College; E. C. Machle, M.D., Presbyterian Mission; Lei Shue Fan, M.D., Director Board of Health of Kwongtung and Kwongsi Provinces; John Kirk, M.D., New Zealand Presbyterian Mission; Lui Yau, M.D., Canton Army Medical Corps; Chan Hin Fan, M.D., Kwong Wa Medical College, and Mrs. J. J. Boggs, M.D., American Presbyterian Mission.

The business managers are: Paul J. Todd, M.D., Kung I Medical College and Wong Tai Kong.

The first issue of the new journal, which is to be published every two months, contains articles on Serum Treatment of Plague; The Use of Iodin as a Remedy; Extra-Uterine Pregnancy, and a number of other articles.

With the establishment of the new Republic, a Board of Health has been formed for the Province of Kwongtung, in which Canton and Hongkong are situated, and Dr. Lei Shue

San, a graduate of Edinboro University, has been appointed director of the same. Already a notification requiring registration of all medical schools, physicians and druggists has been issued, and an attempt is being made to report contagious diseases to a central board of health. This organization is also undertaking the manufacture of vaccine and distributing it free for vaccinating the poor. Plans are also under way for widening the narrow streets of this ancient city and we have no doubt that under the capable leadership of Dr. Lei Shue San, these plans will be speedily carried to a successful completion.

WILLIAM W. CADBURY, Canton, China.

Simple Method for Detecting Tubercle Bacilli in Sputum

To the Editor:—I wish to describe a method for examining sputum, which I have been using for some time. The idea was first brought to my notice when I left a number of sputum boxes containing sputa which had previously been negative to tubercle bacilli on the window-sill exposed to the sunlight. I made smears of the dried crusts of the remaining sputa and on examination some of them proved to be positive. I then examined fifty sputa that were negative by the ordinary method of examination, but which, however, had been shown to be positive by the antiformin and centrifugalizing method. These sputa, on examination by the method which I will describe below, were all proved to contain tubercle bacilli.

In the ordinary examination of tuberculous sputa, especially those that contain a large percentage of water or mucus, it is necessary to search for the rice bodies or cheesy masses, probably requiring ten to fifteen minutes before a satisfactory specimen is obtained. I have found that after examining sputa by the following method, many of them proved to be positive and when examined by the usual method, failed to show the presence of tubercle bacilli, or if positive, the organisms were present only in very small numbers. In all these cases the physical signs indicated an extensive pulmonary involvement. It seems that the tubercle bacilli have a tendency to centralize in masses during the process of drying.

The greater part of the mucous or watery secretion is poured off from the sputum and the remainder is exposed to the sunlight in an isolated place or subjected to artificial heat at a temperature of 90 C. for a half hour. Any part of the remaining crusts is now moistened with sterile water, smears are made, stained and examined in the usual manner.

M. J. FINE, M.D., Belleville, N. J.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE OPHTHALMIC REACTION IN TYPHOID

To the Editor:—In the editorial (THE JOURNAL, June 29, 1912, p. 135) entitled, "The Vaccine Therapy of Typhoid," the statement was made, "Thus far the ophthalmic reaction gives promise of being the earliest available diagnostic reaction in typhoid." Will you kindly explain in detail the method of using the ophthalmic test in suspected typhoid cases, the length of time it has been used, and mention any articles which have appeared dealing with this subject?

A. R. SCHIER, U. S. Navy.

ANSWER.—The ophthalmic test for typhoid was first developed by Chantemesse in 1907 and a description of this method was published by him in the *Bulletin de l'Académie de médecine*, xi, No. 30, and in the *Deutsche medizinische Wochenschrift*, 1907, xxxiii, p. 1246. An article in THE JOURNAL, Dec. 14, 1907, p. 2020, describes his technique as follows:

"He precipitates a strong solution of soluble typhoid toxin with absolute alcohol and obtains a powder of which 1/50 mg. dissolved in a drop of water and instilled into the lower lid of a typhoid patient gives a characteristic reaction, consisting of redness, lacerimation and a serofibrinous exudate. The affected eye can be distinguished from the other for two or three days after the instillation. In people who have other diseases, or in well people who have not lately experienced typhoid, a slight redness and lacerimation occur, but disappear in three or four hours, and by the next day the eye appears

like the other. The temperature and general condition are not affected by the experiment. Chantemesse believes that the reaction may give a very early sign of typhoid and that it is without danger."

The method has been recently modified by Floyd and Barker and by Austrian, who prepares his antigen from a mixed culture of eighty different strains. These were grown in plain bouillon for twenty-four hours and were then sedimented, washed and killed by heating for two hours at 60 C. The mass of bacilli was then thoroughly dried and ground with sodium chlorid crystals in an agate mortar, after which it was macerated with water for three days and the watery extract precipitated by pouring into absolute alcohol. The residue was then collected, dried, pulverized, and a solution made in the proportion of 10 mg. to 1 c.c. of water. One drop of this solution dropped into the lower conjunctival sac of the typhoid patient produced a mild inflammation with reddening of the conjunctival membrane, and sometimes slight edema of one or both eyelids. The reaction reached its height in from six to ten hours, and the symptoms, even when marked, were not sufficient to cause the patient to complain of discomfort.

The following articles may be referred to as dealing with this subject:

Meroni, A.: Ocular Typhoid Toxin Reaction; *München. med. Wochenschr.*, June 30, 1908; abstr. in THE JOURNAL, Aug. 8, 1908, p. 540.

Floyd, C. and Baker, W. W.: General Susceptibility in Typhoid and Colon Infection, as Shown by the Ophthalmic Test; *Jour. Med. Research*, Jan., 1909; abstr. in THE JOURNAL, Feb. 27, 1909, p. 736.

Beckers, J. K.: Ocular Typhoid Extract Reaction in Typhoid; *München. med. Wochenschr.*, July 13, 1909; abstr. in THE JOURNAL, Aug. 28, 1909, p. 751.

The Ophthalmic Reaction as a Diagnostic Test for Typhoid, Editorial in THE JOURNAL, Feb. 17, 1912, p. 482.

Austrian, C.: Ophthalmo-Reaction in Typhoid, *Bull. Johns Hopkins Hosp.*, January, 1912; abstr. in THE JOURNAL, Jan. 27, 1912, p. 307.

SPRAGUE'S MERCANTILE AGENCY AND THE MASCOT COPPER COMPANY

To the Editor:—In THE JOURNAL of July 6, I note the query and answer regarding the Mascot Copper Co., and that brokers consider the stock to be without any investment value. Also that Stevens' Copper "Hand Book," a reliable authority on copper mines, regards the stock very unfavorably. I should like to ask if the Mascot Copper Co. is not being promoted by officers of Sprague Mercantile Agency?

H. L. J., Chicago.

ANSWER.—The close community of interest between the Mascot Copper Company and Sprague's Mercantile Agency should have been referred to in THE JOURNAL's note on the former company. The Sprague concern was discussed in THE JOURNAL before (March 16, 1907, Sept. 30, 1911). It attempts to get physician's accounts for collection with results that are apparently more satisfactory to the agency than to the physicians. Several letters of complaint have come in at various times regarding the way in which Sprague's Mercantile Agency does business. That this dissatisfaction is not confined exclusively to physicians was indicated by the replies received to letters written to different business houses that had had dealings with the concern. The president of Sprague's Mercantile Agency is H. H. Evans, who is vice-president of the Mascot Copper Co. The vice-president of the collection agency, D. S. Stevenson, is treasurer of the copper company and is also president of the National Finance Company, a Chicago loan shark concern that has been given some unenviable publicity. D. P. Phelps, treasurer of the Sprague Mercantile Agency is a director in the Mascot Copper Co. The general manager of the Mascot Copper Co. is one T. N. McCauley, who, we understand, used to be general manager of the Sprague concern. According to the newspapers of September, 1904, T. N. McCauley was the promoter and president of the International Mercantile Agency, New York. He is said to have misappropriated three-quarters of a million dollars of the company's funds and, when facing trial, to have "jumped" his \$5,000 bail and disappeared. McCauley is said to have come to Chicago a number of years ago, where he became connected with the Sprague's Collecting Agency. His next venture is alleged to have been the establishing of the Sprague's Collecting Agency of New York, "which went to pieces with losses to everyone concerned except himself and those closely connected with him in its management." After that, he is said to have organized the Star Accident Association, "which also broke, after securing investments of about 1,000 private individuals." It was then that he organized the International Mercantile Agency and was reported to have floated hundreds of thousands of dollars' worth of stock in the company which had been authorized for sale by a "dummy board."

SKIN FOOD—BUST DEVELOPER—DISAPPEARING
MASSAGE CREAMS

To the Editor:—A young lady, aged 20, in perfect health has consulted me with regard to the filling out of a slight hollowness above the clavicles. These are an annoyance to her when wearing low-necked dresses and I have been consulted as to ways and means of "filling them out."

1. Is there any massage cream which might, with any reason, be called a "skin food," and if so, can you give me formulas for such creams?

2. Also, for my own knowledge, is there any preparation designed for massage which may, with any reason, be termed a "bust developer?"

3. What is the principle of the so-called "disappearing massage creams?" What makes them disappear when rubbed into the skin? Kindly do not publish my signature.

ANSWER.—1. "Skin food" is a meaningless term invented by fakers to fool the ignorant public. While to some extent oily substances are absorbed by the skin, they will not increase the nutrition of the skin or underlying tissues. To facilitate massage, preparations of massage creams have been proposed, which may be appropriately used, although it would be incorrect to attribute to them any value as skin foods. The following is given in the "Handbook of Therapy," published by THE JOURNAL:

Casein, moist.....	1 pound
Glycerin	3 ounces
Oil of rose geranium.....	30 minims
Boric acid.....	90 grains
Eosin	enough to tint

2. No. Whatever development may be secured must be attributed to the results of exercise and massage and not to the application used. The following application is recommended by Ostrom ("Massage and the Swedish Movements"):

Lanolin (hydrous wool-fat).....	2 ounces
Cocoa butter.....	2 ounces
Oil cajeput.....	1 ounce
Oil sassafras.....	½ ounce
Extract saw palmetto.....	2 ounces

3. Massage creams having as a base hydrous wool-fat (lanolin), disappear because the wool-fat is absorbed by the skin; in other cases it is probable that the base, not being greasy, leaves nothing on the skin that can be felt so that the cream seems to have disappeared.

NAME OF THE SECRETARY OF THE INTERNATIONAL CON-
GRESS ON HYGIENE AND DEMOGRAPHY

To the Editor:—Kindly give me the name and address of the secretary of the coming International Congress on Hygiene and Demography which convenes in Washington, D. C., next September. I wish to secure a program of the meeting and am unable to learn the name of the person to whom I may write.

H. R. KENASTON, M.D., Bonesteel, S. Dak.

ANSWER.—Dr. John S. Fulton, Senate Annex, Washington, D. C., is the Secretary-General of the International Congress on Hygiene and Demography.

Doctors and a Sane Fourth.—"If Independence Day is to be celebrated this year with comparatively little slaughter, the saving of life should be attributed largely to the efforts of the American Medical Association. THE JOURNAL of this Association, beginning its propaganda for a 'sane Fourth' in 1903, published lists of the dead and maimed after the celebration of that year and after every subsequent celebration. The dead in 1903 numbered 466 for the whole country, the wounded 3,983. Year after year THE JOURNAL kept firing away with statistics and fit exhortation, but up to 1910 with apparently small effect. In 1909 the dead and injured were 5,307, as compared with 4,449 in 1903. But in 1910 the previous year's total was cut in two, to 2,923, and in 1911 the dead numbered only fifty-seven, the wounded 1,546, a total of 1,603.

"Seconded by the newspapers and many public-spirited organizations, like the mayor's Fourth of July committee in this city, the efforts of the doctors have within three years undoubtedly saved at least 6,000 young persons from death and injury. Moreover, the day has become one of patriotic fervor, a genuine national festival, brilliant and satisfactory in its ceremonies, and symbolic of the ideals of the republic, without losing its spectacular qualities. And the prohibition of fireworks, revolvers and dynamite has made it safer."—*New York Times*, June 25.

**Medical Education and State Boards of
Registration**

COMING EXAMINATIONS

CALIFORNIA: San Francisco, August 6-9. Sec., Dr. Charles L. Tisdale, 929 Butler Building.

NEBRASKA: Capitol, Lincoln, August 14-15. Sec., Dr. C. P. Fall Beatrice.

A Course in Hygiene and Sanitation

Medical schools contemplating the establishing of special courses in hygiene and sanitation will be interested in the scheme put into operation at the beginning of the last college session by the School of Medicine of Syracuse University. According to a statement from Dr. John L. Heffron, that school has recently rearranged the clinical courses so that the seniors devote the entire forenoon of the year to clinical instruction. The class is divided into three groups and each group into two sections. While both sections of two groups are acting as clinical clerks in medicine and in surgery in two of the general hospitals, the first section of the third group is acting as clinical clerks in a hospital for women and children and the second section is doing practical work in hygiene and sanitation. The school secured the appointment of Dr. Fred M. Meader, its assistant professor of pathology and bacteriology, as city bacteriologist and put him at the head of the department with several assistants, also in the municipal service, to carry out the course. Permission was fortunately obtained from the executive officers of the city for the use by the college of the Hospital for Contagious Diseases, the city laboratories and the entire municipal outfit for the control of contagious diseases and for the maintenance of public health. Every student is required to spend one-sixth of the forenoons of the entire year, or over five weeks, in public health work. The time is divided as follows:

1. Contagious diseases, city hospital.....	6 days
2. Laboratory	6 days
3. Quarantine and fumigation.....	6 days
4. Vital statistics	6 days
5. Dairy, milk and meat inspection.....	6 days
6. Water, sewage, street cleaning, garbage and building inspection.....	3 days
7. School inspection	3 days

In these various departments, according to the scheme, the student is required actually to take part in the work which is being done; for example, in the city hospital he serves as intern, in the laboratory he examines specimens sent in for diagnosis; under the heading of quarantine he visits with the medical inspector the homes in which there are cases of contagious diseases, examines the patients and makes diagnoses. At the termination of the quarantine he is supposed to observe and assist in the process of fumigation. With the various inspectors of food-supplies he visits the dairies, the milk laboratories and meat-markets and learns the system employed for rating dairies and various foods. With the medical inspector of schools he makes the inspection of school children.

By this method as by no other the student becomes acquainted with the practical aspects of public health work, learns the importance of carefully recorded vital statistics and comes to appreciate the responsibility which devolves on health officials.

In the second semester of the year, the course is assembled and systematized by a series of lectures.

The New York State Commissioner of Public Health gave the first of the didactic lectures, taking for his subject "A New Profession," and he assigned to lecture throughout the course several of the experts from the health department at Albany. For example, the assistant engineer of the State Board of Health gave a lecture on garbage disposal; the chief engineer, a lecture on public water-supplies; the sanitary engineer, a lecture on sewage disposal; the head of the state laboratory, a lecture on the preparation of antitoxin and its use in certain infectious diseases; the state small-pox expert, on small-pox and vaccination; and the assistant commissioner of health gave an address on "The Organization and Object of the State Department of Health," and an exposition of the health

law in New York state, while several local men, each a specialist in his department, spoke on some of the other important subjects.

The work during the year is said to have been very satisfactory. The students were very enthusiastic, and the city feels that by this cooperation it has materially aided in the training of efficient health officers to a greater degree than ever before. It might also be shown, were the facts known, that the city of Syracuse has had better service from the standpoint of public health and sanitation than ever before through the aid of the senior students.

Along this line in this country there is to be a larger cooperation between our leading medical schools and city governments. The work done in Syracuse during the past year has doubtless been duplicated in Indianapolis, in Louisville, in Cincinnati and elsewhere where a similar cooperation has been established between the city authorities and the medical schools. The plan is worthy of being more widely adopted.

New Mexico January Report

Dr. J. A. Massie, secretary of the New Mexico Board of Health and Medical Examiners, reports the written and oral examination held at Santa Fe, January 8, 1912. The number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 2, both of whom passed. Thirty-two* candidates were licensed on presentation of satisfactory credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Tennessee Medical College.....	(1901) 72.8;	(1906)	80

College	Year Grad.	Total No. Examined.
LICENSED ON PRESENTATION OF SATISFACTORY CREDENTIALS -		
Cooper Medical College.....	(1897)	1
College of Physicians and Surgeons, Los Angeles.....	(1906)	1
George Washington University.....	(1885)	2
Georgetown University.....	(1891)	1
Atlanta Medical College.....	(1890)	1
Indiana University.....	(1910)	1
College of Physicians and Surgeons, Chicago.....	(1906)	1
Bennett Medical College.....	(1875)	1
Hahnemann Med. College and Hospital, Chicago.....	(1893)	1
Northwestern University Medical School.....	(1892)	1
Keokuk Med. College, College of Phys. and Surgs.....	(1907)	1
Iowa College of Physicians and Surgeons.....	(1895)	1
University of Louisville.....	(1878)	1
Louisville Medical College.....	(1880)	1
Tulane University of Louisiana.....	(1895)	1
Maryland Medical College.....	(1902)	1
Baltimore Medical College.....	(1896)	1
Michigan College of Medicine and Surgery.....	(1896)	1
Detroit College of Medicine.....	(1897)	1
Barnes Medical College.....	(1907) (1910)	2
University Medical College, Kansas City.....	(1900) (1911)	2
St. Louis College of Physicians and Surgeons.....	(1911)	1
Omaha Medical College.....	(1902)	1
Cleveland Homeopathic Medical College.....	(1901)	1
Western Pennsylvania Medical College.....	(1906)	1
Chattanooga Medical College.....	(1904)	1
Vanderbilt University.....	(1906)	1
University of Vermont.....	(1896)	1

*For one candidate the correct name of the college was not given.

Nevada May Report

Dr. S. L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, May 6-8, 1912. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 5, all of whom passed. Five candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of P. and S., San Francisco.....	(1911)		77.1
Hahnemann Medical College and Hospital, Chicago.....	(1888)		80.6
State University of Iowa, College of Medicine.....	(1893)		85.4
Jefferson Medical College.....	(1901) 86.7;	(1910)	91.7

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
American Medical Missionary College.....	(1901)	Michigan
Indiana University School of Medicine.....	(1911)	Indiana
Dartmouth Medical School.....	(1897)	Illinois
Jefferson Medical College.....	(1906)	Penna.
Western University, London, Ontario.....	(1903)	Nebraska

Book Notices

WE AND OUR CHILDREN. By Woods Hutchinson, A.M., M.D. Cloth. Price, \$1.20. Pp. 371. New York: Doubleday, Page & Co., 1911.

This is one of Dr. Hutchinson's popular books on hygiene and physiology which appeared originally in some of the popular magazines. It is a popular discussion of the relation of children to the family and of the conditions under which they will best develop. The key-note is found in the first paragraph of the introduction: "This world is a nursery, not merely for immortal souls, but for flesh-and-blood babies. . . . After we have done our own growing, our chief excuse for further existence is to make our babies grow. . . . There was only one room in the primitive house and that was the nursery. . . . Cities were made to huddle in for shelter against enemies, or to do business in. Now the most urgent demand of thoughtful lovers of their kind is that they (cities) should be made places to grow children in. . . . Any place which is not fit to rear a child in is not fit for a man or woman to live in."

Dr. Hutchinson has a happy faculty of rendering scientific facts enjoyable and interesting to the general reader; he is doing a valuable service in popularizing physiology and hygiene. The professional critic can readily forgive him, as long as no harm results, if, occasionally, he wanders from the path of rigid accuracy, stretches a scientific fact to make it interesting or amusing or even indulges in such a flight of fancy as attributing the retention and development of the ovum in the body of the female to "some Miles Standish-like mother-creature who adopted the motto, 'If you want a thing well done, do it yourself,' and concluded that hatching, unlike charity, should not only begin but end at home." The book can be safely recommended to one's patients and non-professional friends and could be read with pleasure and profit by the physician himself. Even if the scientific reader did not acquire any new knowledge, he would at least get a fresh point of view. The publication of such articles in periodical and book form is sufficient evidence of public interest in such topics. An odd lapse of memory, which evidently escaped the proof-reader, appears on page 115, in which Longfellow is credited with being the author of "Mogg Megone."

REPORT OF A STUDY OF THE COLLECTION AND DISPOSAL OF CITY WASTES IN OHIO. Supplement to the Twenty-Fifth Annual Report of the State Board of Health of Ohio. Cloth. Pp. 290. 1910.

This report, issued as a supplement to the twenty-fifth annual report of the Ohio State Board of Health, is a study of the collection and disposal of city wastes in Ohio, showing the result of an investigation conducted by the engineering department of the board regarding waste-disposal in some of the largest cities of the state. The committee shows a due appreciation of the importance of the problem, stating in the introduction that city waste-disposal is rapidly becoming one of the most important of municipal problems. This study does not include the problem of sewage-disposal but classifies waste as follows: garbage, rubbish, ashes, street cleaning, dead animals, manure, night-soil and various industrial wastes. Cleveland, Cincinnati, Columbus and Dayton, four of the largest cities in the state, were the subjects of careful investigation. The report is a valuable contribution to this important municipal problem.

THE SOCIAL EVIL WITH SPECIAL REFERENCE TO CONDITIONS EXISTING IN THE CITY OF NEW YORK. A Report Prepared (in 1902) Under the Direction of The Committee of Fifteen. Edited by Edwin R. A. Seligman, LL.D., McVicar Professor of Political Economy, Columbia University. Second Edition. Cloth. Price, \$1.75. Pp. 303. New York: Putnam's Sons, 1912.

This book is a reprint of the report on vice conditions in New York City, prepared in 1902 under the direction of the Committee of Fifteen, and published as one of the Science Series of G. P. Putnam's Sons. It is edited by Prof. Edward R. Seligman of Columbia University. In the preface Professor Seligman gives, as reasons for the publication of a revised second edition, a growing feeling throughout the leading

European countries that regulation is becoming more and more unsatisfactory; the growth of the white slave traffic and the initiation of international legislation to suppress it; the continuance of the work of the Committee of Fifteen in New York City, and the attempts to administer existing laws, and, finally, the awakening of interest in the problem throughout the United States, as shown by the reports of the Chicago and Minneapolis commissions. These latter reports have already been reviewed in THE JOURNAL.

The original report of 1902 is reprinted without changes, as Part 1 of the present volume. The recommendations of the committee and the description of conditions in New York in 1902 form the second part. Part 3, which contains the new matter under the heading "A Decade's Development," includes chapters on the European movement, the white slave traffic in Europe and America and an account of ten years' progress in the United States. An appendix on sanitary supervision and an extensive bibliography complete the volume. This book, with the reports of the Chicago and Minneapolis commissions, contains the latest and most reliable data on this important subject.

SURGERY OF DEFORMITIES OF THE FACE, INCLUDING CLEFT PALATE. By John B. Roberts, A. M., M.D., Professor of Surgery in the Philadelphia Polyclinic. Cloth. Price, \$3 net. Pp. 273, with 273 illustrations. New York: William Wood & Co., 1912.

The Mütter Lectures of the College of Physicians of Philadelphia delivered by the author in 1909 form the basis of this book. Roberts reviews the development of plastic surgery briefly and then takes up the anatomy, characteristics and principles of plastic surgery of the face, and the treatment of the various deformities of the face, nose, ears, eyelids and eyeball, harelip, discolorations and disfiguring skin diseases. The book is well illustrated with reproductions of photographs, drawings and diagrams depicting the steps and method of performance of the various operations. The author's style is clear and concise and his discussion of the subject is full and comprehensive. His wide experience in this field of work makes him an authority on the subject. Many of the operations described are original with him and have stood the test of time. The book cannot fail to prove valuable to every one who may be called on to treat a facial deformity and it will certainly popularize the surgical treatment of this class of cases to the great benefit of persons so afflicted.

EXAMINATION OF EMPLOYEES FOR TUBERCULOSIS. Published by the Committee on Factories of the Chicago Tuberculosis Institute, Otis Building, Room 1351. Paper.

This pamphlet sets out a plan of examination of the employees of industrial establishments for tuberculosis, the aims being the detection and suppression of sources of infection in the working place, the detection of cases in the curable stages, the guidance of employees predisposed to tuberculosis and those reemployed after recovery, and the instruction of all employees in right living and in methods of prevention. This is an important feature of the work of the Chicago Tuberculosis Institute.

Medicolegal

Admissibility of Testimony of Nurse as to Standard of Technic of Defendant in Malpractice Case—Necessity of Having Consent for Operation, and When Presumed—Treatment of Infection

(*Mosslander vs. Armstrong (Neb.)*, 134 N. W. R. 922)

The Supreme Court of Nebraska affirms a judgment for \$2,000 damages for alleged malpractice in the treatment by the defendant of the plaintiff, who had been injured by stepping on a sewing-needle, which had punctured his foot and the point of which was supposed to have remained within the punctured wound in the ball of the foot, near or about the joint of the great toe. The court says that the alleged and

undisputed facts were that, late in the evening or early in the morning, the plaintiff stepped on an ordinary sewing-needle on or in the carpet in his bedroom, driving the needle into his foot. He then searched the floor for the needle, and found that it had been broken into probably three pieces, the point not being found. The next morning he called at the defendant's office, when the defendant made an incision into the foot in search for the needle-point, but none was found. The foot became infected. Two other incisions were made in the effort to arrest and cure the blood-poisoning, but seemed not to be successful, when other physicians were called, and it was found necessary to amputate the great toe, which was done, and soon thereafter the plaintiff was removed to a hospital, where a recovery followed. The chief contention on the trial arose over the question of the care and skill, or want thereof, in the use, or failure to use, proper antiseptics in the surgical treatment of the plaintiff's foot by the defendant; it being alleged and claimed by the plaintiff that, by reason of the failure of the defendant to guard against infection, blood-poisoning was promoted and the amputation rendered necessary. The testimony as to the course pursued by the defendant in the treatment of the plaintiff's foot was sharply conflicting on almost every feature of the case.

On the trial, a nurse, who had attended the plaintiff at the hospital to which he was removed, and who had waited on him to some extent at his home before his removal, was permitted to testify that she was familiar with the standard of technic used in the hospital where she was employed and among physicians and surgeons in that vicinity; that the standard was that, before a surgical operation was performed, and during the time, "the instruments are thoroughly sterilized, and the dressings are thoroughly sterilized, and the patient is prepared for several days prior to a major operation;" that she was acquainted with the defendant, and had had occasion to learn from him what his opinion of that standard was; that some three weeks prior to the plaintiff's accident she had a conversation with the defendant, in which they discussed surgery in general, and he gave his idea of asepsis; that he stated that certain well-known and leading surgeons in Illinois and Minnesota played to the galleries, and that he could "go out into the country and take a bar of White Russian soap and prepare a patient for an operation in ten minutes and get the same results that those surgeons could in their weeks of preparation;" that the defendant's opinion of technic was not up to that of the other physicians in the community where he resided and practiced, but was below. The court holds that the admission, over the defendant's objection, of the witness' testimony that she did not think his standard of technic was equal to that of other physicians in the locality in which he resided and practiced his profession, was erroneous; but that, in view of the instructions of the trial court and the testimony of other physicians as to the defendant's reputation and standing as an educated and competent physician and surgeon, the error was without prejudice.

The definition and description of "technic" given by the witness were not objectionable, the witness showing some knowledge on the subject, and they could result in no possible prejudice to the defendant; for all the physicians who testified on that matter fully agreed with her, but with more elaboration. But her comparison of the defendant's views and his standard of technic with those of other physicians was objectionable, and the objection thereto should have been sustained. The court knows of no rule of law or evidence which sanctions such a procedure. In addition, however, to the evidence of the defendant's high standing in his profession, the trial court, on the request of the plaintiff, instructed the jury that the question of the defendant's liability did not depend on the skill he possessed, but on whether he applied that reasonable degree of skill and diligence ordinarily possessed and used by other physicians in that and similar localities. That eliminated the question of his knowledge of "technic."

The plaintiff asked, and the trial court gave, an instruction to the effect that the defendant had no right to make any other or different incision in the plaintiff's foot than he had

obtained permission, or the plaintiff had requested him to make.

The defendant asked, and the court gave, an instruction that "consent to an operation will be presumed from voluntary submission to it, and the burden is on the plaintiff to prove the contrary. The two instructions, when taken together, correctly state the law. Consent is a necessary prerequisite to an operation in which no emergency exists, rendering it impracticable to confer with the patient. But consent will be presumed in the absence of fraud or misrepresentation. Even though the operation might not have been necessary, yet, if the plaintiff requested, or consented to, the operation, such consent or request would be a defense, in so far as that part of the case was concerned.

There was no error in a refusal to give an instruction asked by the defendant to the effect that, if the plaintiff's foot was infected at the time he first called on the defendant for treatment, and that such infection produced the injury complained of, the verdict must be in favor of the defendant; for that left the question of unskilful treatment, subsequent to the beginning of the treatment, entirely out of the case, and the proof was clear that infection can often be successfully treated.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Niagara Falls., August 20-22.
Minnesota State Medical Association, Duluth, Aug. 14-15.

AMERICAN SURGICAL ASSOCIATION

Annual Meeting, held at Montreal, Canada, May 29-31, 1912

The President, DR. ARPAD G. GERSTER, New York City, in the Chair

Acute Pancreatitis With Very Extensive Fat Necrosis

DR. LUCIUS W. HOTCHKISS, New York City: My patient was a man, 28 years of age, who was brought to the hospital about twelve hours after an acute sudden seizure of intense abdominal pain and vomiting, but without any notable shock. The diagnosis was very obscure for several days, by reason of the development of certain pulmonary conditions. On the fifth day a tentative diagnosis of acute pancreatitis was suggested, when a definite, rounded, tender mass developed in the epigastrium. Operation was at once performed, opening anteriorly through the lesser omentum, which was the seat of extensive fat necrosis, into the lesser sac, and liberating much bloody fluid under pressure. Eighteen days later, as the patient was failing, a second operation was done, opening the lesser sac through a left lumbar incision and setting free large pieces of necrotic fat and pancreas. This opening, together with the reopened anterior incision, established free through and through drainage, and although the patient was extremely weak, emaciated and anemic, he improved steadily and the posterior opening closed. A third operation, which had to be undertaken nearly a month later for a perforation of the stomach, which suddenly developed and threatened to cause starvation of the already enfeebled patient, consisted in the rapid suture of a small perforation in the posterior stomach wall just above the greater curvature.

After this, convalescence proceeded uninterruptedly and the patient was well several months later.

DISCUSSION

DR. JOSEPH C. BLOODGOOD, Baltimore: This is a very unusual case, there being but few cases of perforation of the stomach in acute pancreatitis recorded with recovery after operation.

DR. JOSEPH RANSOHOFF, Cincinnati: I have had several cases of acute pancreatitis in my own practice and have seen several others in consultation, but in no one of these

had the diagnosis been made before operation. I saw a fatal case of acute pancreatitis following the removal of the semilunar cartilage of the knee in an apparently healthy young man of 18.

DR. MAURICE H. RICHARDSON, Boston: I have had no success in operating in cases of acute pancreatitis. All my recoveries occurred in cases which had been left to Nature. Operative interference in a suppurative condition involving the entire pancreas is almost certain to bring about a fatal result.

DR. JOHN B. DEEVER, Philadelphia: Internists frequently confuse pancreatitis with effusion with pleuritic effusion, but in my opinion acute pancreatitis should always be considered when there is a history of sudden illness, accompanied by acute epigastric tenderness and rigidity.

DR. FRED B. LUND, Boston: I have operated successfully in two cases of acute pancreatitis.

DR. CHARLES A. PORTER, Boston: I saw two cases of acute pancreatitis. In one a diagnosis of acute intestinal obstruction had been made but a condition of acute hemorrhagic pancreatitis was found. In this case an incision was made along the pancreas, a large amount of the viscus sloughed, but the patient eventually recovered. Because of persistent right-sided pain, however, a second operation was performed, when a putty-like accumulation was removed from the head of the pancreas; the patient later developed diabetes; he has been under observation for about five years. In the other case the condition of acute pancreatitis developed four days after a forceps delivery under ether; when the abdomen was opened an acute fat necrosis was found. The woman died two days later.

DR. ROBERT G. LE CONTE, Philadelphia: There have been two cases of acute pancreatitis with fat necrosis followed by recovery after operation at the Pennsylvania Hospital.

DR. HENRY B. DELATOUR, Brooklyn: In a patient of 32 whom I saw on the fifth day after onset of symptoms there was a decided bulging just above and to the left of the umbilicus; a median incision was made, and on examination the cavity was found to extend back to the stomach. The anterior wound was lightly packed and a posterior left lumbar incision made, permitting the evacuation of about a quart of thin purulent material. This wound was packed with zinc oxid gauze and a rubber drainage-tube inserted. On the fifth day following operation there was a discharge of the contents of the stomach through the drainage-tube, anterior drainage having been removed at the end of the fourth day. The patient recovered.

DR. GEORGE WOOLSEY, New York City: The essential feature in the treatment of these cases is the drainage. I never touch the pancreas and have had no trouble in any of my cases in obtaining a good result.

DR. ROBERT B. GREENOUGH, Boston: Two of my patients with mild pancreatitis recovered without operative interference. In both there were symptoms of intestinal obstruction high up, and acetone, diacetic acid and diastase in the urine.

DR. EMMET RIXFORD, San Francisco: In a case of pancreatitis the fat necrosis surrounded the mesenteric vein, causing complete obstruction of the same, the patient dying of congestion.

DR. SAMUEL J. MIXTER, Boston: In my experience the patients who recover usually have been those on whom the least amount of surgery was done. I advocate simply drainage by gauze.

DR. N. B. CARSON, St. Louis: I wish to mention the difficulty before operation of differentiating some cases of cholecystitis from those of acute pancreatitis. In a case of mine, a diagnosis of gall-stones was made; on exploration it proved to be a pancreatitis; drainage was instituted and the patient made a good recovery.

DR. HOWARD LILIENTHAL, New York: I have operated in six cases of acute pancreatitis with five recoveries. It is important to take into consideration the grade of the infection and the bacteriology as well as the extent of the enlargement of the pancreas.

DR. ARPAD G. GERSTER, New York City: Drainage is the only salvation in cases of acute pancreatitis, and particularly posterior drainage, as being more in conformity with the law of gravity than is anterior drainage.

AMERICAN SOCIETY FOR THE ADVANCEMENT OF CLINICAL INVESTIGATION

(Fourth Annual Meeting, held at Atlantic City, May 13, 1912)

(Concluded from page 139)

The Determination of the Respiratory Output of Carbon Dioxid

DR. DAVID L. EDSALL, St. Louis: The observations were made in the Carnegie Nutrition Laboratory with Dr. F. G. Benedict's unit apparatus, with his new spirometer attachment, which permits of the coincident determination of carbon dioxid output, oxygen intake and total ventilation, and also provides tracings of respiration which not only show the characters of each respiration and of its phases, but give quantitative measurements of the ventilation with each respiration. It has been known that alterations of breathing influence the carbon dioxid output and are of importance in the technic of the study of carbon dioxid output. These observations now reported show, however, that the influence may be astonishingly great, respiratory quotients varying from 0.24 to 1.34 having been obtained with the same subject within a few minutes simply by changes in breathing. While these results are due to extreme conditions, they show how readily important errors may arise as a consequence of very moderate changes in breathing and how important it is to have measurements of ventilation in avoiding errors regarding the gas exchange. The observations also had interesting bearings on the question whether gases pass the lungs purely by diffusion or by actual secretory activity, distinctly supporting the pure diffusion theory. They also indicate that the striking symptoms following excessive breathing may be largely the direct result of the loss of such large amounts of gas from the circulation and tissues rather than due to a secondary influence on the circulation. The importance of knowing the alveolar ventilation rather than simply the total (tidal) ventilation was emphasized in its bearings on studies of respiratory exchange as well as on various clinical questions, and was illustrated by figures showing that while total ventilation and carbon dioxid output in Cheyne-Stokes respiration do not show similar variations from the normal, alveolar ventilation and carbon dioxid output do, a fact of importance in relation to Haldane's views regarding the normal stimulation of the respiratory center and also in relation to his theory of the causation of Cheyne-Stokes breathing.

Arterial Lesions in Acute Infections

DR. CHANNING FROTHINGHAM, JR., Boston: In eight out of forty-eight cases of different fatal acute infections, arterial lesions with necrosis, fibrin formation and invasion by leukocytes of the vessel wall occurred in one or more of the following organs: meninges, kidney, heart, liver, lung. Most of these eight were septicemias following some other infection, and two were tuberculous. This type of lesion occurred only when the invading organism was presumably present, and must leave a permanent scar in the arterial wall on healing, as probably occurs in non-fatal cases. Thus, in addition to degenerative changes which may occur diffusely in arteries during acute infections, local lesions of a more severe nature may occur. If these more severe lesions occlude the lumen, as is possible, the nutrition of the distal part of the artery will suffer. Experiments to produce degenerative lesions in the arteries in rabbits by means of uremic poisoning, uranium poisoning or spartein and epinephrin poisoning were unsuccessful. A cat kept in a state of glycosuria for a year by Dr. Allen also showed no degenerative arterial lesions.

Case of Strychnin Poisoning

DR. A. W. HEWLETT, Ann Arbor: A large man suffering from lymphatic leukemia received by mistake 15 grains of strychnin sulphate. The stomach was washed out shortly after the first general convulsion. He showed two very severe

general convulsions with cessation of respiration as well as numerous momentary convulsive seizures. The treatment consisted of continuous anesthesia, first with chloroform and later with ether, of repeated gastric lavage and of saline enemas in large quantity. The patient recovered. Quantitative analyses for strychnin showed $4\frac{1}{2}$ grains in the first lavage. The later ones were not analyzed. During the most acute stages of the poisoning only small quantities of urine and of strychnin were excreted by the kidneys (1 mg. in five hours). After this the excretion increased rapidly, reaching a maximum between the tenth and fifteenth hours after the poisoning, during which period 49 mg. of strychnin were eliminated. In the urine from the first twenty-four hours 96 mg. ($1\frac{3}{5}$ grains) were recovered. Traces were found for four days. The patient showed an increased temperature for thirty-six hours, the maximum of 102 F. being reached about twelve hours after taking the drug.

A Study of Sprue

DRS. J. H. PRATT and L. H. SPOONER, Boston: A woman, aged 41, developed a severe diarrhea on her return from Porto Rico. She came under observation three months later. When placed on the Schmidt-Strasburger diet the stools were unformed, voluminous and pale yellow in color. They contained many oil drops and small crystals and flakes of fat. A few starch granules were seen, but no muscle fibers. An absorption experiment showed a fat loss of 45 per cent. and a nitrogen loss of 15 per cent. There was achylia gastrica. Duodenal contents obtained by giving an oil breakfast contained trypsin as did the feces. The Sahli glutoid test and the Schmidt nucleus test indicated pancreatic disease. After feeding 100 gm. of glucose no sugar appeared in the urine. The diarrhea ceased after the patient was restricted to a milk diet. During the following seven months there was no return of the diarrhea. Except bananas, no other food than milk was taken. There was marked loss of weight. The tongue was sore at times and there was abdominal discomfort. The percussion outline of the liver was reduced. Examinations made at the end of this period showed an absence of hydrochloric acid and pepsin in the gastric contents. Trypsin was found in the duodenal contents removed by the Einhorn duodenal pump and in the feces. The saliva showed no deficiency in diastase, but the amount in the duodenum was no greater than in the stomach. The stools, although clay-colored, gave a good reaction for hydrobilirubin. The Einhorn-Schmidt thymus test and the glutoid capsule indicated pancreatic disease. The demonstration of trypsin proved that there was pancreatic hypochylia and not achylia. The evidence from the absorption experiment indicates intestinal disease in addition to the pancreatic insufficiency. No improvement followed the administration of a pancreatic preparation.

Utilization of Deglutition Sounds in Intrathoracic Disorders

DR. S. J. MELTZER, New York City: There are three deglutition sounds. One can be heard in the back, to the left of the spinal column, down to the eighth or ninth dorsal vertebra, at the instant of the act of the deglutition. It was described by Hamburger about forty years ago. It is very short and not very definite. The two other sounds can be heard to the left of the xyphoid process and were described by me thirty years ago. One, the second or pressing sound (Meltzer), can be heard in all normal cases six or seven seconds after the beginning of the act of deglutition and indicates the passage of the swallowed fluid through the cardia, when it is in a normal state of tonus. The sound is long and loud. The other, the first or squirting sound (Meltzer), can be heard at the very beginning of the act of deglutition, is short and loud and indicates the absence of the tonus of the cardia. This sound does not concern us here.

These sounds can be utilized diagnostically in some of the intrathoracic disorders. For instance in consolidations of the lower lobe, or over an area of effusion in the back, Hamburger's sound can be heard over the entire area of consolidation or effusion, and it is there even more definite than normally. When the consolidation or effusion is not separated by air-containing lung from the cardia, Meltzer's second sound may be heard sharply and definitely all over the areas of effusion or

consolidation. In consolidation of the upper lobe, Hamburger's sound can be heard very definitely anteriorly in the infra-clavicular region, but only when the consolidation occupies the entire thickness of the upper lobe. When the consolidation occupies only the anterior part, the sound is either faint and distant or entirely absent. None of the sounds can be heard over cavities, unless they are filled up with pus or mucus. Tumors or aneurysms are capable of conducting these sounds. Over the areas of cardiac hypertrophy or dilatation and over pericardial effusion, Meltzer's second sound is very definite. At present the respiratory sounds and the speaking voice alone are the means for bringing out auscultatory differences. The introduction of the auscultation of new sounds, which can be brought out at will, is bound to bring out some variations which could be utilized diagnostically.

Ankle-Clonus Without Organic Disease of the Nervous System

DR. WILDER TILESTON, New Haven: Ankle-clonus has been until recently considered by most observers as indicative of organic disease of the brain or cord. This sign is met not infrequently in advanced cases of phthisis, in typhoid, septicemia and other infectious diseases, and in articular rheumatism, without any other signs pointing to organic disease of the nervous system. In a case of septicemia coming to autopsy there were no gross lesions in the central nervous system, but diffuse Marchi degenerations and mild foci of myelitis, the latter near the posterior septum. Such lesions are probably susceptible of complete cure, but might possibly be brought in connection with the ankle-clonus.

Ankle-clonus is frequent during anesthesia with ether or chloroform, and after the use of scopolamin (hyosein) in medicinal doses. Strümpell mentions exaggerated tendon reflexes in strychnin and some cases of atropin poisoning, but does not state whether clonus was present. In chronic mercurial poisoning ankle-clonus has been noted. In neurasthenia and hysteria true ankle-clonus is certainly rare, and its presence in these diseases should always arouse the suspicion of organic disease. It is necessary to bear in mind, however, that excessive fatigue or insomnia may induce ankle-clonus, which, however, passes away after a few days of rest. Hence, a transitory clonus does not point to organic nervous disease, though on the other hand it does not exclude it. In beginning uremia the appearance of ankle-clonus may be a valuable indication of approaching danger, coming often several days before the acute seizure. In epilepsy immediately after the convulsion there is frequently a marked ankle-clonus, which is transitory.

From the diagnostic point of view all these "functional" cases are distinguished from organic disease by the absence of Babinski's toe-sign and of Oppenheim's phenomenon. The only exceptions to this rule are found after the administration of scopolamin, when a positive Babinski sign is almost invariably to be found, and epilepsy immediately after the attack, when both Babinski's and Oppenheim's phenomena may be positive. In the acute infectious diseases the presence of an ankle-clonus is of bad prognostic import, because it occurs only in the graver cases, but it does not of itself preclude recovery.

The Blood-Pressure-Raising Action of Strychnin

DRS. GEORGE B. WALLACE AND H. G. PAMMENT, New York City: Strychnin is commonly considered to be of some value as a circulatory stimulant. The conditions under which it acts favorably, however, have never been clearly defined. In individuals or animals with an approximately normal blood-pressure, it fails to produce an appreciable rise except in doses too large to be considered therapeutic. In our work a continued low blood-pressure was induced in animals by various procedures, and the effects of strychnin studied. The experiments were so conducted that a spontaneous recovery of the blood-pressure level to normal either did not occur, or else did not mask a possible strychnin action. The strychnin was given in what would be considered therapeutic dosage. The low blood-pressure was induced as follows:

1. By chloral.—This is a result of depression of the vasomotor center. There is a very gradual spontaneous improvement, but strychnin hastens recovery to the normal level strikingly. 8. By nitrites.—This is a result chiefly of periph-

eral action on the vessels. No appreciable improvement from strychnin. 3. By hemorrhage.—No effect from strychnin. 4. By diphtheria toxin.—No effect from strychnin. 5. By chloroform (under artificial respiration).—No effect from strychnin. 6. By shock, from the application of cold to the intestine.—No effect from strychnin. The only type of low pressure favorably affected by strychnin is that characterized by moderate depression of the vasomotor center, such as may be brought about by chloral.

Study of Cultures from Sputum and Blood in Lobar Pneumonia

DRS. T. W. HASTINGS and EMIL BOEHM, New York City: The present report is on thirty cases. In twenty-nine of these blood-cultures and sputum-cultures were taken, with a growth occurring in ten blood-cultures or 34 per cent. Of the ten positive cases, pneumococcus was the organism in seven, *Streptococcus hemolyans* in two and *Streptococcus mucosus* in one. In all the cases showing the pneumococcus in the blood, pneumococcus was isolated from the sputa, except in one in which sputum was not obtainable; in the two cases showing streptococcemia, streptococcus was isolated from the sputa; and in one case showing *Streptococcus mucosus* in the blood, the same organism was found in the sputum.

For the blood-cultures the usual routine was employed. The blood was drawn into sterile Ewing tubes, and immediately poured into flasks of broth in dilution of 1:25 to 1:75. Blood-agar plates were also made in varying dilutions 1:3 to 1:12. No special mediums, as that suggested by Wiens, were used, as from our experience, growth takes place as readily on the ordinary as on the special mediums. Strouse and Clough in their reported series of cases seem to have had a similar experience. In all our positive cases growth occurred in both the liquid and solid mediums.

The sputa reported in this series were "clean" specimens, i. e., free from a varied bacterial and fungoid growth, buccal cells and foreign particles, which is easily determined from a smear. They were collected and washed after the method of Kitasato. After preparation the selected portion of sputum was streaked on plates of North's medium and blood-agar, from which colonies were later transferred to suitable mediums for differentiation. Three smears from each sputum were made: one stained with methylene-blue, showing at a glance if the specimens were "clean;" the second stained with Gram, while a third was stained after the Hiss method for capsules. In no case were pneumococci recovered in culture in which they were not seen in the smear preparations and, conversely, they were always procured in culture when present in smears.

In twenty-nine cases both blood and sputum were cultured, and in five of these more than one blood-culture was taken. In one case blood only was cultured and pneumococcus found.

Results in twenty-nine cases, cultures from blood and sputum: 1. Blood- and sputum-cultures were positive in ten cases: (a) in seven cases pneumococcus isolated: five deaths; (b) in three cases no pneumococcus; of these in two *Streptococcus hemolyans* (*longus*), one death; in one *Streptococcus mucosus*. 2. Blood-cultures were negative, sputum-cultures positive in nineteen: (a) in eight cases pneumococcus isolated: three deaths; (b) in eleven cases no pneumococcus: two deaths; of these in two cases *Bacillus coli*; in one case *Micrococcus catarrhalis*; in one case staphylococcus (type?); in one case staphylococcus and streptococcus; in one case *Bacillus influenzae*; in one case *Bacillus fluorescens non-liquefaciens*; in one case one unidentified Gram + chromogenic probably saprophytic; in three cases no results.

Total: Thirty blood-cultures; pneumococcus found in eight cases, 26.6 per cent.; six deaths. During the years 1910-1912 cultures were taken from forty-four cases of pneumonia, of which twenty-four showed pneumococci (54 per cent.), and twenty showed no pneumococci (45 per cent.)

Unsaturated Fatty Acid as a Neurolytic Agent

DR. HERMAN M. ADLER, Boston: The hemolytic action of unsaturated fatty acid of which oleic acid is the type has been repeatedly demonstrated. Unsaturated fatty acids are normally present in large amounts both in the food and in the tissues. In health under ordinary conditions the body protects

itself against the hemolytic action. The question arises, is the blood-cell alone attacked by the unsaturated fatty acid, or are other cells subject to its lytic action if the normal protection is withdrawn or is impaired? The nerve-cell is in some respects analogous to the blood-cell. Its resistance to oleic acid was tested by injecting small amounts of the acid into the brains of cats. As a control a number of cats were injected intracerebrally in the identical fashion with a like amount of triolein. The brains into which oleic acid had been injected showed at autopsy, from two to forty-eight hours after injection, large cerebral hemorrhages at site of injection. In the neighborhood of the injection the nerve-cells showed vascularization and marked satellitosis. There was a marked destruction of nerve-cells, both glia and neuron. There was a marked increase of perivascular cells. The brains injected with triolein showed a slight traumatic extravasation of blood-cells. There was no perivascular proliferation, and slight satellitosis. It is fair to assume in view of these findings that unsaturated fatty acid is a neurolytic agent, and that satellitosis is in all probability due to wandering cells rather than to fixed cells and is comparable to the migration of polymorphonuclear leukocytes.

AMERICAN GYNECOLOGICAL SOCIETY

Thirty-Seventh Annual Meeting, held at Baltimore, May 28-30, 1912

(Concluded from page 141)

Primary and End Results of Fifty Radical Abdominal Operations for Cancer of the Uterus

DR. REUBEN PETERSON, Ann Arbor, Mich.: There were ten deaths in the fifty-one cases, a primary mortality of 19.6 per cent. The primary mortality was 42.8 per cent. in the first fourteen cases. In the last thirty-seven cases, there were but four primary deaths, a mortality of 10.8 per cent. In forty cases of carcinoma of the cervix there were nine deaths, or a primary mortality of 22.5 per cent., while there was only one primary death in eleven cases of cancer of the fundus, or a mortality of 9 per cent. Out of the fourteen cases there were six primary deaths, and of the eight surviving patients three had recurrences, the remaining five patients being in good health and free from recurrence five years or more after the operation. Six patients with carcinoma of the cervix survived the operation. Of these, three were alive and free from recurrence, while the two patients with carcinoma of the fundus have had no recurrence. I have made a summary of the fifty-one cases, which shows that eight patients with carcinoma of the cervix have died from recurrence of the disease, while one died of tuberculosis. Two patients with carcinoma of the cervix have had recurrences, but are still living. One patient had a recurrence in the vaginal vault five months after the operation. From personal examinations of seven patients out of the eleven with recurrences, I am able to say that in these the disease undoubtedly returned in the vaginal cicatrix. There were ten recurrences among the thirty-one cases of carcinoma of the cervix surviving the operations, while there was only one recurrence in the eleven cases of carcinoma of the fundus. During the ten years I have been employing the radical abdominal operation I have examined in the university and private clinics 218 cases of carcinoma of the uterus. Of these fifty-one, or 23.4 per cent., were judged to be suitable for the radical operation. Greater experience leads me to the conclusion that some of the early cases were too far advanced for this operation. On the other hand, I think I missed some cases in which this operation could have been employed by not making the decision rest on an exploratory laparotomy rather than on bimanual examination.

Remote Results in Abdominal Hysterectomy for Cancer of the Uterus

DR. THOMAS S. CULLEN, Baltimore: I have performed in all over fifty Wertheim operations, with immediate deaths, eleven; remote deaths at periods varying from a few months to five years, twenty; patients lost track of, five; patients living and well at periods varying from one to thirteen years,

twelve. Twenty-five of my patients have been operated on over five years with the following results: the mortality in the first twenty-five cases was seven, or 28 per cent.; in the succeeding twenty-three cases, four, or 18 per cent.

DISCUSSION

DR. JOHN A. SAMPSON, Albany: As to the end results (five-year limit), eight of twenty-five patients were operated on over five years ago. Two of these died as the result of the operation, and two died later from recurrence. Four are clinically free from cancer at the present time; that is, four of eight cases operated on and of six surviving the operation. Apparently unfavorable cases may be cured. I have had the opportunity to obtain autopsies on five patients dying from recurrence, including the two just reported. In three the immediate cause of death arose from the compression of the ureters by cancer extending from metastases in accessible iliac lymph-nodes. In the fourth there was an extensive local recurrence in the field of operation from cancer not removed at operation. In the fifth there was an extensive local recurrence filling the pelvis and metastases to the lungs, heart, one kidney and skin.

DR. J. WESLEY BOVÉE, Washington, D. C.: My statistics of the employment of broad radical excision for cancer of the cervix down to three years ago are as follows: number of cases of operation, thirty-six; mortality: shock, five; peritonitis, two; fecal fistula-asthenia, fourteenth day, one; renal insufficiency, one. Total nine cases. Died from recurrence of cancer at the end of one year, one; at the end of eighteen months, one; at the end of twenty-one months, one; at the end of two years, two; at the end of three years, one. Total, six. Died from other diseases, of uremia after ureterocystotomy at the time of operation (lived eleven years), one; unknown intercurrent disease (lived two years), one; of tuberculosis (lived six months), one. Total, three. Number living for more than three years without recurrence, eight; total after recovery from operation not traceable, ten. Twenty-seven patients recovered from operation, and of these eight, or practically 30 per cent., have remained well for more than three years. The exact amount of time they have lived, apparently well, after operation, is for one, fourteen years and two months; one, twelve years and three months; two, twelve years; one, nine years and eight months; one, nine years and one month; one, seven years and four months, and one, four years and nine months.

DR. LEROY BROUN, New York City: The lesson we are to learn from these papers and the discussions is that gynecologists are not getting their cancer cases early enough. It is necessary to educate the laity in the various communities.

DR. JOHN O. POLAK, Brooklyn: I have not a single patient living on whom the radical operation was done. I have four patients alive who were operated on by the Byrne method, one having been operated nearly nineteen years ago, and one having been operated on eight years ago. These were all cases that I considered practically inoperable by any radical procedure.

DR. SETH C. GORDON, Portland, Me.: In extremely advanced cases of cancer, no matter what is done, the patients die. The only hope lies in education of the laity and early removal of the disease. There is no question in my mind but that cancer of the uterus can be cured the same as cancer of the lip, but it must be seen and operated on early.

DR. I. S. STONE, Washington, D. C.: I know that my patients live many years longer after a radical abdominal operation than they otherwise would, and consequently I am encouraged to do the radical operation. At the same time I am not unmindful of the fact that the cautery method in the delayed cases is far more desirable than any other method and yields better results.

DR. WILLIAM P. GRAVES, Boston: I have done the Wertheim operation for cancer of the cervix in eighteen cases. I have seen all the living patients within four months. I have had a primary mortality of two, or 11 per cent. One death was due to the fact that I had operated in an inoperable case. I could not remove all of the cancerous tissue and the patient died from shock in about twenty-four to thirty-

six hours. The other death was due to carelessness. Ten patients are living without recurrence, and eight are dead. Two died immediately after operation, and six have died from recurrence.

DR. HUGO EHRENFEST, St. Louis: Early diagnosis is the crucial point, and education of the public is the one factor which leads to early diagnosis.

DR. E. E. MONTGOMERY, Philadelphia: My experience in the treatment of cancer is that we have very much yet to learn from the pathologist and as to the best methods of its treatment. I have seen patients whose condition was such that I had very little hope of their recovery, and yet have operated, doing either the vaginal or abdominal operation, and have found that they lived for a number of years. Some were still living after more than ten years without any recurrence of the disease. I have seen other cases in which the disease occupied either the body of the uterus or the vaginal portion of the cervix, in which it was slight indeed, and in which my experience would lead me to say that here was a case in which we might hope for a radical cure, and yet within a few months afterward there would be recurrence of the disease and death of the patient.

DR. SIDNEY A. CHALFANT, Pittsburgh: Of thirty cases admitted, only nine were suitable for the radical operation. Three patients died as the result of the operation; one died later of pneumonia at the end of one year; one died five years after operation of recurrence, and one died five and one-half years after operation. Of the nine, there are three patients living and well at the end of three years. Four cases were considered inoperable, so far as radical operation is concerned. These four had high amputation of the cervix with the cautery. Of the four patients, one is living and well at the end of seven years; another one is living and well at the end of six years.

DR. GEORGE H. NOBLE, Atlanta, Ga.: Of thirty-eight patients operated on by me over five years ago for carcinoma of the cervix, thirteen are living. I am unable to trace six of the cases.

Current Medical Literature

Journal of Indiana State Medical Association, Fort Wayne

June 15, V, No. 6, pp. 247-290

- 1 Indiana State Tuberculosis Hospital. O. V. Schuman, Columbia City.
- 2 Plea for Better Asepsis in Abdominal and Pelvic Surgery. E. B. Rusehli, La Fayette.
- 3 Hereditary Goiter Manifested in Five Consecutive Generations; Case Report. E. E. Holland, Richmond.
- 4 Sociologic Aspects of Syphilis. J. E. Morrow, Indianapolis.
- 5 Sacro-Iliac Disease. E. Charles, Summitville.
- 6 Some Mental Phases of Syphilis. A. P. Harrison, Madison.
- 7 *Case of Large Ovarian Tumor. E. L. Larkins, Terre Haute.
- 8 Psychologic Value of Correct Diagnosis. A. C. Kimberlin, Indianapolis.

7. Large Ovarian Tumor.—Larkins' patient was aged 62 years, and consulted him about some shortness of breath and irregular action of heart, believing she had heart disease. On examination Larkins could not find any organic disease of the heart, but on palpating the abdomen, found an ovarian tumor of the left ovary about the size of a fetal head at term and freely movable, but evidently having a short pedicle. He gave it as his opinion that this was the origin of her trouble and advised its immediate removal. To this she would not consent as she "did not believe in operations." As time went on the tumor increased in size and for the last three years she has been practically confined to the bed and chair. The functions of the body continued in a normal way but the growth of the tumor gradually took away the nutrition of the body so that, at the time of her death, the woman was a mere skeleton. The tumor completely filled the abdomen and hung over the pelvis and thighs down to the knees. Where it rested on the thighs, the muscles were completely atrophied and only the skin covered the femurs. It pressed upward and expanded the ribs, which looked like wings. It was adhered to the anterior abdominal wall but there was not a single adhesion to any of

the organs. The pedicle was the length and breadth of two fingers. The tumor weighed 140 pounds even. The contents were of a purulent, bloody, gelatinous consistency. The tumor was a multilocular cyst. As near as could be ascertained the body weighed 80 pounds.

Kentucky Medical Journal, Bowling Green

June 1, X, No. 11, pp. 459-512

- 9 Fundamental Errors in Our System of Education. J. W. Pryor, Lexington.
- 10 Clinical Microscopy. M. Coombs, Pineville.
- 11 Ptomain Poisoning. J. M. Salmon, Ashland.
- 12 Pellagra. A. E. Threlkeld, Wheatley.
- 13 Hepatic Cirrhosis. M. Bell, Monterey.
- 14 Migraine or Hemicrania. W. B. Dalin, Owenton.
- 15 Laceration of Perineum; Prevention and Treatment. J. C. B. Foster, Monterey.
- 16 Cronpous Pneumonia. J. L. Cox, Campton.
- 17 Cholera Infantum. W. H. Hobbs, Rogers.
- 18 General Symptomatology and Diagnosis of Diseases of Children; Colic and Summer Complaint. W. C. Connelly, Salyersville.
- 19 Relative Duty of Minister. W. J. Mahoney, Madisonville.
- 20 Relative Duty of Dentist. E. B. Hardin, Madisonville.
- 21 Relative Duty of Physician. L. E. Nichols, Nebo.
- 22 Year's Experience with Salvarsan. M. S. Davis, Lexington.
- 23 Use of Salvarsan. J. R. McGary, Owensboro.
- 24 Scarlet Fever. B. A. Cockrell, Lexington.
- 25 Pneumonia. J. D. Roberts, Stanley.
- 26 Diphtheria. W. W. Durham, Crofton.

June 15, X, No. 12, pp. 513-546

- 27 Carcinoma of Uterus. H. J. Phillips, Louisville.
- 28 Indications for Operations on Blood-Vessels. J. W. Price, Louisville.
- 29 Whooping-Cough. H. L. Rapp, Louisville.

American Journal of Diseases of Children, Chicago

June, III, No. 6, pp. 341-428

- 30 *Case of Allergy to Common Foods. O. M. Schloss, New York.
- 31 *Wassermann Reaction in Infants and Children; Clinical Study. F. S. Churchill, Chicago.
- 32 *Acute Duodenal Indigestion in Children. F. B. Talbot, Boston.
- 33 Infectious Diseases. M. Jampolis, Chicago.

30. Allergy to Common Foods.—In a boy now eight years old marked urticarial lesions were caused by the ingestion of eggs, almonds and oatmeal. The idiosyncrasy to egg was not congenital but was acquired at some time between the ages of 10 days and 14 months. Symptoms due to the ingestion of oats appeared some time after the child had first eaten oatmeal when he was 22 months old. As far as could be ascertained, the idiosyncrasy to almonds was manifested the first time this food was eaten. Schloss then undertook a series of experiments to determine the nature of this susceptibility.

It was found that cutaneous inoculation of these and certain related food substances produced an urticarial wheal at the site of inoculation. The cutaneous reaction was produced only by the protein constituents of eggs, almonds and oats. Different proteins from the same source varied in activity, some being incapable of causing a reaction. Some of the active proteins caused urticaria by mere contact with the unbroken skin. It was possible passively to sensitize guinea-pigs to ovomucoid (one of the active proteins from eggs) by intraperitoneal injections of the patient's blood-serum. By feeding ovomucoid in gradually increasing doses the patient became immune to egg. At the same time immunity to oatmeal and an apparently decreased susceptibility to almonds occurred.

31. Wassermann Reaction in Infants and Children.—Surveying as a whole this series of 101 hospital children tested by Churchill for the Wassermann serum reaction, he was impressed with the large number of cases presenting a positive reaction, 38 per cent., over a third, giving such a result. The most of these, he felt justified in regarding as syphilis; all, in fact, except ten cases, leaving twenty-nine (28 per cent.) cases of syphilis among the first hundred children, selected mostly at random, in one of our large American hospitals; that is, nearly one out of every three patients. The observations made by Churchill, based on clinical examination and the serum test, would tend to show, however, that there is a large amount of congenital syphilis among hospital patients.

Next, Churchill was struck with the great variety of conditions in which he found a positive serum reaction, corresponding with the protean character of syphilis. The greatest number of positive reactions was found, furthermore, in

the bony, nervous and circulatory systems, tissues particularly apt to be attacked by the syphilitic virus.

The comparatively large number of positive cases without physical signs, the "symptomless" children, is another striking phenomenon, fourteen of the cases (37 per cent.) being so lacking. This again is quite in keeping with the character of congenital syphilis, at least of the late variety, and emphasizes the difficulty of arriving at a diagnosis and the importance of the serum test in unearthing these obscure cases.

32. Acute Duodenal Indigestion in Children.—Metabolism experiments and an understanding of the physiology of bile, Talbot says, makes it obvious that in the cases of acute duodenal indigestion in children fat and sugars should be excluded from the diet. Conversely proteins, especially meat, fat-free milk, or skimmed milk, and thoroughly cooked simple starches (potato is the least digestible) may be safely given. Fortunately, the disease is of relatively short duration, because a fat-free diet could not supply the requisite number of calories to sustain health indefinitely. The appetite is always poor and can be best stimulated by tincture of *nux vomica*, in doses corresponding to the age of the patient. Mucus is the natural protective agent of the gastro-intestinal canal and is thrown out by the mucous membrane whenever there is any form of irritant present. Mucus is soluble in alkalies and precipitated by acids, therefore, the mucus plug in the bile duct may best be reached by large doses of alkalies (for example bicarbonate of soda). The prognosis is always good for life, but recurrences are not infrequent; our knowledge of the pathologic anatomy is, therefore, very scanty.

California State Journal of Medicine, San Francisco

June, X, No. 6, pp. 221-274

- 34 Hypophysis Diseases and Their Diagnosis. C. M. Cooper, San Francisco.
- 35 Report on Medical Education. W. F. Snow, Sacramento.
- 36 Pathologic Conditions of Eye Secondary to Disease of Lymphatics of Neck and Throat. E. W. Alexander, San Francisco.
- 37 Proposed Code of Public Health Regulations for California. J. N. Force, Berkeley.
- 38 Operative Procedure in Hypophyseal Affections. H. B. Graham, San Francisco.

Pennsylvania Medical Journal, Athens

June, XV, No. 9, pp. 679-760

- 39 Treatment of Tuberculosis of Larynx. C. C. Sanders, Pittsburgh.
- 40 *Tonsils and Tuberculosis. G. B. Wood, Philadelphia.
- 41 Pupil in Health and Disease. E. Stieren, Pittsburgh.
- 42 Diagnosis and Pathology of Tumors of Pons. J. H. W. Rhein, Philadelphia.
- 43 Orbital Diseases Secondary to Sinusitis. W. Reber, Philadelphia.
- 44 Orbital Cellulitis from Causes Other than Sinusitis. E. B. Heckel, Pittsburgh.
- 45 Relation of Ethmoid Diseases to Orbital Conditions. R. H. Skillern, Philadelphia.
- 46 Surgical Treatment of Orbital Cellulitis. H. F. Hansell, Philadelphia.
- 47 Anaphylaxis in Its Relation to Bacterial Infection. A. B. Snively, Blue Ridge Summit.
- 48 Pneumothorax as Curative Factor in Pulmonary Tuberculosis. J. F. Small, York.
- 49 Case of High Blood-Pressure. J. T. Ullom, Germantown.

40. Tonsils and Tuberculosis.—Wood is of the opinion that tuberculous disease of the tonsil, only in exceptional cases, gives rise to pulmonary disease by way of the lymph channels, but that such infection is possible when certain anatomic peculiarities exist. In his experimental work Wood found that when the tonsil was infected, and subsequently the glands of the neck broke down, the pulmonary lesion which finally developed was always a miliary tuberculosis resulting from the organisms gaining access to the blood channels through the jugular lymph trunk. In no case was there any direct extension of the disease to the pulmonary apices.

Journal of Medical Society of New Jersey, Orange

June, IX, No. 1, pp. 1-54

- 50 Charcot's Arthropathy. F. H. Albee, New York.
- 51 Fracture of Patella. H. W. Brown, Jersey City, N. J.
- 52 Progress in Treatment of Syphilis. H. J. F. Wallbauser, Newark, N. J.
- 53 Diagnosis and Therapeutics of Gastric Diseases. J. W. Weinstein, New York.
- 54 Home in Its Relation to Infant Morbidity and Mortality. I. S. Wile, New York.

- 55 Medical Economy. J. S. Yates, Paterson, N. J.
- 56 Therapeutics of Copper. G. W. Cummins, Belvidere, N. J.

Journal of Medical Research, Boston

June, XXVI, No. 2, pp. 195-356

- 57 Parasitic Protozoa from Gambia. J. L. Todd and S. B. Wolbach, Boston.
- 58 Pathologic Anatomy of Natural and Experimental Murrina, Trypanosomal Disease of Isthmus of Panama. S. T. Darling, Ancon, Canal Zone.
- 59 Spontaneous Nephritis in Wild Rats. W. Ophüls and G. W. McCoy, Los Angeles.
- 60 *Relation of Animal Fat to Tubercle Bacillus Fat. W. C. White and A. M. Gammon, Pittsburgh.
- 61 Cyanotic Induration of Kidney. H. Oertel, New York.
- 62 Action of Certain Products Obtained from Tubercle Bacillus. B. White and O. T. Avery, Brooklyn.

60. Fat and Apical Processes.—Having determined that the tubercle bacillus is able to use various fats and their liver-split products to its own advantage when grown on artificial mediums the authors endeavored to correlate this fact with the function of the liver in mobilizing and changing the fats already stored in the subcutaneous tissues and in explaining why the favorite site of growth of the tubercle bacillus in man is the highest point in the lung. Another worker, Leathes, was able to show that the fats stored in the reservoirs of the animals were mobilized in the liver and here prepared for utilization by the other organs of the body which during their action burned the fat. This liver-altered fat is of necessity poured into the inferior vena cava and thence finds its way into the pulmonary artery and from here passes directly into the lung capillary system. If one studies the anatomy of the pulmonary artery, however, one sees that before dividing into the right and left pulmonary branches it forms a great bay of blood bounded by a very elastic vessel wall. The blood in this portion of the pulmonary artery must move with comparative slowness, because of the short circuit which it makes in comparison with the long circuit made by the general aortic quota of blood.

In this great bay the blood is loaded with fatty derivatives of low specific gravity compared with the whole blood. Owing to the slowness of the current due to the elasticity of the vessel and the short circuit to be traveled, these compounds have a chance to rise to the surface of the stream, so that the upper layer of blood in the pulmonary artery should have a much larger content of fatty compounds than the lower one. If one now follows the pulmonary blood-stream in man it is readily seen that at the highest point of this main stream the vessel arises that supplies the apex of the upper lobe on either side. If the theory advanced be correct, this vessel, owing to the upright position in man, should be the vessel most laden with the fatty compounds of low specific gravity which are being poured into the pulmonary stream by the liver mechanism because these compounds, of necessity, rise rapidly to the highest level of the fluid bed in which they are traveling.

This view, coupled with the results of their experimental work so far completed, which shows that the tubercle bacillus makes use of these compounds for its more abundant growth, seems to White and Gammon a most reasonable explanation of its more prevalent development in the apex of the upper lobe. In other words, it is in the lung that the tubercle bacillus gets first pick, so to speak, of the fatty compounds which it needs for its development and receives the greatest supply of these at the apex of the upper lobe in animals that maintain an upright position.

Maryland Medical Journal, Baltimore

June, LV, No. 6, pp. 131-156

- 63 Surgical Aspects of Recent Epidemic of Throat Infection of Unusual Type. A. C. Harrison, Baltimore.
- 64 Massacre of Tonsil. J. N. Mackenzie, Baltimore.

American Journal of Surgery, New York

June, XXVI, No. 6, pp. 193-256

- 65 Operative Treatment of Intractable Cardiospasm. W. Meyer, New York.
- 66 *Shoulder Disability. W. M. Brickner, New York.
- 67 Peculiarities of Deep-Lying Abdominal Inflammation. C. N. Dowd, New York.
- 68 Neurotic Element in Abdominal Surgery. R. T. Morris, New York.
- 69 Intracanalicular Papilloma of Breast. J. F. Erdman, New York.

- 70 Crypts and Columns of Morgagni; Their Relationship to Rectal Diseases. J. P. Tuttle, New York.
- 71 When Shall We Operate on Simple Fractures of Long Bones? J. P. Warbasse, Brooklyn.
- 72 Suprapubic Two-Step Operation for Removal of Hypertrophied Prostate. L. S. Plicher and P. M. Pilcher, Brooklyn.
- 73 Prognosis in Prostatic Disease in Aged. H. Lillienthal, New York.
- 74 *New Method of Extirpating Penis. E. L. Keyes, New York.
- 75 Three Genital and Four Extragenital Chancres in One Patient, Appearing Consecutively in Course of Thirty-Nine Days. W. S. Gotthell, New York.
- 76 Treatment of Bleeding from Genital Organs of Women. H. J. Boldt, New York.
- 77 Puerperal Infections. J. O. Polak, Brooklyn.
- 78 Removal of Foreign Body from Cornea and Conjunctiva. C. H. May, New York.
- 79 Surgical Anatomy of Temporal Bone. W. M. Dunning, New York.

66. **Shoulder Disability.**—Brickner would exclude *bona fide* brachial neuritis, intra-articular lesions (including luxations), gross fractures of the humerus, fracture of the acromion, the scapula and even of the clavicle, a gross or developing lesion in the head of the humerus (gumma, tuberculosis, neoplasm). If these can all be excluded look for a bursitis (coracobrachial, or more especially, subacromial), for an injury to the supraspinatus tendon, perhaps involving the bursa of the greater tuberosity, or for a fracture of the tuberosity itself. If physical signs and skiagraph show none of these, the condition may have arisen from a spontaneously reduced dislocation of the shoulder, or, as suggested by Turner, a lesser tear of the capsule by a sprain.

74. **Extirpating Penis.**—In performing an operation recently for the removal of an epithelioma, which, beginning in the scrotal urethra, had involved both corpora cavernosa, a curious fact was noted by Keyes. The growth extended so little into the scrotal portion of the urethra that it seemed unnecessary to sacrifice the pendulous portion of the penis, which seemed perfectly free from any involvement. Accordingly the incision was not carried around the base of the penis, but the organ, freed of all its attachments, was pulled down in the perineal opening, and divided at the penoscrotal angle. Although all the recognized sources of blood had been tied off there was a surprisingly free but gentle venous oozing from the cavernous bodies. It seemed probable that so vascular an organ would live and accordingly the cavernous bodies were closed by ligation with catgut sutures, the organ replaced in its sheath and the incision closed after provision had been made for a perineal urethra by bringing the point of the V flap up against the triangular ligament, where it had been found necessary to divide the urethra.

Canadian Medical Association Journal, Toronto

June, II, No. 6, pp. 461-556

- 80 Effect of Anatomical and Immunologic Data on Our Conception of Tuberculosis. A. H. Caulfield, Gravenhurst.
- 81 Present Attitude Toward Tuberculosis. C. D. Parfitt, Gravenhurst.
- 82 Housing Conditions in Canada. W. R. Lang, Toronto.
- 83 Rheumatism in Children of Vancouver and District. H. Dyer, North Vancouver.
- 84 Personal Reminiscences of Lister. A. E. Mallock, Hamilton.

Bulletin of Lying-in Hospital of City of New York, New York

June, VIII, No. 3, pp. 89-149

- 85 *Study of Integrity of Uterine Scar After Cesarean Section. J. A. Harrar, New York.
- 86 Case of Severe Anemia; Sloughing Fibroid; Recovery. R. McPherson, New York.
- 87 Month's Record of Labor Cases Occurring in Out-Door Service of Lying-In Hospital. G. W. Kosmak, New York.
- 88 Condylomata of Perineum During Pregnancy. J. W. Markoe, New York.
- 89 *Fetal Overgrowth and Its Significance in Labor. G. W. Kosmak, New York.
- 90 Vaginal Cesarean Section and Its Limitations Particularly in Eclampsia. G. W. Kosmak, New York.

85. **Uterine Scar After Cesarean Section.**—Out of fifty instances of the multiple operation examined by Harrar, the old scar was either not found at all or when noted was solid in forty-two; four times it was attenuated in form; twice there was partial rupture at the location of the old scar and twice complete rupture of the uterus. Therefore he suggests: First, In undertaking a cesarean section on a woman who has been long in labor, with ruptured membranes and who may be infected, in addition to the immediate dangers

of septic morbidity and mortality, we must recognize the probability of obtaining a poorly healed scar that will be a bad risk in future pregnancies. Second: When performing repeated cesarean section it would be best to excise the old uterine scar, rather than make a new incision parallel to it and avoid the isolation of a weakened strip of uterine wall between two scars. Third: Intrauterine douches are to be avoided in the treatment of retained lochia after cesarean section, not only for their immediate dangers, but also on account of the risk of mechanical injury to the uterine wound. Fourth: In the management of a parturient woman who has been previously cesareanized for the relative indications, such as moderate pelvic contraction or excessive size of fetus, or certain types of eclampsia and placenta previa, we must be guided by the history of the previous convalescence as well as by the method of suturing employed. Only thus can we be assured of the integrity of the old scar and to what extent it will stand the stress of labor and vaginal delivery.

89. **Fetal Overgrowth.**—It is an accepted fact that in a certain number of women, the period of gestation is prolonged beyond the normal limits. This results in the production of large fetuses which rapidly increase in size and offer a possible obstruction to safe and satisfactory labor. Kosmak suggests that the progress of gestation in each patient should, therefore, be carefully watched and if the date of expected confinement obtained from the menstrual history is confirmed by the growth of the fundus, labor should be induced within a reasonable period by appropriate measures, if it does not come on spontaneously at the proper time. He says that the induction of labor under these circumstances if properly conducted, is not attended with any risks to mother and child.

Journal of Iowa State Medical Society, Clinton

June 15, I, No. 12, pp. 653-716

- 91 *Diagnosis and Treatment of Fractures. S. C. Plummer, Chicago.
- 92 Relation of Hospital to Medical Education and to Community. O. J. Fay, Des Moines.
- 93 Practical Points in Roentgen-Ray Diagnosis and Therapeutics. G. S. Browning, Sioux City.
- 94 Subcutaneous Traumatic Injury of Intestine, with Case of Recovery Following Operation. A. L. Yocom, Chariton.

91. Abstracted in THE JOURNAL, May 25, 1912, p. 1628.

Illinois Medical Journal, Springfield

June, XXI, No. 6, pp. 677-786

- 95 Neuroses and Neuron Concept. H. E. Santee, Chicago.
- 96 Significance of Neuron Concept to Pharmacology. B. Fantus, Chicago.
- 97 Influence of Neuron Concept in Neurology. L. H. Mettler, Chicago.
- 98 Significance of Patient's Reaction to Intravenous Administration of Salvarsan. E. D. Holland, Hot Springs, Ark.
- 99 *Use and Misuse of Tuberculin. W. B. Metcalf, Chicago.
- 100 Double Uterus; Report of Case. J. H. Stealy, Freeport.
- 101 Colon Bacillus Infections of Kidney and Bladder. I. S. Koll, Chicago.
- 102 Certain Diseases of Biliary Tracts and Their Surgical Treatment. B. Holmes, Chicago.
- 103 Differential Diagnosis of Serous and Septic Meningitis. N. H. Pierce, Chicago.

99. **Use and Misuse of Tuberculin.**—From experience and observation Metcalf is convinced that a great deal of harm has been done with tuberculin, is now being done and will continue to be, until the profession comes to a full realization of the dangers that attend its faulty administration. He believes that the state should institute a graded system for testing, beginning with the children. In this way the obscure as well as the incipient cases can be discovered at a time when repair and recovery are easy and certain. Metcalf would go even further than this and require that all the children who give a positive reaction be treated with tuberculin. If this is done, he says, tuberculosis will yield as completely as small-pox and yellow fever have yielded to preventive measures. The time has come when there should be legislation bearing directly on this matter. This legislation should give mandatory power to the state board of health or to a specially appointed commission. It is Metcalf's impression that when a physician condemns tuberculin, he has either never used it, or he has not used it properly, or he has expected it to do the impossible, or he has used an inferior tuberculin.

Southern Medical Journal, Nashville, Tenn.

June, V, No. 5, pp. 291-364

- 104 Vaccine Therapy a Definite Surgical Adjunct. W. W. Crawford, Hattiesburg, Miss.
- 105 Prolapsed Kidney. J. A. Crisler, Memphis, Tenn.
- 106 Matas Test for Efficiency of Collateral Circulation in Aneurysms of Extremities. U. Maes, New Orleans.
- 107 Matas Band as Test of Collateral Circulation Through Circle of Willis. H. B. Gessner, New Orleans.
- 108 Cataract Extraction with Corneal Suture. E. C. Ellett, Memphis, Tenn.
- 109 Prevention of Deformity by General Practitioner. W. C. Campbell, Memphis, Tenn.
- 110 Insanity: Its Rapid Increase and Preventive Measures. J. M. Buchanan, Meridian, Miss.
- 111 Psychic Center. J. T. Searey, Tuscaloosa, Ala.
- 112 Value of Clinical Laboratory in Diagnosis. E. S. Sledge, Mobile, Ala.
- 113 Indications for Abdominal Cesarean Section in Eclampsia. J. F. Moran, Washington, D. C.
- 114 Administration of Anesthetics. C. O. Abernethy, Raleigh, N. C.
- 115 Matas Band as Test of Collateral Circulation Through Large Surgical Arteries. C. W. Allen, New Orleans.
- 116 Streptococcus Infections of Throat. R. McKinney, Memphis, Tenn.
- 117 Case of Ovarian Pregnancy. J. B. Elliott, Moundville, Ala.
- 118 Ovarian Pregnancy. R. P. Stapleton, Hattiesburg, Miss.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

June, LXV, No. 414, pp. 937-1131

- 119 *Clinical Study of Operative Findings at Secondary Operation. J. O. Polak, Brooklyn.
- 120 Carcinoma of Uterus. L. J. Stacy, Rochester, Minn.
- 121 *Surgical Treatment of Retrodisplacement of Uterus. J. A. McGlinn, Philadelphia.
- 122 *Statistical Study of a Series of Abortions Occurring in Obstetric Department of Johns Hopkins Hospital. P. Titus, Baltimore.
- 123 Toxemia of Pregnancy. W. M. Brown, Rochester, N. Y.
- 124 Complete Laceration of Pelvic Floor. C. C. Norris, Philadelphia.
- 125 Advisability of Removing Uterus in Cases Where Both Tubes and Ovaries Have Been Excised. E. A. Schumann, Philadelphia.
- 126 Operative Treatment of Puerperal Sepsis. J. C. Hirst, Philadelphia.
- 127 Prolapse of Uterus. S. E. Tracy, Philadelphia.
- 128 Transfusion in Case of Toxemia of Early Pregnancy with Unusual Hemorrhagic Manifestations. H. M. Keator, New York.
- 129 Reflections on Obstetric Science of Maitre Francois Rabelais. C. G. Cumston, Boston.
- 130 *New Method for Measuring Pelvic Outlet. A. G. Biddle, New York.

119. **Operative Findings at Secondary Operation.**—Of the 139 women who form the basis of Polak's study, forty-two have been previously operated on by him, while the remaining ninety-one are the products of other surgeons. For details of these cases, the original should be consulted. However, Polak concludes that our failures may be attributed to imperfect or incomplete diagnosis, incomplete operations, badly chosen procedures, hasty toilet and insufficient after treatment.

121. **Retrodisplacement of Uterus.**—McGlinn always tries to fit the operation to the case and not the case to the operation. In some he finds the simple Wylie-Baer operation the best, in others the Gilliam, in still others the Baldy, in still others, rarely, ventral suspension. If there is an operation which he prefers above others it is the Baldy. This operation, he says, has certain features which make it the best operation so far proposed. It is an intra-abdominal one, thus allowing direct dealing with any complications which may exist; it restores the uterus absolutely to its normal position; it does not fix the uterus in its normal position but allows a normal freedom of motion; it cures that most frequent of all complications, prolapsed ovaries; it does not interfere in any way with subsequent pregnancies; it does not endanger the life of the patient either at the time of or subsequent to operation.

122. **Statistical Study of Series of Abortions.**—The total number of obstetric cases from which the series of 274 abortions is taken, is 4,750. Abortions were, therefore, met with once in every seventeen and one-third cases, making an incidence of 5.76 per cent. Incomplete abortions constitute nearly two out of every three abortions studied, a ratio of 1 to 1.69. This is 59.12 per cent. of all abortions, and 3.41 per cent. of all cases (1 in 29.3 obstetric cases). Complete abortions occur once in every 7.8 abortions, an incidence of 12.7 per cent., or 0.7 per cent. of all cases (1 in every 135.7 obstetric cases). Criminal abortions are met with about once in every 6.5 abortions, an incidence of about 15 per cent. or 0.8 per cent. of all

cases (1 in every 115.8 obstetric cases). Missed abortions occur once in every fifty-five abortions, an incidence of 1.8 per cent. or about 0.1 per cent. of all cases (1 in 950 obstetric cases). Therapeutic abortions represent one in every 13.7 abortions, an incidence of 7.3 per cent. or 0.42 per cent. of all cases (1 in every 237.5 obstetric cases).

"Inevitable" abortions, resulting in an operative ending of the pregnancy, took place once in every twenty-five abortions, an incidence of 4 per cent. or 0.23 per cent. of all cases (1 in every 431.8 obstetric cases). Incomplete abortions: Seventy-three of the 162 incomplete abortions, 45.06 per cent. were infected. There were five deaths in this series; accordingly 6.85 per cent. of the infected cases (one in 14.6 infected cases) died. Considering both uninfected, in which one death occurred and infected cases together, 3.7 per cent. of all incomplete abortions proved fatal (one in twenty-seven).

Complete abortions: Twelve out of thirty-five patients with complete abortions had a temperature of 101 F., or more, an incidence of 34.28 per cent. (about one in three cases). There were no deaths in this series. Therapeutic abortions: Indications for induction of abortion: Pernicious vomiting of pregnancy, 9 or 45 per cent. Pulmonary tuberculosis, 8 or 40 per cent. Mitral stenosis, 1 or 5 per cent. Pyelitis, 1 or 5 per cent. Asthma with toxemia, 1 or 5 per cent. Four of the twenty patients had a temperature of 101 F., or more. Three deaths out of twenty cases, or 15 per cent. mortality. In none of these cases was death due to "infection."

Criminal abortions: Thirty-two of the forty-one criminal abortions were infected (temperature of 101 F. or more), an incidence of 78.05 per cent. There were no deaths in the nine uninfected cases, as compared with five in the thirty-two infected cases, a mortality of 15.62 per cent. (one in 6.4 cases). Considering both infected and uninfected cases together, 12.19 per cent. (5 out of a total of 41 cases) of all criminal abortions died. The mortality in abortions was found to be chiefly due to infection by streptococci and averages about 10.25 per cent. of septic cases or, 5.11 per cent. of all cases both infected and uninfected. Retroposed uteri were found at the discharge examination of 20.25 per cent. of all abortions, the occurrence being as frequent after noninfected as after infected abortions.

Involution is a relatively slower process after abortions than after labors at term but takes place with about the same degree of certainty after the former as after the latter. Placentitis is most often the result of an infection of the uterine contents, occurring in 25 per cent. of such cases while it is practically absent in uninfected cases. Decidual endometritis is seen in about 52 per cent. of infected and 68 per cent. of uninfected abortions, showing the condition to be a cause rather than a result of abortions, the occurrence of an infection being a mere incidental matter. Uterine retropositions are the most frequent cause of spontaneous abortions, resulting decidual endometritis being a secondary matter acting possibly as an exciting cause while the former predisposed. The "menstrual waves" occurring at the times of expected menstruation, which latter has been interrupted by the existing pregnancy, are the periods of greatest liability to abortion.

130. **Method for Measuring Pelvic Outlet.**—With the patient in the knee-chest position Biddle proceeds as follows: With an ordinary tape measure marked in centimeters held between the thumbs, ascertain the distance between the two tuberosities. If we are careful and note at just what level the tape is, in relation to the anus, whether it crosses the upper border, middle or lower border, etc., and then taking an ordinary pelvimeter and placing one arm against the tuberosity at exactly the same level at which the tape was held, the other arm may be made to come in contact with the sacrococcygeal articulation and the ischiosacral diameter thus accurately measured. This result should be checked by measuring from the tuberosity of the opposite side to the same articulation. If the ischiosacral diameter is equal to or more than is required as per table, we may with justice to the woman and her child allow the labor to proceed. Should this diameter fall below that required in the table it may be necessary to resort to forceps, pubiotomy or cesarean section.

Journal of Missouri State Medical Association, St. Louis

June, VIII, No. 12, pp. 451-500

- 131 Operative Treatment of Hyperthyroidism. W. Bartlett and W. P. Glennon, St. Louis.
132 Chronic Colonic Intoxication. J. F. Blunnie, Kansas City.
133 Crenulatory Phenomena in Eye. W. H. Luedde, St. Louis.
134 Schaefer's Vaccine Treatment of Rheumatism. G. C. Crandall, St. Louis.
135 Causes and Prevention of Insanity. G. W. Robinson, Kansas City.
136 Difficult Cases of Hernia, with Special Reference to Sliding Hernia. W. C. G. Krehner, St. Louis.
137 Physical Movements of Man His Mental Index. T. F. Lockwood, Butler.
138 Practical Problems in Ear, Nose and Throat Practice. R. Barclay, St. Louis.
139 Stomach Manifestations, with Two Case Reports. H. C. Crowell, Kansas City.

Archives of Internal Medicine, Chicago

June 15, IX, No. 6, pp. 641-738

- 140 Clinical and Histologic Study of Case of Paget's Disease of Bones with Multiple Sarcoma Formation. O. C. Gruner, F. A. C. Scriver and L. S. Foster, Montreal.
141 *Prognosis of Albuminuria With or Without Casts. T. B. Barringer, New York.
142 *Metabolism of Scurvy in Adult. L. Baumann and C. P. Howard, Iowa City, Iowa.
143 Tuberculosis of Spleen. M. C. Winternitz, Baltimore.
144 Malaria in Panama: IV. Relation of Malaria to Other Diseases with Special Reference to Dysentery. W. V. Brem, Los Angeles.
145 *Circulation in Man: V. Effect on Blood-Flow in Hand of Applying Different Pressures to Upper Arm; Contribution to Clinical Measurement of Blood-Pressure. G. N. Stewart, Cleveland.
146 Method for Microscopic Examination of Gastric Extracts and of Feces. F. Smithies, Rochester, Minn.

141. **Prognosis of Albuminuria.**—An examination was made by Barringer of 396 men, who were insured during 1900-1901. As far as an ordinary physical examination could determine, they were normal at that time except for the presence in the urine of serum albumin with or without casts. Only office specimens of the urine were secured, but albumin was found on at least two occasions in one-half of the cases. These 396 men were divided into three groups. The first, numbering 115, showed albuminuria without tube-casts (no cases of pyuria were included in this group); the second group, numbering 203, showed albuminuria and a few hyaline casts, and the third group included fifty-three men showing albuminuria and a few granular casts. The men showing albuminuria alone were five times more frequent before the twentieth year than after. The albuminuria and hyaline-cast group showed approximately the same incidence in the second, third, fourth and fifth decades. The men with albuminuria and granular casts showed an increasing incidence in each decade, until, between 40 and 50 years, they were four times as frequent as between 20 and 30 years.

During the summer of 1911, seventy of the original 396 men were visited and examined, from ten to eleven years thus having elapsed since their first examination. Twenty of the men visited had shown albumin, but no casts, in 1900-1901. None of these twenty men now has interstitial nephritis. Twelve are, apparently, normal as regards heart and kidneys. In eight, Barringer found the same condition of the urine as was found ten years ago, four now showing in addition tube-casts. Thirty of the men visited had shown albumin and a few hyaline casts in 1900-1901. One of these thirty men now has interstitial nephritis and two are doubtful cases. Five men show a slightly raised blood-pressure, not marked enough, however, to justify any suspicions of nephritis, considering that ten years has elapsed since the first appearance of trouble. Eighteen men are, apparently, normal as regards heart and kidneys. Nine show the same condition of the urine that they did in 1900.

Twenty of the men visited had shown albumin and a few granular casts in 1900-1901. Of these twenty men, two now have interstitial nephritis and in five the diagnosis is doubtful. Eight are apparently normal as regards heart and kidneys.

Considering the entire series of seventy men, at the present time thirty-eight are, apparently, free from cardiac or renal disease. Three have chronic interstitial nephritis and seven possibly have it. Two have diabetes. Twenty-two still show much the same urinary condition as they did ten years ago, but with no circulatory changes.

Barringer concludes that renal albuminuria without casts is most frequently found in young adults. It is exceptional for it to be a symptom of incipient nephritis. It is rather to be regarded as an evidence of a generally lowered resistance which predisposes to tuberculous infection. The mortality among these people is higher than among normal subjects. Cases of albuminuria with a few hyaline casts have no particular age-incidence. The mortality in this group is also above normal. People with albuminuria and granular casts show a much higher mortality than normal people and a much greater tendency to renal and arterial disease than either of the preceding groups. Whatever the urinary findings, age is a factor in the prognosis of albuminuria, young people having the most favorable outlook as regards the possibility of an ultimate nephritis.

142. **Metabolism of Scurvy in Adult.**—In the author's experiment the loss of the various food constituents through the feces was less when fruit juice was added to the diet. The total sulphur metabolism was abnormal throughout. Chlorin and sodium were retained during the fruit juice period, but excreted in excess of the intake during the preliminary period. More potassium, calcium and magnesium were retained during the fruit juice period.

145. **Circulation in Man.**—It is concluded by Stewart on the basis of observations on two healthy young men, that a pressure equal to the systolic pressure, as estimated by the clinical methods used, applied to the upper arm by a broad cuff, causes complete cessation of the blood flow in the hand. Since the pressure in the veins distal to the constricting armlet eventually becomes equal to the systolic arterial pressure, this is taken to mean that the lumen of the arteries under the cuff is actually obliterated. When the pressure in an armlet compressing the upper arm is reduced from the systolic arterial pressure the blood flow in the corresponding hand is only slightly increased for a considerable decrement of pressure. The pressure in the armlet must fall somewhat below the "diastolic" pressure, as clinically determined, before any marked increase in the flow through the hand occurs. The first decrements of pressure below this "critical" pressure are accompanied by a much greater increase in the flow through the hand than further equal decrements. A handicap of half the "diastolic" pressure causes only a relatively small diminution in the flow through the hand. It is suggested that the method of handicapping the circulation in the arm or leg by known pressures and observing in what degree the handicap is overcome, may in certain cases constitute a useful supplementary method of clinical investigation.

Ohio State Medical Journal, Columbus

June 15, VIII, No. 6, pp. 289-344

- 147 Prostatectomy and General Surgeon. B. R. McClellan, Xenia.
148 Prophylactic Cancer Surgery; Plea for Public's Education. D. W. Palmer, Cincinnati.
149 Meningeal Affections in Infancy and Childhood. H. J. Morgan, Toledo.
150 Care and Management of Advanced Tuberculosis. W. C. Leeper, McConnellsville.
151 Edematous Rhinitis. J. A. Thompson, Cincinnati.

Journal of Experimental Medicine, New York

June, XV, No. 6, pp. 547-663

- 152 *Alleged Existence of Epinephrin in Pathologic Sera. G. N. Stewart, Cleveland.
153 *Malarial Pigment (Hömatin) as Factor in Production of Malarial Paroxysm. W. H. Brown, Chapel Hill, N. C.
154 *Biochemical Study of Phenomena Known as Complement-Splitting: Splitting of Complement Associated with Globulin Precipitation. J. Bronfenbrenner and H. Noguchi, New York.
155 Idem: Splitting of Complement Without Visible Alteration of Proteid Constituents. J. Bronfenbrenner and H. Noguchi, New York.
156 *Quantitative Study of Effects of Epinephrin on Pupils of Rabbits After Removal of a Superior Cervical Ganglion. D. R. Joseph, New York.

152. **Epinephrin in Pathologic Sera.**—Tested with segments of rabbit intestine and uterus, Stewart says none of the pathologic sera yielded evidence of the presence of adrenalin. Serum from the adrenal veins of the dog collected during massage of the gland gave a distinctly positive reaction, while serum previously collected with the minimum of mechanical

and circulatory disturbance of the gland gave a negative reaction. Serum from the adrenal veins without precautions to avoid disturbing the gland sometimes gave positive, sometimes negative tests. Serum from blood obtained without the least disturbance of the glands, from a pocket of the inferior vena cava which received only blood from the adrenals and from the transverse lumbar veins crossing them, gave no evidence of epinephrin except during stimulation of the splanchnics when the reaction for epinephrin were positive. Serum of blood collected from the vena cava of dogs by a catheter pushed up through one femoral vein until the orifice was just anterior to the openings of the adrenal veins, yielded no evidence of the presence of epinephrin whether the splanchnics (one or both) were stimulated or not, any epinephrin contributed by the glands during stimulation of the splanchnics being too much diluted.

153. Malarial Pigment in Malarial Paroxysm.—Brown found that alkaline hematin in doses commensurate with the amounts of hematin liberated in the human circulation by the segmentation of the malarial parasite, produces, when injected intravenously into the rabbit, a paroxysm which is characterized by a short prodromal stage, a stage of chill and rising temperature and a hot stage. In their details the phases of this paroxysm are practically identical with the corresponding ones in the paroxysm of human malaria. The phenomena in human beings infected with malaria are, at least in part, directly referable to the toxic action of this malarial pigment.

154. Biochemical Study of Complement-Splitting.—It is generally accepted that complement may be split into a midpiece and an end-piece. The mid-piece is thought to be in the globulin fraction and the end-piece in the albumin fraction. The restoration of complement activity by putting together the albumin and globulin fractions does not prove, however, that each fraction contained a part of the complement, for the albumin fraction can be reactivated in the absence of the globulin fraction. The authors found that complement-splitting as brought about by hydrochloric acid, carbon dioxide and dialysis, is really an inactivation of the whole complement by certain acids or alkalis, either added in the free state to the serum or liberated as a result of the dissociation of certain electrolytes. That the whole complement, and not a part only, is present in the albumin fraction of the serum can be demonstrated by the removal of the inhibitory action of the acid or alkali. This can be effected by the addition, not only of alkali or acid, but also of any amphoteric substance. When hydrochloric acid, carbon dioxide, or dialysis are employed to produce the phenomenon known as complement-splitting, the complement is merely inactivated, not split.

156. Effects of Epinephrin on Pupils of Rabbits.—It is shown by Joseph's experiments that after the removal of one superior cervical ganglion of a rabbit, 1/50 of a cubic centimeter of a 1:1,000 epinephrin solution (=0.02 of a milligram of epinephrin) per kilo of body weight injected intravenously, is practically the minimum amount that will produce in nearly all cases a perceptible dilatation of the pupil. In one out of eight animals this dose failed to give a definite effect, while in two others the effect was slight. With an increase in the size of the dose of adrenalin, there was a gradual increase in the following: (1) the time between the injection and the appearance of the maximum dilatation; (2) the amount of dilatation produced; (3) the interval between the injection and the beginning of recovery from dilatation; and (4) in the total time between the injection and the return of the pupil to its normal size. In those animals in which the maximum pupil dilatation was especially delayed, there were almost always more or less alarming symptoms of general prostration for a short time after the injection and the maximum dilatation appeared as these symptoms gradually disappeared.

Proctologist, St. Louis

June, VI, No. 2, pp. 57-92

- 157 Chetwood Operation for Fecal Incontinence. A. Newman, San Francisco.
- 158 Significance of Continuous Acid Gastric Juice in Fasting Stomach. H. Barclay, New York.
- 159 Case of Ischio-Rectal Abscess. L. Eliot, Washington, D. C.

Western Medical Review, Omaha, Neb.

June, XVII, No. 6, pp. 307-356

- 160 Conservation of Health. C. P. Fall, Beatrice, Neb.

Interstate Medical Journal, St. Louis

June, XIX, No. 6, pp. 487-575

- 161 *Omentopexy in Cirrhosis of Liver. H. H. Grant, Louisville.
- 162 Clinical Indications for Major Operations on Temporal Bone and Their Pathologic Interpretation. E. T. Senseney and L. K. Guggenheim, St. Louis.
- 163 *Excision of Clavicle. F. K. Boland, Atlanta, Ga.
- 164 Relation of Drainage Operations to Public Health. C. Wellman, New Orleans.
- 165 Ligature of Internal Mammary Artery for Stab Wound. N. B. Carson, St. Louis.
- 166 Sputum Diagnosis of Pneumonia. A. J. P. Pacini, Memphis.

161. Omentopexy in Cirrhosis of Liver.—A study by Grant of reports of the experience of some thirty-five careful surgeons shows that even in the condition of advanced liver degeneration and general toxemia, with resulting ascites, over 10 per cent. of symptomatic cures are obtained, and over 50 per cent. at least are improved, comforted and helped to months and years of life. As this advanced condition is often preceded by a year or more of latency during which suspicious symptoms often declare the cause, early diagnosis of a lesion, which would surely lead only to the grave, justifies exploration and repair, with a far better promise than can be hoped for later on. As it is not possible to be certain of the character of the cirrhotic lesions before exploration, the surgeon need not be deterred from the steps by an uncertainty as to its applicability, as all forms of cirrhosis are fatal under the expectant treatment.

163. Excision of Clavicle.—Boland reports this operation to call attention to the surprising ease with which it was done and to the perfect functioning result which followed. Several writers speak of excision of the clavicle as an exceedingly difficult and dangerous operation, especially when the bone and periosteum are to be removed *in toto*. The clinical diagnosis in the case was osteosarcoma, but the laboratory report did not corroborate this opinion. The incision first was made directly over the mass and as examination excluded simple inflammation as the cause of the trouble, the entire length of the bone was exposed. The acromial end first was freed and then the muscles and ligaments were separated up to the sternal articulation. The bone with its periosteum hemorrhage was thus removed *en masse*, with little difficulty. There was but little hemorrhage and there were not more than a half dozen small vessels to ligate. By keeping close to the bone, the author not only did not have to deal with any large vessels or nerves, but did not see any. Boland says that the amount of raw space left after such an excision is astonishing. It is as much as that following a breast amputation. On account of this, he inserted a cigarette drain which was removed after forty-eight hours. The wound was closed with interrupted silk-worm gut sutures and a Velpeau bandage applied. Healing was complete in two weeks.

Journal of Ophthalmology and Oto-Laryngology, Chicago

June, VI, No. 6, pp. 181-215

- 167 Detached Retina: Its Surgical Treatment. G. W. Maser, Parsons, Kan.
- 168 Control of Bleeding in Brain Operations. J. R. Eastman, Indianapolis.
- 169 Postoperative Tonsillar Hemorrhage. J. E. Sawtell, Kansas City, Mo.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

June 22, I, No. 2686, pp. 1409-1468

- 1 Colic. G. Rankin.
- 2 Enterospasm and Colic from Surgical Point of View. J. Swain.
- 3 *Salvarsan Treatment of Pernicious Anemia. B. Bramwell.
- 4 *Treatment of Syphilis. D. Power.
- 5 Electro-Cardiography and Its Importance in Clinical Examination of Heart Affections. T. Lewis.
- 6 *Rapid Cure of Amebic Dysentery and Hepatitis by Hypodermic Injections of Soluble Salts of Emetin. L. Rogers.

3. Salvarsan in Pernicious Anemia.—In March, 1911, Bramwell published two cases of pernicious anemia in which great

improvement resulted from the administration of salvarsan. In this paper he records the future progress of these patients; they have remained well without any further treatment, and the results in five (all) other patients treated in the same way.

4. Treatment of Syphilis.—When a patient has declined to be treated by intramuscular injection, and recourse has been had to mercury perchlorid and potassium iodid, Power has tried to make the mixture somewhat less nauseous than that usually prescribed. In the following prescriptions the metallic flavor of the mercury and the acidity of the potassium iodid are successfully masked. The first prescription is for those who like sweet tastes; the second is for those who prefer bitters.

R	Gm. or C.c.	
(A) Liquoris hydrarg. perchlor.....	30	3j
Potassii iodidi	4	5j
Syrupi	30	5j
Mucilag. tragacanthi	60	or 5lj
Olei amygdali essentialis (sine HCN) ..	12	mij
Olei cinnamomi	12	mij
Aqua chloroformi	240	ad 3viii

M. Fiat mist. Sig., Take an eighth part three times daily.

R	Gm. or C.c.	
(B) Liquoris hydrarg. perchlor.....	30	3j
Potassii iodidi	4	5j
Tincturae chirette	6	or 5iss
Elixiris glucidi	2 6	mxl
Infusi gentianae	240	ad 3viii

M. Fiat mist. Sig., Take an eighth part three times daily.

The net outcome of Power's experience with salvarsan has been that it serves as an excellent adjuvant to mercury in the treatment of syphilitic lesions. It has proved especially useful in cases of chronic superficial glossitis, in active syphilitic periostitis and in ulcerating syphilids of the skin. It has been less serviceable in craniotabes and in cases of osteitis associated with the formation of sequestra, because in these conditions the pyogenic organisms are more important than the syphilitic infection; neither have the results been very satisfactory in cases of syphilitic arthritis, doubtless because many of these inflammations are also associated with a tuberculous infection. So far as he has been able to ascertain no serious accident has occurred in his cases.

6. Treatment of Amebic Dysentery.—Rogers has tested the effect of the soluble emetin hydrochlorid on *A. histolytica* in dysenteric stools. He found that, on placing a piece of mucus containing numerous active amebas in normal saline solutions of this salt, the pathogenic organism is immediately killed and materially altered in its microscopic appearances by a 1 in 10,000 solution, while after a few minutes they are rendered inactive, and apparently killed by as weak a solution as 1 in 100,000. He therefore decided to try if this powerful alkaloid can be safely administered hypodermically in the treatment of amebic disease, and obtained striking results in three cases.

Lancet, London

June 22, CLXXXII, No. 4634, pp. 1666-1736

- 7 Some Moot Points in Pathology and Clinical History of Pneumonia. P. Kidd.
- 8 Pathology of Immunity. L. S. Dudgeon.
- 9 Ganglion Neuroma of Mesentery, Partly Embryonic in Structure. H. Macnaughton.
- 10 Dilatation of Heart. H. Davy.
- 11 Color Blindness. F. W. Edridge-Green.
- 12 Two Cases of Pneumococcal Vulvovaginitis in Children. H. Chapple.

Australasian Medical Gazette, Sydney

May 11, XXXI, No. 19, pp. 489-516

- 13 Uterus Didelphys. J. A. G. Hamilton.
- 14 Perforation of Uterus with Hegar's Dilators. A. A. London.
- 15 Ovarian Pregnancy. W. A. Verco.
- 16 Case of Ovarian Pregnancy. A. A. London.
- 17 Early Treatment of Squint. M. Thornett.
- 18 Appendicitis and Enteric Fever Coincidentally. L. M. McKillop.

Journal of Obstetrics and Gynecology of British Empire, London

April, XXI, No. 4, pp. 193-256

- 19 Abortion with Dwarf Embryos. J. Lindsay.
- 20 Death of Child Due to Rupture of Umbilical Vessels During Labor. H. Williamson.
- 21 *Chemical Composition of Menstrual Fluid and Secretions of Vagina. W. B. Bell.
- 22 Case of Ovarian Pregnancy. A. G. Banks.
- 23 Four Cases of Pelvic Abscess Secondary to Appendicitis. F. Ivens.

- 24 Cesarean Section in Dystocia Due to Coils of Cord, Twenty-Eight Inches Long, Around Living Full-Term Male Fetus, 8 Pounds 2 Ounces in Weight. H. Briggs.
- 25 Retroversion of Gravid Uterus Complicated by Overdistention of Bladder and Hematuria. J. Barris.
- 26 *Fetus with Congenital Hereditary Exophthalmic Goiter. C. White.
- 27 Total Occlusion of Duodenum in New-Born Child. C. White.
May, XXI, No. 5, pp. 257-318
- 28 Pelvis Showing Extreme Asymmetry from Early Disease of Right Lower Extremity. A. Doran.
- 29 Case of Right Cystoma with Acute Torsion of Right Fallopian Tube and Broad Ligament Complicating Six Months' Pregnancy. G. B. Marshall.
- 30 Bilateral Ovarian Cystoma, with Symptoms Simulating Acute Torsion of Pedicle and Associated with Great Elongation of Distended Fallopian Tubes. G. B. Marshall.
- 31 Müllerian Origin of Some Broad Ligament Cysts. P. P. Cole.
- 32 *Early Rising After Celiotomy. A. J. Wallace.
- 33 Technique of Securing Vessels in Pelvic Abdominal Surgery. R. Worrall.

21. Menstrual Fluid.—Bell holds that the noncoagulability of menstrual blood is due to the absence of fibrin ferment and fibrinogen and not to mucin or lactic acid. The lactic acid found in the vagina is present in the absence of bacteria and cannot be due, therefore, to the vaginal bacillus of Döderlein. The calcium excretion in menstrual discharge is very great: greater even than that found in urine. Urea is absent from hematocolpos fluid.

26. Fetal Exophthalmic Goiter.—The mother in White's case was aged 23 and had been married ten months. The symptoms of Graves' disease were first noticed when she was five months pregnant and rapidly became so marked that in September, 1910, she was admitted to a medical ward with all the classical signs of Graves' disease, exophthalmos, thyroid enlargement, nervousness, tremor and tachycardia. All these symptoms progressively increased as pregnancy advanced. When White saw her the pulse was 120 and the blood-pressure 142 mm. of mercury. The uterus appeared to be at the full term of pregnancy. The child was lying with the vertex presenting in the right occipito-posterior position. The fetal heart was uncountable, but was well over 200 per minute and a discussion arose whether this was due to the fetus being affected by the maternal thyroid toxemia or whether the disease was actually present in the fetus. When labor had lasted eight hours the cervix was fully dilated and the head on the perineum, but the child was passing meconium. Its heart was slower than before but was still over 200 per minute. Forceps were applied under chloroform anesthesia and the child delivered. There was no postpartum hemorrhage.

The child presented all the features of the disease present in the mother. The eyes were prominent and staring, the thyroid showed well-marked uniform enlargement. The heart-beats were uncountable and only a loud murmur was heard over the precordium. There was also a fine tremor of the hands; pupils medium size; temperature, 99 F. The next day the pulse dropped to 150 for a short time but later rose to 200 again. The child remained very cyanosed. The day after, the child died, having lived thirty-five hours. The puerperium was normal; the mother's pulse varied between 120 on the second day after delivery to 100 on the eleventh day. During the puerperium the symptoms of Graves' disease became less and a diminution of $\frac{1}{2}$ inch was noted in the circumference of the neck. The urine was normal. After delivery she did well for some months but became pregnant again in April and soon afterward her symptoms became worse again. In December, 1911, she was delivered of a still-born premature child that showed no abnormalities. The mother again improved after delivery.

32. Early Rising After Celiotomy.—Out of the 449 cases reported on by Wallace, 283 patients left their beds as soon as they felt disposed to do so and were granted the necessary permission. Of these 283, 263 were laparotomies and twenty vaginal celiotomies. In both sets of operations the seventh day was the most popular; prior to that day only thirty-nine abdominals and three vaginals left their beds and after it 102 abdominals and nine vaginals. The cases include instances of all the usual gynecologic conditions, from simple ventrofixations to extensive dissections for cancer of the cervix. Of the two who got up on the third day, one (an appendage

case) was a hardy young woman, who immediately walked about the ward as though nothing had happened within her abdomen; the second was an elderly woman, who suffered from severe bronchitis, and who was on this account turned out of bed into an armchair, with great benefit in all respects. Among the risers on the sixth day may be mentioned a patient who had undergone subtotal abdominal hysterectomy for fibroids and cholecystotomy for coincident gall-stones. In the majority of cases not only were there no untoward results, but the general conditions showed an improvement, especially as regards muscular power. Appetites were improved and patients themselves picked up more rapidly than they did when confined to bed for three weeks or more. It was evident, however, that early rising does not prevent the occurrence of phlebitis, for three undoubted instances occurred out of 283 cases. Wallace has been so satisfied with the general results obtained that early rising has been established as the usual routine in his cases, and the question now is, not who shall rise early, but what patients are unfit to get up, since the former constitute the great majority. Although a patient may leave bed on the seventh day, yet she does not leave the hospital until the fifteenth day at the earliest and often not until the seventeenth or eighteenth day. Between those dates she is moving about the wards only, for there are not conveniences for out-of-door exercise. The sole exceptions are those of ventrofixation or other fixation operations; uncomplicated instances of these are now generally discharged on the tenth day, but in that case each one has been fitted with a Hodge pessary, which is removed at the end of a month. This method had been found to give results at least as good as those formerly obtained by keeping the patients in bed five weeks.

Annals of Tropical Medicine and Parasitology, Liverpool

May, VI, No. 1, pp. 41-130

- 34 Presence of Leishmania in Digestive Tract of Anopheles Maculipennis. G. Franchini.
- 35 *Treatment of Beriberi. D. Thompson and G. C. Simpson.
- 36 Vitality of and Changes Undergone by Trypanosomes in Cadaver of Animal Host. B. Blacklock.
- 37 Development of a Leukocytozoon of Guinea-Pig. E. H. Ross.
- 38 Antisiphilis Measures in Uganda. G. J. Keane.
- 39 Early References to Tropical Diseases. C. Singer.
- 40 Cultivation of Trypanosoma Rhodesiense. J. G. Thomson.
- 41 Trypanosomes Found in Horse Naturally Infected in Gambia; Double Infection. B. Blacklock.
- 42 Parapisthorchis Caninus: Liver-Fluke of Indian Pariah Dog. J. W. W. Stephens.
- 43 New Tsetse-Fly from British East Africa. R. Newstead.

35. Treatment of Beriberi.—The treatment employed so successfully by the authors in three cases consisted of a full mixed diet, with the addition of yeast (1 ounce daily) and Katjangidjo beans (200 gm. daily). One patient was discharged sixteen days after commencement of treatment, walking perfectly, with knee-jerks normal and no pain or edema. The improvement in the condition of these patients was much more rapid than is customary and would seem to show the marked curative power of the addition to the diet of Katjangidjo beans as recommended by Hulshoff Pol, and of yeast as recommended by Schaumann. The yeast was of the variety used by brewers and was administered in rice papers, the patients being able to swallow in this fashion about 1 dram at a time.

Australian Medical Journal, Melbourne

May 4, I, No. 42, pp. 465-476

- 44 Practical Points in Dermatology. A. W. F. Noyes.
- 45 Some Cases from Practice. T. Kennedy.
- 46 Empyema of Maxillary Antrum. J. Murphy.
- 47 Rheumatoid Arthritis. A. E. Taylor.
- 48 Conjunctiva. F. A. Newman.
- 49 Two Cases from Practice. M. Williams.

Sei-I-Kwai Medical Journal, Tokyo

May, XXXI, No. 5, pp. 157-174

- 50 *Effect of Phenyl Urea on Tetanus Toxin and Tetanus in Laboratory Animals. H. Sewaki.

50. Effect of Phenyl Urea on Tetanus Toxin and Tetanus in Laboratory Animals.—After a careful review of his experiments Sewaki concludes that phenyl urea has the property of arresting hemolytic power of tetanus toxin. Phenyl urea and tetanus toxin require to be kept in an incubator at 37 C.

for twenty-four hours to form a stable combination. The refrigerated mixture of phenyl urea and tetanus toxin neutralizes the toxic effect of the latter. The same effect is also obtained by the exposure of the mixture to sun-heat for a certain interval of time. The neutralizing effect of phenyl urea against tetanus toxin is supplemented with guinea-pig brain emulsion when it is mixed *in vitro*. A very small quantity of phenyl urea can neutralize tetanus toxin and make it innocuous. Any large quantity of phenyl urea produces its poisoning in animals, especially in the mouse. The amount of phenyl urea in mice should not exceed more than 0.005 gm., when it is used soon after tetanus toxin. The benefit of phenyl urea on tetanus is naturally greater when it is administered with due care and dose.

Indian Medical Gazette, Calcutta

May, XLVII, No. 4, pp. 169-208

- 51 Early Tubercular Disease of Cecum. C. C. Barry.
- 52 Vital Statistics. C. Milne.
- 53 Some New Anophelines of Calcutta and on Seasonal Prevalence and Variations of Anopheline Fuliginosus of Calcutta. U. N. B. Bahadur.
- 54 Lambliia Intestinalis and Its Possible Connection with Poona Diarrhea. H. Hooton.

Bristol Medico-Chirurgical Journal

June, XXX, No. 116, pp. 97-192

- 55 Intracranial Complications of Ear Disease. J. M. Clarke and J. L. Firth.
- 56 *Differential Diagnosis of Swelling of Breast. C. A. Morton.
- 57 Enemy of People: Tuberculosis and Natural Selection. D. S. Davies.
- 58 *Artificial Production of Pneumothorax in Phthisis by Injection of Nitrogen. H. Chitty.
- 59 Unusual Case of Hodgkin's Disease. E. L. Lees and F. H. Edgeworth.
- 60 Case of Heroin Habit. J. O. Symes.
- 61 Some Dreams and Their Significance. G. H. Savage.

56. Differential Diagnosis of Swelling in Breast.—As to the value of separate signs in swellings in the breast, Morton says that retraction of the nipple (not undeveloped nipple), or retraction or tethering of the overlying skin, is an important sign of scirrhus, but has been known to occur in chronic abscess, or even simply with sclerosing mastitis. Puckering of the overlying skin may be the only sign of a deeply-buried scirrhus growth. In cancer there may be quite hard enlarged glands, but the glands may also be decidedly enlarged in chronic abscess, and particularly so in tuberculous disease. One must clearly recognize the fact, however, that we may not find any enlarged glands in early cancer. Redness and edema of the overlying skin is suggestive of suppurating malignant growth. The hardness of a lump is suggestive of scirrhus, but a very tense cyst may be as hard. What is sometimes spoken of as the weight of a tumor of the breast is supposed to have some diagnostic importance, but a fat breast itself is quite heavy. Mobility of any tumor in the breast or on it, Morton does not believe exists, except in very rare cases in which it happens to be pedunculated. He has never seen such a tumor of the breast. With regard to pain, he says that it is not usually present in early cancer, and is much more often present in a tense cyst. It is most important to remember this, and not to be misled, as the patient probably is, by thinking that because there is no pain it is not a serious condition. He does not see how it would be possible to make a diagnosis of a solid tuberculous deposit. Enlargement of the glands, which is said to be marked in tuberculous disease might suggest cancer. If it did, excision of the lump would be excellent treatment, and the diagnosis could then be made. Any chronic abscess might, of course, be tuberculous.

58. Artificial Production of Pneumothorax in Phthisis.—In discussing the results of the artificial production of pneumothorax in phthisis by the injection of nitrogen, Chitty says we must bear in mind that all, or almost all, the reported cases have been of one type, viz., patients suffering from very advanced disease, in whom other methods had proved incapable of arresting the morbid process, and in whom the mortality would most likely have been at least 90 per cent. Many cases have been too recently published to be able to judge what their ultimate fate may be, but undoubtedly the initial results have been full of promise. Certainly well over one

hundred cases have, however, been recorded in which the treatment was commenced many years ago, and in these there would seem to have been a permanent arrest of the disease in at least 60 per cent. In many of the more recent cases immense improvement has already ensued, and patients who a few months back seemed almost moribund now appear to be on the high road to recovery. Where deaths have been recorded during the course of the treatment they have been due, as a rule, to disease in the other lung, to tuberculous disease in some other part of the body, or to some intercurrent malady. In the few cases in which post-mortem examinations have been made, healing by fibrosis has generally been recorded, though this has not always been evident. Chitty believes that this method of treatment has a future before it, even though it be for only a limited number from out the vast array of the tuberculous.

Archives Générales de Chirurgie, Paris

May, VI, No. 5, pp. 497-620

- 62 *Symptoms from Traction on Hernia by a Lipoma. P. Hardouin.
63 *Grafting the Parathyroids. (La greffe parathyroïdienne.) L. Morel.
64 Dislocation of the Metacarpus. (Les luxations du métacarpe.) E. Poulain and J. Poulain.
65 Orchitis Due to Filaria. (Orchites filariennes bilatérales. Décortication partielle des testicules et résection partielle des varices lymphatiques des cordons spermatiques.) M. Maclaure.

62. Strangulation of Hernia by Lipoma.—Hardouin reports two cases and summarizes eight from the literature.

63. Parathyroid Grafting.—Morel declares that the results even to date of grafting of parathyroid tissue in man and animals justify its application in case of symptoms from defective functioning of these organs, especially for pregnancy and postoperative tetany, spasmodophilia, rachitis, osteomalacia and syndromes such as epilepsy, chorea, Parkinson's disease, etc., indicating disturbance of neuromuscular functioning. Autoplastic grafts offer the best chances for success and those with the shortest interval before implantation and the least manipulation of the gland tissue. Any antiseptics or hemorrhages compromise the outcome. The experiences on record in this line are tabulated for comparison. The operation has been done ten times on eight patients, seven times for postoperative and once for idiopathic tetany. No harm has ever resulted, while benefit was marked in every case and three patients were definitely cured. Even if the graft is absorbed, while this is occurring the patient's own parathyroids will be given a chance to recuperate or grow.

Archives Générales de Médecine, Paris

May, XCI, No. 5, pp. 389-458

- 66 Determination of Tubercle Bacilli in the Sputum. (Les nouvelles méthodes de recherche du bacille de Koch dans les crachats; procédés d'homogénéisation.) J. Anglada.
67 The Various Techniques for General Anesthesia. (L'anesthésie générale par les voies respiratoires et les principaux appareils en usage.) H. Chassin.
68 Artificial Pneumothorax in Treatment of Tuberculosis; Two Cases. Gunzburg.

Journal de Médecine de Bordeaux

June 2, XLII, No. 22, pp. 336-356

- 69 *Abuse of Cereals in Diet of Recently Weaned Infants. (De l'usage impestif et de l'abus des "farines alimentaires" chez l'enfant; des accidents préparés ou provoqués par elles.) R. Saint-Philippe.
70 *Serodiagnosis of Pregnancy. (Interprétation du phénomène de la déviation du complément chez la femme enceinte des premiers mois.) Fieux and P. Mauriac.

June 9, No. 23, pp. 357-372

- 71 Pathogenesis of Neurasthenia. Brandeis. First part in No. 21.

69. Summarized in the Paris Letter in THE JOURNAL, June 22, p. 1957.

70. Abstracted in THE JOURNAL, July 6, p. 71.

Lyon Chirurgical, Lyons

June, VII, No. 6, pp. 609-730

- 72 End-to-End Suture of Vessels. (Suture circulaire des Vaisseaux.) E. Villard and E. Perrin.
73 Treatment of Malformation of the Uterus. P. E. Goullioud.
74 Laceration of Lateral Sinus with Fracture of the Skull. (Déchirure du sinus latéral dans une fracture du crâne.) X. Defore and Perrenot.

- 75 Adjustable Plaster Casts that Permit Exposure to Direct Sunlight. (Nouveaux appareils plâtrés bivalves amovibles pour permettre l'héliothérapie des ostéoarthrites tuberculeuses en période d'immobilisation.) G. Nové-Jossier and A. Rendu.

Presse Médicale, Paris

June 5, XX, No. 46, pp. 485-492

- 76 *Meningitis in France. (Statistique de la méningite.) J. Bertillon.

June 8, No. 47, pp. 493-504

- 77 *The Urea Content of the Blood as Test of Kidney Functioning. (Le dosage de l'urée sanguine et la constante urémique chez les urinaires chirurgicaux.) M. Chevassu. (Sur la détermination de la constante uréo-sécrétoire d'Ambard.) H. Carrion and C. O. Guillaumin.
78 Operations After Which Dressings Are Not Required, Especially in Children. (Inutilité du pansement après certaines opérations aseptiques, principalement chez l'enfant.) M. Coville.

June 12, No. 48, pp. 505-512

- 79 *Tuberculin Skin Reactions. (La valeur pronostique des réactions cutanées à la tuberculine chez l'adulte.) L. Bernard and Baron.

76. Meningitis.—Bertillon compares the statistics from various countries. They show that the proportion of cases is about the same in all, Japan excepted, but that simple meningitis is over twice as frequent as the tuberculous form in France, Italy and Spain, while in Norway the proportion is reversed. Japan reports 10.4 cases of tuberculous and 143.8 of simple meningitis to 100,000 inhabitants annually; England 17 and 16.2; France 16.7 and 43.3. In concluding his analysis of the subject, Bertillon asks why meningitis is more prevalent in the spring; why boys are attacked more often than girls; why the number of cases in the cities has shown a progressive decline in the last twenty years, and why it is more frequent in the cities than in the country and most prevalent among the poor.

77. The Urea Index with Kidney Disease.—Chevassu thinks that Ambard's formula for estimating the urea in the blood is a decided advance in our knowledge of kidney disease, especially from the surgical standpoint. Ambard ascertained that the proportion of urea in blood and urine rises and falls parallel; also that when the output of urine increases, the proportion of urea in the urine declines relatively but increases absolutely. Chevassu has found the urea index thus derived characteristic and reliable, and Carrion says the same from his extensive experience with it. The latter says it is an astonishingly exact method for detecting latent kidney disease and estimation of its extent and severity, thus permitting continuous oversight of conditions in the kidney.

Ambard bases his formula on the law that the total output of urea (D) in the urine varies proportionately to the square of the concentration of urea in the blood (Ur) and inversely to the square root of the concentration of the urea in the urine (C). He notes the moment when the bladder has been emptied. Ten minutes later he applies a wet cup to collect about 40 gm. of blood. At the end of thirty minutes he draws the urine, noting the minute. The formula is calculated for twenty-four hours and for a standard proportion of 25 per cent. urea in the urine and a standard weight (P) of 70 kilograms. The formula is thus:

$$\frac{Ur}{\sqrt{D \times \frac{70}{P} \times \sqrt{\frac{C}{.25}}}} = K.$$

K representing the "ureo-secretory constant." In a typical case cited the figures were respectively:

$$\frac{0.426}{\sqrt{24 \times \frac{70}{72} \times \sqrt{\frac{22.5}{.25}}}} = 0.094$$

In health the index ranged from 0.06 to 0.07 in Ambard's experience, and the index grows larger as the kidney functioning deviates more and more from normal. The highest index ever found was 0.50 and 1.39.

79. The Tuberculin Skin Reactions and the Prognosis.—Bernard and Baron analyze their findings in 240 tuberculous adults to whom they applied the intradermal or skin tuberculin test to control the course of the disease. They classify the reactions according as the disease was chronic, acute or the flaring up of an old chronic process. A pronounced reaction to the Pirquet test was encountered only in the adults with incipient or mild tuberculous, against which the organism seemed to be effectively defending itself. The patients showing a moderate reaction, especially those presenting about the same reaction when tested at long intervals, were those with fairly well tolerated advanced lesions. Few in this group have died since and generally from intercurrent disease. On the

other hand, all the tuberculous adults who did not react to the Pirquet test, or in whom the reaction grew less and less on repetitions of the test, have died since. In every instance the absence of a reaction with known tuberculosis heralded a speedy death. These tests, the authors believe, may be relied on as an important element in the presumptive prognosis, a pronounced reaction in adults sifting out the more hopeful cases.

Archiv für Gynaekologie, Berlin

XCVII, No. 1, pp. 1-184. Last indexed June 8, p. 1821

- 80 *Venesection in Treatment of Eclampsia. III. (Ueber den Aderlass bei der Behandlung der Eklampsie.) P. Zweifel.
- 81 *Puerperal Pyemia. (Ueber 3 bemerkenswerte Fälle von puerperaler Pyämie.) Warnekros.
- 82 Manikin to Demonstrate Birth Process. (Analyse und Nachahmung des Geburtsvorganges.) H. Sellheim.
- 83 *Reaction of Tissues to Silver Salts. (Zur Blennorrhoe-Propylaxe. Wirkung von Silberpräparaten auf lebendes Gewebe.) B. Schweitzer.
- 84 Gynecologic Peritonitis: Five Cases. F. Hornstein.
- 85 The Interstitial Cells of the Ovary. (Zur Morphologie der interstitiellen Eierstocksdrüse des Menschen.) E. Wolz.
- 86 *Pregnancy in Abdominal Cavity. (Die Bauchhöhlenschwangerschaft im Lichte neuer Beobachtungen.) A. Czyzewicz.
- 87 Experimentally Induced Lactation. (Zur Frage der experimentellen Milchauslösung.) R. T. Frank (New York).

80. **Venesection in Eclampsia.**—Zweifel applied venesection in fifty-seven of his seventy-one cases of post-partum eclampsia and almost invariably the convulsions ceased after the venesection. All the patients thus treated recovered. He is confident that venesection never did any harm while all concerned were impressed with the benefit from it; it proved a life-saving measure in many cases. Recent research by himself and others has demonstrated that in eclampsia the blood is much more concentrated than normal. This is an additional argument in favor of venesection, while it explains the aggravation of the eclampsia liable to follow sweating procedures. Stroganoff's prophylactic method is the routine treatment of eclampsia followed in his service, often supplemented by venesection when the convulsions keep up after delivery. Macé has reported 11 per cent. mortality in twenty-seven patients treated by venesection alone; Potocki two in twelve cases and Saint Blaise no mortality in fourteen. In conclusion Zweifel protests against the practice current in his district of forcing a person in syncope or otherwise unconscious to swallow some water. The laity have an idea that this is the proper thing to do; the fluid is not swallowed but gets into the lungs, and this was the cause of three of the eight deaths in his service last year, the patients succumbing to the pneumonia that developed in consequence. He urges that physicians should impress repeatedly on midwives and others that nothing should be given by the mouth to unconscious persons.

81. **Puerperal Pyemia.**—The three cases reported in detail by Warnekros, supplemented by the necropsy findings, illustrate anew the difficulties of operative efforts in this condition, but they demonstrate the importance of continued bacteriologic control of the clinical manifestations. This gives a clear oversight of the course of affairs and a basis for therapeutic measures and for estimation of their effects. The primary fever shows the effect of the local endometritis; a chill repeated next day, with intervals of subnormal temperature, indicates development of thrombophlebitis with occasional passage of the germs into the blood. If the fever goes higher but without chills, the blood has evidently been invaded, without primary thrombosis. As long as infection is localized in the uterus the blood is sterile. With the thrombophlebitic-pyemic form, germs are found in the blood only during the chills, and the blood is sterile in the intervals; this form has thus a more favorable prognosis. Ligation of the vein involved has a prospect of success as the blood is sterile between the chills, or nearly so, and the organism is able to keep the germs under control if a new overwhelming of the blood with them can be warded off. In one of the cases reported the blood was found entirely sterile after the vein had been ligated. The best point for this, he thinks, is the common iliac vein. If the thrombosis extends above this, the vena cava can be ligated without fear; ample collateral circulation promptly develops, as he witnessed in two of his cases.

83. **Action of Silver Salts on the Tissues.**—Schweitzer's research seems to show that silver acetate is a durable solu-

tion while it has the least irritating action on the tissues of all the silver salts, and is strongly bactericidal. Ten years of experience have confirmed Zweifel's commendation of it. It is important, however, to follow its application by rinsing the part with water or, better yet, with a very weak salt solution of about the concentration of tears.

86. **Abdominal-Cavity Pregnancy.**—Czyzewicz reports two cases, one of which showed absolutely no connection between the tubes or ovaries and the embryo; the placenta derived its nourishment from the peritoneum, and the ovum was living when removed, deriving its nourishment indirectly from the omentum. He reviews thirteen cases of abdominal-cavity pregnancy that have been published since 1903 when Veit formally denied the possibility of such an occurrence.

Archiv für klinische Chirurgie, Berlin

XCVIII, No. 2, pp. 281-577. Last indexed June 8, p. 1821

- 88 *Myoplastic Operation for Inguinal Hernia. (Ueber myoplastische Radicaloperationen der Leistenbrüche. Mitteilung einer neuen Operationsmethode.) F. Ehler.
- 89 *Gastric Ulcer in Children and Its Consequences. (Ulcus ventriculi im Kindesalter und seine Folgen.) M. v. Cackovic.
- 90 *Induced Autoplastic Stenosis. (Bildung einer künstlichen Darmstrictur mittelst der autoplastischen Methode.) W. L. Bogoljuboff.
- 91 *Unusually Large Inguinal Hernias. (Ueber Gleitbrüche und übergrosse Leistenhernien.) F. C. Schulz.
- 92 *Operative Treatment of Stab and Firearm Wounds, etc., of the Lung. (Lungenverletzungen.) R. Felten and F. Stoltzenberg.
- 93 Obstetric Fracture of Femur. (Ueber intra partum entstandenen Unterschenkelfracturen.) K. Hayashi and M. Matsuoka.
- 94 Operative Treatment of Gastric Ulcer Remote from the Pylorus. (Resection oder Gastroenterostomie beim pylorusfernen Ulcus ventriculi?) A. Hammesfahr.
- 95 *Invagination of Small Intestine. (Fall von Dünndarminvagination mit einem Meckel'schen Divertikel als Spitze, nebst einigen Bemerkungen über die operative Behandlung der Darminvagination.) W. Gaardlund.
- 96 *Surgery and Physiopathology of the Pericardium. J. D'Agata.
- 97 *Absorption from Abdominal Cavity. (Zur Lehre von der Resorption aus der Bauchhöhle.) A. Simin.
- 98 Experimental Research on Deformity from Weight-Bearing. (Zur Lehre von den Belastungsdeformitäten.) O. v. Frisch.
- 99 Intra-Abdominal Hernias. T. M. Pikin.
- 100 *Diastase in Blood or Urine as Sign of Injury of Pancreas. (Ueber die Fermentdiagnose bei Pankreasverletzung.) Y. Noguchi.
- 101 Incision in Gall-Stone Operations. (Zum Bauchdeckenschnitt bei Gallensteinoperationen.) H. Kehr.

88. **Myoplastic Operation for Inguinal Hernia.**—Ehler makes an incision 12 cm. long and after taking care of the hernial sac he works his left forefinger under the transverse musculature above and separates the fibers on both sides. Then the muscle is cut towards the median line, forming thus a rectangular, movable, transverse flap about 5x7.5 cm. in size. This flap is then twisted to bring the median end down over the inguinal canal and this end is sutured to the spine of the pubis and the lower edge to Poupart's ligament, the upper edge to the transverse muscle. It is important always to include in cutting the flap a piece of the sheath of the rectus muscle, to strengthen the sutures. Only a small gap is left for the spermatic cord. The excellent results of this method for very large hernias are shown in the report of fifteen cases.

89. **Gastric Ulcer in Childhood.**—Cackovic states that the age was under 10 in 2.32 per cent. of the 172 operative cases of gastric ulcer at Zagreb and the age was under 15 in 7.55 per cent. Even these high figures are below the reality, as the affection must have begun in childhood in some of the other cases, although the symptoms were not recognized until later. Slight or occult hemorrhage from a chronic ulcer in a child may escape notice, and pain from it may not be correctly localized. In thirteen of the cases, although the first symptoms had been observed in childhood, operative treatment was not applied until several years later. All the patients recovered except two, one succumbing to postoperative pneumonia. The literature on gastric ulcer in children is reviewed—a total of fifty-two articles.

90. **Artificial Autoplastic Stenosis.**—A strip of fascia is used to ligate the organ, and experimental and clinical experience with this method has shown that it has a number of advantages over an ordinary ligature or any other means to close the passage. The strip is generally taken from the aponeurosis of the rectus, but the fascia lata or Achilles tendon would

supply still stronger material where this is needed. The method is applicable to exclude the pylorus or part of the intestine, in case of fistulas or tumors, etc.

91. Extremely Large Hernias.—Schnitz insists that even the largest inguinal hernias can be successfully treated by the Bassini operation if only the sheath of the rectus is cut so as to render the tendon part more readily movable. The intestines must be thoroughly evacuated beforehand, and the pelvis raised very steep.

92. Operative Treatment of Injuries of Lungs.—Since 1884 when Ombone sutured the lung for the first time, 169 cases have been reported and this material is reviewed and compared with the results of conservative measures. Serious hemorrhage generally stops spontaneously. In the operative cases the mortality averaged 25 per cent. for stab wounds and 40 per cent. for gunshot wounds. Suture is more effectual than resection or tamponing, and in any event primary closure of the pleural cavity should be the rule. Differential atmospheric pressure procedures are not necessary. Ten personal cases are summarized.

95. Treatment of Intussusception.—Gaardlund emphasizes, on the basis of his own experience and thirty-seven cases he has compiled, that it is impossible to estimate the actual condition of the interior of the bowel when it has been invaginated. Necrosis developed in from nine and one-half to forty hours in this material, but this necrosis of the mucosa is not always discoverable from without. In his case an inverted Meckel's diverticulum formed the tip of the invaginated portion.

96. Surgery of the Pericardium.—D'Agata removed more or less of the pericardium in dogs and found it possible to keep them alive and in good condition although the heart showed both anatomic and functional changes. As the pericardium was seized or incised, the pulse showed great disturbance, sometimes stopping entirely unless the parietal pericardium had been first anesthetized with cocaine. When this had been done this phenomenon was not observed.

97. Absorption From the Peritoneum.—Among the various means to prevent absorption from the peritoneum tried by Simin in his experiments on dogs and guinea-pigs, he found the most effectual was the intraperitoneal injection of a hypertonic salt solution. The guinea-pigs all survived that had been injected with .2 c.c. of a 2 per cent. salt solution at the same time with 0.1 c.c. diphtheria toxin. Smaller amounts or a weaker solution failed to protect the animals against the effects of the diphtheria toxin. The hypertonic solution evidently induces transudation of serous fluid and local leukocytosis, and it may also retard absorption so that the amount of toxin passing into the blood in a given period is no more than the organism can safely take care of. Paralysis of the vagi in dogs from injection of atropin developed after an interval directly proportional in length to the concentration of the salt solution injected with the atropin.

100. Diastase in Blood and Urine as Sign of Injury of the Pancreas.—Noguchi's article is the more comprehensive report of experiences already summarized in *THE JOURNAL*, July 13. He reports research on the diastase content of blood and urine in health, in nephritis, etc., besides much experimental work. The importance of a test that will reveal injury of the pancreas is demonstrated by a recent case: A youth of 17 was hit in the abdomen by a block of wood and was unconscious for a moment. When seen three hours later he complained of pain in the umbilicus region, increased by deep breathing and pressure. As there were no signs of internal bleeding or of laceration of any organ, he was merely kept in bed for a week, and seemed to improve gradually. No sugar was found in the urine. Three weeks after the accident he died suddenly and necropsy disclosed fat tissue necrosis from the contusion of the pancreas. If the diastase test had been known and applied at first, it would have revealed the pathologic condition of the pancreas and prompt operative treatment would have probably saved the young man. [See also Editorial July 13, p. 122.]

Archiv für Verdauungs-Krankheiten, Berlin

June, XVIII, No. 3, pp. 273-440

- 102 The Pancreas with Liver Disease. (Zur Frage der klinisch nachweisbaren Affektionen des Pankreas bei verschiedenen Erkrankungen der Leber.) W. N. Michallow.
103 *Ultimate Outcome of Medical Treatment of Gastric Ulcer. (Dauererfolge der internen Behandlung des Ulcus ventriculi.) P. W. Pirila.
104 Hysterie Paralysis of Intestines; No Movement for Fifteen Days. (Fall von hysterischer Darmparalyse von seltener Form.) H. Illoway (New York).
105 Incipient Stenosis of the Duodenum. (Anfangsstadium der Infrapapillären Duodenalstenose.) S. Jonas.
106 Stratification or Mixture of Food in Stomach. (Mischung oder Schichtung der Ingesta im Magen?) F. Schilling.
107 *Serodiagnosis of Incipient Gastro-Intestinal Cancer. (Ueber die Frühdiagnose der Krebse des Verdauungskanales mit bes. Berücksichtigung der serologischen Methoden.) G. Kelling. Commenced in No. 2.
108 Functional Tests of the Pancreas. (Wert der Methoden zur funktionellen Pankreasdiagnostik.) F. Frank. Commenced in No. 2.

103. Medical Treatment of Gastric Ulcer.—Pirila reports the ultimate outcome in regard to 120 of 175 patients with gastric ulcer treated by internal measures only, 1890-1909. Thirty-nine others required an operation, and twenty-eight died of the total 281 gastric-ulcer patients at the Helsingfors (Finland) medical clinic in charge of Tallqvist. Of the first-mentioned 120 patients only 29.2 per cent. were found entirely well in 1910; 35.8 per cent. were improved but the earning capacity was somewhat impaired; 5 per cent. showed no improvement, and 30 per cent. had succumbed to their ulcer. This latter group includes one patient who had been supposed entirely cured, but a sudden fatal hematemesis occurred six years later. Over 28 per cent. died within the first or second year, suggesting cancerous degeneration of their ulcer. More than twice as many women as men were among the entirely recovered, and only about a fourth as many women died as men. The prognosis consequently seems more favorable in female patients; Pirila ascribes this to their work being less severe than men's work, and consequently he draws the conclusion that the outlook for all patients is better when their occupation does not require physical exertion. Comparing his figures with those of the surgical service and with statistics from other clinics, shows that about 80 per cent. of the patients with hemorrhagic gastric ulcer can be improved or cured by internal measures, but more than half of them (60 per cent. on an average) are left with continuous or recurring disturbances, restricting their earning capacity. The mortality from gastric ulcer is generally regarded as between 10 and 13 per cent., but he thinks that the actual mortality from gastric ulcer sooner or later is much higher than this.

107. Serodiagnosis of Incipient Cancer.—Kelling brings down to date his report of the hemolytic test as applied to hundreds of patients in the last ten years. The premises on which it is based and the technic have been repeatedly described in these columns (1906, xlvii, 1963; 1910, lv, 1602, and elsewhere). He here gives a complete oversight of all the various methods for serodiagnosis of cancer. He has applied his method with hen blood corpuscles to nearly 1,500 persons, including 400 with cancer. As the reaction depends on antibodies in the serum, site, structure, ulceration, etc., are immaterial. The reaction disappears permanently after resection of the tumor, but appears again early with recurrence. Among other scientists who have tried his method, a young confrère, Dr. Rosenbaum, casually applied the test to his own serum and obtained a positive response but paid no attention to it. Nine months later he had acute ileus and an inoperable cancer was found in the colon. If he had heeded the positive findings with Kelling's test, the cancer might have been discovered earlier. Kelling has never obtained a positive reaction in the healthy. A positive reaction has often led him to advise against an operation for some other lesion, and the course of the cases always confirmed his view as a cancer, unsuspected at the time, revealed its presence later. In other cases a negative reaction instructively excluded cancer. The test is particularly useful also with callous gastric ulcer, as a positive reaction turns the scale in favor of a radical operation. He describes the technic for the test in detail for all its modifications, and tabulates the findings in his latest series of 130 cases, including fifty patients with carcinoma and two with sarcoma. He draws 15 gm. of blood; it must

not be over thirty-six hours old or forty-eight at most. To 0.1 c.c. of the serum is added 1 c.c. of a 5 per cent. suspension of hen's blood corpuscles in an 0.85 per cent. solution of salt. The test-tube is well shaken and placed in a water-bath and this in the incubator at 37 C. A set of test-tubes are always examined together, some containing normal serum and others prepared with various modifications of the above technic. A positive reaction is the entire lack of hemolysis in the test-tube. Any disturbing influence from chronic sup-pururation, etc., can be eliminated by boiling the serum which does not affect the test for gastro-intestinal cancer. In conclusion he suggests that if physicians in a given region would combine to order all their patients over 40 to eat cooked food alone, it might result in a notable reduction of cancer.

Berliner klinische Wochenschrift

June 10, XLIX, No. 24, pp. 1117-1164

- 109 *Indications for Treatment of Gall-Stones. (Welche Indikationen für die interne und chirurgische Therapie des Gallensteinleidens müssen wir auf Grund der Untersuchungen des Pathologen Aschoff aufstellen?) H. Kehr.
- 110 "Oatmeal Cure" and Sugar Content in Blood in Diabetes. (Diaterkur und Blutzuckergehalt bei Diabetes mellitus.) H. Schirokauer.
- 111 Fat-Splitting Ferment in Gastric Juice. (Untersuchungen über das fetispaltende Ferment des Magensaftes nebst Angaben zur quantitativen Bestimmung desselben.) H. Davidsohn.
- 112 Oxidation Within the Cell. (Ueber Peroxydase und Katalase innerhalb der Zelle.) L. Golodetz and P. Unna.
- 113 Apparently Specific Actions of Salts. (Ueber scheinbar spezifische Salzwirkungen.) E. Schloss.

109. **Cholelithiasis.**—Kehr declares that the pathologist is the highest authority; to him the internist and the surgeon must both yield. All three have shared in the progress realized in treatment of gall-stones, and all nations have cooperated to produce important works on the yellow peril of cholelithiasis. The pathologists have shown that stagnation of bile and infection are the main factors, and that cholesterol stones can develop in sterile bile when the flow is obstructed. The medical world knows only inflammatory gall-stone trouble, but the development of the sterile stone opens a field for research by the internists. The physician who can show ways and means to recognize and successfully treat the non-inflammatory gall-stone disturbance will win more fame and honor than all the gall-stone surgeons of the world put together. It may possibly be accomplished by combating the cholesterol diathesis; the cholesterol content of the bile seems to depend on metabolic processes—this explains the hereditary tendency. In Kehr's own experience, pregnancy and obesity seemed to afford a predisposition to cholelithiasis. Sterile obstruction of the flow of bile is combated by exercise, massage, sports, etc., but when inflammation has once developed, rest is the main thing and massage and sports are directly contra-indicated. The gall-stones themselves are always secondary, and so long as the fundamental disturbance persists, new stones may form and the old grow larger. By putting an end permanently to the primary process—the stagnation or inflammation or both—the stones are left behind as harmless foreign bodies. Any attempt to get rid of the stones without providing ample escape for the bile is futile. All should bear in mind that the inflammation is the main thing. The drugs which claim to dissolve stones and the radiographs taken to prove the presence of stones are merely concessions to the operation-dreading public. The first question asked on rousing from the anesthetic is usually, "Did you find any stones?" and the surgeon is liable to be reproached for having done an unnecessary operation unless the patient has been instructed beforehand that the stones are of no or slight importance. Kehr urges internists to refrain from diagnosing a gall-stone affection unless calculi have been seen and chemically examined; in all other cases diagnose inflammation of the gall-bladder or bile ducts, ptosis of the liver or incipient peritonitis, and let the patient understand that gall-stones play only a subordinate rôle and may or may not be present. The diagnosis "gall-stone jaundice" or "gall-stone colic" has been outgrown. The physician should name the disease, and this is cholecystitis or cholangitis, pancreatitis or cirrhosis of the liver. Kehr affirms, on the basis of his own experience, that in at least 80 per cent.

of all cases of cholelithiasis, medical measures alone will suffice. Operative treatment is indicated when there is direct menace to life, perforation, purulent chronic or acute septic cholangitis, or when medical measures fail absolutely and the health is permanently impaired. If the local tenderness subsides under castor oil, the prospect of a cure under medical measures is good. It is fortunate, he adds, that roentgenoscopy does not show up the interior of the gall-bladder, for otherwise the patient would be given no rest until his cholesterol stone in his sterile gall-bladder is routed up from its peaceful repose where it probably would have tranquilly slumbered through a long, happy life. He adds that there is no fever in fully 50 per cent. of all the empyema cases, and no jaundice in 30 per cent. of the cases with a stone in the common bile duct. The history of the case is worth more than the examination, but it may take half an hour to get at the history while the examination can be done in five minutes. The smallest capital of personal experiences is worth more than millions of acquired wealth of the experiences of others. Kehr has performed 1,900 laparotomies in twenty-two years. The mortality with an operation at the right time was only 3 per cent. This is only 1 per cent. more than that of the early incision, while incision of the common bile duct, in addition to removal of the gall-bladder, gave a mortality only 0.4 per cent. more than the latter alone. With the onset of complications the mortality jumps to 14, even to 78 per cent. in the malignant cases. The rule should be, therefore, to operate at the right time, before complications develop, remove the gall-bladder and incise the common bile-duct. The pathologist again decides the question as he shows that nothing will answer but the removal of the entire gall-bladder.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 10, XLII, No. 17, pp. 617-664

- 114 *Conservative Treatment of Eclampsia. M. Steiger.
- 115 *Lumbar Puncture in Uremia. W. Frey.
- 116 *Skin Reaction to Vaccine in Early Diagnosis of Small-Pox. (Verwendbarkeit der vakzinalen Allergie—Frühreaktion von Pirquet—als diagnostisches Hilfsmittel bei Verdacht auf Variola.) Tièche.

114. **Conservative Treatment of Eclampsia.**—Steiger compares the statistics reported at the recent international gynecologic congress, showing that none of the speakers has had such a low mortality from eclampsia as Stroganoff. With his expectant technic, his mortality has been only 7 per cent. in 700 cases. Steiger adds that similarly good results have been obtained with the method in western Europe, notably at Dublin (9.09 per cent. in sixty-six cases). The principle is to keep the metabolic processes down to the minimum; promote elimination of fluids and toxins through the kidneys—not through the skin; clear out the gastrointestinal tract, and extract the fetus when the soft parts are sufficiently dilated, not before. Forceful delivery is not advisable. At Dublin (Twedy) Stroganoff's technic is modified, morphin plus atropin being used instead of chloroform and chloral, as less injurious for the heart. A subcutaneous injection of 0.03 gm. morphin is given at once and half this dose is given again every two hours, if needed, up to a maximum of 0.12 morphin in the twenty-four hours. If the patient is conscious, castor oil is given; if not, the stomach tube is introduced and the stomach rinsed out with several liters of warm water and half a liter is left in the stomach, and finally a dose of castor oil is poured through the tube. The intestines are then rinsed out in the same way until the fluid comes clear, and a liter is left in the bowel. Warm cataplasms are applied to the kidney region, every two hours, not hot enough to cause sweating. The urine is then drawn for examination. If the patient is still unconscious, two liters of a sodium bicarbonate solution are infused, repeated eight or ten hours later if the patient has not roused from her unconsciousness. This is preferred to physiologic salt solution on account of the injury to the kidneys from the salt. No food of any kind is allowed until the convulsions are definitely under control. The patient is kept in a darkened room, turning her from one side to the other occasionally to permit the saliva to run out, never leaving her on her back.

In case the patient stops breathing, Tweedy draws her head down over the edge of the bed, pulls the lower jaw forward and applies measures for artificial respiration; obstructing saliva and mucus escape if the down-hanging head is drawn backward by seizing the back hair so that the face looks upward.

115. Treatment of Uremia.—Frey classifies uremia according as its principal factor is retention by the kidneys, weakness on the part of the heart, or the type distinguished by cerebral symptoms. The benefit from infusion is most marked in the retention type, while venesection has more effect in the cardiac type; of course it has to be supplemented by infusion. In the cerebral type, on the other hand, lumbar puncture may prove of life-saving benefit, evacuating toxins and reducing the pressure on the brain. He applied lumbar puncture in eight of his twenty cases of acute uremia, and permanent benefit followed in all but two cases in which the kidneys were diseased beyond redemption. One of the patients was a lad of 16 with acute nephritis, brought to the hospital with total amaurosis and almost continuous convulsions, the pulse slow and full, with bloody foam at the lips. Venesection twice repeated failed to relieve, but the patient roused in ten minutes after lumbar puncture. The improvement was not so prompt in the other cases, but it was unmistakable in all. The actual cause of uremia is still unknown, but we can at least mitigate by lumbar puncture the mechanical factors.

116. Allergy to Vaccine as Aid in Diagnosis of Small-Pox.—Tièche has been experimenting on himself, repeatedly inoculating his arm with vaccine and watching the immediate swelling and redness which followed. This phenomenon is due to his extra susceptibility or allergy; attention was called to this "vaccinal allergy" by Pirquet in his early research in this line. He called it the "early reaction." During a recent small-pox epidemic in his town, Tièche inoculated his arm repeatedly with matter from small-pox patients, finding that it behaved the same as vaccine, inducing the same "early reaction." He therefore suggests that this method might be used to differentiate small-pox in dubious cases; the physician might make the test on his own arm. His experiments with varicella material were invariably negative, with varioloid weakly positive, and with variola strongly positive. The test can be freed from all possible danger by heating the material to 60 C. for half an hour, which does not seem to affect the reaction.

Deutsche medizinische Wochenschrift, Berlin

June 13, XXXVIII, No. 24, pp. 1121-1168

- 117 *Improved Technic for Hyperemic Treatment of Surgical Tuberculosis. (Ueber eine wesentliche Verbesserung der Behandlung chirurgischer Tuberkulose mit Stauungshyperämie.) A. Bier.
- 118 Radium Emanation in Therapeutics. H. Kionka.
- 119 Acid Agglutination of Bacteria as Aid in Diagnosis of Typhoid. Etc. (Die praktische Verwertung der Säureagglutination der Bakterien.) H. Schidorsky and W. Reim.
- 120 Technic for Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. (Zur Technik der Behandlung der Lungentuberkulose mittels künstlichem Pneumothorax.) R. Feulgen.
- 121 Importance of Lymphocytes in Diagnosis of Exophthalmic Goiter. (Die Blutveränderungen bei Morbus Basedowii im Lichte neuerer Forschung.) A. E. Lampe.
- 122 Sources of Error in Determination of Ferments in the Stool. D. Gerganoff.
- 123 Connection Between Cirrhosis of the Liver and Enlargement of the Spleen. (Zusammenhang von Leberzirrhose und Milztumor.) P. Hartwich. Commenced in No. 23.
- 124 *Possible Necessity for Operative Treatment of Atrophy of the Prostate. L. Süßenguth.
- 125 Cystitis or Pyelitis from Colon Bacillus Infection of Urethra or Lacerated Hymen. (Aufsteigende Infektion der Harnwege bei frisch verheirateten Frauen; Kohabitations-Cystitis und -Pyelitis.) A. Sippel.
- 126 *Intramuscular Infusion in Toxicoses. (Intramusculäre Infusionen von Ringerscher Lösung bei Toxikosen, namentlich bei den Toxikodermien von Schwangeren und Wöchnerinnen.) P. Rissmann.
- 127 Injury of Eyes from Watching Eclipse. (Augenerkrankungen durch Sonnenblendung.) Isakowltz.

117. Improved Technic for Hyperemic Treatment of Surgical Tuberculosis.—Bier recalls that the pain is immediately relieved when a constricting band is applied above a surgical tuberculous lesion—which is the principle of his stasis hyperemia treatment—but time has shown that in quite a num-

ber of the severer cases the first benefit is followed by pains and swelling, a cold abscess or a severe acute infectious process develops. To avoid these he found it necessary to shorten the time of application, leaving the constricting band in place only an hour or so in all during the twenty-four hours. This restriction materially reduced the benefit from the method. He now announces that all these drawbacks are swept away by giving potassium iodid internally at the same time. It is thus possible to apply the therapeutic constriction up to twelve hours a day with the maximum benefit and without fear of complications. The iodid probably checks ferment action, and it is possible that it has an affinity for diseased tissue and becomes stored up there. The dosage is still tentative, but he has been giving 3 gm. potassium iodid a day to adults and to children in proportion. The constricting band is applied for four hours three times a day. The band must be drawn tight enough to induce much hyperemia and edema but no pain or disagreeable sensations. [Further points in regard to Bier's stasis hyperemic technic were mentioned in THE JOURNAL in 1907, July 6, p. 95; July 13, p. 181, and August 31, p. 802.]

124. Operative Treatment of Atrophy of the Prostate.—Compare with abstract 95 in THE JOURNAL June 22, 1912, p. 2008.

126. Infusion in Treatment of Itching Toxicoses, Etc.—Rissmann made an intramuscular injection of Ringer's solution in a case of annoying pregnancy pruritus and the effect was prompt and lasting. He has applied the method since in two other cases of a pregnancy toxicosis with equal success and no by-effects. Two of the women were out-patients, and he commends this simple measure to the general practitioner as a harmless method for relieving distressing toxic pruritus. He injects about 165 c.c. of Ringer's solution into the buttocks and by evening the relief is marked and the patient is able to sleep. The only point to bear in mind is to be certain that the pruritus is not of parasitic origin; he had one patient who had been previously treated for months with sulphur baths before the true cause of the itching, scabies, was discovered. This technic can supersede to advantage venesection and intravenous injection of salt solution, which others have found useful in toxicoses. [Ringer's solution contains three salts: sodium chlorid 0.9 per cent.; potassium chlorid 0.03 per cent. and calcium chlorid 0.026 per cent.]

Deutsche Zeitschrift für Chirurgie, Leipsic

May, CXV, Nos. 3-4, pp. 205-414

- 128 Sutures of Tendons. (Zugfestigkeit und Resistenz der Sehennaht.) N. Kimura.
- 129 Dislocation of the Astragalus-Scaphoid and Tarsometatarsal Joints. (Ueber Luxationen im talo-navicularen und im Lisfranc'schen Gelenke.) J. R. v. Winiwarter.
- 130 *Gunshot Wounds of the Heart. (Ueber Schussverletzungen des Herzens.) Simon.
- 131 *Operative Treatment of Acute Pancreatitis. W. Mettin.
- 132 *Diphtheria of the Skin and Subcutaneous Tissue. (Diphtherische Entzündung der Haut und des Unterhautzellgewebes.) C. Deutschländer.
- 133 Tabetic Joint Disease. (Zur tabischen Osteo-Arthropathie.) K. Kawamura.
- 134 Chyle in Hernial Sac; Second Case on Record. (Chylus als Bruchwasser beim eingeklemmten Bruch.) M. Prange.

130. Gunshot Wounds of the Heart.—Simon reports a case of injury of the left ventricle from a blank cartridge (*Platzpatronenschuss*) with recovery after suture. A young soldier had pressed the muzzle of the gun against his heart region and fired it, falling unconscious at once. The patient was seen in twenty minutes and the pulse was found to be 144, faint and irregular. The region was sterilized with tincture of iodine and, under cautious chloroform anesthesia and stimulants, a small perforation was found in the left ventricle near the base. It was sutured with silk and the patient made a smooth recovery. Six months later the only symptoms left were occasional palpitations, tachycardia and slight dyspnea on running. Simon reviews a number of similar cases on record, summarizing forty-five and emphasizing the tolerance of the heart: Podres ran a needle into the heart at ten different points to locate the bullet, without apparent injury. Suture without draining has given 75 per cent. recoveries. A slanting wound bleeds less than a horizontal; the left ventricle stands the wound better than the right, and

the right better than the auricles. The prognosis is increasingly grave after the first four hours. A pneumothorax favors infection, and some differential-pressure procedure is a great advantage in operating. Fully 50 per cent. of the patients succumbed to infection, but iodine sterilization will certainly reduce this percentage. A smooth recovery followed in only two cases, in all the others there were complications of some kind. Most of the survivors regained full earning capacity. In two cases the bullet was not found; in two others it was intentionally left and caused no disturbances.

131. Acute Pancreatitis.—Mettin states that the mortality was 71 per cent. in fifteen operative cases of acute pancreatitis without necrosis and 66 per cent. in seven with necrosis, all in Neumann's service at Berlin. The high mortality was due to the severe general intoxication which is the rule in all forms of acute pancreatitis. The onset was generally with an acute intense pain in the upper abdomen and persistent vomiting. In several cases a similar attack of pain had occurred a few weeks or months before but without vomiting. The bowels had not moved for several days before, as a rule, so that the diagnosis was generally "ileus." In some cases there was cholelithiasis and an operation on the bile passages was necessary at the same time. The collapse was scarcely as severe in the cases with necrosis as in those without. In one case the necrosis was so advanced that even an immediate operation at the first symptoms probably would not have saved the patient. The severity of the general symptoms does not always parallel the pathologic changes in the pancreas. The subacute cases without severe collapse have the best prognosis, even when necrosis is already installed. Early operative treatment is indicated in every case, he thinks.

132. Diphtheria of the Skin.—Deutschländer reports a case in a child, a progressive diphtheric inflammation developing in the skin and subcutaneous tissue where a plastic operation had been done to remedy paralysis left from epidemic poliomyelitis. The child succumbed to the action of the diphtheria toxin on the heart. Fifty-six pages are devoted to analysis and tabulation of the fifty similar cases on record. It is possible that such occurrences are comparatively common but their true nature escapes recognition. He classifies ten cases as surgical diphtheria, twenty-eight as ulcerative diphtheria of the skin and ten as a diphtheric phlegmon.

Jahrbuch für Kinderheilkunde, Berlin

June, LXXV, No. 6, pp. 663-788

- 135 *The Metabolism in Infantile Scorbatus. (Stoffwechseler-suche bei Barlowschen Krankheit.) F. Lust and L. Klocman.
136 Action of Formamint. (Ueber Formamintwirkung.) F. Frisch (Würzburg).
137 *Cancer of Liver in Young Infants. (Malignes embryonales Leberadenom im ersten Lebensjahre.) A. Peiper.
138 *Prophylaxis of Summer Diarrhea in Infants. (Zur Aetiologie und Prophylaxe der sommerlichen Säuglingsdiarrhöen in Spanien.) E. Suñer.

135. Disturbances of Metabolism in Infantile Scorbatus.—Lust and Klocman studied the metabolism of nitrogen and the mineral salts in a typical case of scurvy in an infant 18 months old. Observations were made for three periods of four days each, the first while the disease was at its worst and the child was not being treated; the second after a month's treatment, and the third a month later, after all symptoms had disappeared. The nitrogen balance was normal at all times. The balance of mineral salts, particularly of calcium, was somewhat increased in the first period; at the second period, during convalescence, it was markedly decreased, and at the third period was approaching but had not yet reached normal though the child was clinically well. This is in decided contrast to the conditions in rickets. The abnormal amount of retained salts is utilized in bone formation and we have the brittle, fragile, easily broken bones of scurvy in contrast to the soft and pliable bones of rachitis. During the period of convalescence this excess is being eliminated in large quantities, and the bones are approximating their normal condition but roentgenoscopy shows traces of the abnormal bone formation for weeks or sometimes months after clinical recovery.

137. Cancer of the Liver in Infants.—Peiper reports a case of fatal liver tumor in a girl 8 months old. Microscopic section showed three kinds of cells, suggesting a malignant adenoma arising from overgrowth of embryonic tissue. He cites a case of Weber's in a child of 11 months which was of the same nature. He analyzes further several cases from the literature of malignant liver tumors in adults which he thinks do not belong to the same class as the typical embryonal cells were lacking while there was carcinomatous degeneration of liver cells or bile duct epithelium. Carcinoma of the liver and cirrhosis seems to be a frequent coincidence in adults.

138. Summer Diarrhea of Infants.—Suñer sets forth the chief causes of summer diarrhea of infants in his country, Spain, as (1) overfeeding in summer. The child needs less nourishment during the heated term but the amount given is not generally reduced; (2) artificial feeding; (3) spoiling of food by the heat; (4) decreased capacity for intestinal digestion during the summer time; (5) decrease in the bactericidal strength of the intestinal secretion; (6) increased bacterial growth on account of outside heat; (7) transmission of pathogenic germs by flies. He especially emphasizes this latter factor. In prophylaxis he recommends (1) decrease in amount of nourishment given in summer; (2) propaganda for breast feeding; (3) aseptic care in bottle feeding; (4) avoidance of too great exposure to heat, and (5) screens to keep out flies.

Medizinische Klinik, Berlin

June 16, VIII, No. 24, pp. 975-1014

- 139 *Mixed Anesthesia. (Ueber Mischnarkosen.) R. Mühsam.
140 *Gynecologic and Orthopedic Disturbances from Abnormal Static Conditions. (Ueber praktisch-wichtige, aber wenig bekannte Krankheitsbilder aus dem Grenzgebiete der Gynäkologie und der Orthopädie.) G. Preiser.
141 Importance of the Viscosity of the Blood from Surgical Standpoint. (Bedeutung von Viscositätsuntersuchungen des Bluts bei gewissen chirurgischen Erkrankungen.) L. Süssenguth.
142 Hydrorrhea from the Uterus During Pregnancy. (Zur Kenntnis der Hydrorrhoea uteri amnialis.) G. Linzenmeier.
143 Treatment of Exophthalmic Goiter. (Behandlung des Morbus Basedowii.) E. Otto.
144 Action of Mistletoe on the Circulation. (Wirkung der Viscum album auf den Kreislauf.) A. Selig.
145 Changes in Blood-Picture Under Thyroid Treatment. (Experimentelle Beiträge zur Veränderung des normalen Blutbildes beim Menschen nach Verabreichung von Schilddrüsensubstanz.) W. Staehelin.
146 General Principles for Treatment of the Pains in Tabes. (Behandlung der Schmerzen bei Tabes.) K. Singer.
147 Physiologic Action of Baths on the Circulation. (Bäderwirkung auf den Kreislauf.) A. Bickel.

139. Mixed Anesthesia.—Mühsam traces the history of the various attempts to combine anesthetics and sedatives, and cites Neuber's figures in 1909 showing that one fatality to 4,762 applications of the scopolamin-morphin technic has been published (total 23,809); one to 2,060 chloroform. (20,613); one to 5,930 ether (11,859); one to 3,410 chloroform-ether (10,230) and one to 698 Billroth mixture (2,791). in a grand total of 71,052 with twenty-four fatalities in all. He has used pantopon in 100 cases and states that the patient in one case after 0.04 gm. pantopon and 0.0007 gm. scopolamin stopped breathing during the operation and an hour of artificial respiration was necessary to restore the man. In another case the patient was saved only by three hours' work with artificial respiration, oxygen and the strongest stimulants. Zahradnický has reported the death of a very stout woman of 60, six hours after an operation done under pantopon and scopolamin, and Krauss a similar case after mixed anesthesia with pantopon, scopolamin and ether. In concluding his address Mühsam emphasizes anew the necessity for prolonged, careful supervision of the patient after a combined technic for anesthesia has been applied—the conditions are entirely different from those after an ordinary inhalation anesthesia. He also remarks that the best way is for the operator to confine himself to one technic and master it, instead of changing around and trying new methods.

140. Painful Static Disturbances.—Preiser gives an illustrated description of the various deformities that may result from some simple cause affecting the weight-bearing apparatus. The demands of modern life require so much standing or walking during the period when the pelvis is being formed,

that it is very liable to be thrown out of plumb and deformity result, which may not become apparent, possibly, for years. Static disturbances in the legs lead to deformity in the pelvis suggesting rachitic deformity but anatomically just the reverse. It is liable to develop in either sex but does not cause disturbances until extra strain is laid on the ligaments and joints, as when a man takes up manual labor and a woman passes through a pregnancy or the menopause, or either becomes debilitated or obese. He calls attention particularly to the fact that the foot, leg, thigh and pelvis form a static unit, and disturbance at any point may make its influence felt most at some remote point. Lumbago, for instance, may be the result of an unsuspected flat-foot or inward bending of the ankles. On correcting the flat-foot, the lumbago permanently disappears. In the first stage, the static disturbance in the joints induced by flat-foot, inward or outward bending of the legs or changes in the position of the acetabulum, causes merely local pain, but in the second stage the capsule becomes twisted and stretched and there is also pain here. The third stage is the deforming arthritis in which the first two stages culminate. The wearing of high heels is a frequent cause of these disturbances as the ankles bend inward, the static strain entailing pain in the knee, sciatica or lumbago; the valgus attitude is readily recognized from the rear as the patient stands, and the sacro-iliac articulation will be found tender and pain may radiate from it down the leg. In some cases sciatica had developed besides from traction on the nerve, but subsided on correction of the foot anomaly. The weight of the pregnant uterus is also liable to disturb static conditions in the legs and pelvis. In many cases of severe sacral pains or sciatica, relief followed immediately on correction of inward bending of the ankles or of flat-foot, the existence of which in some cases had never been noticed. The patients were told to rotate the limb inward or outward in walking, as conditions required. In other cases pregnancy lumbago persisted until after delivery and in some instances until after the infant was weaned and the normal elasticity of the body was regained. He is convinced that many patients with these static disturbances have been treated for assumed osteomalacia. Some women display at each menstruation a tendency to such disturbances. Mechanical causes, from pointed shoes, are responsible for the valgus position of the great toe with resulting proliferation of bone and internal derangement of the joint; inflammation and pain may follow and gout is diagnosed, but the condition is entirely distinct from gout. He insists also that Heberden's nodes have little if anything to do with gout, but are connected with the involution or atrophy of the genital organs.

Münchener medizinische Wochenschrift

June 11, LIX, No. 24, pp. 1305-1360

- 148 *Serodiagnosis of Pregnancy. (Diagnose der Schwangerschaft mit Hilfe der optischen Methode und dem Dialysierverfahren.) E. Abderhalden.
- 149 Epidural Injection of Aphrodisiac in Treatment of Sexual Impotency. P. Lissmann.
- 150 Ultraviolet Rays in Treatment of Skin Diseases. (Indikation der Quarzlampe für die Behandlung von Hautkrankheiten.) F. Thederling.
- 151 Diabetes Mellitus Following Pertussis. W. v. Starck.
- 152 Epidemic Trichinosis; Ten Cases. F. Spaet.
- 153 Heart Disease and Pregnancy. (Tod in der Schwangerschaft infolge Erkrankung des Herzens.) R. Klages.
- 154 Puerperal Fever. (2 in ätiologisch Hinsicht bemerkenswerte Fälle von Puerperalfieber.) Grützner.
- 155 Success of Propaganda for Breast Nursing. (Ueberwindung der Stillhindernisse durch die Mutterberatungsstellen.) A. Vidal.
- 156 Points to Bear in Mind in Medical Examination for Life-Insurance. (Winke zur vertrauensärztlichen Lebensversicherungsuntersuchung.) P. Landmann.

148. Serodiagnosis of Pregnancy.—Abderhalden reviews his experiences with simplified nutrition which have demonstrated that the animal organism is able to construct all of its cell constituents from the simplest "building stones." [His interesting research in this line was summarized in THE JOURNAL, May 4, 1912, p. 1378.] Each of the cell constituents seems to be peculiar to certain cells and foreign to all the rest. In normal conditions the cell constituents undergo a cleavage or other process before they pass into the blood, and in the course of this cleavage they lose their characteristic features. As

the cell constituents do not circulate in the blood as such, they must be regarded as a foreign element in the blood. The blood is thus protected against being invaded by specifically characteristic cell constituents, in the same way as it is protected against the complex compounds that make up our food—before either can pass into the blood they have to be broken up into simpler elements. Consequently if the original cell constituent gets into the blood it behaves like a foreign element and can thus be detected by suitable tests, especially by the optic method, that is, changes in polarization, and by the modified dialyzation. He has recently published communications on the differential value of these biologic methods, the optic and the dialyzing methods, and he here announces that the cells swept into the circulation from the chorionic villi during pregnancy fulfill all the above conditions as a foreign element, and their presence can be readily detected by the above simple tests. He was able to affirm the existence of pregnancy by the positive findings in seventy-five cases. The significance of these findings in respect to the causation of eclampsia opens a field for further research. They promise to be of great practical value in veterinary practice.

Therapeutische Monatshefte, Berlin

June, XXVI, No. 6, pp. 405-468

- 157 Catheterization of the Ureter, with Local Disinfection, Should Be the Routine Treatment of Pyelitis. (Die aktive Behandlung der Pyelitis.) A. v. Lichtenberg.
- 158 *Operative Treatment of the Intracranial Complications of Middle-Ear Disease. (Heilerfolge der modernen Oto-Chirurgie bei intrakraniellen Komplikationen von Mittelohreiterungen.) H. Claus.
- 159 *Epidural Injections for Pain in Sacral Region. Friedrich.
- 160 Treatment of Rabies a Century Ago. (Behandlung der Tollwut vor 100 Jahren.) A. Pagenstecher.

158. Operative Treatment of Otitic Meningitis.—Claus reviews for the general practitioner what surgical measures have been able to accomplish when a process in the middle ear spreads inside the skull. Even when an abscess had developed in the brain, a cure was realized in 25 per cent. The outcome has also been encouraging with thrombosis of the sinus, when the operation was done in time; with abscess in the brain the outcome is less favorable, and suppurative meningitis is the gravest of all, although the early stages of meningitis, including the serous form, have been cured by operative measures in a large proportion of cases.

159. Epidural Injections for Sacral Pain.—Friedrich found epidural injection of 5 c.c. of Schleich's solution 11 effectual in curing the rebellious pains in the sacral region which are liable to torment patients with displacement of the uterus, adhesions left from chronic pelvic processes, etc. A needle 8 cm. long is inserted in the inferior sacral foramen between the rounded processes of the sacral cornua. The needle is introduced perpendicularly, the patient lying on her face, until a sudden jerk shows it has pierced the sacrococcygeal ligament when the tip is moved to point parallel with the axis of the spinal canal, and it is pushed in about 6 cm. further. The anesthetic is then slowly injected as the needle is withdrawn. The method has been applied in the clinic to thirty women and it failed to relieve permanently in only four cases, regardless of the nature of the underlying gynecologic affection. In about 90 per cent. the relief was permanent. In the others pain returned after two or three months, the same as with perineural injections for sciatica.

Wiener klinische Wochenschrift, Vienna

June 13, XXV, No. 24, pp. 907-946

- 161 Gaseous Phlegmons After Gunshot Wounds. (Zur Frage der Gasphlegmone bei Schrotschussverletzungen.) E. Suchanek.
- 162 The Antigen for the Wassermann Test. (Wassermann'sche Reaktion. Zur Antigenfrage.) R. Müller.
- 163 Serotherapy of Scarlet Fever. (Behandlung der Skarlatina mit polyvalentem Antistreptokokkenserum nach Moser.) O. Szekeres.
- 164 The Technique for the Diazo Reaction. K. Ferl.
- 165 Nervous Influences Responsible for Stiffening of the Artery Walls in Children. (Ueber Arterienrigidität bei Kindern.) W. Rittenhouse.

Zeitschrift für klinische Medizin, Berlin

LXXV, Nos. 3-4, pp. 187-365. Last indexed May 25, p. 1651

- 166 *Later History of Syphilitic Families Reported On in 1891. (Beitrag zur Kenntnis des Schicksals Syphilitischer und ihrer Familien.) M. Kaufmann-Wolf.

- 167 Retention Stomach-Tube for Continuous Research on the Digestion. (Ueber die kontinuierliche Untersuchung des Verdauungsablaufs mittels der Magenverweilschleife.) M. Ehrenreich.
- 168 Irregular Pulse and Heart Block. (Die Pulsunregelmäßigkeiten mit bes. Berücks. des Pulsus respiratorius irregularis und der Ueberleitungsstörungen.) E. Münzer.
- 169 *Hormonal. (Beitrag zur Frage nach der Existenz eines Peristaltikhormons.) R. Dittler and R. Mohr.
- 170 Carbon-Dioxid Tension of the Blood During Pregnancy. (Ueber die Kohlensäurespannung des Blutes in der Gravidität.) A. Leindörfer, J. Novak and O. Porges.
- 171 Reflux of Fluids Into Sagging Stomach. (Ueber Gastro-Pyloro-Duodenopiose als Ursache des Einflusses von Darmsaft, Galle und Pankreassaft in den Magen.) E. Schlesinger.
- 172 Influence of Red Versus White Meat on Nitrogenous Output in Urine. (Ueber den komparativen Einfluss des weissen und dunklen Fleisches auf die Ausscheidung von Harnsäure und von anderen stickstoffhaltigen Substanzen im Harn.) A. v. Siewert and E. v. Zebrowski.
- 173 Diagnostic Importance of Palpation of the Thorax. (Die Palpation des Thorax; die perkussorische Palpation und die diagnostische Bedeutung derselben.) N. M. Rudnitzky.

166. **Ultimate Fate of Syphilitic Families.**—Fleiner published in 1891 nineteen cases of what he called occult syphilis, namely, tertiary manifestations with nothing known of any manifestations during the previous stages. Some of the patients have remarried since so that there are eight wives to the five men and seventeen husbands to the fourteen women, plus the father of one illegitimate child—a total of forty-five individuals; twenty-nine were certainly and three probably syphilized. Wolf has followed the history of these patients to date. One still has a positive seroreaction, one of the consorts, and one of the children of the fifteen examined. Of the thirty surviving individuals, seventeen showed signs of the disease but thirteen had no symptoms. Of the total thirty-four of the living children, thirty-one are apparently healthy. In five families there have been no children; in four they all died at or soon after birth. There have been three twin births in the total eighty-one pregnancies. Twice as many of the men as of the women have died, and half of them from cardiovascular disease; two died from tabes and two of the living have symptoms of this. The article brings out a number of interesting points in the later history. Some of the men infected their wives four and seven years after their own infection; Plaut has recently shown that syphilis can be transmitted to the offspring after eleven years.

169. **Hormonal.**—Dittler and Mohr report research to determine whether the theory of a hormone regulating peristalsis is tenable, and whether hormonal corresponds to this assumption. Their findings were negative in regard to any specific action from the hormonal on intestinal peristalsis. Some of their experiments were made on laboratory animals with a hormonal made from the spleens of animals. A marked reduction of the blood-pressure was observed invariably immediately after the intravenous injections. It was generally transient, but occasionally lasted for some time, and the heart action and respiration also showed its effect, proportional to the dosage. The coagulability of the blood was also much reduced after the injection. Another effect was a pronounced stimulation of the salivary glands. An influence on the peristalsis was noted in only four of eighteen trials, and its features demonstrate that it is a secondary action, the result of the drop in the blood-pressure. An isolated loop of intestine floating in Ringer's solution showed no effect from hormonal added to the fluid. They say that their research affords an experimental basis for judgment of hormonal in the clinic. They regard it as dubious whether it should be used further for therapeutic purposes, especially as the injections are by no means harmless, on account of the frequent resulting commotion in the circulatory apparatus. In their experiments with cats and rabbits, it induced partial asystole and remarkable fluctuations in the blood-pressure. One cat died from paralysis of the heart after injection of 2.5 c.c. of hormonal per kilogram of body weight. Sabatowski's more recent research has confirmed their conclusions. Dittler and Mohr report a case of collapse in the clinic under hormonal.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 11, XXXIII, No. 70, pp. 737-744

- 174 Succession of Primary Syphilitic Chancres. (Sul sifiloma iniziale successivo.) U. Rebaudi.

Brazil-Medico, Rio de Janeiro

May 14, XXVI, No. 19, pp. 187-196

- 175 *Treatment of Acute Articular Rheumatism by Salicylic Ions. (Estudo clínico-experimental sobre o tratamento do reumatismo articular agudo pela injeção salicílica.) J. C. F. Pires. Commenced in No. 13.

175. **Salicylate Electric Cataphoresis in Treatment of Acute Articular Rheumatism.**—Pires cites Wullyamoz of Lausanne on the introduction of sodium salicylate into the tissues by means of electric cataphoresis, and then reports a case from his own experience. He followed the technique used by Wullyamoz, as published in the *Archives d'Electricité Médicale*, May 25, 1910, and in the transactions of the Third International Congress for Physiotherapy. The benefit was absolutely "miraculous" he says, as the case was of exceptional severity, the rheumatism recurring in an intense form a few days after the last recurring attack had apparently subsided. Benefit was evident from the first sitting; twelve were given in all. He emphasizes the advantages of a method which will permit the cure of acute articular rheumatism in a few days, before the heart is seriously affected. The electrodes used can be large enough to cover the entire limb and thus act on three joints at once, or they can be applied to one joint at a time. He used eight cathodes, each a sheet of aluminum covered with felt; the anodes were covered sheets of metal lining the back and seat of a special easy chair. The details of Wullyamoz' three cases are also given to illustrate the superiority of the method, with a theoretical explanation of its action. [The following number of the *Brazil Medico* brings a notice of the death of Dr. Pires.]

Semana Medica, Buenos Aires

May 16, XIX, No. 20, pp. 913-956

- 176 Pituitary Extract in Obstetrics. (Los solutos hipofisarios de Houssay como medicamento ootocico.) A. Chueco.
- 177 Sporotrichosis of the Larynx. (Esporitricosis laringea. Importancia de su diagnostico.) J. de la Cruz Correa.
- 178 Serotherapy of Epidemic Meningitis. T. Areta.

May 23, No. 21, pp. 957-1000

- 179 Fracture of the Scapula; Three Cases. (Fractura del omoplato.) L. Bard.
- 180 *Endonasal Treatment of Frontal Sinusitis. (Tratamiento de las sinusitis frontales cronicas por via endonasal.) E. V. Segura.

180. **Endonasal Treatment of Frontal Sinusitis.**—Segura gives a profusely illustrated description of his method of treating chronic frontal sinusitis by the endonasal route. The lower part of the sinus is so pathologic in these cases that it is easy to open a passage into it from below, requiring at most merely the sacrifice of a small piece of the middle turbinate. He gives the details of five typical cases with roentograms showing his instrument in place. His probe is made of flexible metal permitting the curve to be modified for each case, and he uses four flexible curettes, the spoon in each facing a different way. The cutting instrument has ten superposed cutting disks sloping backward at regular intervals for an inch from the tip. They cannot cut when the instrument is drawn backward. The probe is first introduced into the sinus and then, with a cotton wad dipped in a cocaine and epinephrin solution, the entrance into the sinus is anesthetized and the passage widened, the diseased tissues yielding readily. No by-effects or complications were observed in any of his forty cases, the cure being prompt and complete and leaving no visible scar.

Hospitalstidende, Copenhagen

June 12, LV, No. 24, pp. 669-700

- 181 Case of Wound Diphtheria Accompanied by Paresis of Accommodation and Myocarditis. C. Saggau.
- 182 Pneumonia Complicated by Acute Articular Rheumatism. (Pneumoni kompliceret med akut ledreumatisme.) W. Holland.

Correction.—The title listed as No. 64, on page 1155 of THE JOURNAL, April 13, 1912, belongs to the periodical listed just above. By mistake, the name of the following periodical was inserted one title too high. The title is as follows:

64. Improved Rapid Serodiagnosis of Tuberculosis of Urinary Organs. (Réaction de l'antigène—Debré and Paraf.) M. Heitz-Boyer.

It appeared in the *Journal d'Urologie Méd. et Chirurgicale*, January, xxx, No. 1.

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PLAGUE

THE MENACE OF THE UNITED STATES OF AMERICA *

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NEW ORLEANS

The United States to-day is confronted with a problem of momentous import, and one whose very gravity should awaken the entire country, from north to south, east to west, to immediate action — the danger of plague invasion. Plague has manifested itself in Porto Rico, an American possession, and Cuba, an American dependency, two of the principal islands of the West Indies. No longer may we consider it a disease of only the Old World; it is, despite traditional epidemiologic cant, a disease of universal distribution, and as much at home in the Americas as in the Far East.

The idea of plague ever ravaging the Mississippi valley or sweeping the Atlantic seaboard of this country may be dismissed by some persons as an unfounded fancy. Notwithstanding the preponderance of belief to the contrary, it is my opinion that the sections of the United States above mentioned will yet have that problem for solution. This is a rather bold and, perhaps, somewhat alarming prophecy, and its fulfilment depends on the attitude which will be adopted by the constituted health authorities of the threatened coastal states and the working forces of the different health organizations of the national government. Plague on the eastern coast of the United States is, however, already a national health problem, and not a sectional one, as the presence of the disease was regarded when it made its appearance on the Pacific coast. In a measure, the appearance of plague on the western coast of the United States some years ago, though at all times and in all places the source of the greatest danger, was not then regarded by the country as a source of national danger by reason of the barrier interposed by the Rocky Mountains. The idea of the Rocky Mountains acting as a protective barrier and limiting the diffusion of this disease is an erroneous one and, for obvious reasons, should no longer be given serious consideration.

Owing to the importance of the subject, I believe a brief historical survey of the prevailing pandemic of the disease is not only timely but absolutely necessary to a proper appreciation of the future possibilities of the disease.

The fourth pandemic in the world's history began in 1894, and still prevails. From the recognized Chinese endemic center in the southwestern province of Yünnan, bordering on Thibet and Burma, plague spread to many

other parts of China and to Formosa and Japan. It reached Bombay in 1896, and from that point spread throughout India, and, notwithstanding its sojourn of sixteen years, it shows little sign of declining. Jedda became infected in 1897, and again in 1899. In 1899 the disease made its appearance in Madagascar and Mauritius. A year later Mecca became infected, and it was also seen early this same year (1900) in the Transvaal, South Africa. Later, during the same year, it was noted among the dock laborers of Oporto, Portugal. The year 1899 has been, to date, the most eventful in the present pandemic of plague, as the disease appeared in widely separated spots and almost all over the world. In 1900 the disease obtained a footing on the western coast of the two Americas. To-day we admit its presence in South America, and at the same time are not over-certain of its absence from the Pacific coast of the United States. It can be readily seen, therefore, that the pandemic of 1894 is still existent, and its ravages not merely unchecked but in reality growing greater daily, as evidenced by the recent outbreaks in Porto Rico and Cuba.

The probable manner and means as to how plague gained a foothold in Porto Rico and Cuba, and what its presence in those countries means to the United States will be described in another part of this article.

It would be well at this juncture to consider some of the epidemiologic characteristics of the pandemic as it exists to-day.

The current pandemic is similar to those of the past in that the disease has advanced along the highways of commerce, save that its present distribution has been principally by sea routes in contradistinction to the overland routes of former ages. It has also demonstrated that plague can exist and become epidemic to the south of the equator and in the western hemisphere. In addition, it has proved that its limits are not necessarily marked by lines of latitude and longitude, nor by isotherms, and that once the infection is imported to any portion of the world it tends to become epidemic there if the local conditions are favorable.

Certain peculiarities of this pandemic are worthy of consideration, presaging, as they do, danger in the future. Principal among these are, first, a marked variation in the susceptibility of individuals, and, second, a like divergency in the malignancy of the disease in certain epidemic areas. These particular characteristics are dependent on certain conditions as yet undetermined, but there is ample evidence of their existence. A third interesting feature is its ease of transmission and great transportability through the medium of indirect, and also direct, infection. Another fact of significance, and, to my mind, the most dangerous, is the tendency of the disease to remain dormant in certain localities, only to recur and reerudescence sporadically. This apparent inabil-

* Studies from the Laboratory of Tropical Medicine and Hygiene under the direction of Creighton Wellman, Tulane University of Louisiana—No. 30.

ity of plague to cause, in one place, a mighty epidemic, yet displaying also very extraordinary powers of recrudescence and exhibiting marked resistance to all known prophylactic measures, is highly dangerous, as it not unnaturally breeds contempt and inspires disregard as to the real latent force of the disease. To illustrate: The number of cases does not reach a stage when the situation might be termed really alarming. This fact, coupled with slow advancement and a low death-rate, accustoms the people to its presence, and the civic and health authorities are lulled into a sense of false security, and eventually come to regard it as a disease that can be kept within bounds without very strenuous efforts. During this period the disease insidiously implants itself over different parts of the country, establishing numerous foci of infection, only awaiting what may be termed the igniting spark for a monster explosion. In short, such are the peculiar characteristics of the present pandemic, which may later mean so much to us, and nowhere are these characteristics more vividly displayed than in South America. At the present time South America must be considered as the occidental distributing center of the disease.

It may be asked now, where is the source of our danger? Is our health imperiled from without or within? Is our danger close or distant? In answer to the first, as well as the second and third queries, our danger is without, and not within, our borders, and it is not distant but very close and really on top of us. The idea of our danger being a national one first received utterance from Dr. Donald H. Currie of the United States Public Health and Marine-Hospital Service, when he prophetically said: "The Mississippi valley might some day be infected with plague as a result of infected squirrels." Shortly after Dr. Currie's foreboding, Dr. Creighton Wellman, Director of the Department of Tropical Medicine of the Tulane University of Louisiana, made a similar prediction and explained in detail how certain breeds of ground animals had a biologic range from California into Alabama. Some months later, Dr. William H. Seemann, Professor of Tropical Diseases in the New Orleans Polyclinic, in a discussion relative to plague invasion, directed attention to the fact that freight trains of the various transcontinental and western trunk lines might during the grain-export season carry infected rats to the shipping points of the Atlantic and the Gulf. To a certain degree the conclusions of these keen observers are correct, but if the Mississippi valley or the central or eastern borders of this country are ever infected or should there occur a wholesale diffusion throughout the United States, irrespective of geographic limitations, the cause, I believe, will be through some port of the South Atlantic or Mexican Gulf; and more than probable the gateway of the infection will be New Orleans, Mobile or Galveston, in the order named. This matter will be considered fully in a later paragraph. Many believe that our only source of danger from without lies in direct communication with the now infected ports of the Far East—India, China and Japan—and that the probability will also be considerably heightened on the completion of the Panama Canal. That there is danger from these sources is not denied, but this is not our single source of danger. Our menace to-day, this very moment, is South America, the West Indies, Central America and Mexico. It is the existing infection in the American tropics which threatens our safety, and it behooves us to exercise the greatest caution in repelling the invasion of this traveling disease. The presence of plague in any one of the

ports of the South Atlantic or the Gulf of Mexico would imperil the entire country. Thus, to-day we stand facing a problem the solution of which cannot in prudence be undertaken too early.

Let us review conditions as they actually exist.

The entire western coast line of South America is now infected. True, it only lies smoldering, awaiting the spark for a terrible explosion. On the eastern coast the infection is distributed in spots and does not follow a continuous line. How soon these spots may be connected in a chain of continuous infection we do not know. We do know, however, that from one of these infected spots plague travelled to Porto Rico and Cuba.

As to precise conditions prevailing in South America we are, in a measure uninformed, and this lack of knowledge constitutes an element of danger that cannot be overestimated.

In not one of these South American countries does there exist a properly constituted board of health as we understand such bodies. In addition, no reliable certification and recordation of deaths is enforced. Governmental authority relating to health measures is divided in such a manner as to render the service inefficient and confusing. The authorities apparently have not the constitutional power to enact or, at least, enforce such regulations as would tend to lessen the spread of disease and increase professional knowledge on the subject. In some cases there also prevails an appearance of great indifference as to whether or not disease exists.

There is a lack of cooperation between the state and local health officials of South America, and this lack of unity is greatly in evidence during the time of epidemics. Maritime sanitation by the health authorities of these countries is not only improperly conducted, but is, as well, a hindrance to commerce and a source of expense to ship-owners. A uniform international system of maritime sanitation and fumigation would prove of great benefit to shipping, and at the same time minimize the dangers of spread of the disease. The measures used in combating the plague are inadequate and antiquated.

As to the original source of infection on the western coast of South America but little is definitely known, though it is believed that commercial intercourse with India during the early days of the current pandemic is responsible for its presence. Some authorities are of the opinion that the infection might have been received from either Santos, Rio Janeiro or San Francisco. Shipping, both coastwise and foreign, is improperly supervised, and there are grave possibilities of the disease being brought unrecognized aboard ships.

When we consider the disseminative agencies of the disease, the character of the exports of these countries should also receive attention. The exports are hay, wool (vicuna, alpaca and sheep), dry salt hides, chinchilla (rodent) pelts, vegetables, wines, nitrates, copper and silver. In view of the great loss of life as suffered by China in the Manchurian district through trafficking in the pelts of infected marmots, it behooves us to exercise the greatest care in dealing with importations of chinchilla (rodent) pelts.

A study of the types of the peoples on this infected coast offers sufficient explanation for the non-eradication of the disease. Social and economic conditions are not much better than those of the Far East. The educational and intellectual condition of the people is of a low order. This state of affairs may be attributed, in part, to the deadening and debasing effects of centuries of brutal bondage and political vicissitude. The most distinguishing trait in their character is their imperturbable

and incurable apathy. They are habitually slow in their movements and extremely indolent. They are timid, shy, secretive and superstitious. The policy of secrecy and denial is peculiar to tropical people, and nowhere is it better exemplified than in the South American. The love of intoxicating liquors is deeply rooted in their nature. Their dwelling places are nothing more than dark, ill-ventilated, one-story thatched huts, offering no defense from either wind or rain. One small room usually shelters the whole family; their bed is a sheep skin or two; their cooking facilities, one or two earthen pots and a rude oven built into the wall; their diet consists mainly of vegetables and corn products.

This is the state of affairs that exists on the eastern and western coasts of South America, but, fortunately, in the latter case, in a modified degree, owing to the civilizing and refining influences of European colonization. It need hardly be added that these remarks do not apply to capital cities such as Buenos Aires, Rio Janeiro and Valparaiso.

Next to be considered will be the relations enjoyed by the coastal cities and towns of South America with the West Indies. In this connection it might be interesting to speculate as to how plague really did reach Porto Rico and, later, Cuba.

It will be remembered that as far back as 1908 the Porto Rican authorities appealed to the federal government to protect the islands of Vieques and Culebra, as they feared those islands would become infected through the bands of smugglers operating in this vicinity. Throughout the West Indies there exists what is known as a restricted or local coastal trade. This coastal trade, which is carried on principally by schooners and sailing vessels of light draft, has within the last few years outgrown its local character, and to-day this trade is carried on between the various islands. Between the larger islands there are intervening groups or rather a chain of very small islands, principally the Bahamas and the Lesser Antilles, and much trading is also carried on between these as well as the larger ones. On account of the very character of the trade, together with the type of vessels engaged therein and the lawless crews which man them, it is a matter of great difficulty to impose successfully the necessary health and quarantine regulations which are so essential in the prevention of disease importation. In fact, these craft, together with the crews employed, are a law unto themselves, and even the regulations which ordinarily govern things maritime hold no terrors for them. These small vessels, many of which are engaged in smuggling operations, ply between the different islands, touching, principally, at small coast towns—places where they are free from the scrutiny of the law and not subject to the restriction of quarantine and health measures. Whence these craft come and whither they go is the *crux* of the whole matter. In this form of contraband trading and commerce will probably be found the cause of plague introduction into Porto Rico and Cuba, the two largest islands of the West Indies. It is well known that a number of these craft make a regular business of carrying home the discharged or dissatisfied laborers of the Panama Canal. A certain percentage of the black labor employed in the digging of the canal, unable to stand the disciplinary measures of organization and influenced by inherent indolence, are continually being released. When we consider the roaming spirit of this class of people, who, after leaving the Canal Zone, wander aimlessly about the South American coast, minus the strong hand of their former health organization, it is small wonder

that plague ingrafted itself on Porto Rican and Cuban soil. Many of these roving laborers, through their love of adventure, prompted by past experiences, seek new fields, and their ultimate goal in the majority of cases is the South American coast.

It will be remembered that, at the outset, attention was called to the existence of plague in spots on the eastern coast of South America, and how that country is regarded at the present time as the occidental distributing center of the disease. It is not only possible, but highly probable that the unlicensed trading and commercial relations of South American coast towns with the West Indies is responsible for plague leaving the mainland and appearing in the West Indies. Epidemiologists have expressed surprise that Porto Rico should have become infected with plague, owing to the efficiency of the health administration under American auspices. Through the able efforts of the Medical Department of the United States Army, Porto Rico approached the nearly ideal condition from a point of view of sanitation and cleanliness, and yet despite all precaution plague surreptitiously entered and remained concealed until the number of deaths converted doubt and suspicion into reality of their worst fears. It was plague.

The efficiency of the United States Public Health and Marine-Hospital Service and the Medical Department of the United States Army might be suggested in refutation of these statements, but the vigilance of these two organizations, together with the modern methods of maritime sanitation and fumigation and quarantine, is not in itself sufficient to prevent plague from being distributed throughout the West Indies, Central America, Mexico and eventually the United States.

Time certainly has not erased from memory the case of plague last January, which escaped detection for two days in Ancon, Canal Zone, the true nature of the disease being revealed only at autopsy in the Ancon hospital. Thus, we see with what ease plague made its appearance in the Canal Zone, where the best health organization in the world is acknowledged to reign. What untold damage one case of plague can do is only conjecturable. What connection this case of plague of six months ago in Panama had with the appearance of the disease in either Porto Rico or Cuba we are unable to state. If one case escaped detection, is it not possible for the same condition to repeat itself?

Despite the most extreme measures, in many instances plague has escaped detection at the hands of health officials and within a very short time assumed epidemic proportions. Granted that every facility be provided for the exclusion of plague, the impracticability of absolute prevention must, owing to the peculiar mode of transmission, appear evident.

Are these the only conditions favorable to the diffusion of plague throughout the American tropics? No! Decidedly, no!

The unstable condition of many of the Central American republics with the added evils of an ever changing political situation, together with constant revolutionary strife, is a permanent danger. At the present moment the revolution in Cuba is of great importance from the point of view of health to the United States. Plague made its appearance in Cuba shortly after the Porto Rican outbreak; and, on account of the unsettled state of affairs in that country, due to a desire to depose the present government, in which conflict there have been interjected bitter racial prejudices, the chances are that the disease will assume epidemic

proportions unless the most rigorous and drastic precautions are enforced. The frequency of revolutions of our South and Central American neighbors has given a decided impetus to the illicit schooner coastal traffic previously mentioned, and herein lies one of the greatest dangers. Again, just the same as in South America, cognizance must be taken of social and hygienic conditions in these islands—such as the preponderance of the black race, the percentage of illiteracy, the rate of illegitimacy, the rates of morbidity and mortality, and all the accompanying conditions that an almost submerged people bear. In discussing the appearance of plague in Cuba, sight must not be lost of the close and almost unrestricted relations that exist between the southern Floridian coasts and that island.

To appreciate how plague might secure a foothold in the eastern portion of the United States, it becomes necessary to consider the trade relations enjoyed by New Orleans, Mobile, Galveston, Pensacola, Key West and Tampa, in the order named. The sea trade of these cities is very large, and there is constant intercourse with Mexico, the Central American republics, Panama, West Indies and the northern and eastern ports of South America, and, in addition, indirect communication with the west coast of South America through the Isthmus of Panama Railway. In a lesser degree the following ports also enjoy trade relations as above described: Gulfport and Moss Point, Mississippi; Savannah, Charleston, Norfolk, Baltimore, Philadelphia, New York and Boston.

The prolonged struggle in Mexico between the federal forces and the revolutionists not only is a source of annoyance from the point of view of commerce and business, but also adds an element of danger in that plague might be unrecognized in that country, be carried across the Texas border and be rapidly diffused throughout that state and the central west by prairie dogs, rabbits and squirrels.

It is necessary at this point to digress and consider the position occupied by the Isthmus of Panama.

In reference to the Isthmus of Panama, it must be remembered that it occupies a unique position, in that it is one of constant exposure to many tropical diseases. The question as to the future of the Canal Zone itself, following the completion of the canal, is one of importance. Colonel Goethals, engineer-in-chief of this great undertaking, has suggested to the Isthmian Commission that the country contiguous to the great canal, except that portion required for the habitations of the military force necessary to its protection and the canal employees, be allowed to return to its pristine wildness. This suggestion is undoubtedly due to the fact that the completion of the Panama Canal means the abandonment of the great health organization which has maintained such a high standard of sanitation. The ports on the western coast of South America have been in constant communication with endemic plague centers for at least eight years. Each year the disease, in its insidious approach, creeps nearer. La Guayra, on the east, and Guayaquil, on the west coast of South America, both plague-infected, are only three days' journey from the isthmian ports and are in constant communication therewith. The Royal Mail Steamship Company, plying between infected ports of Venezuela, refuses to carry deck passengers to Colon, but allows first-class cabin passengers to embark for the same point. With this anomalous condition, can we keep Panama and the chain of Central American ports on the Atlantic side free from plague?

This question has been answered with the advent of plague in Porto Rico and Cuba.

To-day we have a widely advertised feature of travel, known as the sight-seeing of the canal, which is patronized by people from every section of the United States. When one remembers that these travelers coming from the United States must necessarily be thrown in contact with travelers coming from the plague ports of South America, it is not difficult to appreciate the ease with which plague may gain entrance into the United States. And it must be remembered that the bulk of travel from the isthmus is *viâ* New Orleans, and cases might get through, despite the most stringent precautions. The majority of the ships engaged in this trade are manned by Chinese crews, and, considering the receptivity of these people to a tropical infection, such as plague, they constitute an element of danger that cannot be easily waived. The vulnerability of New Orleans by sea invasion ought to be readily apparent.

The larger portion of the tropical trade enjoyed by the Atlantic and Gulf Ports is what is known as the "green fruit" trade. This industry is enormous and increasing daily. But here let me turn aside and pay a tribute to the principal corporation engaged in the "green fruit" trade, the United Fruit Company, American, for the adoption of a rigorous sanitary policy in dealing with all classes of tropical affections, special attention being given to the problems of plague and yellow fever. Through the general medical superintendent of the United Fruit Company, Dr. Robert Earl Swigart, stringent regulations dealing with ship sanitation and fumigation are enforced. Each ship of this company carries a well trained medical man, who is especially conversant with tropical conditions. In addition to caring for the welfare of the passengers entrusted to their care, the surgeons of the company are practiced in ship sanitation and fumigation. The rat-killing crusade as recently inaugurated by this company, under the supervision of Dr. Swigart, in ridding their tropical possessions, such as wharves, warehouses, plantations, and also ships, of rodents is really commendable and a deserved recognition of the value of that branch of latter-day science known as preventive medicine.

These, as briefly as could be stated, are the facts regarding our danger of plague infection from the American tropics. That they are serious is obvious, especially when we know that the type of plague prevailing in this section possesses to a high degree every characteristic of the present pandemic.

There are also in our midst certain dangers the prompt recognition of which will aid in minimizing any danger arising in the near future. It is not my purpose to burden this paper with facts of common knowledge, but a survey of actual conditions is necessary for the maintenance of this discussion. In the first place, many of the ports of the South-Atlantic and the Gulf have suffered in the past from outbreaks of epidemic infections, such as yellow fever, and to-day certain of them, such as New Orleans and Mobile, are the homes of many tropical diseases. Therefore, at the outset every southern port may be considered as a predisposed community to such a disease as plague.

With plague threatening the United States, especially the maritime cities of the southern and eastern coast, the time for action has arrived. To the south this warning should be shouted from every hill-top and go reverberating through every dale and valley, before it is too late.

The plague situation in the American tropics to-day is alarming. Despite its interest to the southern portion of the United States it has thus far been given but scant attention. The completion of the Panama Canal will increase the seriousness of the plague situation, but all thoughts of this are left unuttered in the hopes of the trade and commerce that will accrue to the south as a result of the completion of this great engineering feat. Material prosperity, however, invariably brings in its train evils of many descriptions: "Trade follows the flag," and "disease follows trade." To-day every southern port, and especially those of New Orleans and Mobile, is in close relationship with lands in which devastating epidemic diseases, particularly the plague, are rife. In the shipping cities of the south, health and disease-prevention seem to be ignored to a great extent and to be in subversion to trade interests. The lay press disregards the situation as much as possible, and in the laudatory articles dealing with the commercial upbuilding of this section of the country no mention is made of the menace of the disease. Plague, indeed, seems to be the skeleton at the feast.

The promotion of trade deserves encouragement, and material prosperity is doubtless a goal to be eagerly sought. But these will be dearly bought if at the same time plague is introduced.

The sanitary conditions of many of the cities of the south are truly deplorable. Conditions in New Orleans, Gulfport, Mobile, Pensacola, Tampa, Key West, Savannah and Charleston, unfortunately, are most favorable for the concealment and spread of plague. The combined population of the above ports is 601,568, of which number at least 269,000 are negroes. This large number of negroes, alone, presents a health problem of serious magnitude. While the negro does not participate in the civic life of the community, he is a factor of no small import in the social and economic affairs of the south. The mode of living among the negroes of the south violates almost absolutely modern sanitary regulations. Many of the whites of this region also approach the negro in the lack of personal hygiene and debasing influences and surroundings. And when we stop to consider that the percentage of illiteracy in the extreme southern and south-eastern part of the United States is the highest in the Union from a sectional point of view, it will be seen that the south has problems of immensity aside from possible plague invasion. In recent years there has also grown up throughout the south a very large Italian population, including many Sicilians. These people are but a few degrees removed from the negro, and in some instances worse, so far as personal hygiene and sanitary environments are concerned.

As it is to-day the southern United States has manifold medical problems which prevent that section progressing socially, politically and economically. The retarding effect on education and civilization of malaria, uncinariasis and pellagra are illustrative of what I mean.

The chief object in directing the attention to what may be termed a sectional or geographic predisposition to plague is to dispel that impression of safety—that belief of assurance—that plague cannot and never will reach our shores.

As to plague ever infecting the Mississippi Valley, the chances are not so remote as one would at first glance imagine. To my mind, the infection of the Mississippi Valley, if it occurs, will be brought about by the disease appearing in New Orleans and being transmitted up and down the river through the agency of the steamboat and the negro roustabout. This line of reasoning is based

on the fact of the close proximity of the steamboat landing with that of wharves reserved for tropical steamers. Intercourse between the rodents of these two styles of craft will be difficult to prevent. Next to a granary, a steamboat acts as the ideal home for rodents. Infected rodents once gaining access to the steamboats will prove dangerous to the health of negro roustabouts. The negro roustabout, on account of his habits, would readily fall a victim to the disease, and, due to the migratory tendencies of this type of negro laborer, the disease will be spread far and wide.

What effect plague would have on such animals as the rabbit and squirrel, which are exceedingly numerous throughout the south, also remains to be seen. In the light of our present knowledge, an epizootic of plague among the squirrels and rabbits is not only possible, but extremely probable; and there is no use denying that they would spread infection far and wide, and especially among the negroes and poorer whites who live principally on these two animals when in season.

To-day the dock or harbor front of every port of the South-Atlantic and Gulf of Mexico presents a most inviting condition for the introduction and transmission of plague. The wooden docks and wharves of these ports are dangerous. From one end of these different ports to the other there stretch rows of wooden wharves, and all overrun with rodents. The method of discharging cargo and dunnaging in these ports is not at all proper. Cargo or freight should be placed above the ground, so as to prevent rodents from gaining access thereto in the easy manner now possible. Ships coming from tropical ports are not properly supervised by the health authorities. Ships on which rodents abound tie next to the wharves and, in seeking food, the rodents find their way ashore and mingle with the native rat. If the ship rat is infected, the natural results may be easily imagined. Extra precautions should be taken with ships engaged in the fruit, sugar and coffee trades and hailing from tropical ports. Ships' hawsers and cables are in no single instance or, indeed, very rarely protected by rat shields and trapping devices. Absolute safety demands nothing less than rat-proof landings, piers and wharves in every port on the Atlantic seaboard and Gulf coast.

Very close to the docks of these cities and within a stone's throw of the ships berthed to the wharves are located warehouses, freight depots, grain elevators, packing and cold storage plants, burlap and bag factories, cotton compresses, stave yards, stables and other industrial plants and institutions, all of which, it is safe to say, are overrun by rats. It has been shown that to gain access the ship rat has but a short distance to travel. It is here that the intermingling of the native and ship rats will play havoc. Many of the above buildings are old, and in many instances poorly constructed.

There also exists in connection with the industrial section, thus described, a condition peculiar to southern cities, and that is that the living districts—thickly populated—of the poorest and most illiterate type are hemmed in between these industrial sites. They are, to be exact, located, at intervals of five or six blocks, between the plants and establishments to which reference has been made. There also exist in these neighborhoods sailors' lodging and boarding houses and innumerable saloons and eating houses—many of the lowest grade. The larger proportion of the structures in these vicinities, and the streets closely adjacent thereto are antiquated, dirty, in ill repair and devoid of all sanitary conveniences, and certainly must be considered as having some bearing on health problems. The average citizen has no

idea of the rat population of localities devoted to shipping.

The majority of the inhabitants of these sections are in some manner connected with the maritime trade of the ports—a phase of the question that is to be considered in discussing the transmission of plague, either by direct or indirect infection. The recreation and relaxation for these people, to a great extent, is found in spending the evenings by the wharves, and, in some instances, ship visiting. Accordingly, these localities—and there are others—may justly be considered predisposing to any type of disease which might arise. Were we to single out these centers, and from the point of view of sanitation and hygiene compare them to the other sections of the cities previously spoken of, the result would justify terming them the pathologic spots of the community.

Again, many of the cities of the South-Atlantic seaboard and Gulf coast are full of structures confined to no particular section, harboring rats underneath their wooden floors.

The rat-proofing of stables, restaurants, warehouses, grain elevators and residences for the various shipping centers of the south presents an appallingly large and complex problem. The experience of San Francisco, nevertheless, proves that it is feasible. The adoption of these measures alone will ensure to the south and the rest of the United States a reasonably permanent safeguard against the spread of plague, should it be introduced. A laboratory should also be equipped for examination of all rodents killed or found in the vicinity of the wharves and docks of the different ports. Without delay there should be established in every shipping center a non-infectible zone between the residential section of the city and water front. For the accomplishment of this drastic reform sanitary measures should be directed to the exclusion of rats from the wharves and first tiers of industrial blocks.

Earnest cooperation between the people and health authorities in the enforcing of all necessary health regulations should be secured. The attitude of the press toward radical, though absolutely necessary, health measures should be friendly, and not antagonistic or disparaging. The interests of the commercial organizations of the entire south must be aroused, and the fact must be impressed on them that discussion and truth as to sanitary shortcomings are better than the policy of concealment and silence often practiced in the past. The education of the people as a whole regarding the dangers of the rat should be conducted in the same manner as was the anti-mosquito campaign in New Orleans during the yellow fever epidemic of 1905.

The measures necessary to secure the desired results would be substantially as follows: The building laws of the various ports would have to be amended to provide that hereafter all structures should be made rat-proof—particular attention being given to the construction of floors and side walls and plumbing arrangements. Stables, private markets and places in which foodstuffs are kept should be given marked attention. Existing structures should be made rat-proof whenever deemed necessary, according to proper standards to be announced by health officials. Insanitary buildings or structures, or parts thereof, should be declared nuisances, and provisions made for the rectification of such conditions. Basements, back sheds and the open spaces beneath buildings should likewise be made rat-proof. Landlords should be made to realize that proper rat-proofing of their property is an investment which will greatly enhance realty values. If necessary, the rat must

be “built” out of the maritime cities of the south by the use of concrete, brick and stone in the foundations and side walls of all buildings.

Adequate regulations concerning the collecting and disposal of garbage should be adopted. Householders should be required to keep garbage in metal receptacles and tightly closed. Street paving and cleaning should be brought up to the highest possible state of efficiency. Wooden bridges and crossings should be abolished.

The commercial and shipping interests should be taught that the inauguration of an anti-rat crusade would prove of considerable economic advantage, and in a short interval they would probably become the strongest supporters of the work.

All docks and wharves should be so protected as to prevent rats from gaining entrance to them, at either high or low stages of the water, from vessels berthed alongside such docks and wharves. Food products stored in docks or wharves should be so arranged as to make it impossible for rats to gain access thereto or come into contact therewith. The wooden docks as seen in New Orleans, Mobile and other ports are obsolete and form ideal harboring and breeding places for rats, opening avenues for infection from South or Central America, the West Indies or even the Orient. In regard to wooden docks and wharves the ports of the North Atlantic occupy the same position as New Orleans and the balance of the southern ports. The building of stone or concrete wharves is costly, but not prohibitive. Where possible, wharves should be protected from rats by fending vessels off shore. This should apply particularly to vessels from suspected ports. Hawsers and lines leading ashore should be protected by either rat shields or rat funnels. Ladders and gangways should be lifted at night, after the work of discharging is concluded for the day. As considerable difficulty would be experienced in wharf regulations, their enforcement would depend on competent policing.

The one thing for which the harbor or dock commissions of the interested municipalities should provide is a rat-killing brigade or corps whose duty would be to wage a constant war on rodents in and about wharves. In addition to their labors about the docks, they should also be sent aboard ship on arrival to rid it of rats. One of the interesting sights on arrival at the port of London is to observe the red-uniformed band of rat killers come aboard ship and commence their operations before the passengers have even disembarked.

In conclusion, I believe the time is ripe, indeed, that it is absolutely imperative, that a plague conference be held. This conference should be held in either New Orleans or Mobile, preferably the former, and should have for its objects the prevention of plague importation, the enactment of regulations looking to the wholesale extermination of the rat and the improved sanitation of all the southern ports. A uniform and efficient system of ship fumigation should also be discussed at this conference. The health officials of every southern state should be invited to participate. If possible, the conference should be held under federal auspices. In order that it prove a success the conference should be widely advertised and the aid of all trade organizations and commercial bodies be solicited.

It would ill become us to point the finger of scorn at other countries for neglect of modern methods of sanitation, while we continue to disregard similar precautions in our own ports. And finally, let the words of Emerson sink deep, “Obedience alone gives the right to command.”

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THE NECESSITY FOR RODENT EXTERMINATION IN AMERICAN SEAPORTS *

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The rodent is the twentieth-century anachronism. He is as archaic as the neolithic midden to which he is coeval, and yet to-day we tolerate him, permit him to devastate our storehouses and to act as the intermediary vehicle for the transference of the organisms of disease between his loathsome carcass and the body of man. The toleration which we have shown for this inhabitant of the sewer and frequenter of the dump is perhaps due to the fact that man is by nature a lazy animal and will make no unnecessary effort unless spurred to it by some circumstance in his environment. It has been necessary for plague to ravage the world many times before man has learned well the lesson that the rat and his confrères, the mouse and the ground-squirrel, are among the most deadly animals with which he has to deal.

That rodents are the carriers of plague is too well known to merit more than a passing reference here. They are also afflicted with a leprosy-like disease which closely resembles, both in its etiologic factor and in its pathology, the leprosy of man. A number of other diseases exist commonly among them, the organisms of which are believed to be capable of producing human disease. They are also the hosts for a legion of entoparasites, while ectoparasites, such as fleas, lice and ticks, infest their hairy bodies. Furthermore, they are afflicted with new growths both of the benign and malignant types, and if we were to accept the parasitic theory as to the etiology of the latter, it might be that we would find that the rodent played a rôle in the dissemination of cancer.

The rat, then, is a menace to us physically. He also threatens us commercially. Traveling in the bodies of ships, and dogging the commercial highways of the world, he is the veritable "old man of the sea" whose appearance in the community is the sign of impending pestilence and the resultant commercial disaster. Plague is essentially a disease of commerce and not only does harm through the human sacrifices which it claims, but also because of the great fear it engenders levies a heavy commercial tribute. In addition to the depredations thus produced by this murine enemy, the mere item of subsistence alone is enough to warrant us in attempting the limitation of this species. A rat will consume approximately a bushel of grain in a year. If the cost of this be taken at \$1, it can thus be seen that the community suffers an enormous loss in this way. But the depredations of rats are not confined to relatively cheap articles; the choicest fabrics and leathers, books and objects of art—none of these is spared; poultry and eggs, seeds and bulbs—all are destroyed by these vermin; and still the indictment against the rat is not complete unless we mention the many disastrous fires which have been caused by the rats' fondness for phosphorus which leads them to gnaw matches which have been carried to their nests. These are composed of dry and very inflammable material and are usually hidden in some secret labyrinth between floors and walls, and the fire reaches unquenchable proportions before its

discovery. We must add to the charge of arson that of theft, for there are numerous instances on record in which rodents have carried away, for pure wantonness, jewelry and other articles of considerable value.

Aside from the extensive work which has been carried on in California, no effort of any magnitude has been made to check the inroads of these vermin or to determine whether or not they are infected with plague or some other disease which is pathogenic for man. It is a well-known fact that plague may smolder in a rodent community for a considerable time before accident brings about a closer contact between infected animals and man, thus giving rise to an epidemic. The effort of the sanitarian should be to discover the epizootic foci of the disease and to eradicate them before the opportunity for the transference of the disease to man occurs. It is equally important that the importation of rats, particularly infected rats, into a clean community, or the exportation of rats from a plague focus, be prevented.

The prerequisite to this is the trapping of rats, and it is the duty of every maritime city in this country to begin a sanitary survey of its rodent population. The methods for the trapping and examination of rats have been thoroughly discussed elsewhere¹ and it will be sufficient to indicate here that trapping, to be of value, should be systematic, that captured rodents should be carefully labeled, and that they should be examined by a competent bacteriologist. An accurate record of every rodent taken should be kept and the data obtained by such a survey should be intelligently tabulated. This is important for many reasons, not the least of which is the value of a record of the rat catch on premises on which it is desired to force sanitary improvements. No property owner was ever known to admit the presence of rodents on his premises, but confrontation with the register of the rats taken on his holdings is an unanswerable argument. Moreover, this is the preliminary step toward the securing of adequate ordinances bearing on the proper disposal of garbage and other wastes, the sanitary construction of stables and chicken-yards, the regulation of places in which foods are prepared, stored or sold, and the rat-proofing of buildings used for human occupation. It will thus be seen that the sanitary surveillance of the rodent population is the starting-point of a series of sanitary reforms which have a vital bearing on the public health. This is important, not only because of the security from plague secured thereby, but also because the measures which are directed against pest exert a preventive action against many other communicable diseases. Thus, it was observed that the plague-eradication work in California was accompanied by a subsidence not only of plague but also of most of the acute infectious diseases both of man and of domestic animals.

Perhaps the most important single result of the attempt at the limitation of rodent activities is rat-proofing of buildings. This is a form of insurance—insurance against fire and pestilence. It is more than this, it is a plague-eradication measure of the first magnitude, because it is axiomatic that he who dwelleth rat-free taketh no plague. The ideal agent to be used in this "building the rat out of existence" is concrete. Next to it in value come metal and other substances through which rats cannot pass. It should not be forgotten that the concreting of basements and the erec-

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. The Rat and Its Relation to the Public Health. Pub. Health Bull. 30, U. S. Public Health and Marine-Hospital Service, Washington, Government Printing Office, 1910.

tion of area walls benefits the health of the householder by reason of the exclusion of dampness, and the removal of planked-over back yards and their replacement by cement makes for the general cleanliness of the premises. Permanent rat-proofing is therefore not an expense but a permanent health investment paying good dividends.

In this connection should be mentioned screening, because no matter how well the lower levels of a house may be fortified against rats, such efforts are nugatory unless the windows and other openings are screened. This means the exclusion not only of the rat but also of the fly and the mosquito, thereby affording protection against the diseases which these insects carry.

When we campaign against the rat, we not only destroy his abiding-place and exclude him from the home of man, but we also endeavor to separate him from his food-supply as well, because the famished rat does not linger. The point of attack is the garbage-can. This probably is the most misused of all the household utensils; hated by the housemaid, bumped and dented by the garbage-man, overturned by hungry cats and dogs, the receptacle for filth, and the begetter of noisome odors, it is at once a most useful and a most dangerous sanitary instrument. If we could ensure that every garbage-tin in a city was water-tight, well covered and maintained in a cleanly condition, we could feel a reasonable security from rats and flies. It is not enough, however, that garbage-cans be tight and clean; the collection and disposal of their contents requires careful supervision. This comprehends a study of the city's entire refuse-disposal system and if necessary its reorganization to meet the sanitary needs.

The stable, furnishing as it does both a harbor and a commissary for the rat, should receive careful attention. In the first place, let it be said that unless they are as carefully regulated and as cleanly administered as a human household, stables have no place in the scheme of the modern city. Thanks to the advent of the automobile and the motor-truck, the day is not far distant when the rat-infested, fly-breeding stable will have been relegated to the age of sanitary darkness. Stables to be rat-free should be rat-proofed by the installation of concrete floors; the manure should be kept in air-tight metal-lined boxes, and the stable itself should be screened and connected with the sewer.

The hungry and homeless rat may be poisoned with ease. This requires relatively little labor and every householder should be encouraged to poison the rats on his premises. Various agents have been employed for this purpose, but all things considered, phosphorus seems to be best for the purpose. It may be said in its favor that rats like it, that it is cheap and that it is certain in its action. The fact that it deteriorates on exposure to sunlight is not an unmixed evil, because if poison lies about for a considerable time it may be taken by some animal other than the rat. A very effective formula contains 4 per cent. of phosphorus in a glucose base. Rat-poisoning is a duty too frequently overlooked, and we shall do well to follow the example of our European cousins, and institute rodent extermination campaigns in all our large cities.

We have thus seen into what a varied field of public health activity the efforts at rodent extermination logically lead us. Supposing, that in our examination of the captured rodents we uncover a plague focus, what will be our method of procedure? In the first place we have, so to speak, the "choice of position," which is no mean advantage. We can strike before the epizootic

becomes an epidemic and we can strike so quietly and so surely that no disastrous result need come to commerce. In this lies the great argument for rodent exterminative work in cities in which plague is not known at present to exist or in which plague has never been found. Plague has left its spoor at almost every junction of the trails of trade, yet it has not been recognized until it has signaled itself by the occurrence of human cases. Who can doubt that if the rats of the great seaports of the world were examined, the infection would be found in many cities heretofore considered plague-free? And who can controvert the statement that if the infection is recognized now and promptly up-rooted many lives and millions of money can be saved?

The first thing to be done on the discovery of a plague focus is to wipe it out. In order to wipe out a plague focus it is necessary to kill the rats therein. It is impossible by any single known method to accomplish this. Hence, reliance must be placed on a combination of methods which will attack the rat along every avenue of his existence. There is more to this than the mere killing off of the rat, because when an attack is made on any species which lives in more or less close proximity to man, there is a coincident improvement in the environment in which man lives, and hence there is a decided falling off of the diseases which are essentially environmental in character. Rats may be killed by starvation, prevention of multiplication, eviction, poisoning, trapping and the employment of natural enemies, such as the dog or the cat. The technic of these methods has been discussed elsewhere, and it need be only mentioned here. The reduction of the rodent population in an infected zone is in reality a question of dilution of the infectable material, and even though the rats which remain have a better opportunity for securing food than they had previously, the fact that they are widely separate from one another causes the disease to die out among them.

Since plague is a disease of commerce, and since plague is a disease of rats, and since rats journey over the world in ships, it is the duty of persons who are charged with the protection of the health of marine ports, to kill rats in ships. This is best done by periodic fumigation, either by sulphur dioxide gas, carbon dioxide, carbon monoxide or funnel gases. This is cheaply and easily done, and if these remedies were periodically applied at all of the ports of the world, it would not be very long before the disease ceased to follow the track charts of marine commerce. In order to secure such action, it would be necessary for the powers of the world to enter into an international sanitary agreement. This would entail considerable labor and expense, but if it were accomplished, it would prove a measure of great good. Couple this with the extermination of rodents in seaports and plague would soon be relegated to the museum of paleolithic sanitation.

Sanitary Milking.—A Florida inventor (*Scientific American*, May 25, 1912) has come forward with an appliance in the form of a screen to be used during hand milking. It consists in a vertical partition interposed between the cow and the milker with a large opening in which is fitted a flexible screen made of rubber, skin or fabric, having holes for the insertion of the cow's teats. This is so applied as completely to exclude foreign substances from the milk-pail. This appliance requires that each cow be taken to the structure provided with the screen and confined there while being milked, the milker being in an adjoining apartment and not in contact with the cow. Though a little more trouble than the ordinary method, this would seem to be an admirable arrangement hygienically, but large dairies would require a number of these appliances.

FURTHER EXPERIENCE WITH ANEURYS-
MORRHAPHY (MATAS)

A REPORT OF EIGHT CASES *

JOHN H. GIBBON, M.D.

PHILADELPHIA

The year 1902 marks the beginning of a new epoch in the treatment of aneurysms for it was at this time that Matas presented to us a description of what is now generally called the Matas operation and reported four cases on which he had successfully operated.

This presentation was made before the American Surgical Association.¹ The account of his first case, one of aneurysm of the brachial artery, is extremely interesting as it shows how the idea originated of curing the aneurysm by suture from within the sac of all arterial openings. In this case several of the older methods of compression had failed, later ligation after the manner of Acland failed and still later distal ligation failed. Matas then opened the sac and discovered that the failure of the previous ligations was due to the entrance of blood into the sac through one or two large collaterals. The openings of these vessels were sutured and it was found on removing the tourniquet that no blood flowed into the sac. The sac was then packed and the patient recovered. This first operation was done in March, 1888, and was briefly reported,² but apparently attracted little attention.

Since the publication of Matas' notable paper, 1903, he has been able to collect nearly 200 cases in which operation was performed after the method he described. This operation has already supplanted, in this country at least, all the older methods of operative treatment. Although one would prefer to draw conclusions from a perusal of all these collected cases, my own experience in eight cases, I trust, will be considered sufficient warrant for a discussion of the merits of the operation, though it is hard to imagine a surgeon who could now doubt that this procedure has rendered the operations of ligation obsolete except in cases of aneurysm of the small arteries and in those in which the proximal control of circulation cannot be had and in which the distal ligation is indicated.

My first patient³ was operated on in October, 1904; my second case⁴ was operated on in November, 1906; my last six cases are added now and the total of eight represents my experience.

CASE REPORTS

CASE 1.—Negro, male, aged 31, was operated on Sept. 27, 1904, Pennsylvania Hospital, for a large aneurysm involving the popliteal artery and causing marked edema of the leg. Syphilitic infection was denied and the condition attributed to a blow by a stick, which was received eight or nine months previous. Circulation of the leg was controlled by an Esmarch constrictor, the sac opened, the contents evacuated and the obliterative type of aneurysmorrhaphy done. A superficial infection occurred. The patient took large doses of iodid after the operation and made a good recovery. Examination three years later showed no recurrence and a report, received within a week, shows the patient to be perfectly well.

CASE 2.—Physician, aged 57, operated on Nov. 24, 1906, Bryn Mawr Hospital, was suffering from marked Bright's disease; the vessels were very atheromatous and the heart

showed distinct valvular disease. There was no history of syphilis. The patient was given large doses of iodid for some time before operation. The pain and suffering from the aneurysm were very great. Because of the patient's bad general condition operation was done largely under infiltration anesthesia. Ether became necessary after the evacuation of the sac because it was necessary to extend the leg in order to gain access to the arterial openings; this extension was too painful for the patient to bear. The circulation was controlled by an Esmarch constrictor, the arterial openings sutured, the sac partially obliterated and packed. The patient made a good recovery, was relieved entirely of his pain but died two months after the operation from uremia. The wound had healed except for a small superficial area. At the time of his death there was no edema of the leg, no evidence of a recurrence of the aneurysm and there was complete relief from pain.

CASE 3.—Negro, male, aged 38, was operated on Nov. 27, 1907, Pennsylvania Hospital, for large aneurysm of the femoral artery in the lower portion of Scarpa's triangle. No distinct syphilitic history could be obtained and the patient was unable to take large doses of the iodid. After a week's rest in bed and the continuous application of an ice-bag the aneurysm became somewhat smaller. The circulation in this case was controlled by digital compression after exposing the vessel just below Poupart's ligament. This was done by Dr. W. E. Lee. The sac was opened and evacuated but there was considerable bleeding due to the establishment of a good collateral circulation. The arterial openings were soon found and closed. The openings of the femoral artery were about 2 inches apart on the same plane and quite accessible. This, I thought, was a good case for a reconstructive operation, but as the obliterative operation gave better prospects of a cure and as the collateral circulation was good, this operation was chosen. The sac in this case was completely obliterated by six rows of continuous sutures and a small gauze drain was inserted under the skin. Some superficial infection occurred. The patient was discharged with the wound healed Jan. 3, 1908. A letter received from him during the past week states that he is perfectly well and has no trouble whatever with the leg.

CASE 4.—White man, aged 44, was operated on Dec. 7, 1907, Jefferson Hospital, for large aneurysm of the lower portion of the femoral artery, the result of a gun-shot wound received twenty-four years previously. A 32-caliber bullet entered the thigh 3 or 4 inches above the joint on the outer side and passed out just above the internal condyle. After the injury there was persistent edema of the leg and varicose veins developed. Eight months prior to operation he first noticed a swelling low down on the inner side of the thigh; this rapidly increased and the edema of the leg disappeared. The aneurysm was a very diffuse one and resembled a sarcoma in appearance. Expansile pulsation and characteristic bruit, however, showed the true nature of the condition. The tumor involved the posterior and both lateral aspects of the thigh above the knee and extended up to the middle of the thigh. The patient when first seen, about a month prior to operation, would not come into the hospital and when he was admitted it was noticed that the pulsation was not so marked and that the tumor was larger. The x-ray plate showed the bone to be normal excepting for a little spicule projecting from a point just above the internal condyle. There were other small shadows of bone and bullet standing off about an inch or two from the bone. My own feeling was that there had been an aneurysm, due to an injury of the femoral artery in Hunter's canal, that this while it existed caused pressure on the vein and edema of the leg, that a slow rupture occurred with the development of a large false aneurysm relieving the pressure on the vein and causing the edema of the leg to disappear. I exhibited the patient at the Philadelphia Academy of Surgery a few days before the operation. At that time there was no pulsation to be felt in the tumor generally but only along the inner side of the thigh and in an area about an inch in width. I endeavored to get permission for amputation in case the condition proved to be sarcoma, but this the patient declined. Circulation was controlled by an Esmarch constrictor and the mass exposed through an incision made in the posterior aspect of the leg and a little to the inner side of the median line. I

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Matas: Report and Discussion, Tr. Am. Surg. Assn., 1902. A full description of the method, but without the case histories, was later published (Ann. Surg., February, 1903).

2. Matas: Med. News, Philadelphia, Oct. 27, 1888.

3. Gibbon: Am. Med., Aug. 19, 1905.

4. Gibbon: Ann. Surg., September, 1907.

expected by this incision to determine the nature of the tumor and evacuate the clot in case it were an aneurysm, and then I expected I would have to make another incision on the inner side anteriorly in order to get at the vessel where it was injured. I evacuated about two quarts of clot of varying consistency, most of it like molder's clay; I then found that there had been an injury of the femoral artery in Hunter's canal. The sac of the true aneurysm was quite small. There was an opening in the vessel probably $\frac{3}{4}$ inch long and wedged in the vessel wall were a number of pieces of bone which had been carried away from the supracondyloid ridge by the bullet. The vein lay in close contact with the artery and it was with difficulty that I could close the opening without injuring the vein. On account of the injury of the vessel wall by the small pieces of bone I did not attempt to do a reconstructive operation, but completely obliterated the vessel with a single row of sutures. Because of the position of the vein and the fear of injuring it, I did not obliterate the sac very closely. I put in, however, two rows of sutures and carried a gauze drain down to my original suture of the vessel. There was no bleeding after I put in my first row of sutures, when the constriction was removed. The patient made an excellent recovery, the wound healing promptly by granulation. A letter a few days ago from the patient's wife states that he died Feb. 10, 1911, from tuberculosis. She said, "His leg gave him no bother and was not the cause of his death; in fact the operation for aneurysm was entirely successful." Death occurred three years and three months after operation.

CASE 5.—White man, aged 45, was operated on Sept. 13, 1908, Jefferson Hospital, for aneurysm of the abdominal aorta, incomplete operation. I saw this patient in the service of Dr. J. C. Wilson. He had been admitted twenty-four hours previously suffering apparently from a ruptured abdominal aneurysm. Temperature was subnormal and he was sweating and in collapse. He braced up and got in fairly good condition. In the twenty-four hours he was in the hospital he secreted but two ounces of urine and had persistent vomiting. Examination showed a large pulsating tumor in the left upper quadrant of the abdomen. Some years previously he had had a fall and had passed urine containing blood. I thought probably the aneurysm might be of the renal artery and because of the evidences of bleeding on the day before that it had probably ruptured, making a large false sac. There was no difference in the pulsations of the two femorals as shown by tracings. His vessels did not seem to be atheromatous and it looked like a case for which something might be done. The tumor appeared too low for an aneurysm of the celiac axis and I hoped that it might prove to be a sacciform aneurysm and that the Matas operation might be performed successfully. After the situation was carefully explained to the patient and to his family consent for the operation was given. The complete suppression of urine and the obstruction of the bowels rendered his condition very serious. The abdomen was opened in the median line from the ensiform to about 1 inch below the umbilicus. On pushing the intestines to the right we found an enormous aneurysm covering the kidney and extending down behind the peritoneum nearly to the pelvic brim. There was some extravasation of blood outside the sac but not so much as I had expected to find. There was also some blood in the peritoneal cavity but not enough to amount to anything. After considerable manipulation and examination we concluded that the aneurysm was of the aorta and it seemed to be fusiform in character. With difficulty we managed to get a rubber catheter around the artery above the aneurysm and thus to control the circulation. The patient's condition by this time was very bad, but we were still not sure that the aneurysm was not sacciform and that something might be done to cure it, and therefore made a small opening in the sac and explored it. We found a fusiform aneurysm about 4 inches in length and extending down to the bifurcation of the artery. At the bifurcation there were a number of calcareous plaques in the wall of the vessel. The patient's condition was desperate at this time and it was a question whether we should leave him with simply a ligature around the artery or whether we should try to close the openings in the sac. We finally determined on the latter procedure and put in two rows of sutures completely

closing the upper opening and one row below. The patient was dying when this was done so that the operation was not completed. He died on the table.

(On March 6, 1909, I exposed another aneurysm of the abdominal aorta hoping to be able to do some type of aneurysmorrhaphy but found two aneurysms, one involving the upper portion and one the lower portion of the abdominal aorta and separated by only a small portion of healthy vessel. No operation was attempted.)

CASE 6.—White man, aged 46, was operated on Jan. 11, 1911, Pennsylvania Hospital, for popliteal aneurysm; obliterative aneurysmorrhaphy was done. Syphilitic history was denied. The aneurysm was very large and extended over both lateral aspects of the femur. The pulsation in the aneurysm was peculiar and suggested pulsus alternans. An Esmarch constrictor was applied and the aneurysm exposed through a median incision. The external peroneal nerve passed across the sac and was displaced downward without injury. The sac was opened throughout its length and a large quantity of clot in various stages of organization was removed. The aneurysm was distinctly fusiform. The openings of the main vessels were occluded with interrupted sutures of linen thread. When the tourniquet was loosened there was no bleeding from collaterals. There was a pocket in the sac on each side of the bone which I found difficult of access, but I was able finally to obliterate the sac entirely with several rows of continuous sutures. The skin wound was approximated excepting where a small rubber-covered drain was placed. There was never any marked infection in this case and yet some discharge kept up for a number of weeks until a linen suture was removed when the wound closed. The patient made an excellent recovery and when seen a few weeks ago by one of the interns there was no swelling of the leg, no interference with function and no recurrence of the aneurysm.

CASE 7.—White man, aged 36, was operated on July 12, 1911, Jefferson Hospital, for aneurysm of the femoral and external iliac arteries; obliterative aneurysmorrhaphy was done. This patient was a healthy-looking, well-developed and intelligent man. He gave a pretty significant history of specific infection some years ago. He was admitted to the hospital two weeks previous to operation with a large aneurysm involving the femoral artery and extending well to the outer side of the thigh. I did not think at the time that it extended above Poupart's ligament. He had a great deal of pain which disturbed his nights very much. Although the whole thigh was swollen there was little edema of the foot and leg. He was put to bed, given large doses of iodid and an ice-bag applied. After admission the aneurysm increased in size and the pain did not diminish. The abdomen was first opened through the sheath of the right rectus and exploration showed that the external iliac was involved for about 1 inch and that the aneurysm extended up behind this vessel for about 2 inches. Dr. Despard compressed with his finger the common iliac through the abdominal wound and I laid the aneurysm open from one end to the other. The bleeding at first was very profuse but seemed to consist largely of the blood in the aneurysmal sac. The proximal opening was quite superficial and was closed with catgut sutures as were also one or two small openings in the sac. The sac was then obliterated with rows of catgut sutures. In order to reach the lateral aspect of the sac I was obliged to carry a transverse incision across the thigh. The wound was closed excepting for a small superficial rubber-covered gauze drain. This wound healed promptly and the patient made a good recovery. A letter written by the patient March 3, 1912, states that he is in splendid condition and free from any trouble in the leg. The patient is actively engaged in work in the Philippine Islands.

CASE 8.—Negro man, aged 36, was operated on June 1, 1912, Jefferson Hospital, for popliteal aneurysm; obliterative aneurysmorrhaphy was done. He died on the table at the conclusion of the operation; probably an anesthetic death. This man denied syphilitic infection. The aneurysm was first noticed a few months previously. There was little edema of the leg and the pain was not great. The patient was apparently in good condition. Prior to the operation he was kept in bed for ten days, given large doses of iodid and an ice-bag applied

over the aneurysm. No lesion of the heart, lungs or kidneys was found. Thirty minutes before the operation he was given a hypodermic of $\frac{1}{4}$ grain morphin and $\frac{1}{150}$ grain atropin. He was anesthetized with chlorid of ethyl, followed by ether. The circulation was controlled with an Esmarch constrictor. The aneurysm was about the size of a lemon and was nearly filled with organized clot. The arterial openings were readily found and closed with catgut. The sac was easily obliterated by three rows of sutures. The wound was closed without drainage. This was the easiest and most satisfactory operation for aneurysm in all of the series. While I was closing the skin and the intern was excising a small fibroma on the patient's arm the anesthetist announced that the patient was not breathing and that his pulse could not be felt. The change in his condition was very sudden as the pulsation of the popliteal could be distinctly seen while I was closing the overlying tissues. Artificial respiration was kept up for about half an hour and for a time the radial pulse could be distinctly felt, but in spite of all our efforts the patient died. An autopsy was made and excepting for some atheroma of the thoracic aorta no lesion was discovered.

SUMMARY

It may be observed from the foregoing histories that I have had two deaths, one directly attributable to an attempt to cure by the Matas operation an aneurysm of the abdominal aorta and the other presumably an anesthetic death after the conclusion of the operation. In the first case it may be that I should not have attempted the operation and my only excuse is that a fatal termination was inevitable without it. My belief was, and still is, that the operation of aneurysmorrhaphy can and will be successfully performed in aneurysms of the abdominal aorta.

One can hardly consider the wonderful work in arterial surgery which has been done on animals, notably by Carrel, without hoping and believing that equally remarkable work will soon be accomplished in man. The cure of aneurysm of the abdominal aorta may not be brought about by exactly the same method as that applied in the case of other accessible arteries, but I am confident that it will come, it may be by some method of improving the collateral circulation before attacking the aneurysm, or possibly by the resection of the diseased portion of the artery and the substitution of another healthy one, probably a "cold-storage" specimen — such an operation as Carrel has done so successfully in dogs.

My second death, that which occurred in my last case, is the only distressing experience I have had and I am sure that those who have had a patient die suddenly and unaccountably at the conclusion of a perfectly simple and satisfactory operation will agree that the death is not attributable, in any way, to the type or character of the operation; it certainly was not in this instance as the autopsy showed.

Of the six remaining patients one (Case 2) died two months after the operation of uremia, having had Bright's disease at the time of the operation. Another patient (Case 4) died more than three years after the operation of tuberculosis without a recurrence of the aneurysm. The other four have been heard from or examined within a few weeks and all remain cured.

It is unnecessary to go minutely into the details of aneurysmorrhaphy, but I should like to discuss a few aspects of the subject.

In the first place, I consider the control of the circulation while the operation is being done one of the most important steps of the procedure. Matas in his first communication advised the Esmarch constrictor when it could be used and when it was inapplicable a protected clamp with a screw to regulate the pressure, such as that

devised by Crile, or a tractor of silk passed around the vessel. In most of my own cases I have used the elastic constrictor of Esmarch. In the case of aneurysm involving the femoral and external iliac direct digital compression of the common iliac by an assistant through an incision in the abdominal wall was employed. In Case 3 the femoral was controlled by direct digital compression. In the aneurysm of the abdominal aorta constriction was obtained by a rubber catheter.

Speaking generally, the Esmarch constrictor is the safest and most satisfactory method of control. Direct digital compression, through a separate incision if necessary, is the next best method and can be easily accomplished by an intelligent assistant. The force required is not great and the time of its duration is not long. The rubber-covered clamp of Crile with the regulating screw is perfectly safe and satisfactory and if employed intelligently can do no harm. Too long or too great pressure with any clamp may, however, seriously injure the vessel and excite thrombosis or so weaken the diseased artery as to render a second aneurysm at the site of its application likely. Any form of temporary ligature, I believe, is dangerous for the same reasons and should never be employed. I am inclined to think that this applies to the tractor of silk or any other material. Such control of the circulation may be permissible in a healthy vessel but except in a traumatic aneurysm the vessel can hardly be considered healthy. In one recorded case of popliteal aneurysm a temporary ligature was applied to the femoral artery and another aneurysm developed at the site of its application and later necessitated an amputation of the leg. Personally, I prefer, when the Esmarch constrictor cannot be employed, to expose the vessel well above the aneurysm through a separate incision if necessary, and have an assistant compress it with his fingers during the time the sac is being opened and evacuated and the arterial openings sutured. I have employed this method of circulatory control a number of times in amputations of the thigh and hip and like it.

Another important point for discussion arises after the aneurysmal sac has been emptied and examined, namely, the selection of the type of operation best suited to the case. There can, I believe, be little doubt that in the large majority of instances the "obliterative" operation will be found the simplest and safest. In the case of saciform aneurysm the simple closure of the communication with the vessel, what Matas calls the "restorative" operation, should be the one of choice. From reading the accounts of cases reported in the literature I am inclined to think that the "reconstructive" operation carries with it considerable risk of thrombosis and a greater likelihood of a recurrence. Certainly the operation requires more skill and a fair amount of experience in arterial surgery. In the popliteal, the femoral, the brachial and the external carotid I believe the "obliterative" operation is preferable.

I have used both catgut and linen thread in my cases and the results have been as good with the latter as with the former and I have therefore given it the preference. It will be noted that in one of my cases a sinus discharged until one of the linen sutures was removed. Because of the tendency to infection, especially in syphilitic cases, I believe a superficial drain is advisable.

In conclusion, too much stress cannot be laid on the importance of preliminary and postoperative anti-syphilitic treatment when there is a history of such infection or when it is suspected.

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ABSTRACT OF DISCUSSION

DR. CHARLES A. POWERS, Denver: This is one of the most interesting and most valuable procedures in surgery. I am in accord with everything that Dr. Gibbon said. My personal experience has been very much less than his. It is limited to two cases of obliterative endoaneurysmorrhaphy, each done in the case of a popliteal aneurysm, and an additional case in which I was merely a consultant, however, through the kindness of Major Clyde Ford, of the Medical Corps of the United States Army. My two patients made a simple and prompt recovery. In this connection I feel with Dr. Gibbon that the elastic constrictor will probably prove the best method of controlling hemorrhage. I shall speak very briefly of a third case, Major Ford's patient, which was one of reconstructive endoaneurysmorrhaphy. Nov. 22, 1910, a soldier was accidentally shot through the thigh, the bullet entering over the middle of Hunter's canal, and coming out at a point somewhat above on the outer side of the thigh. The immediate hemorrhage was controlled by a comrade, and there was but little bleeding when the patient was seen by the post surgeon. There was firm healing afterward. Feb. 4, 1911, or nearly three months afterward, the soldier applied to the post surgeon for advice regarding a pulsating tumor at Hunter's canal. There was a plainly marked sacculated aneurysm about the size of an average man's fist. Major Ford performed in a very thorough and skilful way the reconstructive operation, and I am free to say that I was very much impressed with the beauty and the result of the operation. The suture was made with fair ease, and when the Esmarch constrictor was taken off at the conclusion of the sac suture, there was no bleeding, but there was a definite clear pulsation in both the anterior and the posterior tibial arteries. I was very much impressed by that. There was, however, a persistence of a very definite thrill. This thrill was present before the operation and I fear it has persisted until this day, showing, in the judgment of Major Ford, that there existed a communication between the artery and the vein. Evidently the bullet made a small wound in the artery and vein and while there has been no return of the aneurysm, the communication between the artery and vein has persisted. It is now sixteen months since the operation and I understand that the patient is in very good condition. There is a slight edema of the leg, but no pain, and the man is able to work.

Major Ford told me that he wrote to Dr. Matas, in New Orleans, regarding this arteriovenous communication, and it was Dr. Matas' judgment that in such a case, where the symptoms were very slight and the disability not marked, it was best to let the vessels remain as they are, and not attempt any further reconstruction.

It has seemed to me that this procedure of Dr. Matas', as has been so well said by Dr. Gibbon, is one of the most valuable additions to our research made in many years.

DR. J. F. BINNIE, Kansas City, Mo.: I think the obliterative operation in suitable cases is the operation of choice. Anyone who has attempted the operation knows how ridiculously easy it is, at least in the extremities. A child could almost perform it. The only thing to do is to put on the elastic bandage, cut into the aneurysm, take out the clot, do not be afraid of doing that thoroughly, and sew up the hole from the bottom up. It is a thoroughly good operation. What a difference between that and trying to dissect out the aneurysm. One gives as good and as permanent a result as the other, but dissecting out the aneurysm is a heavy and dangerous operation. I have tried reconstructive aneurysmorrhaphy on more than one occasion and my work has been foredoomed to failure. Why? I forgot entirely that if you keep your eye open for a long period of time you get conjunctivitis. If you had your eye washed with salt solution or covered with sterile petrolatum, you would not be likely to get conjunctivitis, the reason being that the eye open dries and you will get an inflammation from the drying without any infection with bacteria. Exactly the same thing will take place on the inside of an artery. If you expose that to the air and let it dry, you will have an inflammation. I

did not use any precautions, for example, smearing with petrolatum as Carrel does. I used the material which Matas recommended, catgut, for sewing up the vessel, and if there is anything that will produce an irritation in the intima of a blood-vessel, catgut will do it. My operations were most of them successful as regards curing the aneurysm, but not in a reconstructive sense, as the vessel closed afterward.

MAJOR CLYDE FORD, U. S. Army: I do not know that I can add anything to what Dr. Powers has said of my operation. I at least have the satisfaction of being able to report 100 per cent. of recoveries—because I have had only the one case. I am glad to be in Dr. Binnie's class under any circumstances, and I may claim to be in it because I use chromicized catgut and have no trouble. There is some little notability in my relation to this case, in that I was associated with it from the beginning to the end. There was no doubt about the diagnosis or the process of development. With regard to the thrill which persisted after operation, and, as I am informed, persists to this day: I had a report on the case a few months ago. There is every reason to believe that the man's physical condition is good, because since his operation he has reenlisted for another term of service, and he must have been fairly fit to have stood that test. As to the course of the projectile, when the man was brought to the hospital, the point of entrance of the bullet was so situated that it looked very much as though the bullet had passed through the femoral artery and immediate preparations were made for an operation. When the tourniquet was removed, however, there was no hemorrhage. At that time the vessels in the leg were pulsating, but still the line of the wound seemed to pass through the femoral region. When the wound had healed by primary union after a couple of weeks this man was instructed to note the condition of his leg, and if any swelling appeared to return to me immediately. Inasmuch as the thrill persists, the question arises whether or not there was a communication still remaining between the sac and the artery which was not obliterated by the operation. I believe, however, that the sac has been entirely eliminated and that the persistence of the thrill is due to some other injury by the projectile in some other part of the wound. Perhaps a small vein and artery have been cut and united afterward, or the femoral artery and vein may have been joined through traumatism in another place; but I am very sure that the sac itself has been eliminated. I was somewhat impressed by the appearance of the field. It was similar to the representations of Dr. Matas in his original illustration. It looked exactly as his drawings have shown it, and the execution of the technic is very easy. In emptying the sac, the first appearance of the sac was as though the clot had been entirely turned out, and after the first suture was made I was horrified to have it pull out, because I felt I had a typical case of traumatic aneurysm in a perfectly healthy vessel, and therefore did not expect to encounter such a difficulty at that time. On further examination I found a rather highly organized layer of fibrin of considerable thickness lining the interior of the sac. It was through that that I had passed the first suture, and therefore it so easily pulled through. This fibrin was easily peeled out and the glistening vault of the sac appeared beneath. There was no difficulty in running the sutures through the sac wall in the classical way, as represented by Dr. Matas.

DR. J. SHELTON HORSLEY, Richmond, Va.: I used the Matas operation for a popliteal aneurysm in a colored man with a history of syphilis. The operation was done July 22, 1911, and consisted in splitting the sac, turning out the clots, and then obliterating the sac by tiers of continuous button-hole catgut sutures. The leg was at no time cold, sensation was perfect and there was no pain. The wound healed by first intention throughout. When last heard from (about two months ago) the patient was in excellent condition. Dr. Binnie laid stress on the importance of doing an obliterative operation rather than a reconstructive operation. Anyone with experience in experimental arterial suturing knows how difficult it is to prevent clotting and obliteration of an artery when it is sutured. Not only must the operator be absolutely aseptic in technic, but the utmost gentleness must be used

in handling the intima which should never be allowed to dry and should never be touched with sponges or instruments. The sutures must be of the finest material. Even with practically perfect technic clotting and obliteration occur in from 25 to 40 per cent. of such cases when suturing healthy arteries. It is hardly possible that a reconstructive aneurysmorrhaphy as ordinarily done on a diseased artery can ever give a permanent channel. It seems to me that the Matas operation is about the last word in the type of aneurysm due to arteritis. When a healthy arterial coat is united, as in a traumatic aneurysm, there may be some chance for success, but the majority of aneurysms are due to arteritis caused by syphilis and the very thing that causes the aneurysm will probably interfere with the healing of the sutures even if the reconstructive operation could be carried out with the greatest care. This same condition of arteritis would prevent the insertion of a segment of vein between the ends of the artery after excision of the aneurysm sac—an operation which would be feasible in traumatic aneurysm with healthy arterial walls. It would seem then almost a waste of time to attempt a reconstructive operation in an aneurysm due to arteritis.

DR. MAX BALLIN, Detroit: I wish to speak of the thrill which existed in Dr. Ford's case. I once had a patient, a lady, who, in 1905, was injured just as was the soldier in Dr. Ford's case. She had been doing some wood-carving when the chisel slipped and entered her thigh. The first wound was closed by deep sutures. Three months later an aneurysm appeared of about the size of a man's fist. This aneurysm caused so much pain and disturbance of the circulation that the patient was unable to walk when I first saw her. I did a typical Matas operation. When the sac was exposed it appeared to be perfect, and I am sure that there was no connection with the vein. About four weeks after the operation I noticed a thrill and the thrill has persisted more or less ever since, without, however, causing any disturbance of the function of the leg. I had also written Dr. Matas about it. He did not say that an arteriovenous communication existed. Neither did I, because such a condition usually shows a great dilatation of the veins. There was no great varicose formation in this case. I think that the thrill was caused by the dilatation of some small branch of an artery. This operation was done in 1905 and the patient is perfectly well to-day. There is no disturbance. I saw a very singular case of aneurysm about three months ago, in which a similar operation was done. I have not found any similar case in the literature, either as to cause or location of the aneurysm. An engineer tried to stop a big sliding mass of steel, which overextended the wrist. Immediately after the accident there was no lesion of the skin or did he seem to have suffered in any way. Later some big veins appeared on the back of the hand. They were so large that his physician took out three or four of them, as we do in a case of varicose veins of the leg. The man was not cured by the operation. Six months afterward I discovered that he had an aneurysm in the superficial arch of the ulnar artery, that there was a pronounced tumor which communicated with the posterior veins. The sac of the aneurysm was so thin that a Matas operation was out of the question. It was easily dissected out and the man's disability disappeared after having been present for six months. Enlargement of the veins is the most pronounced symptom of communication between an artery and a vein, and I do not believe that that was present in either Dr. Ford's case or mine.

DR. THOMAS W. HUNTINGTON, San Francisco: A duty devolves on the surgeon to educate the medical men of his community in regard to the value of this very simple and logical procedure. In the last twelve months, I have seen three cases of aneurysm, two of the popliteal and one of the external iliac artery, all of which had been watched by physicians, for many months, until they had reached a point where the patient declined any operative interference. It is probable that, in every instance, an early operation would have given relief. It seems as if the internist does not appreciate the ease with which this operation can be done or the results which are to be obtained. The procedure is

one which becomes safer inversely as it is adopted toward the beginning of the lesion. I am able to report but one instance of aneurysmorrhaphy by the Matas method, having the popliteal aneurysm. The picture, as presented, was as described by Dr. Matas. The method, as set forth by Dr. Matas, is a perfectly obvious one.

MAJOR CLYDE FORD, U. S. Army: As to the communication between the vein and artery: as Dr. Powers stated, the thrill in my case was evident immediately after the obliteration of the sac. It was first heard while the patient was still in bed, and it gave us a great deal of apprehension. It is still there. I think there must have been a communication at the time of the operation between the vein and the artery which was not involved in the aneurysmal sac. Dr. Powers wrote to Dr. Matas at the time, and he also expressed the feeling that there was some communication. He added that it need not be the source of any apprehension, but rather give us some comfort, because it would assure the relief of any other pressure on the sac. If the pressure were well balanced and distributed, the vessels would not dilate. That was true in our case. There was no dilatation of the vessels.

DR. JOHN H. GIBBON, Philadelphia: I want to emphasize again the point I tried to make in my paper—that the obliterative operation is the simplest and the safest operation. In the popliteal, femoral, brachial and external carotid arteries I believe there is no indication to do a reconstructive or restorative operation unless the case is one of traumatic aneurysm. Of course, the reconstructive operation is the ideal one, and it appeals to us as surgeons. It is a most ingenious one, but the indications for its performance are very limited. Moreover, I believe that many of the results obtained from the operation have come about in spite of thrombosis of the artery after the reconstruction. I do not believe that it remains open, because, as Dr. Horsley said, 35 to 40 per cent. of our experimental operations are followed by thrombosis. The obliterative operation is the only one which should be generally done, at least until one has had some experience with this work.

GYNECOLOGIC PELVIC DRAINAGE*

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While the subject of peritoneal drainage is an old one and its indications are quite well settled, yet in technic and laws governing it we are not all agreed, and I fancy it must be thoroughly studied further along those lines. Its mastery, like that of aerostatics, will require still more patient and scientific investigation and the practical application of the knowledge thus obtained. I therefore offer no apology for a few details concerning gynecologic pelvic drainage.

HISTORY

Hippocrates¹ recommended the use of drainage-tubes in the treatment of pleural effusions and Celsus² used conical lead and brass tubes for drainage in abdominal ascites. Down through the centuries these tubes of metal have been used, though recently to a much less extent, and during the past thirty years in abdominal surgery the glass tube, introduced by Koeberle, in 1867, and modified by Keith and Wells, has succeeded it, and in turn has been practically superseded by soft rubber tubes and gauze. According to Moore,³ Heister first used capillary drainage in the eighteenth century, and Chassaignac, in 1859, introduced the soft rubber drain-

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Hippocrates: *De Morbis*, Book iv.

2. Celsus: *De Medicina*, Book vii, Chap. xv.

3. Moore: *Bryant's American Practice of Surgery*, i, 761.

age-tube. In February, 1855, Peaslee⁴ passed a corked, gum-elastic catheter through the vulva and vagina into the pouch of Douglas of a patient he was operating on for the removal of an ovarian tumor complicated by ascites. Through this catheter he later flushed the peritoneum for several weeks. This was probably the beginning of the use of dependent drainage of the culdesac through the vagina. Later, gauze, the cigarette drain and soft rubber tubing were introduced for this purpose.

The subject of drainage of the peritoneal cavity has been widely discussed. The various routes and materials employed, the indications and objections to its employment, the relative merits of the different materials employed, and the laws influencing it have been the chief headings under which it has been discussed.

Muscatello's investigation of the peritoneal lymphatic currents and of the structure of the diaphragm, linked with Clark's prodigious bacteriologic study of the affected areas in the lower part of the peritoneum and of the conditions of drainage materials, while employed in draining the peritoneal cavity, markedly lessened the employment of abdominal drainage after intraperitoneal or transperitoneal operations. Several observers found that gravity was a necessary adjuvant to successful drainage of pus from cavities. This led Clark to recommend assisting natural drainage of the peritoneum through the diaphragm by placing the latter structure in a dependent position. Fowler advised placing the patient in the directly opposite position, and drainage of the lower portion of the abdominal cavity by drains passing through the lower abdominal wall. Coffey⁵ by experimentation demonstrated the great difficulty of positional drainage of the pelvic portion of the peritoneal cavity into the abdominal portion and *vice versa*. Rhoads,⁶ after considerable experimental work, has declared that the forces necessary to satisfactory drainage, whatever the material used, are either gravity or unbalanced gravity yoked to capillary attraction.

I do not intend to discuss the broad subject of peritoneal drainage, for such topics as drainage versus no drainage, the Clark position or the Fowler position, whether for an appreciable period beyond a few hours peritoneal drainage may be continued, etc., would receive attention rather than the subject I introduce here. All recognize the superlative value of gravity in drainage. I might here logically state my belief that resort to abdominal drainage for pelvic conditions in women is never justifiable when dependent drainage is possible. Surely the dangers of contamination of the abdominal part of the peritoneum and of the sutured wound of the abdominal wall, as well as weakening of the latter, are admittedly present when the drainage material passes through the abdominal wound; and the upward drainage is usually not so satisfactory as is the dependent vaginal drainage. I believe I have not drained the pelvis through the abdominal wall in fifteen or more years.

INDICATIONS FOR DRAINAGE

The indications for drainage of the pelvic portion of the peritoneum are (1) the suspected presence of infectious materials, such as pus or serum or infected blood-clots of ovarian, uterine or tubal hemorrhages caused by ectopic pregnancy or other conditions; (2) capillary hemorrhages and denuded areas resulting from separation of broad adhesions between the remaining

pelvic structures and the uterus, pelvis, fallopian tubes and ovaries or neoplasms of the same; (3) injuries of the rectum, lower ureter or bladder resulting usually from operations on the adnexa or on those structures themselves by the transperitoneal route and from which sites subsequent leakage may be feared.

I believe at the present time no gynecologic surgeon of note would drain after operation for uninfected ectopic pregnancy or for an accumulation of clean blood in the peritoneal cavity from any cause whatever. But when blood infected from the colon bacillus or other bacteria, or infected urine has escaped, special care is called for and provision must be made for escape of infectious materials. Transperitoneal ureterolithotomy or cystotomy with urine loaded with pyogenic bacteria may be mentioned as conditions calling for such drainage. The escape of pus from fallopian tubes during their removal by the abdominal route, while formerly regarded as a positive indication for drainage, is rarely now regarded as sufficient indication for it. No doubt we shall occasionally err in this, as such pus, while not usually surgically offensive, probably is so occasionally. This opinion is supported by the not uncommon death from peritonitis following the bursting of old pus tubes.

Clark has insisted on greater confidence in the ability of the peritoneum to dispose of bacterial invasions, arguing that by the introduction into the peritoneal cavity of foreign matter, such as drainage goods, we embarrass the peritoneum and enfeeble its efforts to rid itself of dangerous material. I believe he is largely, but not entirely, correct in that doctrine. A feature sometimes overlooked, and occasionally of great importance, in the indications for drainage is the lessened resisting power of the patient. I am sure we have all had deaths from peritonitis after operation in cases in which we have relied on a higher efficiency of such power than the patient actually possessed. We have been deceived in that estimate, and women who seemed almost positively safe, except for shock following the operation, have, a week or more later, without local symptoms, died of peritonitis, and the diagnosis has been made only on the autopsy table. I believe, in the presence of large areas of denuded surfaces in the pelvis after separation of adhesions or removal of various structures, special protection is needed against adhesions to intestine and the peritoneum from suppuration of such areas.

Very often they cannot be covered well by peritoneum. In such condition we do well to cover them lightly with gauze which is to be removed by the vaginal route. All are familiar with Nature's plan of covering over this gauze by adhesions between the intestinal loops, mesentery and surrounding structures, thus separating it from the abdominal cavity. These adhesions later dissolve, as demonstrated by subsequent inspection, but adhesions that form between the peritoneal or other coats of the intestine and such denuded areas do not dissolve. On the contrary they are very dense, and frequently demand operation for relief.

MATERIALS

The materials employed for pelvic drainage are gauze, silk and soft rubber tubing. My experience with silk has been too limited to permit an expert opinion as to its value as a substitute for gauze. It enmeshes the soft tissues along the drainage tract less than gauze and therefore when removed early gives rise to less pain and traumatism. I intend employing a fabric composed of both silk and cotton. For the cases in which free drainage is necessary, I employ the soft rubber tube alone.

4. Peaslee: Am. Jour. Obst., 1870, iii, 300.

5. Coffey: THE JOURNAL A. M. A., March 16, 1907, p. 937.

6. Rhoads: Am. Jour. Surg., 1911, xxv, 348.

Purulent collections in the culdesac, the ovary or the fallopian tube, when incised from below, are, in my practice, subjected to tube drainage alone. To introduce gauze from the vaginal side for pelvic peritoneal drainage is practically never done, except when by the vaginal route operation has been done for liberation of adhesions of the uterus or appendages, or removal of those structures. In pelvic abscesses opened from the vaginal side, I always use a soft rubber tube having a caliber of one-half inch or more.

The upper end of this tube has two lateral arms each an inch in length that overlap the uterosacral ligaments. These arms prevent premature expulsion of the tube and, if the cavity to be drained be large, I place on the lower vaginal end the same measure to prevent the slipping of the whole tube into the cavity. This rubber tube stops in the upper part of the vagina and after the first twenty-four hours of its employment vaginal douches are used to assist in cleanliness. Thus it will appear that I use the rubber tube alone only in closed cavities, that is, cavities that are by adhesions entirely separated from the general peritoneal cavity. For all other drainage in this region I employ gauze, either alone or as a cigarette drain or in conjunction with a rubber tube.

TECHNIC

For fully twenty years I have employed vaginal gauze drainage after abdominal and vaginal operations on the uterus and appendages, but an unfortunate experience induced me to change the method, in use so commonly to this day, of opening the vaginal roof behind the cervix. In that instance I was operating at a clinic several hundred miles from home and was assisted by one of the attending surgeons at that hospital. Requested to pass long forceps up the vagina to guide me in cutting from the peritoneum into the vagina, he proceeded to do so. An incision was made and he pushed his forceps upward through the opening, grasping the gauze, and withdrew them. Late that evening as I was taking a train to return home the nurse informed him that gauze was protruding from the anus, and on examination he found gauze in the rectum and none in the vagina. The patient died of peritonitis. Baldwin relates the unpleasant experience of having an assistant excitedly plunge the forceps along the urethra instead of the vagina.

I then adopted the following plan of making the opening, which has not failed me and is easily practiced: Holding the uterus well forward, the tissues at the bottom of the culdesac are grasped but a short distance from the cervix by a reliable clamp, and with long, blunt-pointed, curved scissors, an opening is made into the vagina between the clamp and the cervix. The vagina and vulva having been previously sterilized (latterly with iodine) danger of infection is obviated. The opening may now be enlarged to reach from one uterosacral ligament to the other and backward toward the rectum as far as desired. A strip of gauze, a yard wide and as long as is desired, is used, and a uterine sound, properly curved, easily pushes the end of the gauze downward through the opening and through the vagina and vulva. The remainder of the gauze is now brought in contact as desired with the parts to be covered. The intestines and omentum are carefully placed over the gauze. Sometimes a soft rubber tube one-half to 1 inch in diameter, such as previously mentioned, is first passed through the cut opening and the gauze passed through it. In this way the surgeon does all the work and knows he has not erred.

Since March 15, 1902, I have practiced a modification of this plan that I find I have employed much more than the above plan. It is especially applicable when the uterus has been amputated at about the internal os. The cervical stump on either side and slightly posteriorly being grasped with a vulsellum, one blade of a pair of long, straight, blunt-pointed scissors is passed down through the cervical canal and the other blade to the bottom of the culdesac. The blades are now made to cut through the posterior part of the stump completely and through the tissues at the bottom of the culdesac as near to the rectum as is deemed sufficient to secure a hole large enough to admit the passage of a large piece of gauze and yet have it lie loosely in the opening. The gauze is now pushed in place with the end protruding from the vulva. Coffey and others have told us that gauze drains so employed are functionable in proportion to the area of a transverse section at the point of constriction. I, therefore, aim to have the opening large and the gauze as large transversely as the opening will loosely carry.

As the cervical stump thus treated is not covered over by sutured peritoneum, a saving in time is secured. In removing the gauze I generally begin the fourth day and remove one-third each day. This is made easy as the amount used is known and a clamp applied to the end of the gauze protruding from the vulva pulls out one-third as much as was used, and this is cut off. A vaginal douche of about 0.5 per cent. liquor cresolis compositus given half an hour to an hour in advance facilitates the process of removal considerably. A bad feature of this plan is that considerable pain is caused at times by the withdrawal of the gauze, particularly when a tube is not used or the preliminary douche given.

If a tube be used it may be left another day. Care must be observed to avoid packing too tightly or too near the defective bowel, bladder or ureter. Gauze thus packed is a notorious agent for harm if in contact with sutures in any of these structures. The principle is to have the gauze sufficiently near to guide away leaking material from such areas, if any exists, but not to come into immediate contact with them. I am opposed to repacking the culdesac with gauze from below, believing that it not only is painful but is not usually done with faultless technique and consequently may work grave harm to the patient. Such repacking becomes contra-indicated when the tube is allowed to remain one or two days after the gauze has been removed.

If the uterus be entirely removed little difficulty is experienced in pushing gauze from the peritoneal cavity down through the vulva. But the round ligaments should be sutured to the vagina in advance to prevent prolapse of that tube while the gauze is being inserted or withdrawn.

The Rochambeau.

ABSTRACT OF DISCUSSION

DR. JOHN G. CLARK, Philadelphia: From the study of 1,700 abdominal cases, I started with the principle that the drain is a splendid thing. Before I had finished I was convinced that drainage as then used was a bad thing. The impression might be given from Dr. Bovée's paper that only in those cases in which there was well-defined infection would I elevate the pelvis and put fluid into the abdominal cavity. On the contrary, if there was well-defined infection in the way of pus, under no condition should such posture be assumed. For the last six years I have not used salt solution in the abdominal cavity, because in the use of the salt solution in the colon when the patient is under the anesthetic and in the Fowler position a vast amount is received and is apt to produce an

overflow of lymph in the peritoneal cavity. I am glad to hear Dr. Bovée say that he has not used abdominal drainage for several years. I believe that a foreign body put into an organ markedly ptosed, but still functioning, makes that organ almost unworkable. I have seen this again and again in patients operated on. Patients have told me that they are slightly constipated. Subsequently they have been constipated when drainage has been used. One sees this in the use of the x-ray revealing fixation from adhesions, particularly around drainage tracts. Therefore, the utilization of the pelvic drainage I am sure is the proper method. It is valuable particularly in avoiding disagreeable and disastrous sequelæ. Therefore, on the general details of the plan of drainage such as Dr. Bovée indicates, with the holding down to the smallest possible number of cases, I am quite thoroughly in accord.

DR. H. O. MARCY, Boston: Dr. Joseph Eastman, of Indianapolis, devised an instrument to be applied to the vagina posterior to the cervix for elevating a pelvic tumor. This instrument serves also admirably for lifting into the abdominal cavity the posterior fold of the vagina in such a way that one may be exactly sure where to open it. It is broad and deeply grooved so that one can widen the incision with perfect safety. In discussing the question of drainage we go back a quarter of a century when everybody was draining everything. My old master, Mr. Lister, the last time we discussed it, said, "I put in less large tubes; cut them shorter and remove them earlier than formerly." Sims, another of my old teachers, said "The red fluid, the bloody serum, is the exudate of dangerous character and must be drained away." I have called this aseptic bloody serum "the first aid to the wounded." All wounds that are aseptic should never be drained. As Dr. Bovée has said, if we are to drain the wound, we are to drain it in an efficient way. Of course, abdominal drainage is all wrong. We have many times discussed this subject in this Section with much earnestness and the consensus of opinion has been that the abdominal drain is no longer to be used. If one drains at all, one should drain by gravity; drain sufficiently so that you are sure to have efficient drainage. Do not leave the drain in too long. An abundant exudate of leukocytes often results, producing permanent adhesions. Septic wounds should be drained.

DR. J. H. CARSTENS, Detroit: I have had just such troubles. When doing an abdominal section and finding that I had to drain I did not know how to get the opening through into the vagina and avoiding infection. Therefore, a long time ago I devised a forceps like an ordinary dressing forceps, not sharp but bluntly pointed which is almost like a uterine dilator. I run that into the vagina and, holding my finger down where it should come out, I press it through the vagina. I then make, by separating the blades, a larger opening and insert the drainage-tube without using the finger in the vagina. In this way the posterior culdesac can be drained without difficulty. I always use a rubber tube. When gauze is put in, it ceases to drain in a short time. I do not see why the rubber tube is taken out in four or five days. Sometimes, in spite of all one can do, when the anterior and posterior wall in the pelvis come together, there is in one corner a little point of infection where the drain does not come. That will in the course of time develop into an abscess. If the drainage-tube is taken out too soon the vaginal muscles will close up and no drainage will be left. If the tube is left in for ten or twelve days the little abscess will move in the direction of least resistance, that is, toward the tube, and there will be no trouble. Otherwise it will be necessary, sometimes, to reopen the culdesac.

DR. F. J. PLONDKE, St. Paul: Dr. Bovée's method is the one I have used for years with much satisfaction. I use rubber tubing and gauze. If the tube should become clogged we have the gauze to help out for the time being. I was glad to hear Dr. Bovée say he had had the experience of going through the rectum. A year ago in operating on pus tubes I asked the intern to introduce his finger into the vagina as I wanted to make an opening from the culdesac. I pushed the tube through and as I was about to finish the operation I discovered that both tube and gauze had penetrated the rectum. Fortunately, as it was discovered in time, I passed my finger into the open-

ing in the culdesac and caught the tube and gauze, introduced another tube and pulled the gauze out through the vagina. The patient made an uneventful recovery. The next day another patient in the hospital operated on twelve days before suddenly developed symptoms of obstruction. I opened and found adhesions down in the pelvis. In that case I also opened the culdesac. I asked one of my assistants to introduce a finger into the vagina and was much surprised to find that this was also through the rectum. This patient, unfortunately, died. I want to emphasize the fact that when the patient is anesthetized and the sphincter dilated it is surprisingly easy to make this mistake, especially in a young woman.

DR. L. S. McMURTRY, Louisville, Ky.: Notwithstanding that less than 5 per cent. of gynecologic cases require drainage, in all cases of abdominal section, gynecologic cases, even emergency cases, when practicable, the vagina ought to be prepared as if for a vaginal section, in order that this method of drainage may be used when indicated in an effective and aseptic way. Whenever necessary to use forceps as a guide this should always be done under vision.

DR. J. W. BOVÉE, Washington, D. C.: This method was reported especially to show the great advantage of its technic over the work being done from below. All my abdominal pelvic cases are prepared, also as for minor operations. Patients are put on the table in the minor position. Iodin is used in the field of possible operation and injected into the uterus under pressure. Many times, on opening the abdomen immediately after injecting the uterus with iodine, the abdominal peritoneum is stained, as in ruptured tubal pregnancy, with blood. It was with a great deal of trepidation that I watched the first case in which I observed that appearance after operation. As there were no symptoms I found that iodine was not so dangerous in the abdominal cavity. There was decided peritoneal staining from the injection of this 3.5 per cent. tincture of iodine into the uterus. I would like to call attention to the danger of secondary application of drainage from below. It is not done under strict aseptic precautions and carries danger with it. Therefore, I use the rubber tubes and expect them to be retained as long as drainage is necessary. My method is to cover the denuded surfaces with gauze which is removed at about the fourth day, leaving the tube to carry anything off for a day or two later. I, therefore, in such cases do not think it is necessary to leave in the drainage for ten or twelve days. In regard to the gauze packing filling up, I would again call attention to the drainage capacity of gauze being limited to the comparative area on cross section where it passes through the most constricted point as worked out by Coffey. The gauze does not become so saturated that it will not drain the material.

The Physician and His Vacation.—It may be said, indeed, that he who does not make a fool of himself sometimes is a fool all the time. Similarly may it be urged that nothing can take the place of natural recreation. "Back to nature" should be the sign and token of the holiday. Artificial exercise is on all fours with artificial diet. Gymnasiums have their merits and their values, but they do not inspire and they do not suggest; they can never take the place of savagery and the wild. If one would recreate himself, make himself over, he must do it from the human side. He may be an archangel in embryo, but he is, nevertheless, a man in fact. And in any event, one's aim should not be not to transform himself into a god, but to develop his manhood; not to ape the divine, but to perfect the human. After all, how grand it really is just to be like other men—simply to be human! Flesh and blood are a precious possession. One should rejoice to find himself resembling the man Nature made, conforming to the type of his race. According to the orthodox conception there are only three orders of finite beings—angels, humans and devils. One will be deeply conscious that he is not an angel. So when he discovers himself doing distinctly human things, revealing himself as manlike, he may properly exult, for he has a right to conclude that at least he is not a devil.—Konkle in *Pennsylvania Med. Jour.*

TUMORS OF THE SMALL INTESTINE*

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Tumors of the small intestine are rare surgical conditions but present many problems of extreme interest. While the diagnosis is nearly always shrouded in mystery, nevertheless the perfection of surgical measures enables us to make the attack on these growths very satisfactorily from a technical standpoint. These growths are, in the preponderating number of cases, malignant and, therefore, enhance the responsibility of the clinician in divining their character early and in advising surgical measures with promptitude. While the results have been far from satisfactory, nevertheless it can be shown that our attitude should not be entirely characterized by pessimism.

The benign growths include adenomas, lipomas, fibromas, myomas, angiomas, cysts, lymphangiectasis and that rare condition described by MacCallum, the multiple cavernous hemangiomas of the intestine.

Of these, the adenomas are the most frequent. They may be polypoid in character. The fibroma causing a movable tumor often results in obstruction. F. S. Watson reports a successful resection of a tumor of this type, 2 by 3¼ inches in size.

The subserous lipomas are next in frequency. A very great many are never recognized and are symptomless.

Stetson collected reports of seventy-seven cases somewhat equally divided between the large and small intestine with an average age in the patients of 47 and occurring in both sexes equally. They are usually single, sometimes multiple, and vary from the size of a pea to a child's head, but on an average are about as large as a walnut. They may protrude into the lumen as polyps and, of course, have no tendency to malignancy. If of sufficient size they may cause obstruction; intussusception occurred in about half of the cases in which symptoms were noted. These tumors cause 8 per cent. of the invaginations according to Treves.

Cysts of the small intestine are usually congenital in contrast to those of the large intestine in which inflammatory processes in the mucosa, following dysentery, are probably causative. In the small intestine cysts seem to result from the persisting relics of the irregular obliteration of the omphalomesenteric ducts. They vary in histology from the simple mucous cysts to the dermoid. They are often negligible in size but if large may produce irregular recurring attacks of partial obstruction. The benign growths rarely become large enough to be felt through the abdominal wall.

MacCallum described a case of cavernous venous tumors situated chiefly in the submucosa throughout the small intestine which seemed to have been rarely observed before, only five similar cases being found in the literature. A man of 54 complained of digestive disturbances which lasted for some months. He died of acute alcoholism. Post-mortem examination showed hemangiomas of the intestine. They were small, fairly firm areas

which showed through the mucosa as blackish purple patches, about forty in number.

Of the malignant growths, carcinoma occurs twenty times as often as sarcoma. Sarcoma is more prone to attack the small intestine and carcinoma the large. The small intestine is free from acute flexures and transitional functions and contains liquids. It is not, therefore, subject to the traumas that we recognize as the greatest cause of carcinoma throughout the body. We now appreciate that the prevention of chronic continuous irritation is of vast importance in the prophylaxis of cancer. By the same token it is not improbable that the malignant growths in the small intestine have their pre-cancerous stage which should be looked for just as assiduously as it is in other localities. It has been observed in my own cases that enteritis and colitis are the conditions precedent to the development of malignant neo-



Fig. 1.—Resection of 42 inches of the ileum for sarcoma in boy of 9. Ileocecal anastomosis. Recovery. Patient alive and well at the end of two years.

plasms. They bear the same relation to malignant neoplasms that chronic ulcer does to cancer of the stomach. It behooves us, therefore, to be on the alert for irregular pain, mucus and blood in the stools and constipation, alternating with diarrhea. If, perhaps we can recognize irregular peristalsis or possibly a neoplasm it may still be in the precancerous stage and may probably be in the incipient or curable stage. Carcinoma is apt to produce a stenosis; sarcoma produces dilatation of the intestine as an aneurysmal sac. Carcinoma is more likely to occur at an earlier age in the intestine than in any other cancerous site. In 41,834 autopsies in Vienna, 343 carcinomas of the intestines were found: seven in the duodenum; one in the jejunum; ten in the ileum; 164 in the cecum and colon; 162 in the rectum. According to the statistics of Froehner, 47 per cent. of 128 cases were sarcoma; 22 per cent. carcinoma. While

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

the latter are usually single, 44 per cent. were said to be multiple.

Cancer in the duodenum is exceedingly rare. Ewald says only three occurred in 1,148 cases of cancer of the small intestine, yet Syme, of Melbourne, resected a case successfully, as did also Küttner. Brill from a large number of cases from various sources found 2.5 per cent. in the small intestine. In the jejunum not a single case was found out of 63,462 post-mortems, but Keyser collected reports of eleven isolated cases, including one of his own, the average age being 43.9 years.

They are usually of the cylindrical-cell type and have their origin in the follicles of Lieberkühn. In six cases with operation, reports of which were collected by Lecene, only one patient remained permanently cured.

SARCOMA

Sarcoma is usually situated higher in the intestinal tract than carcinoma. In 21,000 autopsies in Vienna sarcoma of the small intestine was found only three times. It is more prone to occur nearer the cecum. It

Balzer estimated their duration from about two weeks to three and one-quarter years. The fatal termination occurs usually in the first nine months, although Rutherford describes one which endured for two and one-half years.

SYMPTOMS

The higher in the intestinal tract the situation of the tumor, the more pronounced are the symptoms. It may run a latent course, produce indefinite symptoms or, finally, stenosis, ending in complete obstruction. These conditions may all occur at identical situations in different cases. Heredity offers no valuable information, although traumatism was mentioned in two cases; metastasis resulted in three-fifths of the patients. The diagnosis, as Rheinwald says, is made in most cases of autopsies *in vivo* or *in mortuo*. Extraordinarily large tumors are usually sarcoma and curiously are quite painless. The rapid course with emaciation and marasmus indicates sarcoma.

Anderson found no cases in the literature in which the diagnosis could be made.

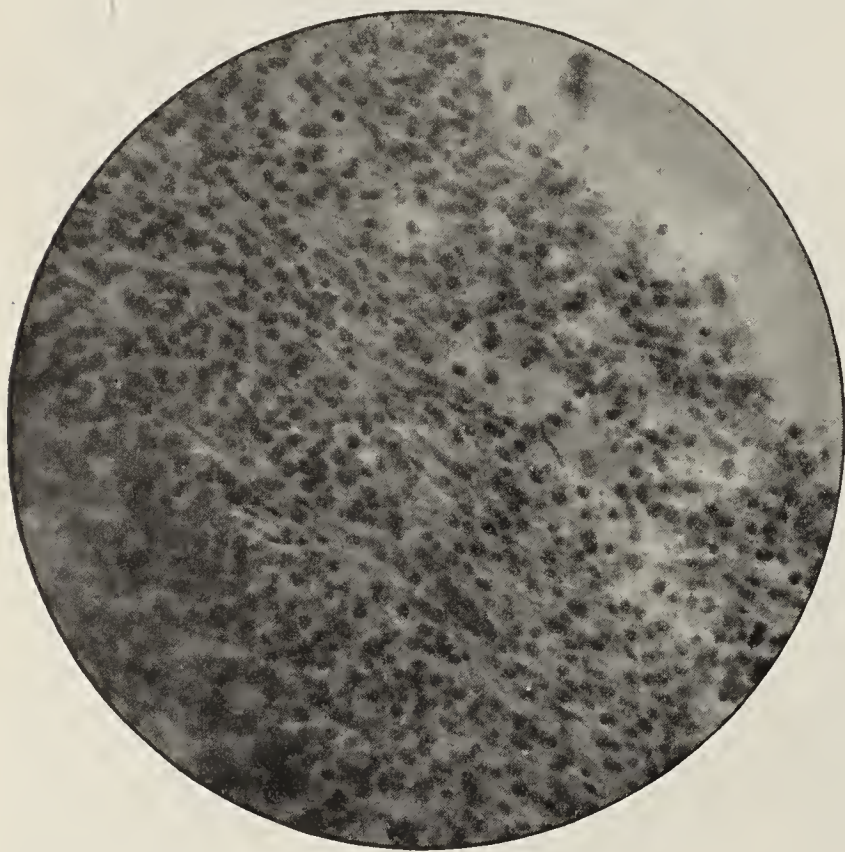


Fig. 2.—Small round-cell sarcoma of small intestine 1/6 objective.

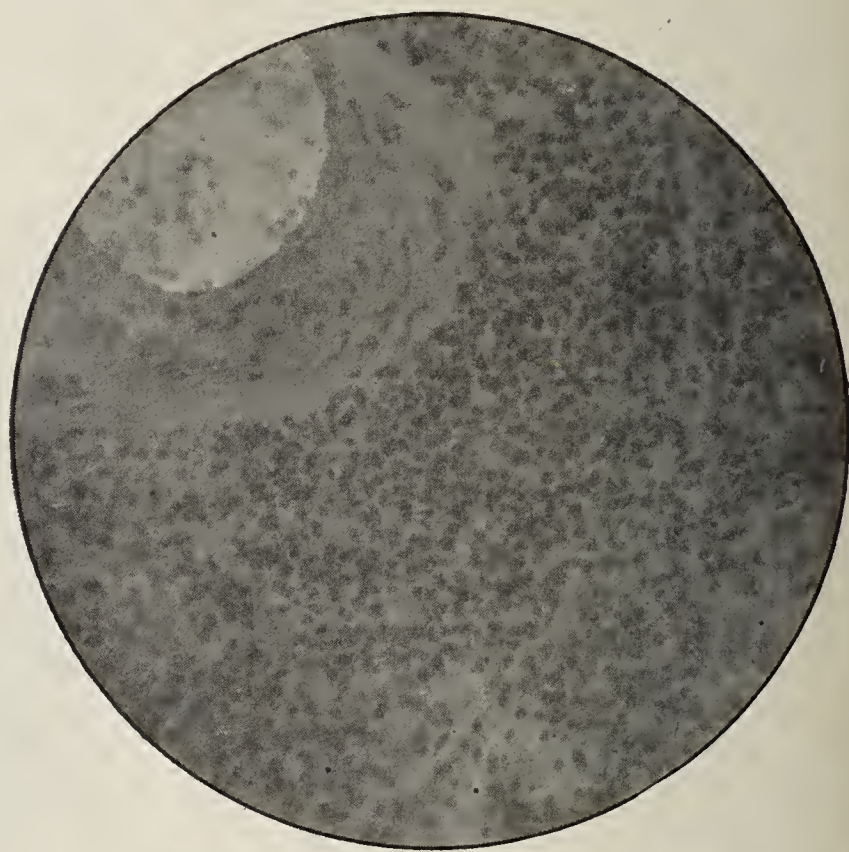


Fig. 3.—Small round-cell sarcoma of small intestine 1/6 objective.

occurs twice as often in men as in women, but the average is less than in cancer.

Corner and Fairbanks collected reports of 175 cases of sarcoma of the intestinal tract; twenty were in the ileocecal region; eleven in the large intestine; seven in the rectum; fourteen in the esophagus; fifty-eight in the stomach and sixty-five in the small intestine. Of this latter number, 60 per cent. caused obstruction. They presented all the microscopic varieties, the round cell being the most frequent, but the spindle cell being the most favorable from a prognostic standpoint. The lymphosarcoma, originating in the submucous lymph-nodes, early involves the muscular layer which becomes paralyzed, resulting in dilatation.

In a patient under 15 sarcoma should be suspected, carcinoma usually occurring after the age of 40. The tumors are of a very much larger growth and are often movable. When the tumor occurs in the right iliac region one has to eliminate chronic appendicitis, retroperitoneal abscess, tuberculosis, actinomycosis and chronic intussusception.

The chronic or recurring cramping, colicky pains are quite suggestive, however, and when severe without inflammatory symptoms, associated with distention and vomiting, active and visible peristalsis eventuates into acute obstruction. The early symptoms are evasive and often are associated with loss of appetite, nausea and vomiting with epigastric pain. If this is sudden it is a warning. Distention may occur from implication of the peritoneum, interference with blood-vessels, from pressure, tympany, the size of the growth and, finally, from perforation. In advanced cases effusion, either serous or chyle-like, hemorrhagic or suppurative, is present. Blood may be found in the stools. Indicanuria and albumin sometimes occur. The short duration of the disease is characteristic.

In the Massachusetts General Hospital, of seventy-seven patients with cancer of the intestine operated on by various surgeons from 1890 to 1900, 28 per cent died in the first week, 19 per cent. in the first four weeks, 18 per cent. within the first half year, 5 per cent. between the first half of the year and the whole year, 11 per cent.

between one and two years, 5 per cent. between two and three years, and 3 per cent. are still alive. Thus less than 30 per cent. lived longer than six months after operation.

Anderson reported the case of a patient on whom resection was done for a sarcoma and who was alive after eighteen months, but he knew of only one other patient that lived over a year.

Corner and Fairbanks take a more optimistic view, particularly in reference to the early cases and found six examples, in their collection, of cure lasting from one to nine years. Among the children under 10 years of age in a group of fifteen case-reports collected by Van Zwaluwenburg only one succumbed to operation. Two are alive and well one year after operation; one is well six months afterward.

Moynihan collected reports of operations on forty patients, twenty-five of whom recovered.

Erdman removed 48 inches of the jejunum and ileum for sarcoma complicated by small metastasis of the stomach which was excised with recovery.

Varley removed 6 feet 5 inches in a boy of 6 with operative and physiologic recovery.

The following case presents a number of interesting features in its clinical course, surgical features, pathologic findings and result.

History.—The patient, W. K., aged 9, referred to me by Dr. Donoho, of Hartsville, Tenn., complained of frequent colics and presented a right-sided movable abdominal tumor. The parents and one brother and sister were living and well, but the mother and another brother had had suppurative cervical glands. The grandfather and one aunt had had tuberculosis, but there was no history of cancer. During his second summer the patient had a very severe attack of gastro-enteritis which lasted three months and was attended with considerable blood, very frequent stools and great emaciation. He had a diarrhea every summer thereafter for five summers, but was apparently well in the winter. Two years before admission he began to have attacks of abdominal colic, rather mild at first and relieved spontaneously. A little later they were more severe, lasted longer and exhausted most of the household remedies and, finally, before he came for treatment, they required morphin for relief. At first these colics occurred every month and gradually increased in frequency until they came every few days. The stools were observed to be smaller in caliber during the previous six months. During this time the boy was obliged to eat soft diet as solid food would cause an attack of pain. Castor oil was invariably administered with these attacks of colic and later it was necessary to give it daily. For the last five months an appreciable swelling in the right iliac region appeared with each attack of cramps and vomiting; the latter was always associated with paroxysms, which came on suddenly and persisted with some severity. This swelling was extremely sensitive, but disappeared as relief was obtained from purgation or morphin. Between the periods of cramping the patient seemed to be quite well and active, although he had lost considerable weight as the result of the restricted diet.

Examination.—A movable tumor in the right iliac region was prominent and easily discerned. His physician who had seen him only during the attacks of pain had only observed this in a tranquil interval some days before. It had evidently been in existence, however, for some weeks. The tumor was only slightly dull on percussion, non-sensitive and movable within moderate limitation. The chest was normal; there was no elevation in temperature and the urine was normal. The enlargement was at first thought to be tuberculous, not only on account of the history, but on account of the further fact that he used almost an exclusive milk-diet, which came from a cow that had lately died after presenting

cough and other evidences of tuberculosis. There was no ascites, however, and a tuberculin test was negative. Operation was advised for a neoplasm of undetermined origin.

Operation.—An incision through the right semilunaris revealed the growth in the ileum some 5 inches in length and about $2\frac{3}{4}$ inches in circumference. A group of glands was situated immediately underneath it and extended far enough into the mesentery to overlap the blood-supply of a number of inches distal to the growth. The omentum was adherent at the apex of the neoplasm. After its division and clamping of the mesentery, the mass was removed, together with the glands, which also necessitated the removal of a number of inches of small intestine that were not involved. The entire specimen measured 42 inches. (Fig. 1.) The terminal ileum was removed flush from the cecum which opening was closed, and at a higher point a lateral ileocecal anastomosis was made with linen suture. Microscopical examination showed small round celled sarcoma. (Figs. 2 and 3.)

Result.—The patient made a rather slow, but good, recovery. During the first few months the bowels moved several times a day, but during the last year they are normal in amount but rather soft. The patient weighed, at the time of the operation, 45 pounds; at the end of two years he now weighs $66\frac{1}{2}$ pounds, is apparently free from recurrence and in the full enjoyment of boyish vigor.

148 Eighth Avenue.

ABSTRACT OF DISCUSSION

DR. DE WITT STETTEN, New York: Dr. Haggard spoke of the so-called subserous lipoma of the intestine. There has been considerable confusion in the classification of these tumors, especially regarding the portion of the intestine from which they arise. Three years ago I made a rather careful study of this subject and found that most of these tumors are not subserous at all. They are submucous, developing from the fat of the submucosa and not from the subserous fat. Subserous lipomas do exist, but they rarely produce intestinal symptoms. They usually give symptoms characteristic of abdominal tumor, without any distinct reference to the intestinal tract. I collected reports of seventy-seven cases of submucous lipoma of the gastro-intestinal tract at that time, and about 40 per cent. were of the small intestine. They are very benign pathologically, but may become particularly malignant clinically, resulting in an acute or chronic intussusception—or they may cause obstruction by obturation. The case that led me to my research on the subject was a large submucous lipoma of the ileum near the ileocecal junction, which produced a chronic intussusception, so that the tumor prolapsed at the anus. The patient was referred to me with the diagnosis of prolapse of the rectum. I made a careful examination and came to the conclusion that I was dealing with a case of high sigmoid polyp. I performed a laparotomy and then found the ileocecal invagination due to a submucous lipoma of the ileum. I did a resection and the patient made an uneventful recovery. We had another case of large submucous lipoma of the intestine at the German Hospital. This patient was also operated on successfully. Since the publication of my report I have heard that several of my New York colleagues have had similar cases. Wharton, of Philadelphia, has recently reported two new cases. Though the condition is not a common one, it must be considered in the surgery of the abdomen.

DR. A. McGLANNAN, Baltimore: The point to which I wish to direct attention is the relation of tumors of the small intestine to intussusception; that is, intussusception of the small intestine proper as distinguished from that of the ileocecal region and large intestine. Tumor is much more likely to be the cause of intussusception in adults than in children. I have recently gone over the records of seventeen cases of intussusception of the small intestine and found 25 per cent. of these cases associated with tumor. Three of five cases in the small intestine proper were due to tumor. All

the patients were admitted to the hospital with a history of recurrent intussusception, the last attack leading to an urgent acute obstruction. The primary operation, therefore, was always limited to the relief of this obstruction. In two of these three patients, the intussusception recurred before the patient had left the hospital. It is therefore important to remove all tumors of the small intestine because of the danger of obstruction produced by the recurrent intussusception that is so frequently caused by these growths.

BENIGN EPITHELIOMA

A STUDY OF TRANSITIONAL MORPHOLOGY *

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Cincinnati General Hospital

CINCINNATI

The skin has long been regarded as a special field of predilection for the study of morphologic changes incident to malignancy, both in its early, or so-called premalignant, and later, well-defined stages. The reasons are obvious. Growth on the surface of the body can be earlier recognized, observed clinically with more painstaking scrutiny, and removed for histologic examination and study with more facility than those situated else-

Unless this observation is deduced by analogy, as will be explained later, it must possess a fallacious and misleading character.

No malignant tumor of the skin can attain sufficient size to permit macroscopic recognition and at the same time demonstrate in recognizable and unchanged form the genesis and origin of that tumor from some definite follicle, gland or epidermal structure. Moreover, the transition of benign to malign in the so-called precancerous affections, from either a morphologic or a clinical standpoint, and frequently both, is, as a rule, so gradual and insidious in character, that border-line changes from a histogenetic standpoint, are entirely lost sight of or are devoid of special significance. In these respects, therefore, malignant tumors of the skin differ in no wise materially from those situated elsewhere. If the so-called precancerous, or benign, epitheliomas of the skin do not possess any unusual features for demonstrating the origin and genesis of tumor malignancy over tumors situated elsewhere, there is a certain class that presents some unusual features for the study of the genesis after it is well established. I refer particularly to those forms which are characterized by growths which develop slowly and insidiously, whose centers undergo complete involution and cicatrization, and whose activity is evidenced by

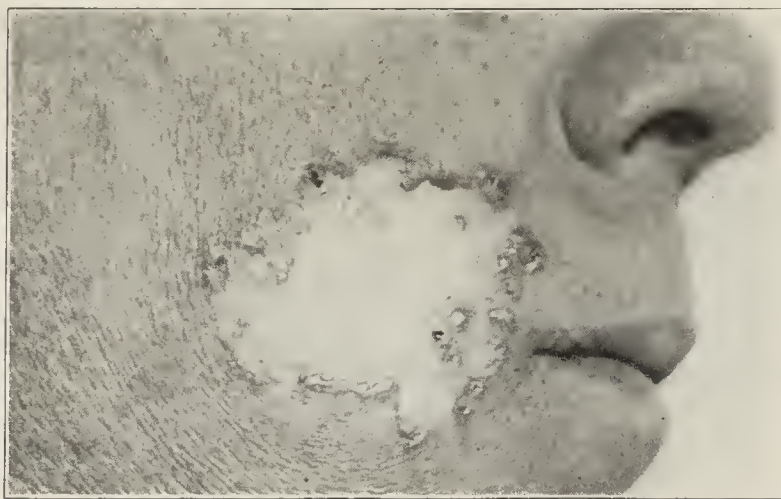


Fig. 1.—Morphea-like epithelioma.

where in the body. Furthermore, clinical investigation and study has definitely established that there is a long series of dermatologic phases, the so-called precancerous conditions, incident to a variety of influences, which present unusual facilities for the clinical and histologic study of the transitional changes from benign to malign conditions.

Some of these special dermatologic advantages appear to me to be somewhat overestimated and, from a histologic standpoint, to be more apparent than real. The contention is often made that the skin affords the best opportunity for the study of the genesis and inception of malignancy because the tumor can be seen and removed before malignancy has definitely progressed, and because the host of precancerous affections afford unexcelled facilities in the recognition and study of the incipient changes. A scant perusal of the literature confirms beyond question that these views attain generally. There are relatively few writers who have morphologically studied cancerous and precancerous conditions of the skin, who have not attributed the inception and genesis of the growth in question to some special structure, hair follicle, sweat-gland, basal or squamous cellular tissue,

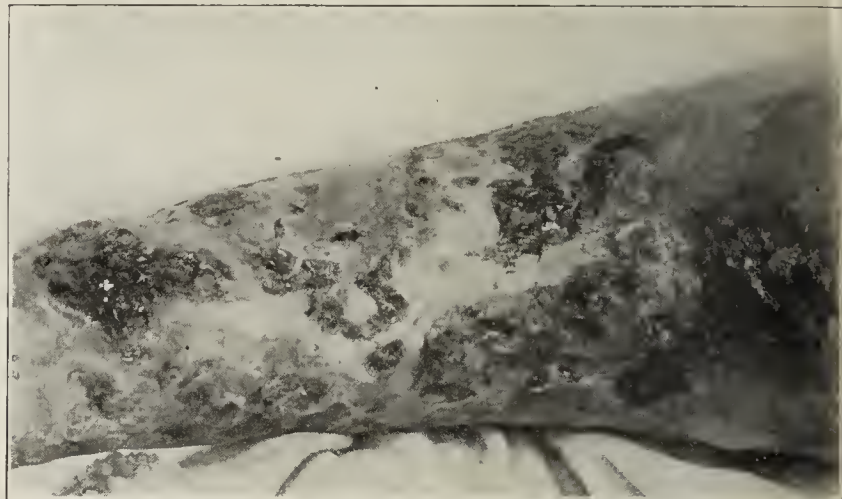


Fig. 2.—Carcinoma epitheliale cicatrisans in a burn of twenty-four years' duration.

a thin, narrow, elevated, glistening, pearly-white border, which slowly, steadily and insidiously extends itself and invades the adjacent normal tissues, and undergoes a commensurate involution toward the center. This narrow spreading border, which scarcely measures $1/16$ to $1/8$ inch in width, preserves every phase of malignancy from a morphologic standpoint, and presents, on one side, for comparative study and observation, the cicatrized ashes of its burned-up activity, and on the other, normal tissue in process of invasion.

I refer to the so-called multiple benign cystic epitheliomas, five cases of which enter into the morphologic consideration of this paper, and whose clinical features are devoid of special incident and are generally well enough known to require no special comment. To this group has been added a case of morphea-like epithelioma, of four years' duration, in a man 38 years of age (Fig. 1). This form of benign epithelioma, first described by Danlos,¹ and later by Stelwagon,² Hartzell³ and others, is particularly well adapted for the morphologic study of transitional change in epithelioma, inasmuch as the area of active proliferation is an exceedingly narrow border, sharply separating on one side, a wide area, well

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Danlos: *Ann. de dermat. et de syph.*, 1899, x, 656.

2. Stelwagon: *Tr. Am. Dermat. Assn.*, 1899, p. 156.

3. Hartzell: *THE JOURNAL A. M. A.*, July 24, 1909, p. 262.

cicatrized, from tissue that is normal in character. The morphea-like patch, which covered an area the size of a silver dollar and possessed a pearly glistening elevated epitheliomatous-like border scarcely $1/16$ of an inch in width, was situated on the right cheek midway between the nose and chin and near the angle of the mouth.

A case of carcinoma epitheliale cicatrisans has been added, because the indolent ulcerations which are gen-

The patient, a man aged 60 (Fig. 2), fell into a vat of hot water, twenty-four years ago, and incurred a third-degree burn that was three years in healing. It remained healed only two to three years, when the cicatrized area became the seat of indolent ulcerations, which have been constantly making their appearance, and spontaneously disappearing, for almost twenty years. The ulcerations, with their everted, indurated borders, present the clinical characteristics and morphologic histology of rodent ulcer. Their occurrence in a thoroughly cicatrized field, devoid of all forms of specialized structure, hairs, hair-follicles, glands, etc., beginning in cicatrization and ending in cicatrization, presents special features for comparative observation.

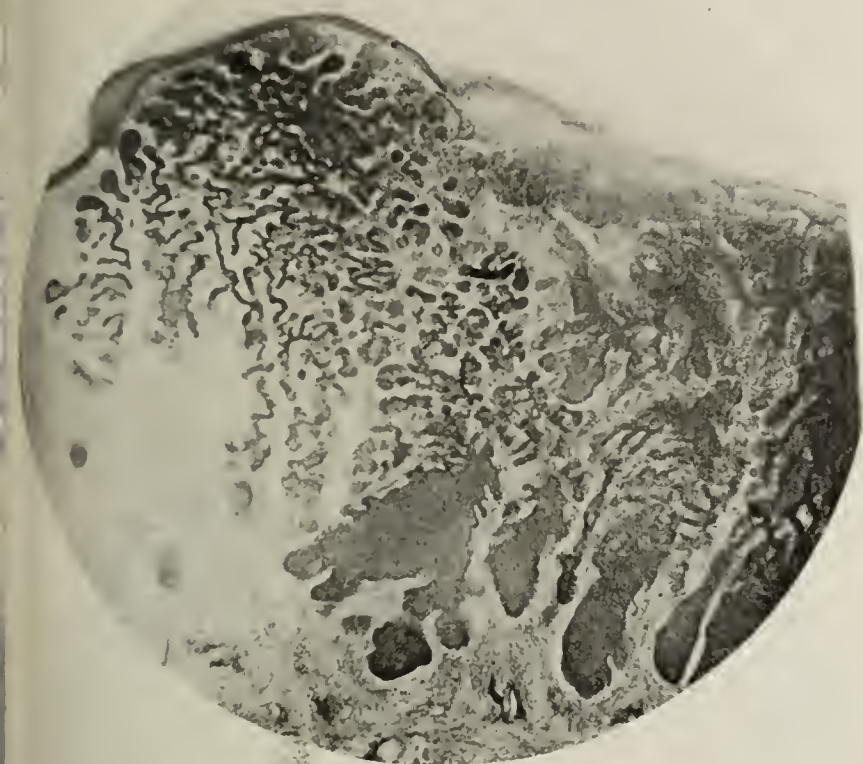


Fig. 3.—Multiple benign cystic epithelioma, showing the advancing proliferation of epithelial strands from the pathologic center to the normal uninvaded border. Also hypertrophy of some of these strands into masses resembling tricho-epithelioma.

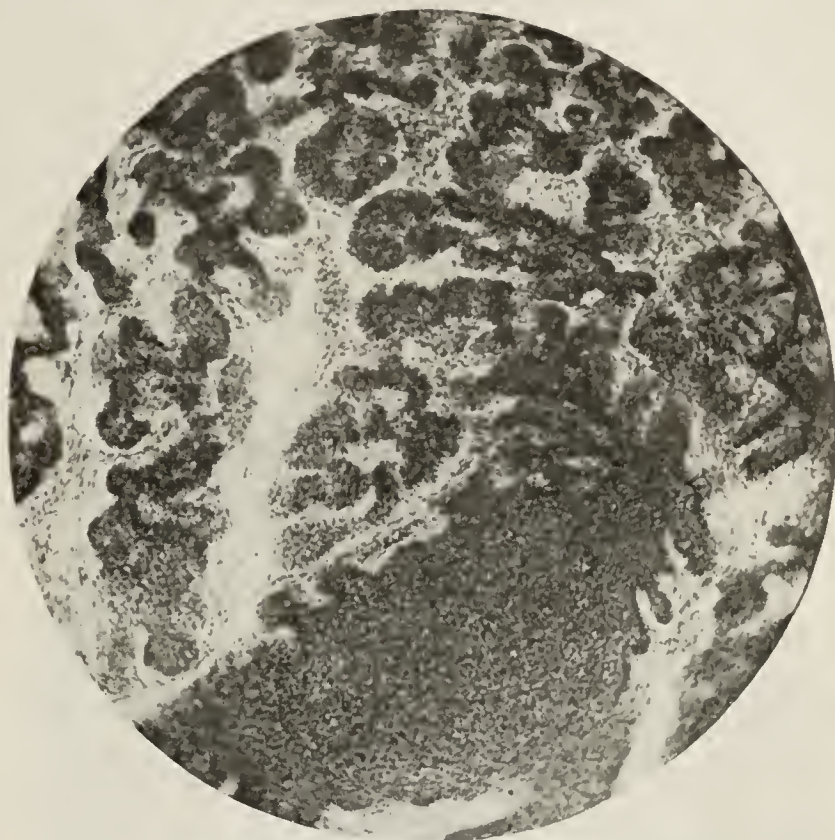


Fig. 5.—Proliferating epithelial strands and tricho-epithelioma-like hypertrophy in a case of multiple benign cystic epithelioma.

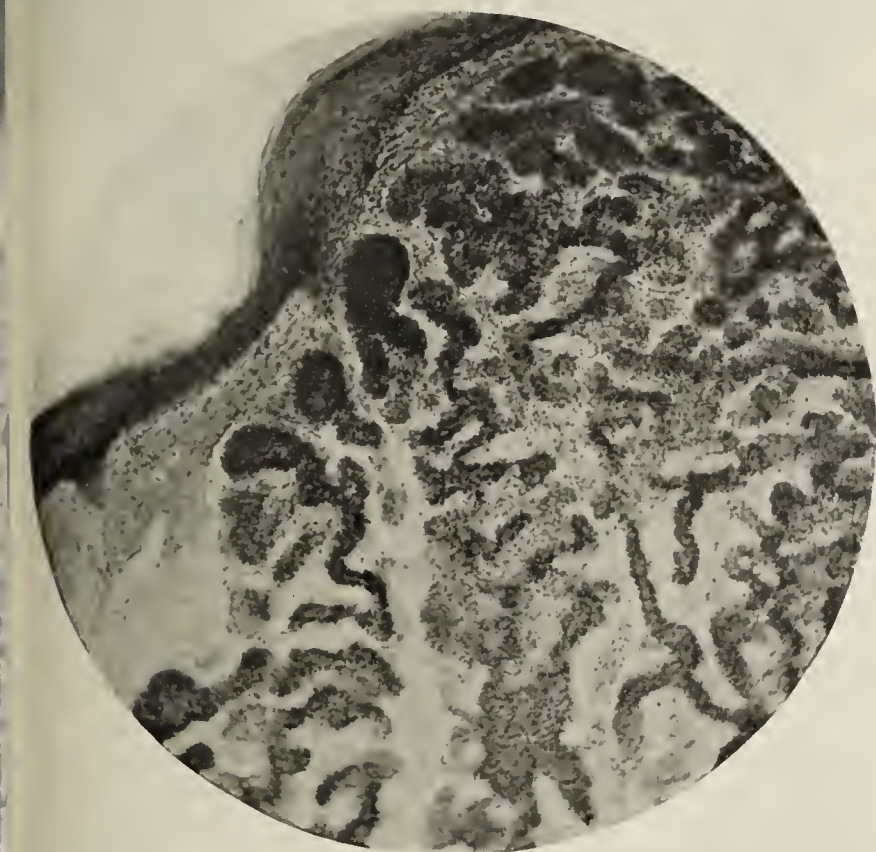


Fig. 4.—Advancing epithelial strands in a case of multiple benign cystic epithelioma.



Fig. 6.—Morphea-like epithelioma showing pathologic strands near center and hypertrophy of glandular tissue in the normal uninvaded tissue of the immediate neighborhood.

HISTOLOGIC REPORT

An elliptical area of tissue was excised from all the cases, which embraced in its middle third a portion of the spreading, infiltrated border, and extended in one direction of its long axis toward the cicatrized area or center of the lesion, and in the other, toward the normal uninvaded skin. This elliptical area, after being imbedded in paraffin, was sectioned in its long diameter in serials, and stained after the various ordinary methods. I shall not enter into a minute description of all the various findings in each of the individual cases, inasmuch as the pathology of these affections is already sufficiently elucidated, but shall interpret the generalities of the findings.

erally regarded as benign and precancerous in their incipency, also pursue a self-limited course and present some unusual features for comparative study. The lesions in this case were multiple, fifteen or twenty in number, and irregularly distributed over the entire left leg, from the middle third of the thigh to the ankle.

The histology failed to reveal in all the cases of multiple benign epithelioma, which is one of the earliest recognizable types of precancerous affection of the skin, the exact point of genesis of the pathologic process. Some of the lesions were scarcely larger than a small shot, yet these failed to shed any more light on this particular phase of the question than lesions which were considerably larger in size. The central area of all had undergone sufficient cicatricial involution to erase definitely from observation the particular gland, hair follicle, or other specialized tissue which was the point of original genesis.

The chief activity of the pathologic process seemed centered, in most of the cases, about hair follicles, at the middle third, near their junction with the sebaceous ducts, but only in an apparent, indirect and secondary manner. The cells at this point, under the effect of the abnormal stimulus, underwent proliferation and reduplication in apparent excess over that of other tissue. This did not occur, however, to the exclusion of all other specialized tissue. The earliest hypertrophy, as evidenced on the part of distally and more normally placed tissue, was centered in the sebaceous glands. The hypertrophy of these structures is of relative short duration and yields promptly to a pressure atrophy from inflammatory infiltration.



Fig. 7.—Pathologic area in a case of morphea-like epithelioma. Advancing epithelial strands.

Intermediate in hypertrophy and proliferation between sebaceous glands and hair follicles are the sudoriferous glands. The sweat-glands, however, do not always share strongly in this pathologic process; the degree varies considerably in different specimens, being often so slight as to be easily overlooked and disregarded, and at times excessive enough to predominate over the pathologic syndrome. The latter is particularly the case if the coils, as well as the ducts, are extensively involved. The epidermis could not be demonstrated in any of the cases to share in the pathologic process, which was essentially in all cases, one of subepidermal growth and involvement.

The cells were uniformly small, contained large oval deeply staining nuclei, had non-discernible cell walls, and scanty non-granular protoplasm. The reactionary, inflammatory cell infiltration was closely confined, and mucoid degeneration ensued early. Cornification and nest formation were not in evidence. The orifices of some of the hair follicles occasionally became overdistended with the products of their proliferation. The contents frequently underwent colloid degeneration and,

through further distention of follicular walls, formed colloid cysts.

The pathology of the case of morphea-like epithelioma conformed essentially to that of multiple benign cystic epithelioma, and, because of its unusual proportions and more rapid development, offered special facilities for tracing its more active and more extensive progress.

Since, as already stated, the genesis could not be recognized in a single instance, study was centered in its established progress. It is fair to assume that the genesis, irrespective of its origin, must preserve a limited area of uninterrupted continuity, if the lesion preserves a constantly spreading border. Such continuity could be clearly and definitely established only by the study of specimens in serial sections. An unbroken chain of the above-described cellular pathology could be easily traced from follicle to follicle in its uninterrupted course through intervening tissue. The cells were arranged for the most part in cylindrical form, several rows deep, and twined and intertwined in coil-shape fashion. In very thin sections, they appeared in short segments,



Fig. 8.—Squamous-cell epithelioma in a case of carcinoma epitheliale cicatrisans. A previous burn has destroyed all other form of epithelial structure except the epidermis. A squamous-cell epithelioma is the necessary result. Characteristic of scar tissue in general.

which have been often described as epithelial strands and embryonal nests. They took on their greatest degree of active proliferation toward the proximal edge of the spreading border, and particularly in the proximity of hair follicles, which promptly shared their proliferative activity. Here they would often balloon out, assuming the size and appearance of hair follicles, the so-called tricho-epithelioma. These large masses excited the greatest degree of inflammatory reaction and promptly underwent mucoid degeneration and fibrosis. The pathologic process, however, was not limited to this cellular pathology. As already intimated, sebaceous glands situated at two or three follicles' distance toward the distal normal tissue, were also in a state of adenomatous proliferation and, occasionally, intervening sweat-glands were similarly involved, although showing as yet no evidence of direct invasion. In other words, the stimulus, whatever its nature, manifested its influence beyond the recognizable sphere of morphologic change.

The chief zone of pathologic activity, whose center conformed to that of the narrow infiltrated spreading border of the lesion, consisted of a uniformly well-conserved ring of proliferating adenomatous cellular tissue, which extended itself by means of bud-like processes and invaded surrounding tissues. The clinical process of the growth is measured by the character of this ring. It apparently follows a course of least resistance, and reaches its greatest degree of progress and development in tissue rich in glandular structure. Wherever its continuity is seriously threatened, the clinical progress of the case is correspondingly arrested. An uneven, irregular outline is often the result. In one case, further progress was arrested at a given point by tissue free from glandular structure—an old pit-mark. Involution follows promptly and is doubtless effected by the self-excited reactionary inflammation. Central involution spontaneously follows as long as reactionary inflammation maintains a healthy balance over that of the pathologic stimulus. Reactionary inflammation is probably the keynote of success in the use of arsenical pastes and other measures, in arresting the clinical progress of these cases.

The case of carcinoma epitheliale cicatrisans was of peculiar interest inasmuch as the pathologic process occurred in tissue which was devoid of all epithelial structure save that of epidermis. Sweat and sebaceous glands and hair follicles were not conserved. The stimulus exerted its effect solely on the epidermis and the pathologic process, which was also benign and self-limited in character and proved to be that of a keratinizing or prickle-cell epithelioma. The actively spreading infiltrated border was the site of down and overgrowth of epithelial pegs from the rete, which contained masses of keratinized cells arranged in nests. Basement membrane was imperfectly preserved, and the process was arrested by a marked inflammatory cellular infiltration. Scar tissue was returned to scar tissue, in this instance, through intermediate epitheliomatous tissue.

Opinion varies, with different investigation, in regard to the origin of epithelial proliferation: Unna⁴ and others ascribe it to the epidermis; Fox⁵ and others to the hair follicles; Petersen⁶ and others to the sweat-glands; Fordyce⁷ and others to the epithelium of the epidermis or any of the differentiated structures of the skin. Various authors have endeavored to differentiate the pathology of cancer of the skin in accordance to the type of cellular structure and the source of probable origin. Cases have been described as tricho-epithelioma, if derivation could be traced to hair follicles; cylindroma, if derived from sweat-glands or ducts; baso- or basilar epithelioma if derived from the basement layer of cells of the epidermis or neighboring structures; and prickle-spinous- or squamous-cell epithelioma if derived from the prickle or squamous cells of the epidermis. I agree with Fordyce and others that there are good clinical grounds for the differentiation of this latter class from other histopathologic forms of epithelioma, but not necessarily on the basis of histogenesis. The genesis and fundamental origin of all forms of epithelioma must, in the light of our present knowledge, remain a more or less unsettled question. The question could be elucidated if we could infer that the pathologic ancestral tissue proliferated itself to the exclusion of all other types. This we know, is not true, because other types prolifer-

ate synchronously. Furthermore, the cicatrized central area occasionally relapses, and the stimulus necessarily exerts its influence on the only epithelial structure which is left, namely, the epidermis, and a squamous- or spinous-cell epithelioma replaces a so-called basocellular epithelioma which formerly held sway.

Embryonal rests of Cohnheim seems to play a very unimportant rôle in the etiology, from at least a histologic standpoint. While it is clinically true that cutaneous malignancy sometimes takes its origin from moles, etc., and other structures of possible embryonal character, the vast majority of cases present no such etiology. The so-called etiologic strands do not permit the premalignant histologic demonstration. What have been described as strands in process of development and growth are the budding processes of the invading growth. They have never been demonstrated in the normal tissue in the direct path of subsequent invasion.

If malignancy is derived from hair follicles, sweat-glands and other preformed cellular structures, spontaneous development in neighboring tissue and multiple epitheliomas should be more frequent than currently reported.

19 West Seventh Street.

ABSTRACT OF DISCUSSION

DR. RICHARD L. SUTTON, Kansas City, Mo.: I could never consider multiple benign cystic epithelioma as a precancerous condition, and it appears to me that Dr. Heidingsfeld has become somewhat confused in his classification. If we exclude the cases of J. C. White, Stelwagon, the three commented on as examples of rodent ulcer by Adamson and my own, I do not think Dr. Heidingsfeld will find in the literature any other examples of multiple benign cystic epithelioma that have shown malignant changes. Judging from the sections exhibited by Dr. Heidingsfeld, I should say that he is here dealing with three distinct pathologic and clinical diseases; the so-called "Carcinome basocellulaire" of Krompecher, the multiple benign cystic epithelioma of Fordyce (the acanthoma adenoides cysticum of Brooke) and syringocystadenoma.

DR. H. H. HAZEN, Washington, D. C.: In discussing the pathology of a lesion, we should bear in mind that while the clinical picture may be malignant, the pathologic findings may show no evidence of that fact. I recall the case of a negress who had a fungating lesion about the size of a saucer on the left buttock, together with enormously enlarged glands in both groins. On section, the tumor was found to be composed entirely of dilated sebaceous glands; it was a cysto-adenoma of the sebaceous glands, and while the clinical picture is undoubtedly malignant, the pathologic picture was benign. This is not an entirely new observation, as both Halsted and Bloodgood have shown that a pathologically benign adenoma of the thyroid may metastasize to the neighboring gland.

DR. M. L. HEIDINGSFELD, Cincinnati: I concur with Dr. Sutton that the so-called multiple benign cystic epithelioma and epithelioma adenoides cysticum (Brooke) are a clinical entity and are not identified with so-called "rodent ulcer" of the skin. This phase was recognized and dwelt on in the paper. I do hold, however, that these affections are premalignant in character and structure, even though it is true that relatively few cases of this character thus far reported in literature have become actively malignant. The reasons therefor are obvious. They are easily and promptly arrested in the premalignant stage, and, secondly, many cases of malignant diseases of the skin come to our notice in such an advanced stage that their origin from these conditions can no longer be recognized. Insofar as skin cancer develops and manifests itself on the basis of such simple conditions as senile and paraffin keratoses, and prolonged irritations of the most simple and trivial character, no one can seriously question the analogy between the so-called "pre-malignant" types

4. Unna: Histopathologie der Haut.

5. Fox: Tr. London Path. Soc., 1879, xxx, 360.

6. Petersen: Arch. f. Dermat. u. Syph., 1893, xxv, 445.

7. Fordyce: THE JOURNAL A. M. A., Jan. 8, 1910, p. 91.

and true malignancy. In other words, the border line between malignancy and premalignancy is not sharply enough drawn to permit any fine differentiations. I do not concur with Dr. Sutton that these affections can be estimated by their pure histologic structure. Multiple benign cystic epithelioma possesses, in most instances, all the characteristic earmarks of a basal-cell epithelioma, and it not infrequently happens that basal-cell epitheliomas revert to a pure spinous or squamous structure.

DIVERTICULA OF THE GASTRO-INTESTINAL TRACT: THEIR SURGICAL IMPORTANCE *

CHARLES H. MAYO, M.D.
ROCHESTER, MINN.

The various hollow viscera and tubular structures of the body are subject to acquired diverticula. Even the large blood-vessels are prone to this condition in the form of sacculated aneurysm.



Fig. 1.—Section showing the coats and character of a diverticulum of the appendix.

Diverticula are classified into two groups, congenital and acquired. For example, a Meckel's diverticulum, or a diverticulum of the urachus connected with the bladder or umbilicus is a type of the congenital anomaly, while a diverticulum of the esophagus is one of the acquired forms.

True and false diverticula are terms describing the condition with reference to their structure, as compared to the normal walls of the viscus. Those covered with all the coats of the bowel, as represented at its site, are the true diverticula, and those with fewer coats and with the muscularis lacking at least in part are the false. True diverticula may later become false by extension beyond their muscular covering, which show in separated bundles over a part of the sac, especially late in life.

The appendix might be termed a normal diverticulum, and the air pouches connected with the larynx in certain species of monkeys might also be so considered. From this latter arose the term "bronchocele," which later was applied to the enlargement of the thyroid gland.

Diverticula of the acquired type are frequently found and described as affecting the gastro-intestinal tract. We note the striking similarity between these sacs or pouches and their process of development. The entire length of the alimentary canal is subject to the formation of congenital, acquired, true and false diverticula. The rare pharyngeal pockets which connect with branchial cysts are to be noted. Another equally rare type is found at the entrance of the trachea, possibly atavistic remains from the branchial pouch in some monkeys. Diverticula of the esophagus are not uncommon and, when small, are frequently overlooked. In advanced cases, when the bougie no longer passes the obstruction and the patient is suffering from starvation, they are quite often believed to be malignant. In some cases the true nature of the condition is discovered only when life has been prolonged, by the aid of gastrostomy, beyond the period prognosticated.

In 1840, Rokitsky¹ described two forms of esophageal diverticula, the pulsion or pressure variety, which is most commonly seen, and the traction variety in the middle third of the esophagus caused by periesophageal inflammation usually developing from inflammation in the glands about the tracheal bifurcation. This variety seldom causes symptoms but they may be increased in size by coughing.

The condition usually develops on the posterior wall at about the level of the cricoid cartilage. The diverticula vary greatly in size, from that of a walnut to a large sac extending into the chest, capable of holding a pint or more of fluid. These latter, because of traction, are more of the esophageal form. The term "pharyngo-esophageal" diverticulum might be applied to many of this variety. Diverticula of any form occur but rarely in the lower third of the esophagus. They are found only at post-mortem.

Opposite the cricoid cartilage there is often a weak or muscle-missing space, called the Lannier-Hackerman area. Here the mucosa, under favorable conditions, may be pushed out from within and, once begun, the tendency is to increase. Thus the sac becomes a prolongation of the proximal gullet while the lower esophagus opens out of the anterior wall of the sac. Arthur Keith² states that the superior pharyngeal muscles act as a force-pump while the lower constrictor muscles act as an obstruction. This condition is seldom seen before middle life.

Aided by the radiograph following the liquid bismuth, and by the Plummer³ test, diagnosis of diverticulum of the esophagus is no longer difficult. The Plummer test consists in having the patient swallow one end of a few yards of silk twist, such as is used by Mixer in treating esophageal stricture. When enough of this thread has passed through the stomach and into the intestine to stand some traction, the outer end is threaded through a perforated esophageal bulb-pointed probe which slides readily down into the diverticulum, the thread being held loosely. The thread is then tightened, and the probe is elevated from the bottom of the pouch to the level of the true esophageal opening and then pushed down into the stomach, thus measuring the depth of the diverticulum as well as its presence.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Rokitsky: *Handb. d. Path. Anat.*, 1861, iii, 127.

2. Keith: *Brit. Med. Jour.*, Feb. 12, 1910.

3. Plummer: *Surg., Gynec. and Obst.*, May, 1910, p. 519; *The Journal A. M. A.*, Feb. 25, 1911, p. 530.

Extirpation at one operation effects a cure when the sac is small. Invagination of the sac into the esophagus, as is sometimes done, is not recommended. Operation in two stages is preferred for large sacs extending into the mediastinum. 1. The sac is drawn out of the thorax into the neck. 2. After granulation has closed the cellular space, the sac is removed.

From Jan. 1, 1902, to Jan. 1, 1912, thirteen cases of diverticula of the esophagus were diagnosed in the clinic at St. Mary's Hospital. Ten of them were operated on and cured.

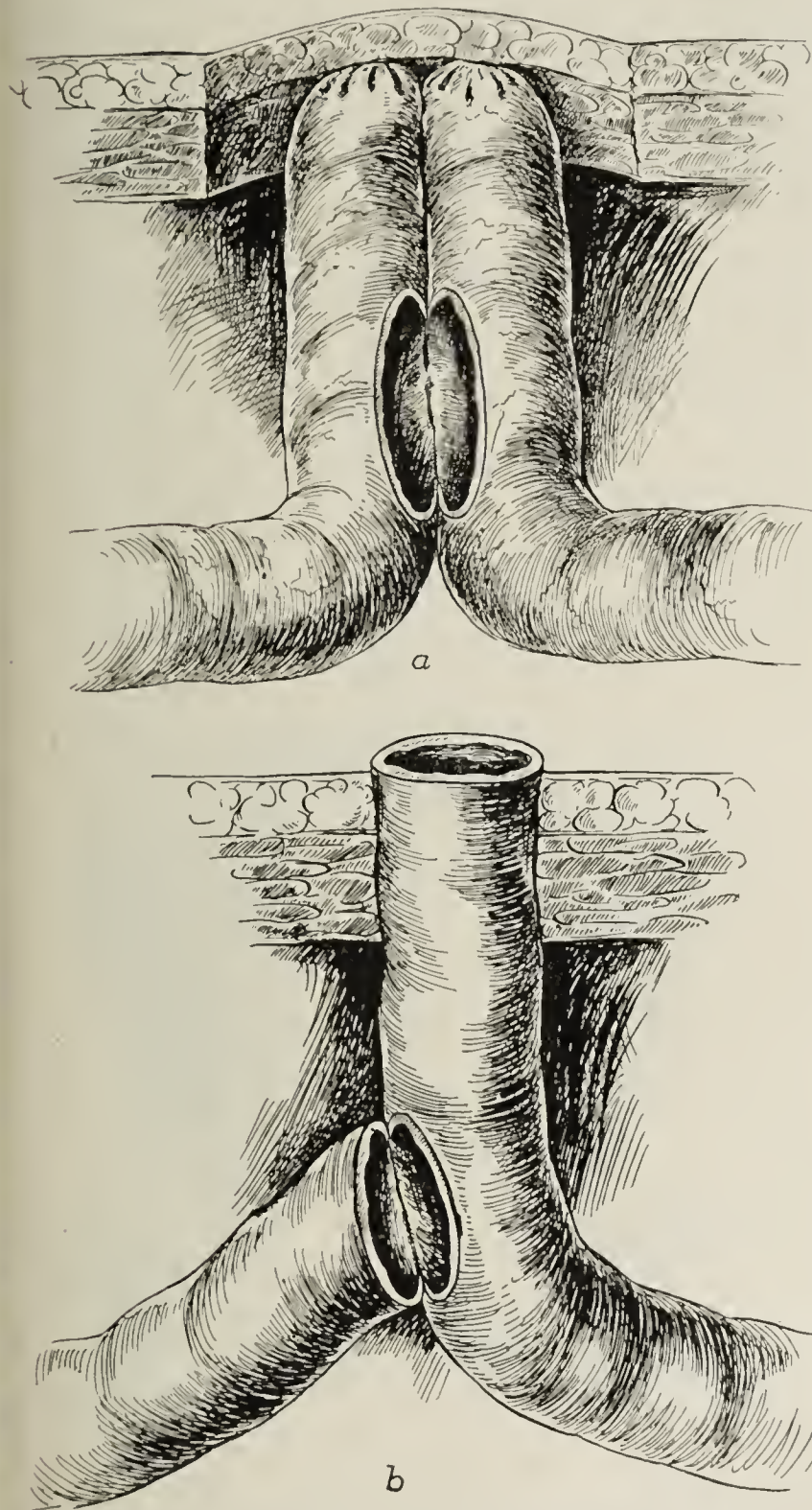
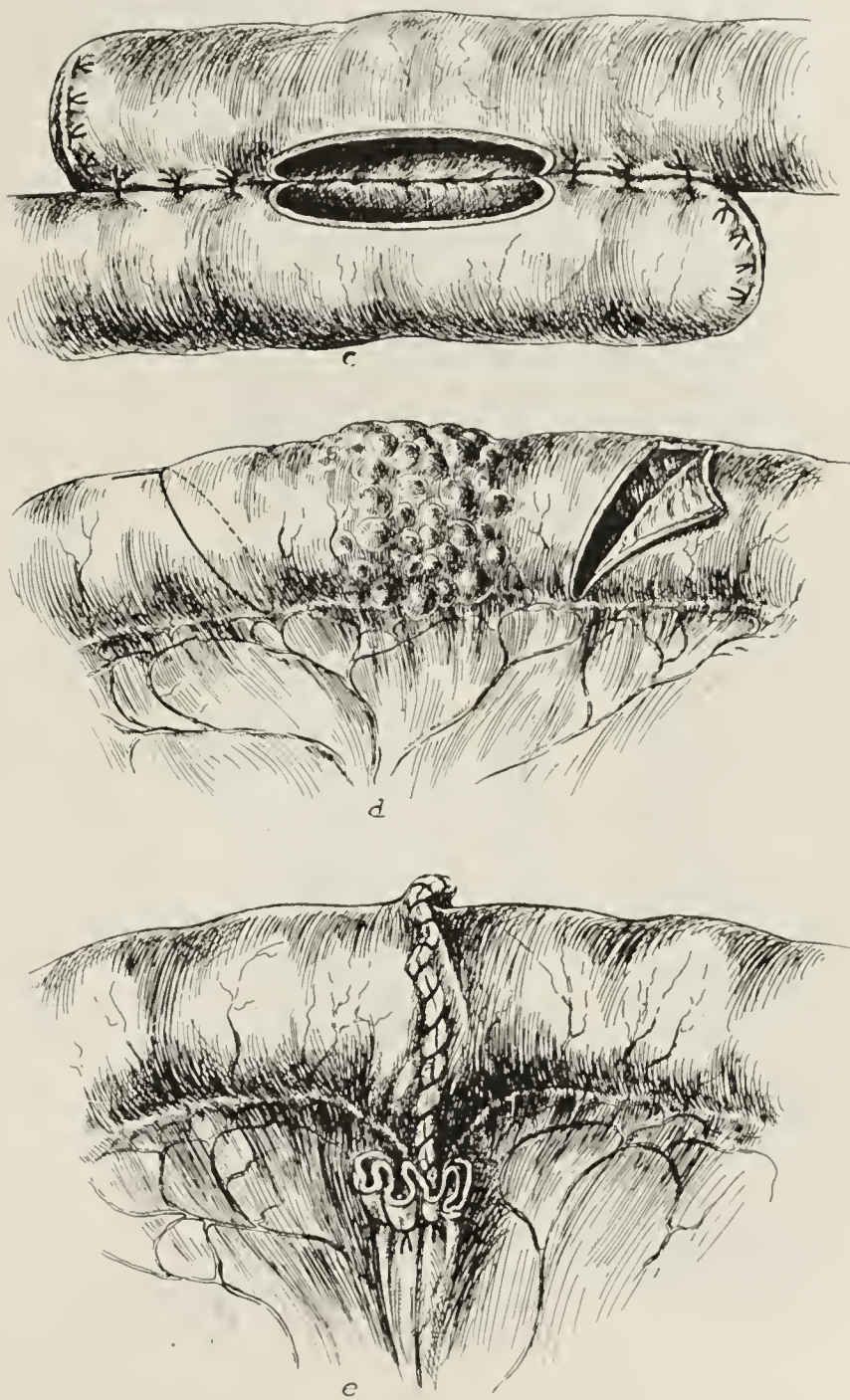


Fig. 2.—Group 1; intestinal anastomosis.

Diverticula of the stomach occur more commonly in the lower animals, namely, the pig family. They are found near the cardiac orifice. But few cases are reported as having been found in man. Keith reports two in which the diverticula were located near the cardiac opening. Falconer⁴ reports one found in the pyloric end of the stomach which contained pancreatic tissue. One case was observed in our clinic. This was in a woman, aged 35, with irregular bowel symptoms and a tumor of the anterior wall of the stomach 2 inches from the

pylorus. In the outer half of the diverticulum, which was 1½ inches in length, was a well-marked carcinoma. The tumor was excised and a gastrojejunostomy made, neither diverticulum nor malignancy being recognized until after the excision.

Diverticulum of the intestine, which has been described for more than 100 years as an anatomic rarity, is now recognized as an occasional cause of serious disability and danger. The diverticula are often multiple. As many as 400 have been found in one individual. Telling,⁵ who tabulated 105 collected cases, shows that they occur twice as often in men as in women, and that about 60 per cent. of his collection give clinical symptoms. Others, however, show that in approximately one-third of the autopsies on the middle-aged and the old



diverticula are to be found. The greater number, then, give no symptoms.

No cases have been reported as giving typical symptoms of this condition in the duodenum during life. Clogg⁶ and Alexis Thompson⁷ report cases similar to the one found in the stomach by Falconer, that is, sacs on the duodenum containing pancreatic tissue. Accessory pancreatic tissue has been noted also in Meckel's diverticulum. Pressure-diverticula may appear late in life in

5. Telling: *Lancet*, London, 1908, i, 843, 928.

6. Clogg: *Reports Soc. Study Dis. Child.*, 1908, viii, 221.

7. Thompson: *Edinburgh Med. Jour.*, 1908, xxiii, 304.

4. Falconer: *Lancet*, London, 1907, i, 1296.

the wall of the duodenum at about the location of the common duct. Visceroptosis is usually noted in the cases described.

Cases have been observed in our clinic of inflammatory pouches connected with the gall-bladder and extending, at times, to the liver, but more frequently they were found on the surface of the fundus of the gall-bladder. Some of these diverticula are apparently of congenital origin.

The common and hepatic ducts of the liver are subject to diverticula in the presence of obstruction to the delivery of bile into the intestine. Such pockets often contain a large number of stones. Removing the stones and probing through the papilla into the intestine with drainage of the hepatic duct through the opening in the common duct (after Robson's method) has proved very effectual in giving relief; one does not know, however, the after-condition of the sac, and we know that reformation of stone in the common duct is proportionately more frequent than in the gall-bladder.

Meckel's diverticulum has been discussed in a previous report from our clinic¹⁰ in which fifteen cases were collected from 10,600 routine abdominal operations.

Diverticula of the large bowel are common. Even the appendix (Fig. 1) may have one of its own—a diverticulum within a diverticulum. Seventeen diverticula have been discovered in appendices removed at operation in our clinic. It is quite possible that the so-called double appendices which are sometimes reported may be near-by projecting diverticula which develop into appendices epiploicæ.

In one of our cases a tumor was removed from the surface of the transverse colon without resection. The symptoms were of tumor and local peritonitis. Dissection of the excised tumor revealed a diverticulum with a great, inflammatory, fatty mass developing through the chronic peridiverticulitis. The patient was afforded

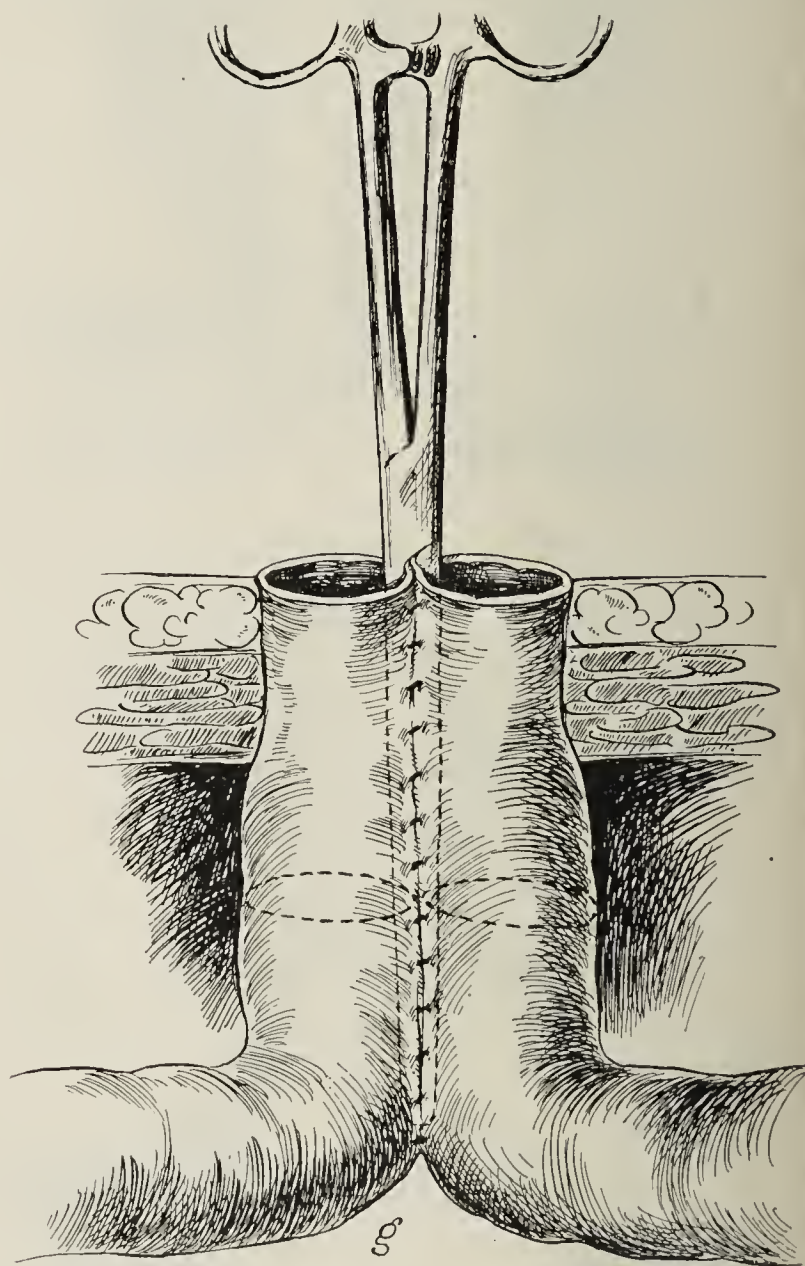
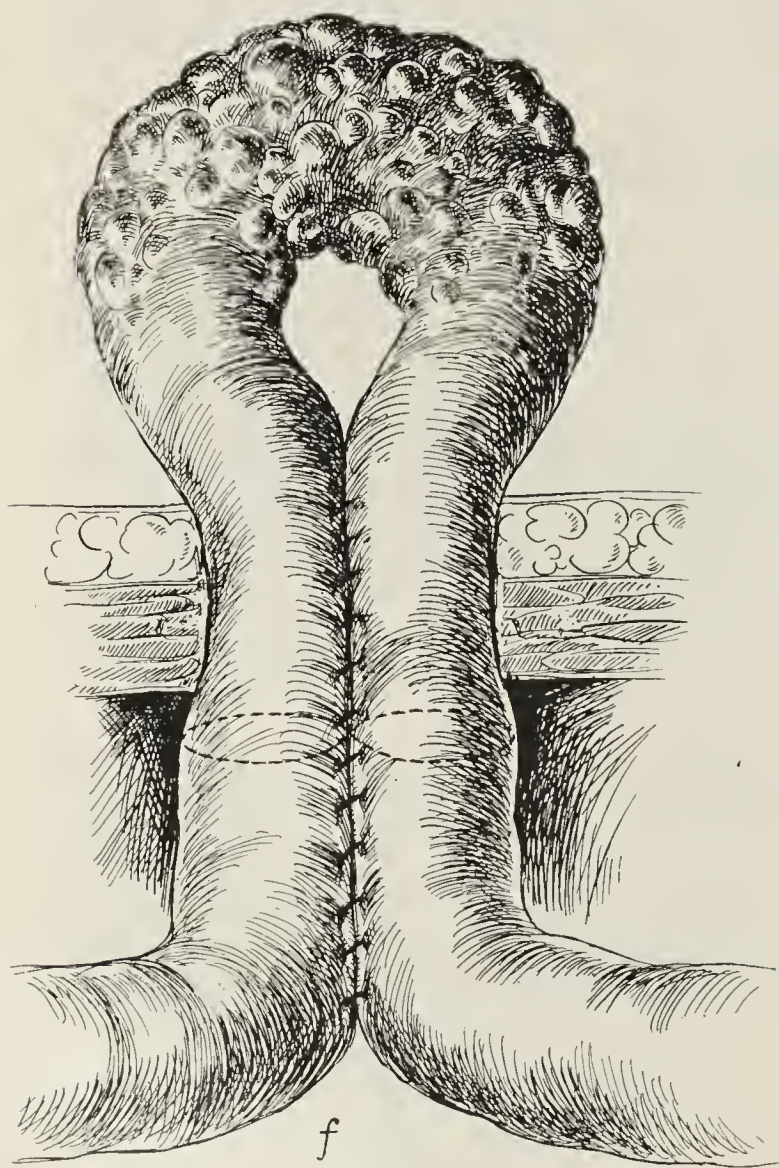


Fig. 3.—Group 2; intestinal anastomosis.

The jejunum and ileum are both subject to the formation of diverticula, which are found along the mesenteric line of the intestine. One reported case⁸ showed many sacs projecting into the mesentery between the peritoneal folds, the smaller ones showing a vessel at the end of the pocket which evidently had much to do with their origin. In a few instances only has any intestinal content or other foreign material been found in this type. One such has recently been reported by Walker.⁹ Keith believes that they are found only in the pockets in which the entrance is smaller than the sac. They are composed of cholesterol or carbonate of lime.

only partial relief since contraction followed the operation, and three months later at a second operation this portion of the colon was excised with resultant cure. Deposits of such character were observed by Virchow¹¹ in 1853 and were described as isolated, circumscribed, adherent peritonitis of the colon. From this description which so accurately pictures peridiverticulitis it would appear that the condition is frequently overlooked. A very careful search of the mucosa with the probe in these cases will usually reveal the true condition.

In the sigmoid, the natural fecal carrier of the colon, is found the greatest number of diverticula giving symp-

8. Taylor and Lakin: *Lancet*, London, Feb. 19, 1910, p. 495.
9. Walker: *THE JOURNAL A. M. A.*, April 20, 1912, p. 1190.

10. Balfour: *Jour. Minnesota Med. Assn.*, March 1, 1911.
11. Virchow: *Virchow's Arch. f. path. Anat.*, v, 1853.

toms. In some cases colostomies have been done for the relief of obstruction supposed to be due to cancer of the bowel, and the patient apparently cured, or life has been prolonged so as to preclude the diagnosis of malignancy. The natural inference in some of these cases is that the tumor was the result of the peridiverticulitis.

In our series of twenty-seven cases of diverticulitis of the large bowel we have two in the rectum and one in the anal ring. Five additional cases were observed in operating for other conditions, but no pathologic specimens were obtained. One case was observed in operating for the removal of a large, double intraligamentary cyst. This was a diverticulum of the cecum, located on the outer side $1\frac{1}{2}$ inches from the base of the appendix. It was $1\frac{1}{2}$ inches long and about the size of the little finger. In the one case of non-malignant diverticulitis of the rectum the true diagnosis was made when the tumor was dissected after removal. Undoubtedly cases like this may form some of the perirectal abscesses which open near the anus on the skin and fail to become cured after repeated operations because the high internal opening of the fistula preserves the mucous lining of a portion of its wall. Again, these abscesses rupture into the bladder from the high rectal or sigmoid location. In this emergency gas will be noted passing with the urine. Harrison Cripps¹² estimates that the great majority of these fistulous conditions in the bladder are inflammatory and not malignant.

Diverticula of the large intestine, similar to acquired hernias in other organs, are generally considered the result of pressure. A few of them are probably true

the longitudinal fibers, and many cases show a rambling between of the diverticula. Wilson¹³ has shown that in many cases the condition is one of peridiverticulitis rather than of diverticulitis alone. There may also be diverticulitis of mucosa with peridiverticulitis. Inflammation may be painless, especially in the early stage. In fact, the condition is difficult to diagnose until the subacute inflammation develops a mass of tissue at the site of the diverticulum on the outer surface of the bowel. This inflammation of the intestine then gives symptoms of a secondary nature. The patient has attacks of pain, gas, distention or more or less obstruction with local peritonitis. Because the mucosa is not ulcerated there is little to be observed in the intestinal contents, blood or mucus and diarrhea being the exceptions.

Diverticulum of the large bowel is to be differentiated from tuberculosis, cancer, specific disease, left-sided

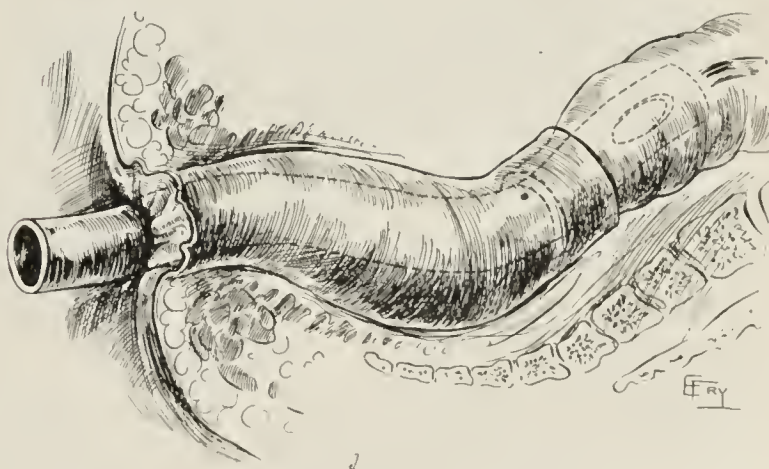
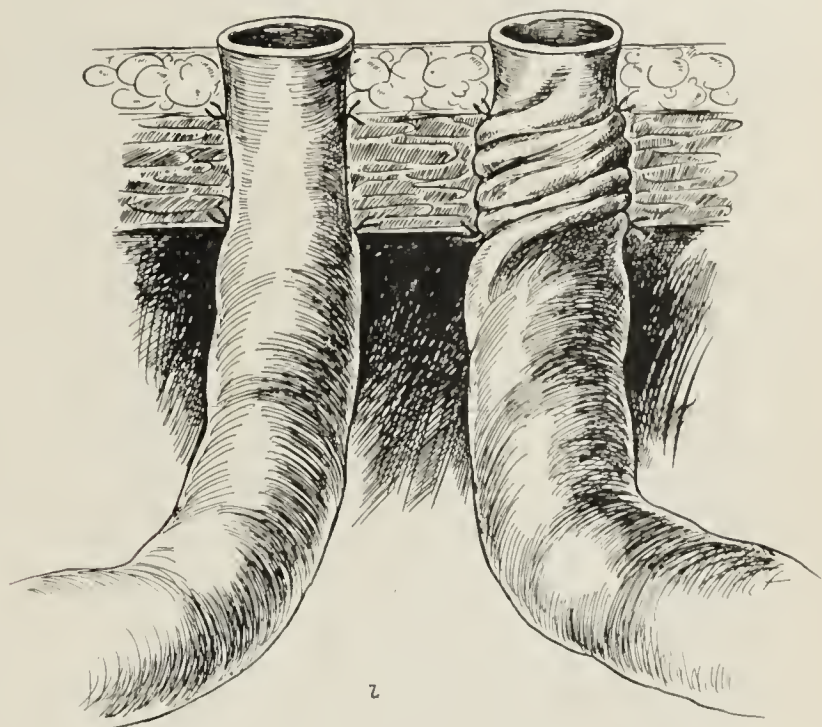
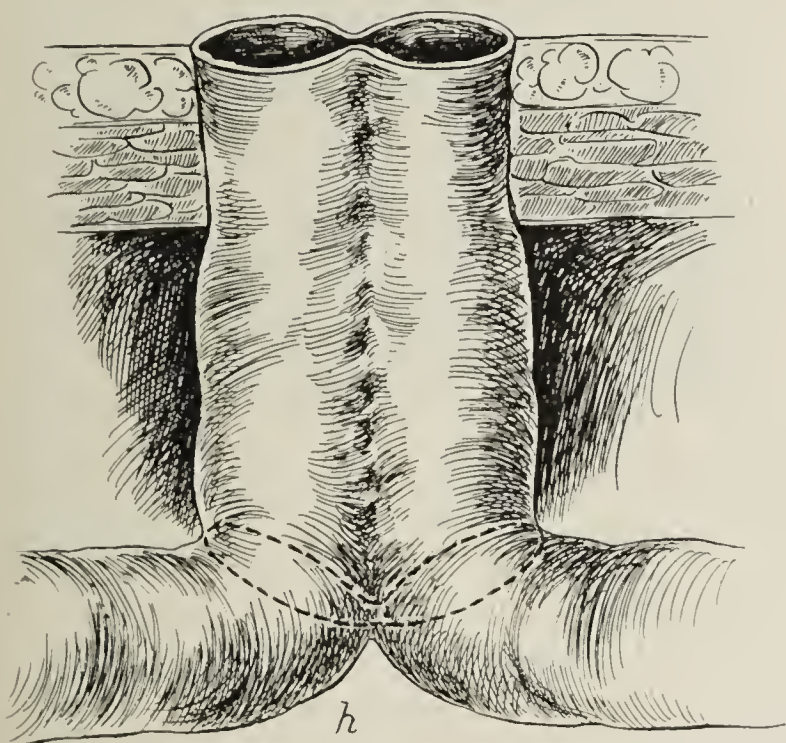


Fig. 4.—Group 3: Intestinal anastomosis.

diverticula possessing all the coats of the bowel at their origin, and in the early stage may be barely macroscopic. It is believed that many cases of diverticula originate in openings which have become dilated by congestion of the vessels passing into the bowel on the mesentery, or on the sides of the bowel at the site of the epiploic tags. This phenomenon is similar to the small ventral supra-umbilical hernia which originates in openings in the aponeurosis and which has been sawed by the vessels and nerves. A congenital, local defect, with pressure in early life, probably has considerable influence on this development. The circular muscle-fibers give way first, later

appendicitis as well as failure of the colon to rotate. In many instances no previous trouble or complaint has existed; consequently the condition was not suspected before operation. We have made a probable diagnosis in seven cases. If a tumor be noted during or after an attack of obstruction, with some local peritonitis, the condition is often considered malignant, yet the lack of common symptoms of that disease makes diverticulum a possible factor. On the other hand, on exploration the peculiar contracted inflammatory appearance of the tumor makes a clinical diagnosis of cancer appear probable in a considerable number of cases which can be

12. Cripps, Harrison: Cancer of the Rectum, 1907.

13. Wilson: Ann. Surg., February, 1911, p. 223.

determined only by section on the microscope after removal. Peridiverticulitis with symptoms from infection with or without perforation or obstruction occurs one-seventh as frequently as cancer of the sigmoid.

In seven of our twenty-seven cases we found cancer grafted on diverticulitis of the large intestine. This was also the case in the diverticulum of the stomach and in several cases of diverticula at the base of the bladder, associated with small stones. It may be noted here that MacCarty and McGrath¹⁴ have shown from a study of 5,000 appendectomies that cancer of the appendix appears once in every 225 cases of chronic appendicitis. Therefore, diverticula affecting the intestine should be looked on as a potential source of cancer.

OPERATION

Anastomosis of the small bowel into the large is probably the safest of all forms of anastomosis, as it delivers liquid contents into the drying bowel. The union of large bowel to large bowel is a more serious question. A resection with bowel-union, at times with preliminary colostomy, is indicated in most cases, or the operation is made in the two-stage Mikulicz method, in which case the tumor is lifted out of the abdomen, the sides of the two loops of bowel are attached to each other for 4 inches within the abdomen, and sutured into the abdominal wound. After four days the tumor is amputated at the abdominal wall, the blades of a pair of heavy forceps are passed one into the proximal and one into the distal ends of the bowel and clamped tight. This procedure requires about five days to cut through by necrosis, thus opening one bowel into the other, permitting closure of the colostomy later. This is especially recommended in fleshy patients whose resistance to infection is likely to be reduced. Bloodgood's¹⁵ method of side-to-side, ends-together anastomosis, with ends of the stump brought into the incision beneath the skin as a safety valve to be opened if desired, is an excellent operation. Methods of suture-union by telescoping and by the use of a long, large-diameter rubber tube passed into the proximal end of the bowel out of the distal intestine and anus are fairly safe, as the line of suture-union and the lower bowel are not subject to gas tension or contamination, all passing out of the tube from the proximal bowel.

Immediate examination of the complete specimen with frozen section, if necessary, is an advantage in such cases and may often change the principle of the operation which has been planned, by proving the absence or the presence of malignancy. The mortality from operation due to varied causes approximates 10 per cent.

14. MacCarty and McGrath: Surg., Gynec. and Obst., March, 1911, p. 211.

15. Bloodgood: Ann. Surg., February, 1909.

Dairy Inspection vs. Laboratory Examinations.—The advocates of dairy inspection overlook the fact that clean milk production is an art, demanding constant daily, hourly and momentary care, and that an accident taking only one second for its occurrence can contaminate the entire day's output of milk and perhaps carry dirt and disease into the homes of hundreds of milk consumers. . . . The factor of highest importance in clean milk production is the man himself and his own impulse to be clean. These things are things beyond the influence of the dairy inspector. The real remedy lies in the direct appeal to the motives of the milk-producer himself. The strongest appeal can be made only by the milk consumers themselves and consists in their willingness to pay the necessary cost of cleanliness. On the part of public health authorities the strongest influence consists in laboratory examination of milk for bacteria.—North in *Clean Milk Bulletin*.

CHRONIC UNOPENED EMPYEMA*

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The application of negative tension in the treatment of acute and subacute empyema is now recognized as one of the practical results of the recent development of thoracic surgery. Furthermore, the cases here to be reported—cases which I would designate as "chronic unopened empyema"—furnish unquestionable proof that extensive chronic empyemas in which the cavities have not been exposed to postoperative pneumothorax and unchecked secondary infection may be cured by this simple means

CASE 1.—History.—S. H., a watchmaker, aged 43, complaining of cough and a discharging sinus in the left loin, was seen at the request of Dr. Lafleur on Oct. 24, 1911. In January, 1905, the patient had had pneumonia and was confined to bed for eight weeks. Subsequently, the persistence of nocturnal cough and the occurrence of occasional attacks of fever and night sweats rendered him unfit for work except for a few days or weeks at a time. In October, 1910, pain developed at the base of the left lung, persisting until July, 1911, when an incision was made over a swelling in the left loin and pus evacuated. Following the operation the cough diminished for a day or two only. Pain was absent when the wound discharged freely, but returned when the discharge lessened.

Physical Examination.—The patient was found to be fairly well nourished. There was dilatation of the venules of the face and marked clubbing of the finger-tips. There was also a frequent cough accompanied by purulent expectoration. Exploratory aspiration at the base of the left lung withdrew thin, odorless pus. Before the needle was removed, an injection of 10 c.c. of bismuth paste was made. The sinus in the loin was injected with the same material. A skiagram (Fig. 1), taken later, showed a narrow tract connecting the bismuth in the intrathoracic cavity with that in the sinus in the loin. It was evident that the empyema had perforated the diaphragm and invaded the retroperitoneal space. Cultures from the pus aspirated from the chest showed, at the end of twenty-four hours, a profuse growth of pneumococcus, with a few scattered colonies of *Staphylococcus albus*.

Operation.—October 26, with the aid of a 1 per cent. solution of novocain, resection of 3 cm. of the tenth rib near its angle was performed, and a large quantity of odorless pus evacuated. As tidal air could be demonstrated, negative tension drainage was established.

Result.—The night following the operation was the first on which the patient had been free from cough since the acute illness in 1905. Within three weeks the patient was able to return to his regular occupation, and at the conclusion of the treatment, three months from the date of operation, he had gained 25 pounds in weight.

CASE 2.—History.—P. C., a stone-cutter, aged 30, complaining of cough and weakness, was referred to me by Dr. Harding on Nov. 18, 1911. In December, 1908, owing to weakness accompanied by severe night sweats, cough, expectoration and loss of weight, he was compelled to quit work. In May, 1909, he applied to the Royal Edward Institute, and was placed in the Home Treatment Tuberculosis Class and confined to bed for seven or eight months. Tubercle bacilli were found in the sputum. After his discharge from the class he gained strength gradually but was never strong enough to resume work. About July, 1910, he was admitted to one of the city hospitals, where he remained under treatment for extensive

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on request.

right-sided pneumothorax for a period of three months. Toward the end of this period there were also physical signs of fluid at the right base. Pleural exudate with pneumothorax was subsequently noted, but the fluid was not withdrawn, because at the last examination, six months before operation, the amount was not thought to be excessive and the patient, under open-air treatment, was showing gradual improvement. Cough and an evening temperature ranging from 99 to 102 F., however, still persisted.

Following the aspiration of 10 ounces of pus from the right pleura on November 17, before admission, the evening temperature remained normal for the first time since July, 1910, that is, since the onset of the pneumothorax. November 18, on admission, the patient was slightly dyspneic and cyanosed. There was absolute dullness on the right side of the chest below the level of the third dorsal spine. There were also signs of chronic tuberculosis in the upper lobe of the left lung. Between November 19 and December 6, six additional aspirations of the right pleura were carried out, and in all 142 ounces of pus were withdrawn. From the pus withdrawn on November 22, pure cultures of the influenza bacillus were obtained on blood agar.

Operation.—Dec. 9, 1911, under local anesthesia with 1 per cent. novocain, from 2 to 3 cm. of the ninth rib in the

hope of lessening the pleural area exposed to the secondary infection which would necessarily follow thoracotomy and drainage. Each aspiration was carried to the point at which the patient complained of a dragging sensation within the chest, the development of this symptom, on the first occasion, furnishing the important information that the pneumothorax was closed. The skiagraphs portray the effect of negative tension on the collapsed lung, the mediastinum, the diaphragm and the chest wall (Figs. 2, 4, 5, 6, 7, 8, 9, 10).

The results of the clinical application of negative tension correspond so closely with those obtained in artificially produced cavities in animals, that I take the liberty of showing a photograph (Fig. 12) of a specimen illustrating the capacity for readjustment and compensation possessed by the diaphragm, the lungs and the mediastinal contents.

While radiography gives valuable information as to the effect of negative tension on collapsed lung, only stereoradiographic records are capable of depicting the degree of expansion in more than one plane. The inter-



Fig. 1.—Case 1.—Skiagram, dorsal view, showing: (a) extensive shadow with irregular upper margin over lower lobe of left lung; (b) complete absence of heart shadow to right of vertebral column with retraction of mediastinum toward the diseased side; (c) dense bismuth shadow above in empyemic cavity, below in retroperitoneal cavity, the two being connected by a narrow tract.

anterior scapular line were resected, and after the application of a negative tension drainage apparatus, a further quantity of pus was evacuated.

Result.—At the present time, six months after operation, there is almost complete obliteration of the cavity on the right side, and the patient has gained 13 pounds in weight.

This case was characterized not by infiltration of the pulmonary tissues, but by complete collapse of the lung. The definition and uniformity of the upper limit of the fluid in the skiagraphic plates (Fig. 2) attested to the presence of both lung collapse and gas above the level of the fluid. The absence of mediastinal infiltration and fixation was shown radiologically (Fig. 3) by the hydrostatic effect of the fluid on the mediastinal septum, when the patient assumed the left lateral position. The unbroken level of the upper limit of the fluid in this position pointed further to the absence of adhesions between the visceral and parietal pleurae. In view especially of this demonstrated mobility of the mediastinum, aspiration at intervals was first employed in the



Fig. 2.—Case 2.—Skiagram, dorsal view taken Nov. 19, 1911, after second aspiration of 22 ounces of pus, showing: (a) sharp line of upper limit of fluid at level of articulation of sixth rib with vertebral column; (b) air vesicle above line of fluid; (c) collapsed lung represented as a narrow oval area in close relation with the spine and extending from lower border of fifth rib to seventh interspace.

pretation of these records is, however, most difficult, and their cost almost prohibitive, if frequent exposures are necessary. Thus we are without means of gauging accurately the rate of obliteration of cavities. To meet this defect I have made a number of observations on the quantity of air withdrawn in inducing the desired negative tension. An approximate estimate of tidal air (that is, the amount of air which, in the presence of open thoracotomy, would pass in and out of a cavity with each respiration) may be made by immersing the end of the collecting bulb in water at the end of expiration and reading off the number of cubic centimeters of fluid drawn into the bulb during inspiration. This estimation is of value chiefly in determining the time at which negative tension should be discontinued, the presence of tidal air being an absolute indication for its maintenance. Early estimations of tidal air are contra-indicated, because it is necessary to release any negative tension remaining at the end of expiration and this may result

in the destruction of newly formed pleural adhesions. Further, the estimation of tidal air in large cavities gives one no idea of the amount of air still remaining. Again, the exclusion of tidal air alone is not sufficient to promote rapid expansion, as the minimum negative tension thus induced, that is, the negative tension persisting at the end of expiration, does not exceed 2 to 3 mm. of mercury. In chronic cases it has been my practice to leave the cavity under a minimum tension of 5 mm., this minimum corresponding to an average inspiratory maximum tension of 12 mm. To determine the quantity of air removed in order to secure a mini-

a smothered, jerky way until the desired reading is secured on the manometer. This estimation, if taken at each dressing, is an accurate guide as to the rate of obliteration of the cavity. For lack of a better term I have called the air thus collected "complementary air." By coughing, the minimum tension may be raised, in large cavities, even to 10 mm.; the extra amount of air thus withdrawn in comparison with the increased tension secured is, however, very much less than that with-

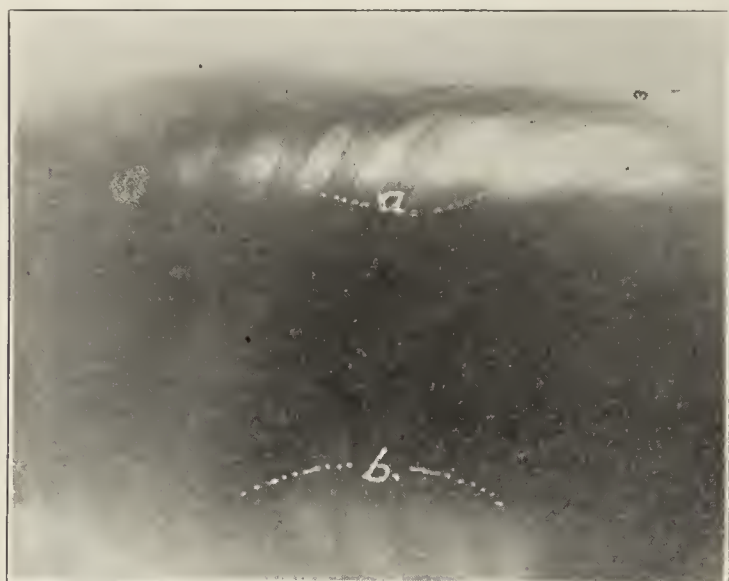


Fig. 3.—Case 2.—Skiagram, November 21, left lateral position, dorsal view, showing: (a) unbroken level in line of fluid denoting absence of pleural adhesions; (b) uniform line on the opposite side of the chest, parallel to line of upper limit of fluid, indicating deflection of the mediastinum, especially in its upper part.

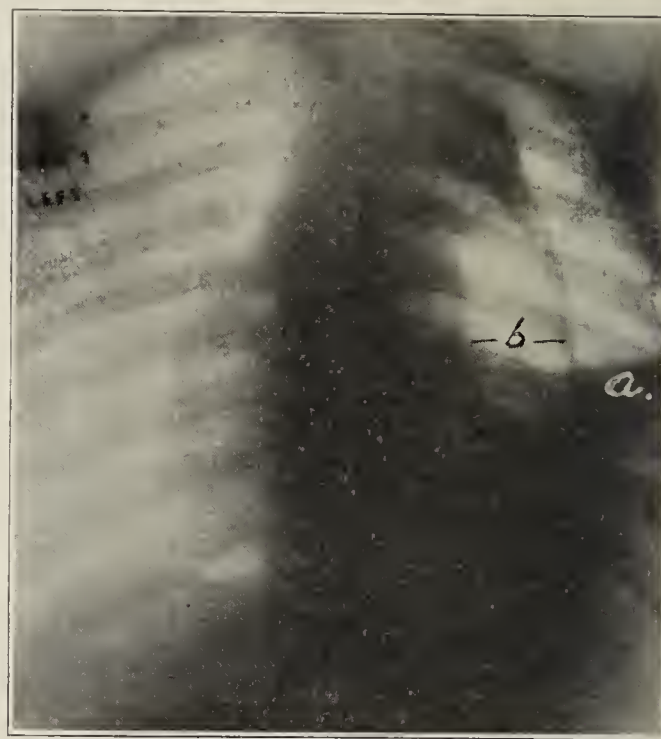


Fig. 5.—Case 2.—Skiagram, dorsal view, taken November 25, after fourth aspiration of 30 ounces of pus, showing: (a) fluid at level of seventh interspace, adjacent to spine; (b) marked progress of reexpansion of right lung.

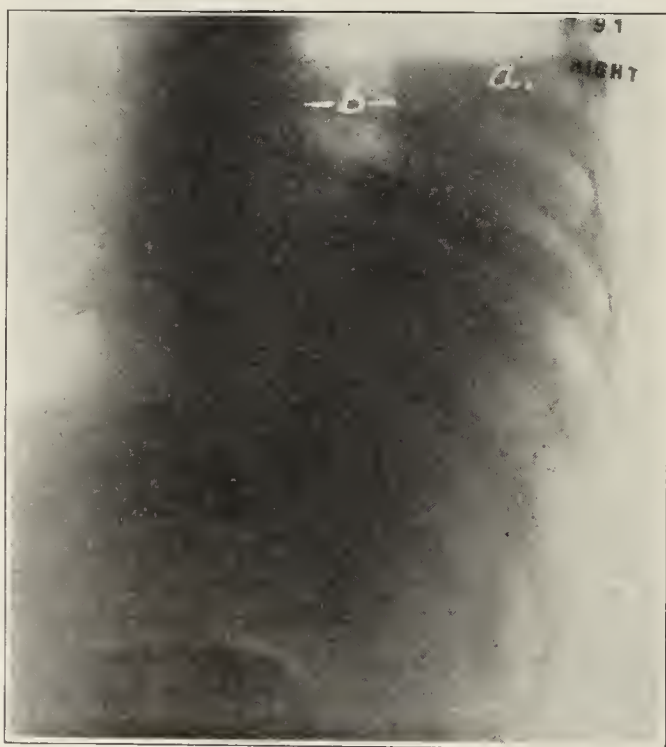


Fig. 4.—Case 2.—Skiagram, dorsal view, taken November 22, after third aspiration of 30 ounces of pus, showing: (a) fluid at level of vertebral articulation of seventh rib; (b) increase in area of collapsed lung.

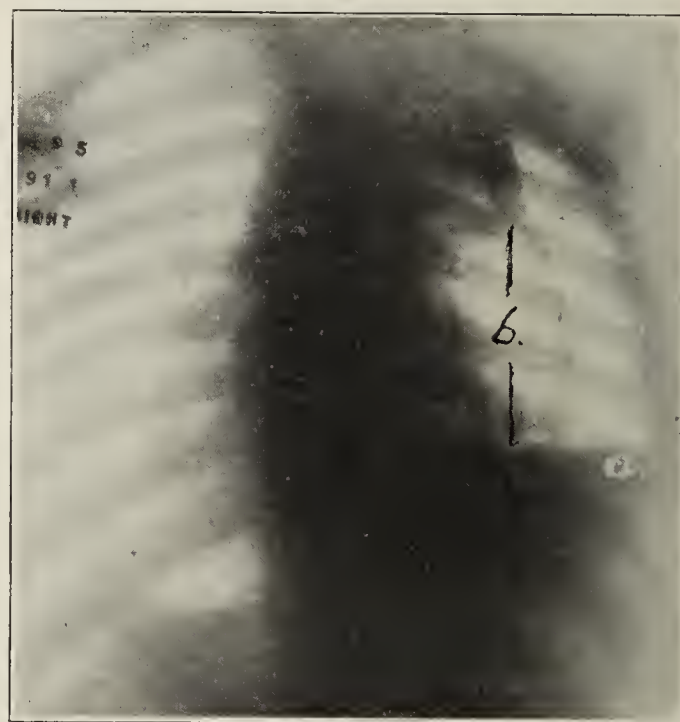


Fig. 6.—Case 2.—Skiagram, dorsal view, taken November 29, after fifth aspiration of 20 ounces of pus, showing: (a) fluid at level of ninth rib at its articulation with the spine; (b) still further reexpansion in the right lung.

mum tension of 5 mm., I have collected it by the usual means employed for the collection of gases, illustrated in Figure 13. Although a small bellows with one-way valves is inserted in the line of the distal tube leading to the collecting cylinder, it is not necessary to employ this means of exhausting the cavity. Starting with a minimum tension of 2 mm. of mercury, I have found it more practical simply to instruct the patient to cough in

drawn between the minimum tensions of 2 and 5 mm. From the accompanying table it will be seen that the diminution in the amounts of complementary air (as well as in that withdrawn between the minimum negative tensions of 5 and 10 mm.) is apparently very much more rapid than is the process of reexpansion, as shown in the single plate records. This is to be explained by the unobserved reexpansion of the lung in the antero-

posterior direction, by the rise in the diaphragm, by the narrowing of the intercostal spaces on the side of the cavity (that is, vertical shortening), and by the compensatory changes in the other lung.

The most important lesson to be drawn from these clinical observations is that in chronic unopened empyemas, that is, in empyemic cavities which have not been exposed to postoperative pneumothorax, thickening and

tion of active serum, which tends to suppress suppuration and later to promote the development of healthy pleural granulations, the union of which is essential to secure permanent anchorage for the reexpanded lung. It is not sufficient that the lung should reexpand; it is necessary that there should be some means by which reexpansion may be maintained, and this is found in the union of the granulations covering the pleural surfaces.

Whatever the form of apparatus employed, the one essential is the constant maintenance of a partial vacuum within the cavity. The apparatus used in the cases

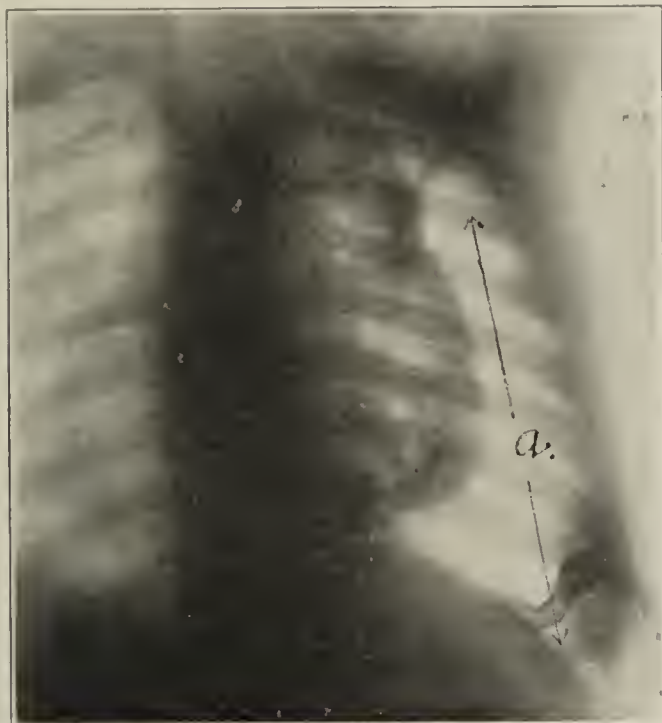


Fig. 7.—Case 2.—Skiagram, dorsal view, taken December 14, five days after thoracotomy and the establishment of negative tension drainage, showing: (a) the enormous sectional area of the cavity; (b) slight recession of the lung compared with last record, owing to temporary exposure to atmospheric pressure.



Fig. 9.—Case 2.—Skiagram, dorsal view, taken April 13, 1912, showing: (a) almost complete obliteration of cavity in sectional view; (b) descent of posterior inferior border of lower lobe; (c) deflection of the upper portion of the mediastinum and its contents toward the cavity.



Fig. 8.—Case 2.—Skiagram, dorsal view, taken Jan. 17, 1912, showing: (a) further reexpansion of the lung; (b) rise in diaphragm; (c) marked reduction in the sectional area of the cavity; (d) approximation of the ribs of the side of the cavity (i. e., vertical shortening of the cavity), and their separation on the left side.



Fig. 10.—Case 2.—Photograph of superimposed tracings of seven x-ray records showing stages in reexpansion of right lung.

fixation of the walls are not always to be looked for, and conversely, that the greatly thickened and rigid visceral pleura seen in chronic empyemas which have been drained in the usual way, may be assumed in many cases to be the product of postoperative pneumothorax and the accompanying secondary infection.

One, and not the least, feature of the negative tension method of drainage is that it induces the free transuda-

reported has been previously shown and described by me, and in my own hands has proved most satisfactory in preventing pneumothorax. Its suitability for ambulatory treatment adds greatly to its usefulness and efficiency. By its use the average period of retention in hospital is reduced by at least one-half. The infrequency of the dressings is appreciated by the patient. Success depends entirely on attention to detail in its application. For the guidance of those who may wish to employ this apparatus, I append notes on the technic of the dressing.

DIRECTIONS FOR THE RENEWAL OF NEGATIVE TENSION DRESSING¹

A supply of sterile felt pads and dentist's rubber dam should be kept on hand, as these materials should be renewed at each dressing.

The pads, made from piano felt, should be exactly the same shape and size (4.5 cm. by 8 cm.) as the oval rubber shoulder which is drawn on to the drainage tube after

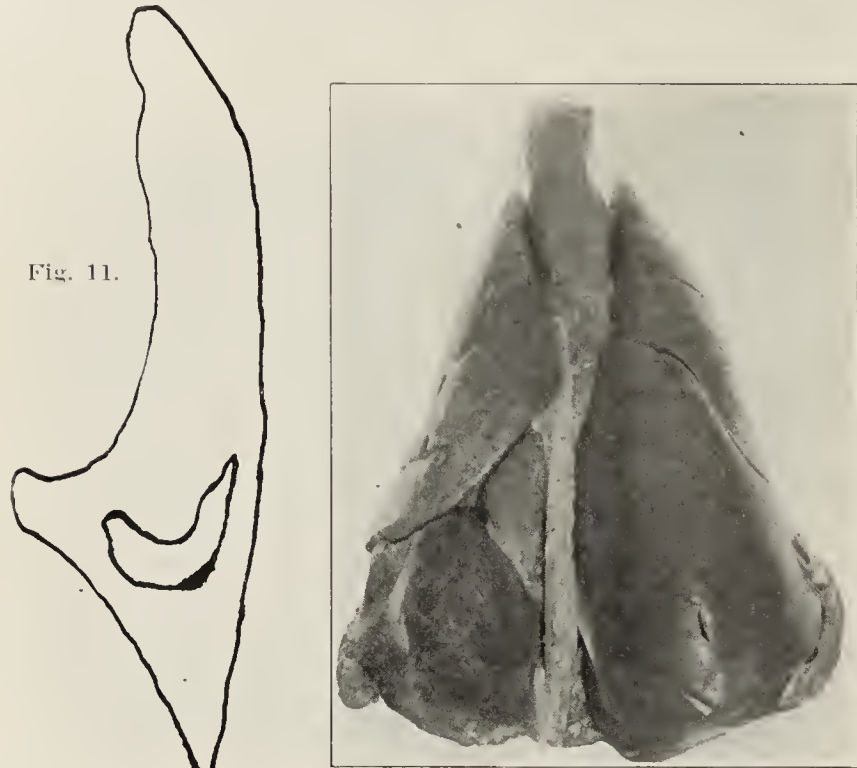


Fig. 11.—Sectional area of cavity as seen in single plate records, Dec. 14 and April 13.
Fig. 12.—Photograph of specimen from Dog No. 51, dorsal view. June 29, 1910: excision of left lower lobe under positive differential pressure; thorax closed in expiration. Killed Aug. 31, 1910, shows: (a) compensatory enlargement of the left upper lobe and the whole of the right lung; (b) upward retraction of the left leaf of the diaphragm. The altered position of the gullet at the level of the cavity is an index of the capacity for rearrangement possessed by the mediastinal structures.

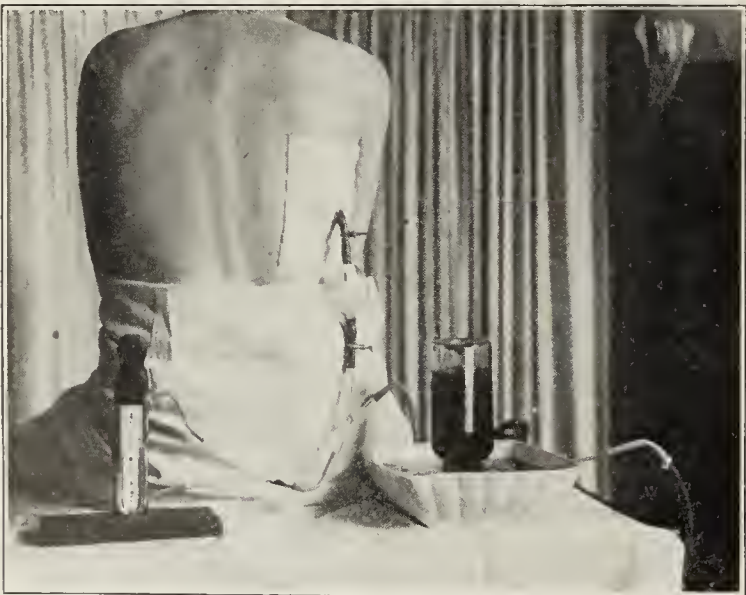


Fig. 13.—Apparatus for collecting and measuring air withdrawn from empyemic cavities under various tensions.

the adjustment of the pad and the rubber dam. The central perforation in these felt pads is best made with a tubular cork-cutter, a little smaller in diameter than the drainage-tube.
The rubber dam should be cut into pieces 8 cm. by 11 cm., with a central perforation for the passage of the tube 3 or 4 mm. in diameter, that is, a perforation much smaller than the tube, in order that, when drawn on, there may be a reflection outward of the rubber dam on

the tube. This reflected portion is firmly grasped by the margins of the perforation in the oval rubber shoulder, forming an air-tight union at this point.

Two tubes—to be used at alternate dressings—are necessary to avoid delay.

STEPS IN DRESSING

1. As the tube is being removed, plug the sinus with gauze or cover the opening with a small Bier's cup to prevent ingress of air.
2. Cleanse with petrolic ether the skin surface covered by the adhesive strips.
3. Smear the skin with the following ointment: phenol (carbolic acid), 1 per cent.; zinc oxid, 15 per cent.; yellow petrolatum, 100 per cent., the petrolatum to have a melting point of 104 F. The use of this ointment prevents excoriation and also increases the adhesive properties of the zinc oxid plaster.

QUANTITY OF AIR WITHDRAWN IN INDUCING A MINIMUM NEGATIVE TENSION
(Case 2)

Date	C.c. of Air Withdrawn in Inducing a Minimum Negative Tension of		Tidal Air, c.c.
	5 mm. of Mercury	10 mm. of Mercury	
12/16/11	900-1,000	...	..
12/30/11	750	...	..
1/10/12	700	...	..
1/17/12	600	...	..
1/31/12	450	...	..
2/10/12	400	...	..
2/24/12	350	...	..
3/ 9/12	300	...	..
3/20/12	250	...	60+
3/23/12	230	...	50
3/30/12	200	250	22
4/ 6/12	160	190	15
4/10/12	150	175	10
4/13/12	145	165	10
4/17/12	110	155	—
4/20/12	80	130	10
4/24/12	50	80*	—
4/27/12	50	70	10
5/ 4/12	50	60	8
5/ 8/12	50	60	8
5/11/12	50	55†	8
5/15/12	45	50	—
5/17/12	30	40	—
6/ 1/12	25	35	—

* 8 mm † 7 mm.

4. Fit together the various parts of the apparatus with the exception of the bulb, and smear the felt pad with the same zinc ointment.
5. While the patient holds the breath in expiration, insert the tube with its valve closed.
6. Apply the adhesive strips. There should be six of these—four 2½ by 7½ inches, and two 2½ by 5 inches. These strips should be prepared from the fresh roll, the adhesive surface of which has been covered only with gauze. Spool-plaster and plaster which has been prepared from the piece and rolled on itself are defective in adhesive properties and unsatisfactory for this purpose. See that the sheet of rubber dam lies smoothly on the skin, but without being stretched. Apply first a long transverse strip above; second, a long transverse strip below; third and fourth, short side strips; and fifth and sixth, long transverse strips above and below, overlapping the side strips and taking in a further area of uncovered skin. The strips should be warmed before application.
7. Apply a gauze pad and bandage over the whole dressing.

1. See also Ann. Surg., July, 1911.

S. Insert the glass bulb with the trap toward the chest cavity, and with the nozzle of a collapsed Politzer bag in the lower tube, open both valves. If the cavity is large, the Politzer bag may expand entirely, in which case it should be emptied and again applied until it remains collapsed. Then close the lower valve. The cavity should be exhausted at least twice a day, and always after the bulb is emptied. Continuous suction with the Politzer bag is not desirable in acute cases, as it promotes profuse serohemorrhagic discharge. In chronic cases the negative tension may be increased by further aspiration with an air-tight syringe. A common glass syringe with a rubber-rimmed piston is quite satisfactory for this purpose.

The dressing should be changed every four days.

If capillary leakage occurs (and it is apt to occur in the earlier stages of an acute case) simply wipe the margins of the dressing dry and apply additional adhesive strips.

219 Peel Street.

THE SURGERY OF CHRONIC INFECTIOUS DISEASES OF THE LUNG *

SAMUEL ROBINSON, M.D.

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At the Chicago meeting of the American Medical Association in 1908, a symposium on thoracic surgery was presented before the Section on Surgery. The value of differential pressure in thoracic operations was the chief topic of the symposium. The experience of the readers at that symposium had been essentially experimental; they had been performing operations on animals which, previous to the employment of apparatus, had been regarded as impossible.

In the four years which have since elapsed, many thoracic operations on human beings have been done under the different forms of plus and minus pressure, and another equally successful method — intratracheal insufflation — has been introduced.

Apparatus has been used in many of these operations to test the efficiency of a given method or mechanism, although such operations had previously been successful without apparatus. It has been employed by some surgeons as a routine in thoracic cases, sometimes, perhaps, to accumulate a group of cases with which the inventor may justify the success of apparatus which he has designed. Intratracheal insufflation has been employed in some chest operations, not necessarily to combat pneumothorax, but to provide an ideal anesthesia. A very limited number of operations are recorded in which the operator can honestly claim that the case would have been less successful without the use of apparatus. Some operations have been undertaken which were regarded as unjustifiable until these several methods were introduced. The mortality of these cases has been high, but unquestionably lower than had the attempt been made without apparatus.

From this maze of recent literature, enthusiastic demonstrations of apparatus, controversy as to choice of methods, and descriptions of new thoracic operations never yet perhaps successful in the human being, it is perhaps time to unearth some such conclusions as the following regarding the actual contributions which these

artificial aids to respiration have rendered to thoracic surgery.

Operations for acute and chronic empyema and acute postpneumonic abscess may be performed with equally good results without the use of apparatus.

Any extensive thoracic operation for non-infectious lesions in the absence of adhesions is, by the exclusion of the dangers of wide-open pneumothorax, deprived of at least one of its former dangers. This includes exploratory operations for diagnosis, excisions of tumors or strictures of the esophagus and cardia, tumors of the chest-wall not involving the lung, diaphragmatic hernias, traumatic heart lesions approached transpleurally, and intrathoracic lesions requiring blood-vessel suturing. To these the cautious operator may add any operation on the chest in which there is the possibility of accidental opening of a normal pleura. In these cases apparatus is unquestionably indicated. They represent a new field in thoracic surgery, and despite the hitherto limited successes, progress is evident.

In bronchiectasis, chronic abscess, tuberculosis, and actinomycosis, and tumors of the lung and pleura, pneumothorax is *a priori* not a great danger, because of the ever-present adhesions. It cannot be claimed that either differential pressure or intratracheal insufflation have as yet bettered the results in operations for these diseases. Intratracheal ether, however, provides the best anesthesia for this group, and with its accompanying insufflation supports an already limited respiratory function.

From this preliminary summary of the real indications for apparatus, I turn to the main subject of this paper, namely, the surgery of chronic lung infections — diseases admittedly beyond cure by medication.

The number of invalids slowly succumbing to these diseases is greater than is recognized. Realizing the hopelessness of medication and the inadequacy of operative treatment, practitioners rarely send such patients to hospitals, and at the present time they are to be found also in the institutions for chronic diseases. That these chronic infections are amenable to surgical treatment cannot be denied, despite its present doubtful status; and it may be argued that our attention should be devoted to progress along these lines, as well as to the development of the more radical procedures for non-infectious conditions.

Evidences from experimental and clinical experiences tend to show that the surgery of the future in tuberculosis, bronchiectasis and chronic abscess of the lung will consist in conservative rather than radical measures. The conservatism of the past has perhaps been erroneous. It has consisted largely in the attempt to drain lung cavities resulting from any of these three diseases. The drainage of tuberculous cavities has not been attended with cure because of the diffuse nature of the disease. Even though only one cavity of inconsiderable size may exist, the tuberculous infection is invariably more extensive and remains unrelieved. Drainage of bronchiectatic cavities has rarely been followed by cure, and seldom by improvement. Rarely does one cavity exist alone. The profuse sputum results from the confluence of the contents of many smaller cavities, even though the process be confined to one lobe of the lung. In chronic abscess of non-influenza origin, multiple foci are frequently present, surrounded by chronic pneumonic thickening. The rigidity of the surrounding tissues tends to prevent the healing of these drained foci, and bronchial fistulas and chronic sinuses persist, sometimes diminishing the amount of sputum but rarely curing the patient.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912

Lung resection is obviously the idealist's ambition in attacking bronchiectasis and chronic abscess. The successful removal of a lung lobe in selected cases would undoubtedly result in cure. The recent successes in resection of lung lobes in normal animals necessarily stimulate us to like procedures in the human. The total removal of the lower lobe for lobar bronchiectasis and chronic abscess confined to the lower lobe will doubtless be the ultimate source of cure in some instances; but attempts to perform this operation in one radical procedure have thus far failed. I have recently added one more case of successful lobar excision to a limited number on record. In none of these cases was excision accomplished in a one-stage operation. Excision was the terminal procedure, following a series of preliminary drainage operations which had resulted in a collapse of the lobe with shrinkage of the inflamed tissue, often accompanied by empyema. These excisions have generally been the accidental but not the originally conceived outcome of the treatment. Is it not conceivable that we should attack these cases with ultimate excision in view, performing preliminary operations to produce collapse and shrinkage, thus preparing the chest-wall, as well as the lung itself, for an excision operation?

The value of compression or immobilization is twofold. It not only prepares the lung lobe for subsequent excision, should such prove necessary, but is of therapeutic value in itself. The capacity of contained cavities is reduced, cicatrization is favored, and with the diseased part at rest, the lymphatic circulation is retarded and toxic absorption is diminished.

A hydrothorax or pneumothorax occurring spontaneously in the course of lung tuberculosis was once regarded as unfavorable. In late years the compression resulting has proved to be beneficial, and internists do not remove fluid or air unless symptoms of undue pressure occur. Spengler reports cures in twelve such cases. The pneumothorax incident to trauma of the lung tends through compression of the lung to arrest or prevent hemorrhage.

Lung compression may be artificially produced by four methods. Nitrogen gas or fluid may be introduced between the pleural layers, causing artificial pneumo- or hydrothorax. The chest-wall may be rendered collapsible by the resection of many ribs from the first or second to the ninth inclusive. In this operation the pleural cavity is not opened. The pulmonary arterial supply to a lobe may be cut off. An interalveolar connective tissue formation results, and a shrinkage of the whole lobe occurs.

The fourth method is that which results from rib resection and opening of the pleural cavity, followed by pneumotomy for abscess or cavity drainage. An empyema generally results, and, as in all empyemas, the lung becomes more or less collapsed. A pyothorax thus produced, will, as in artificial pneumothorax, result in lung compression. As stated above, this source of compression has never been deliberately produced, but has in each case preceded all the recorded successful resections of infected lungs.

Reasonable as this theory of compression therapy may at first seem, the question arises as to how far practical application has determined its value. As in all surgical procedures, the success has in part at least depended on the selection of the method of compression best suited to the nature of the disease.

The best, and to my mind the only, surgical treatment of pulmonary tuberculosis is lung compression produced

by the injection of nitrogen gas into the pleural cavity. Murphy of Chicago advocated this method before the American Medical Association fourteen years ago. Forlanini, Brauer and Schmidt have in these years employed the treatment constantly. The specialists in tuberculosis in this country are now undertaking it.

I have made almost fifty such injections, twenty of which were preceded by an incision to the parietal pleura.

It is surprising how rarely adhesions prevent the establishment of a pleural space. Compression to a greater or less extent is generally possible. The collapse of cavities reduces the retained secondary infectious material. Consequently, fever is frequently reduced even to normal; night sweats often cease and the general condition of the patient is so improved as to permit work. In other words, the symptomatic relief attending pneumothorax therapy in tuberculosis is ever present. This relief alone justifies the treatment. Many cures are now on record.

With this method of attack on tuberculosis advanced beyond hope of relief by hygiene, there is little occasion to employ any other compression therapy in this disease.

An extensive resection of ribs in a phthisical patient to produce compression, which may likewise be accomplished by the injection of nitrogen gas into the pleural cavity, is eminently unsound. Furthermore, it is open to question whether this pleuropneumolysis rib resection operation of Friedrich should be performed even on patients in whom pleural adhesions are too extensive to admit an artificial pneumothorax injection.

Bronchiectasis continues to face surgical interference with stubborn resistance, and yet I constantly see cases with a localized process in one lobe of one lung, which must eventually yield to surgical relief, when we perfect the technic. There is no case of bronchiectasis on record in which a complete cure has resulted from the pleural injection of gases or fluid. The condition has been relieved and the sputum quantity diminished, but the process does not succumb to compression therapy alone, as might be expected.

Two of these compression methods have been employed in bronchiectasis. I have lost two out of three patients in attempting the extrapleural rib resection method. The operation itself was withstood by all three. The fatal issue has been the postoperative retention of the ever-abundant sputum. The large operative wound causes pain in coughing. The infectious material remains stagnant in the infected side, and the lymphatics and blood circulation transmit the infection to new metastases. The nitrogen injection method in bronchiectasis does not prevent coughing and continued bronchial drainage. Of the compression methods it is perhaps the safest one; but it is obvious that compression alone will not favor the healing processes in bronchiectasis as it does in tuberculosis.

When the process is lobar, why not deliberate excision? The obstacles to such an operation are too numerous to enumerate here; suffice it to say that the attempts at a one-stage operation have universally failed.

I believe that our one hope of attacking bronchiectasis is by a preliminary compression followed by excision. This has been accomplished not premeditatedly, but in cases in which a compression has resulted from previous operations, and excision has been done successfully. If this combined treatment is to be accomplished, what method of compression should be previously employed? That depends on the case in hand. In no case should

extrapleural rib resection be used. Artificial nitrogen pneumothorax may be employed if adhesions are not too extensive. Drainage of a well-localized cavity, if large and near the surface, may relieve some of the post-operative sputum accumulations. Another operation through the first wound may drain another abscess. The remaining lung tissue is then an organized shell of pneumonic tissue. More ribs may then be resected, and the lobe excised.

Another interesting method of producing lung compression has been brought to notice by the experimental investigations of Sauerbruch and Bruns. While in Germany three years ago, through the courtesy of Professor Sauerbruch, I was permitted to assist in this series of animal operations in which the pulmonary arterial branch to the lower lobe of one lung was ligated and divided. I have since repeated these experiments on fifteen dogs at the Harvard Laboratory of Surgical Research. The technic is simple under differential pressure. A long intercostal incision is made in the eighth interspace, and a wide-open thoracic wound provided by widely separating the ribs with a rib-spreader. Absence of adhesions in the normal dog permits access through the interlobar fissure to the lower lobe branch of the pulmonary artery. A silk ligature is applied. The wound is closed in layers, beginning with pericostal silk sutures closely approximating the ribs.

These animals were subsequently killed at varying periods in convalescence (from four days to five months) and the autopsies revealed surprising conditions. Dr. Kinnicutt, a pathologist, performed the autopsies with me and studied the sections microscopically. His findings may be summed up as follows:

The ligated vessel presented no clotting either distal or proximal to the tie. Its walls were thickened distal to the occlusion.

The isolated lung lobe was reduced in size and visibly shrunken. There were always adhesions between it and the diaphragm and pericardium. Its color was grayish in contrast to the other lobes.

Microscopically, the prevailing feature was a profuse growth of connective tissue in the interalveolar spaces, which was sometimes sufficient to obliterate the included air-spaces. This tissue was permeated with new blood-vessels.

The section findings in the experiments by Sauerbruch and Bruns have recently been reported, and they are in most respects identical with those of our experiments.

But two attempts have been made to employ this shrinkage therapy clinically; these by Sauerbruch in two cases of bronchiectasis. He reports improvement, but not cure.

There are reasons for including this as one of our four methods of producing lung compression. Granted that the therapeutic value of the shrinkage itself may be a limited one, the lobe thus changed in form and structure is better suited to subsequent excision.

Of the four forms of compression therapy mentioned, I find myself least enthusiastic regarding the extensive extrapleural rib resection in tuberculosis, bronchiectasis or even chronic abscess. I shall soon report a series of twenty-eight operations on dogs, which I performed by the courtesy of Professor Brauer at the University of Marburg. These experiments consisted in the resection of the second to the tenth ribs either *in toto*, as by Schede's method, or in segments, as by Jordan and Estlander. With instruments specially designed for the purpose, pleural injury was avoided in eighteen of the operations. Operative shock was constant and gen-

erally extreme. Collapsing the chest-wall and thus depriving the animal of the function of one lung resulted in labored breathing. A supporting pad to the collapsed chest with a plaster-of-Paris swathe bettered this condition and indirectly supported the mediastinum, thus permitting a better air exchange in the lung of the side not operated on. Six dogs thus treated recovered.

Granted that the flexibility of the mediastinum in the normal dog is far greater than that thickened by disease and supported by adhesions in human beings, this advantage must at least be offset by the lowered resistance of a tuberculous patient. The operative shock is increased, and the accessory muscular respiratory force needed to overcome the sudden change of conditions is already at a low ebb. The fact that a fair percentage of the phthisis patients operated on by Friedrich withstood this procedure does not convince one that its employment is justifiable until all other methods fail, and, I claim, not even then.

To sum up, then, I bring this subject of immobilization and compression of the lung to the consideration of the profession, enumerating the methods that the surgeon may realize the value of a carefully chosen method suited to a carefully selected case.

The repeated injection of a slowly absorbable gas, producing an artificial pneumothorax, is unquestionably of therapeutic value in tuberculosis. If too late for this method, it is also too late for pleuropneumolysis.

Artificial pneumothorax will not cure bronchiectasis. It may serve as a valuable preliminary to lobar excision.

Ligating the arterial supply to a portion of the lung will probably never accomplish more than artificial pneumothorax therapy in tuberculosis. This method is best suited to lobar bronchiectasis. It may prove further to be of symptomatic relief. It should also serve as a valuable preliminary to excision.

In multiple chronic non-bronchiectatic abscess we meet a stubborn foe. The attack should be piecemeal and not too radical; repeated but cautious attempts to drain the peripheral cavities under local anesthesia; incident and subsequent limited rib excision; separating of adhesions from time to time to favor shrinkage and organization of the remaining lung tissue, and finally, excision.

I urge in conclusion that, before entering a thorax infected with one of these chronic conditions, with the hope of a radical one-stage excision of part of the lung, we should pause and consider whether a suitable compression therapy had been duly considered.

374 Marlborough Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. FLINT,* ROBINSON AND VON EBERTS

DR. WILLY MEYER, New York: Among the diseases of the lungs mentioned in these three papers, I believe that bronchiectasis should be given the foremost place, for the reason that it is not curable by sanatorium treatment, although often attempted, as tuberculosis is. We know that tuberculosis first affects the parenchyma of the lung, and then the smaller bronchi, whereas bronchiectasis primarily affects the bronchi and then the parenchyma.

Dr. Robinson said that if shrinkage of the pulmonary lobe is produced, and later on collapse of the lung, these patients can be cured. This certainly is the correct method of treatment. I am sure that the injection of nitrogen gas, as applied to tuberculous patients, is of no benefit whatever in these cases. Through Sauerbruch and his assistants we know that ligation of the branches of the pulmonary artery

* Dr. Flint's paper will appear in THE JOURNAL later.

is the only thing that will produce proper permanent shrinkage of the lung. If the ordinary physiologic work of the lung is taken away it begins to shrink. The pulmonary artery is the one that simply tends to the exchange of gases, while the bronchial artery feeds the pulmonary parenchyma. After ligation of the pulmonary artery, the parenchyma of the lung begins to shrink and to be transformed into a mass of connective tissue; its pleural covering will become adherent to the costal pleura. If in a second operation, later on, the ribs covering the lobe or lobes are resected, the many larger and smaller bronchiectatic cavities are given another chance to collapse. Within the last three months I have performed this operation twice on the human being, ligating in the one case the branches of the right pulmonary artery that go to the middle and lower lobes, and in the second patient on the left side the branch that goes to the lower lobe, these lobes being the affected ones. These patients continue expectorating during the greater part of the operation, and therefore it is an excellent proposition of foreign surgeons that these patients should not be operated on under general anesthesia. I injected the fourth, fifth, sixth and seventh thoracic nerves at the angle of the rib posteriorly with novocain and epinephrin, making my intercostal thoracic incision between the fifth and sixth ribs.

Before excising a lobe of the lung, we should certainly first try ligation of the pulmonary artery branches, and in the second stage excise a number of ribs in order to produce the needed collapse. It is highly interesting and very gratifying that at least a portion of the cases of tuberculosis have now also come to be regarded as being within the domain of surgery, as far as treatment is concerned. The medical man as well as the surgeon should see that in such cases in which hygienic régime and sanatorium treatment are not benefiting the patient, surgical measures should be resorted to, such as a resection of a number of ribs, allowing the lung to collapse, thus emptying pus cavities, reducing hectic fever and favoring shrinkage of the lung. In this way many patients, who are otherwise lost, may still be greatly benefited.

DR. T. T. THOMAS, Philadelphia: Dr. Robinson in his discussion said that differential pressure is not an advantage in operations for acute empyema. There is probably no such thing as a general or unencysted empyema of the acute type, and these terms are very commonly employed. In that type of empyema, which is by far the most common, the pus collection is just as much localized as in the small, so-called encysted variety. What is more important, I believe that the present fear of opening these empyemas at the very bottom need not exist. Since reaching these conclusions, I have had about six cases and have had no trouble in placing the drainage opening at the bottom of the cavity in any one. In nearly all, the empyema reached the bottom of the pleural cavity and in these a small portion of the eleventh rib near the spine was removed, so that the opening was easily carried to the top of the twelfth rib. The drainage obtained appeared to be perfect in any position the patient could occupy. I believe that it will be possible with such a dependent drainage canal, which of necessity will be very oblique, to have the opening large enough for free drainage and yet too small to admit of air passing in in the presence of the constantly escaping pus which will tend to fill the passage. If this can be provided, I believe that it will prove to be the best protection against a chronic empyema and will obviate the necessity for suction drainage.

DR. CARL BECK, Chicago: I wish to confirm what Dr. von Eberts said about the treatment of chronic empyema with the negative pressure apparatus. This can be done in many ways, also in an ambulatory way, by the method of Bier. Suction with a glass bell over the sinus will greatly reduce the size of the cavity, as can be seen in stereoscopic pictures. This method is not without danger, the danger of hemorrhage. I have seen a severe hemorrhage follow in two cases, although I have used the method in many other cases without accidents and successfully. Therefore, the pressure must be carried out very carefully. As to the extensive resection of ribs, Dr. Robinson is correct in saying that such a resection of a whole chest-wall is followed by a great deal of shock. It can

be modified, however, by a simple method, making a resection of the chest-wall a multiple resection, removing small portions of the ribs, so as to allow a compression of the chest-wall, which is so necessary in these cases of empyema.

DR. SAMUEL ROBINSON, Boston: Undoubtedly the question which interests us most is the treatment of empyema. I doubt very much if Dr. von Eberts has been given due credit for intimating that certain limitations exist in connection with the suction treatment. I at one time wrote a paper on the suction treatment of empyema, and I find that since then I have been credited with having recommended external suction treatment in all cases of empyema. I noted with great satisfaction that Dr. von Eberts explained, in the first place, that there was every reason to believe that this particular patient whose case is illustrated was especially suitable for the treatment. It was evident from the skiagram that the tendency of the lung was to come down; that it was not firmly adherent to the visceral pleura; that it was not greatly thickened; and, furthermore, if it had been greatly thickened, as it is in most cases of empyema, his skiagrams would not have shown the border of the lung in the different stages of extension. In other words, this was a suitable case. There are cases suitable for suction drainage and there are other cases which are not. No sane person recommends suction drainage in all cases of empyema. In an acute empyema in which the lung is still movable we may resort to this measure; likewise, in the subacute cases which are so common in every hospital, when the condition has not been recognized until three to six weeks after the crisis of the pneumonia. These are border-line cases, and it is a question whether the lung can be brought down by suction. Therefore, it must be determined at operation whether the lung is held down by thick leather-like adhesions in the form of a membrane. The third group consists of chronic cases in which we have the usual type of thick pleura. In this class of cases suction accomplishes almost nothing, and in the attempt to apply it the tendency is to have insufficient drainage and not to overcome the septic absorption to which these patients have been exposed for many months.

DR. E. M. VON EBERTS, Montreal: Dr. Beck referred to the occurrence of hemorrhage following the application of negative tension. I have seen such hemorrhage under two conditions only: (1) when the negative pressure was not controlled—when it was too high and there was oozing in consequence; and (2) in a cavity which was primarily a marginal lung abscess, and in which destruction of lung tissue had taken place. The inner wall of the empyemic cavity was therefore formed of lung tissue. The bleeding took place into the bulb instead of into a bronchus, as is usually the case in hemorrhage in lung abscess. The point is that the tension should be controlled by the use of the manometer. My apparatus is essentially an ambulatory apparatus. The fact that it is such enables one to get the patient up quickly after operation, not only in acute but in all cases, and in acute cases to begin forced feeding at an earlier date. In acute cases the lung may be drawn out in twenty-four or forty-eight hours, but if the tube is then removed, the lung will not remain expanded. It is not sufficient merely to reexpand the lung; it is necessary to have some mechanism by which expansion may be maintained. This is found in the union of the pleural surfaces. This union will not occur in the absence of reparative power. An ambulatory apparatus which enables the patient to be up and about early and to take an increased amount of nourishment is an advantage. Patients appreciate the fact that dressings need not be made frequently, not oftener than twice a week or every four days. The use of this apparatus in acute cases has cut down the stay in hospital about one half. In certain chronic cases the necessary rib resection may be done under local anesthesia in the outdoor department, and the patient sent home immediately thereafter. With regard to the application of negative tension in chronic cases, a good indication is the presence or absence of tidal air. Where one finds, after resection, that one has to deal with a visceral wall which is still pliable, negative tension should be applied, and as long as tidal air persists, it may be taken as an indication that further lung tissue may be reclaimed by suction.

EXPERIMENTAL POLIOMYELITIS IN
MONKEYSTHIRTEENTH NOTE: SURVIVAL OF THE POLIOMYELITIC
VIRUS IN THE STOMACH AND INTESTINE*

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The view of the nasopharyngeal site of entrance into and exit from the infected body of the poliomyelitic virus has steadily gained support from experiments on monkeys¹ and from observations on cases of epidemic poliomyelitis in man. The recent observations of Kling, Wernstedt and Pettersson² of Stockholm have an especially important bearing on this subject. These observers have demonstrated the virus by inoculations made into monkeys, in the mucus contained in washings from the nose and mouth of acute examples of poliomyelitis both during life in patients who recovered, and after death in individuals who succumbed. The virus had previously been detected by inoculation tests in the nasal³ and buccal mucosa, and in the tonsils^{3, 4} in fatal human cases of the disease. The findings of Kling, Wernstedt and Pettersson would appear not only to complete the chain of evidence in support of the nasopharyngeal route of infection in man, but to add still another important confirmation to the prevailing views regarding the sources of infection in poliomyelitis, in that they establish the presence of the virus in the nasal and buccal cavities in cases of poliomyelitis of the meningitic and abortive types in which frank paralysis has not occurred.

But these authors have observed still another situation in which the virus occurs with great constancy, namely, in the intestine, both in the mucus contained within the small intestine, as discovered in fatal cases, and in the washings from the large intestine as determined in patients during life. The regular occurrence of the virus in these situations in human cases of poliomyelitis immediately raises the question of the manner of its entrance into the intestines. Since the virus has now been shown to exist in the nasal and buccal mucous membranes and in their mucus secretions it is presumable that it reaches the gastro-intestinal tract with the swallowed secretions. In this case the virus must be capable of surviving in the stomach and passing out alive, and of resisting the action of the intestinal ferments and bacterial flora. The capacity of the virus to survive in the stomach and small intestine was tested in the following manner:

REPORT OF EXPERIMENT

A milky suspension of the spinal cord of a recently paralyzed poliomyelitic monkey was prepared of which 50 c.c. were introduced by stomach-tube into a *rhesus* monkey that had not been fed for fifteen hours. After the lapse of two hours the animal was deeply etherized, and the stomach and about 20 cm. of the duodenum and jejunum were enclosed separately between ligatures. The ether was then increased and the monkey killed. The two organs were removed and their surfaces washed in sterile saline solution. They were then

opened. The stomach was empty except for a quantity of mucus at the pyloric extremity. The intestine was empty. The surfaces of the mucosae were washed in 50 c.c. of sterile saline solution and the washings collected separately. After agitation each was filtered under pressure through Berkefeld candles. The filtrates were sterile. Four c.c. of each filtrate were inoculated intracerebrally into the *Macacus rhesus* monkeys. The two inoculated monkeys presented the first symptoms of poliomyelitis on the fourth and fifth days, respectively. The animal injected with the filtrate prepared from the intestinal mucus showed symptoms one day earlier than the animal injected with the filtrate prepared from the contents of the stomach. The progress of the disease was similar in the two animals. The muscles of the extremities became weak and those of the trunk paralyzed. Monkey A was etherized on the sixth day and the autopsy performed at once. Monkey B died suddenly on the sixth day from respiratory paralysis. The spinal cord and medulla of both animals showed characteristic lesions of poliomyelitis.

CONCLUSIONS

The deduction from these experiments is obvious. Since the poliomyelitic virus occurs in the nasal and buccal mucus in human cases of poliomyelitis it is inevitably taken into the stomach with the swallowed saliva. The virus survives the action of both the gastric and intestinal secretions and persists for a time in these organs. In human beings it leaves the body, in part, with the intestinal discharges, which are therefore a potential source of infection. It remains to be determined whether in the monkey artificially fed with the virus it also passes out in a viable state with the dejecta.

A CASE OF MYOSITIS OSSIFICANS
TRAUMATICA*

St. CLAIR VANCE, M.D.

ANCON, C. Z.

This is the second case of this relatively infrequent malady seen in Ancon Hospital and is reported because of its rarity.

History.—The patient, an American man, aged 28, has had no illnesses save mumps and measles of childhood. Nov. 22, 1911, while he was cutting a thick sheet of iron at a shearing-machine, the piece cut off, weighing about 50 pounds, was shunted with great force from the shearing-table and struck him on the anterior left thigh, 4 inches above the knee. He was not knocked down but was knocked backward bodily about 3 feet. After the pain resulting from the blow abated somewhat he continued his work but was forced to go home an hour later because of the recurrence of great pain in the thigh and knee. The skin was not lacerated, but there was ecchymosis above and below the knee; the thigh was swollen and the patient experienced considerable pain whenever he attempted to flex the knee. He remained in quarters five and one-half days, at the end of which time the swelling had partially subsided and he could flex the knee about 5 degrees. He noticed at this time that the muscles above the knee were tense and hard and that any attempt to flex the knee more than 5 degrees caused pain as if the muscles would tear apart across the anterior thigh at the point of injury. During the next three weeks the patient had to be given such work as did not require bending of the knees; he walked stiff-legged and when he sat down had to keep the left foot elevated. He had no spontaneous pain but only the sensation of tearing across the muscles when he flexed the leg. At the end of three weeks after his injury he noticed a hard mass the size of a walnut at the place of injury and the muscles of that region seemed hard and stiff in spite of vigorous massage.

* From the Rockefeller Institute for Medical Research.

1. Flexner and Lewis: THE JOURNAL A. M. A., Feb. 12, 1910, p. 535; Jour. Exper. Med., 1910, xii, 227. Flexner: THE JOURNAL A. M. A., Sept. 24, 1910, p. 1105.

2. Kling, Wernstedt and Pettersson: Ztschr. f. Immunitätsforsch. n. exper. Therap. Orig., 1912, xii, 316, 657.

3. Flexner and Clark: THE JOURNAL A. M. A. Nov. 18, 1911, p. 1685.

4. Landsteiner, Levaditi and Pastia: Semaine méd., 1911, No. 25, p. 296.

* Read before the Canal Zone Medical Society, March 5, 1912.

Examination.—The patient was admitted to Ward 1, Ancon Hospital, two months and one week after his injury, complaining of almost complete loss of function of the left knee and a growing tumor of the left thigh. There were no signs of injury; palpation revealed a hard, slightly movable, painless tumor 4 inches above the left knee, the size of an egg, with a thickening anterior to the femur, but separate from it, extending upward a distance of 4 inches. The patient had a range of motion of about 5 degrees at the knee, which could be forcibly increased to 20 degrees but only with considerable pain and tensility of the muscles a hand's breadth above the knee. Examination of the patient was otherwise negative. A skiagraph showed a shadow of moderate density, lying parallel to but separate from the femur, about 5 inches long and with ribbon-like ends.

Operation.—Under ether the bony mass was excised, but with difficulty, by reason of the intimate adherence of the crureus muscle on both anterior and posterior surfaces. The tumor seemed in fact to lie within and to be a part of the muscle except at one place, an inch in length, where it was attached to the femur and had to be loosened with a chisel. The tissue excised appeared to be a rough fragment of spongy bone 5 inches long and 1 inch wide.

Pathologic Examination.—The report on the specimen, by the Canal Zone Board of Health Laboratory, follows:

The section consists of large areas of spongy or cancellous bone and red marrow, with dense fibrous tissue and striated muscle. The osseous tissue is normal in structure in every respect. The marrow is not very cellular but is, on the whole, that of red marrow with relatively few cellular elements. The mass of osseous tissue is surrounded in part by thick fibrous layers of connective tissue, periosteal in character, containing islands of striated muscle. Some of the muscle-fibers are normal but many of them are reduced in size and have irregular or flattened outlines, containing in their interiors nuclei of cells of connective-tissue type—indicative of chronic inflammatory change. Some of these islands of muscle-fiber are entirely surrounded by bony tissue.

Diagnosis: Metaplastic ossification of muscles.

There are two forms of myositis ossificans, progressive and traumatic. The progressive form is a rare disease of early life characterized by gradual formation of bony masses in most of the muscles of the body and resulting finally in ankylosis of practically all articulations. Traumatic ossifying myositis, of which mine is a case in point, follows one of two kinds of injury. The trauma may be a slight one, frequently repeated; such cases are occasionally seen in cavalrymen, in whom it is known as "rider's bone." These men maintain their grip on the saddle for the most part by the adductor longus muscles and as a result of much riding sustain a sprain or even a partial rupture of the muscle. The effused blood in the muscle organizes and ossifies, forming a hard nodule on the internal thigh, which, I am told, has been mistaken for a fragment of the bony pelvis. On the other hand, the trauma may be a single severe one, as in this case, in which the injury was of sufficient violence to cause a large effusion of blood into the muscle. The theory is that blood and possibly a number of displaced periosteal cells infiltrate the muscular connective tissue and there become metamorphosed into bone by a process of organization. This seems to have been true in a case reported by Binnie, in which a blow by a baseball resulted after eight weeks in a bony tumor the size of an egg in the brachialis anticus.

The salient points of the present case are the relation of the severe trauma to the formation, in nine weeks, of an extensive ossifying myositis which practically destroyed the function of the knee; the location in the crureus muscle and the early excision followed in two and one-half months by complete relief.

Ancon Hospital.

TONSILLECTOMY AND A NEW TONSIL AND NASAL SEPTUM KNIFE

A. H. SAWINS, M.D.

SPOKANE, WASH.

This little knife is the evolutionary outgrowth of a series of knives and experiments which I have made. While sufficiently delicate not to interfere with the surgeon's view of the operative field, it is amply strong for the work for which it is intended.

The blade is perfectly round, 5 mm. in diameter, and extremely thin, 0.4 mm. in thickness. The face of the blade is flat and stands at an angle of 30° to the long axis of the handle. The shank of the handle extends in a half round stem down across the face of the blade to a point slightly beyond its center. This feature would at first seem to be of no consequence, but is, in reality, of the utmost importance.

It allows of a thinner blade; it permits the sharp cutting edge to be brought entirely up to the stem or shank, on either side at the heel, or slightly under the stem, if desired, thus enabling the blade to cut at the particular point at which it is most necessary for it to cut, namely, close up to the stem of the handle, since nearly all the cutting is done at this point of the blade; another important reason for this stem extending down across the blade is that it serves to guide the surgeon in the depth of his incision in submucous and other nasal work. The back of the blade is slightly convexed, enabling it to follow more naturally the concave bed of the tonsil than would a straight, pointed blade.

It will be found that this knife, owing to its small size and the peculiar shape and angle of its blade, will be ideal for slicing cartilaginous spurs from the nasal septum, and for making the initial incision in submucous resections, as well as for tonsil work.

Before proceeding to explain the use of the knife in throat surgery it may not be out of place to say a word concerning the tonsils and some of the annoying, if not difficult, conditions with which every throat surgeon has to contend.

So far as my experience goes there is no royal road in removing a diseased tonsil. Occasionally we find tonsils which are slightly pedunculated, or protrude far out beyond the pillars and into the fauces and can be very satisfactorily removed with the snare or the tonsillotome. But the tonsil which gives the most trouble, both to the patient and to the operator, is not of this kind—it is the broad, flat tonsil, the one that has undergone repeated inflammatory exacerbations in which the capsule of the deep portion of the gland has been partially or completely destroyed, binding the tonsil down by adhesion to the pillars and to the superior pharyngeal constrictor. Rarely the pillars are absorbed or degenerated at one or more points and the glandular tissue extends beyond its native boundaries. In several cases which have come under my observation the glandular tissue was continuous from the faucial to the pharyngeal tonsil, presenting a most unpromising aspect. Occasionally fissures or crater-like cavities exist in the tonsil, which add to the difficulty.

To remove a tonsil in such condition without injuring the pillars, the superior pharyngeal constrictor muscle or some of the adjacent arteries or nerves, requires some cunning on the part of the surgeon. Such an operation under ether anesthesia, even for the throat surgeon, is more difficult than an appendectomy is for an abdominal surgeon, and the danger to the patient's life is greater in the tonsil operation.

Should one undertake the removal of such a tonsil with the snare or the tonsillotome it would at best result in the removal of only a small portion of the gland (tonsillotomy); and should one attempt the dissection with the finger or any other blunt dissector so much force would be necessary that damage would be done to the surrounding parts; the operation would be slow and tedious, and finally the ragged condition of the wound must needs be trimmed to smoothness with some form of scissor-punch.

Therefore, with the majority of throat specialists, the choice of instruments lies between the knife and the scissors, with preference for the knife. While the knife and scissors are dangerous instruments in the hands of an unskilled surgeon in the blood-obscured field of the throat, both these are quite safe in the hands of a skilled throat surgeon, and are the only instruments, within my knowledge, with which a classical tonsillectomy can be done under any and all conditions.

HOW TO USE THE KNIFE

Grasp the tonsil with a small tenaculum forceps (not a large one that will distort the gland) and apply slight traction in the direction which will put moderate tension on the tissue where the cutting is to begin; then, with the knife, cut through the mucous membrane that covers the free surface of the gland. This membrane, which is continuous over the pillars, is tough and yielding, and to divide it with a light touch the knife should be keenly sharp. The first incision through this membrane is usually made between the tonsil and the anterior



Tonsil and nasal septum knife.

pillar, or between the tonsil and the posterior pillar, about midway between the upper and the lower extremities of the gland. With a light cut the blade of the knife passes through the membrane and in between the tonsil and the pillar, when it is carried slightly upward and allowed to cut its way out. Practically all the cutting, after the first incision, is done by cutting from within the tissues outward. This is the chief virtue of this knife, making it very safe.

The tonsil may be entirely circumcised if desired, in this manner, after which straight but gentle inward traction may be exerted on the tenaculum, when a few light sweeping or pulling strokes with the knife will divide whatever adhesions remain between the tonsil and its bed.

In this final stage of the operation care should be taken to follow closely the deep contour of the tonsil, which is not always easy when the deep capsule is obliterated. Severe hemorrhage will almost never occur unless the surgeon cuts into the superior pharyngeal constrictor muscle. The tonsil may be entirely removed at once with the knife, in this manner, if desired. But owing to the difficulty of dissecting out the lower portion of a tonsil with any form of knife or scissors without injuring the base of the pillars or the styloglossus muscle, it is better, after the tonsil has been separated two-thirds the way down, to slip a small wire snare over the tenaculum and finish the dissection with the snare, which makes a very clean and a very safe operation, and one as expeditious as need be. Practically the same procedure is carried out under local as under general anesthesia.

A summary of the virtues of this knife might include: its universal applicability; the small size and thinness of its blade, which enables it to cut easily and in any direction; its circular blade, which renders it less dangerous in the blood-obscured field of the throat; and the particular angle and convexity of the blade on the back, which enables the surgeon to follow more closely the outline of the deep contour of the tonsil.

501 Old National Bank Building.

ENDOTHELIOMA OF THE LYMPH-NODES OF THE NECK *

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ST. LOUIS

Endothelioma of the lymph-nodes of the neck is perhaps uncommon. In reviewing the literature I found only one reported case. MacLaurin¹ reported a very interesting case in which the nodes of both sides of the neck were involved and the disease had extended into the chest. MacLaurin considered the case inoperable. Fioravanti² reports a case of fibrochondromyxosarcoma-endothelioma of the parotid gland. Jackson³ cites a case of endothelioma of the larynx in which he did a laryngectomy under the assumption that it was a malignant tumor. Bolognesi⁴ reports a case of endothelioma of the right submaxillary gland in a patient 39 years of age. The tumor was the size of a hen's egg. There were no adhesions and no other glands involved.

Endothelioma takes origin from the endothelium of the lymph-nodes or blood-vessels, or may arise from serous cavities, e. g., in the omentum. The parotid gland and carotid body are sometimes the site of growth. The structure of an endothelioma consists of clumps of endothelial cells supported by a stroma, which in slowly growing cases becomes widely altered showing hyaline or mucoid degeneration. In the rapidly growing tumors the stroma is ill-marked; the endothelium invades the connective tissue, occasionally making abortive attempts at the formation of cell-nests. Extreme malignancy is seldom seen in endothelioma. Metastases rarely occur. The glands are seldom involved unless by direct growth of the tumor (MacLaurin). Endotheliomas have been regarded as sarcoma.

CASE REPORT

Patient.—W. B., aged 60, white, male, laborer, was admitted to my service at the City Hospital, Jan. 2, 1912, with a provisional diagnosis of inoperable sarcoma. Thirty years previously patient had noticed a small nodule on the right side of his neck about 8 mm. in diameter, a little median and below the angle of the lower jaw. The nodule was freely movable beneath the skin and did not increase in size for five or six years; then it became gradually larger and in the spring of 1911 it was as large as a hen's egg (4.5 by 4.5 cm.); it was irregular and movable. Shortly thereafter a second nodule appeared lower down. These nodules were not painful. During the latter part of 1911 the growths increased rapidly in size and the patient became hoarse and could scarcely speak above a whisper. There had not been any appreciable loss of weight.

Examination.—Patient was well developed and cheerful. Just below the right parotid was a large, firm nodular mass which caused patient to incline his head toward the left. Below this large mass were several smaller masses which

* From the City Hospital, St. Louis.

1. MacLaurin: *Australian Med. Gaz.*, 1909, xxix, 138.

2. Fioravanti: *Chin. med.*, Florence, 1905, xi, 337.

3. Jackson: *Pennsylvania Med. Jour.*, 1909, x, 662.

4. Bolognesi: *Arch. f. klin. Chir.*, 1910, xciii, 33.

were irregular and of firm consistence. All masses were slightly movable, and palpation did not cause pain. The upper growth did not involve the inferior maxilla. The lowest palpable growth was just above the sternoclavicular articulation. The skin was freely movable over the growths and was of normal color. Pupils were equal and reacted normally. Examination of larynx showed involvement of right recurrent laryngeal. A specimen was removed by Dr. Kinsella and the pathologic department reported the growth to be an endothelioma. Removal was advised.

Operation.—Under ether anesthesia preceded by morphin and atropin, the vessels were exposed just above the sternoclavicular juncture; a Crile clamp was placed on both artery and vein. The usual Z incision was made, the flaps were dissected up and the growths including the sternomastoid muscle, the internal jugular vein and the submaxillary gland were removed *en bloc*. The carotid artery and pneumogastric nerve were more or less adherent to the mass and infiltrated, but owing to the pathologist's report that the growth was not malignant and in consideration of the patient's age, it was deemed advisable not to excise these structures. A small rubber tissue drain was placed in a stab-wound at the lower part of the operative field. The flaps were approximated with catgut.

Postoperative History.—Patient was placed in a sitting posture. On the fourth day he was up and about the ward. The wound had practically healed within a week and the patient was feeling fine, although the hoarseness had not disappeared.

NOTE.—While correcting the proof sheet, I learned that the patient had two lymph-nodes removed from the left side of neck shortly after the first operation, and had developed erysipelas, from which he recovered.

4826 Delmar Avenue.

A NEW CASE OF DUODENAL STENOSIS

JAMES M. ANDERS, M.D., LL.D., PHILADELPHIA

Patient.—Mrs. S. B., aged 56, was admitted to the Medico-Chirurgical Hospital on Jan. 5, 1912, complaining of pain in the right hypochondrium and vomiting. Her family history was negative, excepting death of father from rheumatism. The patient had been in good health prior to four years ago, but since then had had several attacks of illness, which were diagnosticated acute gastritis. Her habits were good, although she had used tea freely. Dec. 21, 1911, following a severe headache and a feeling of weakness, the patient was seized with severe pain in the right hypochondrium, which lasted about three minutes. This pain was not referred, but recurred three or four times daily, apparently without relation to the time of the ingestion of food, until date of admission to the hospital, and was somewhat relieved by vomiting. Following the first attack of pain, jaundice was noticed. After coming to the hospital, her condition showed marked improvement for a time, the attacks of pain and vomiting ceased, and the jaundice diminished considerably.

Examination.—There was some tenderness in the right hypochondrium and a small mass was palpable, which did not move with respiration. An x-ray examination did not reveal gall-stones, but showed the pylorus to be in relation with the gall-bladder region, suggesting adhesions. An examination of the urine revealed a trace of albumin, a small amount of bile, a trace of indican and a few narrow hyaline casts. Cammidge reaction was negative. A blood-count Jan. 6, 1912, showed erythrocytes, 3,860,000; hemoglobin, 80 per cent., and leukocytes, 11,600. Repeated examinations of the feces gave negative results. Jan. 17, 1912, an examination of the gastric contents extracted one hour after a test-breakfast, gave the following result: Reaction, acid; total acidity, 60; free hydrochloric acid, 0.1 per cent.; lactic acid, negative; pepsin, present; starch digestion, stage of erythrodextrin; occult blood, negative; bile, negative; mucus, a small amount.

Up to this time, the patient's condition had been improving, but now vomiting recurred. There was no recurrence of the

pain over the gall-bladder region, but the patient vomited frequently large quantities of bile-stained fluid. January 23, there occurred a severe chill, and the pulse became more rapid and feeble. The temperature pursued a very irregular course, varying from a subnormal level to 101.6 F. An examination of the blood at this time showed a leukocytosis of 25,200; the differential leukocyte count resulted as follows: Polymorphonuclear cells, 81 per cent.; small lymphocytes, 7 per cent.; large lymphocytes, 11 per cent., and eosinophils, 1 per cent.

Operation.—January 26, Dr. Ernest Laplace operated and found the duodenum markedly adherent to the under surface of the liver, and kinked at the site of adhesions. Situated between the duodenum and the liver was the much-shriveled gall-bladder. It was necessary to tear away the liver tissue in breaking up the adhesions, leaving an excavation in the liver, considerable hemorrhage resulting. The gall-bladder could not be liberated from the duodenum, and owing to the patient's weakened condition, it was deemed advisable to desist before the operation was completed.

The patient died three days later, and necropsy was refused.

The stenosis of the duodenum in this case was due partly to the constricting cicatrix of an old ulcer and partly to the kinking occasioned by the adhesions. Among other points of interest presented by this case are compression of the gall-bladder and common duct, apparently due to the adhesions either old or recent, accompanied by jaundice, and indications of a secondary acute inflammatory process obviously occasioned by perforation of the duodenum at the site of an old ulcer.

1605 Walnut Street.

SUPERNUMERARY AXILLARY MAMMARY GLANDS

EUGENE G. MATTISON, M.D., PASADENA, CAL.

I have been treating an unusual case for the last three or four weeks. The patient, Mrs. T., was confined May 17, 1912. She was the mother of four children. On the second or third day she complained of severe pain in each axilla and said that she had the same abscess that she had had in previous confinements. As she was having no fever I thought it would be well to make a thorough examination. I found under the right and left axillas three secreting mammary glands and from each of these I was able to obtain milk. There was no apparent nipple on any of the six glands excepting a minute indentation. The milk, however, flowed very freely from all six of them on pressure. I used the old method of massage with camphorated oil and in about two or three weeks the glands lost their fulness and ceased to cause any trouble. Of course, this represents eight mammary glands, three under each axilla and two in their normal position. I would like very much to know if any other case of this kind has been reported.

[COMMENT.—Several reports of similar cases have been published in THE JOURNAL, for example, March 16, 1912, p. 747 (by Dr. J. D. Cantwell), and May 11, 1912, p. 1443 (by Dr. Frank J. Hirschboeck).—ED.]

535 South Pasadena Avenue.

Therapeutics

HEMATURIA

Hematuria means hemorrhage from urethra, bladder, ureter or kidney. It is to be distinguished from urinary conditions due to the presence of blood-pigments in the urine, such as hemoglobinuria, including methemoglobinuria and hematoporphyrinuria. This last condition is of slight clinical significance. Traces of the iron-free blood-pigment, hematoporphyrin, are found in normal

urine, and much larger quantities after the use of trional and sulphonal. The presence of hemoglobin or its oxidation product, methemoglobin, is an indication that hemolysis or laking of the blood has occurred to such a degree that the liver is unable to transform all of the hemoglobin into bile-pigments. This hemolysis or dissolving out of the hemoglobin from the red cells into the fluid medium around them may take place in the circulating blood as a result of the toxic action of some hemolytic agent such as carbon monoxid, potassium chlorate, phenol, and also of the specific toxins of certain acute fevers such as typhoid, yellow fever, malaria and scarlatina. The dissolved blood-pigment then appears in the urine, constituting true hemoglobinuria. Again the hemolysis may take place after the production of the urine in the kidneys. This condition is thus secondary to and dependent on the presence of red blood-cells in the urine. By virtue of the lower osmotic tension of the watery medium of the urine, the hemoglobin is dissolved out of the red cells. This occurs to some extent whenever the urine contains red cells and does not constitute a true hemoglobinuria.

In true hematuria red blood-cells appear in the urine and can always be recognized by the microscope. Depending on their number, the color varies from the normal amber, through dusky and smoky shades, to a bright scarlet if the hemorrhage is severe. Blood in the urine is always accompanied by albuminuria as well as by hemoglobinuria and for similar reasons. A relatively minute quantity of blood will color the urine appreciably. It is occasionally necessary to determine the presence of hemoglobin in urine by chemical methods, but ordinarily the microscopic findings with reference to red blood-corpuscles are sufficient. When the urine is not contaminated with menstrual fluid, hematuria is invariably pathologic, in spite of the fact that small amounts of blood do not alter the gross appearance.

The presence of hematuria being established, the indications are, (1) to relieve the immediate hemorrhage if urgent, (2) to determine the source and cause of bleeding, and (3) to relieve the underlying or essential cause.

1. If the severity of the bleeding demands prompt treatment, the patient should be put to bed, with the hips somewhat elevated on a pillow. A sedative (e. g., morphin gr. $\frac{1}{4}$, .015 gm., with atropin gr. $\frac{1}{150}$, .0004 gm.) is often desirable to prevent restlessness. With a soft rubber catheter, a 1 to 5,000 solution of epinephrin in normal saline solution thrown into the bladder. Normal saline can be made by dissolving one teaspoonful of table salt in one pint of sterile water. If blood drips from the urethra, indicating a urethral origin, the same solution may be used as a urethral injection by means of a syringe. If necessary also, a cold metallic catheter may be introduced to control a urethral hemorrhage by pressure.

2. The source of bleeding must be definitely located, if possible, and its cause determined. Renal hemorrhage is characterized by intimate mixture of blood and urine, and the individual cells are usually decolorized. If from the ureter or renal pelvis, coagula of a corresponding shape may be seen. Blood-casts are the only sure sign of a renal origin. The ordinary causes of a renal hemorrhage are calculus, acute congestion, nephritis, malignant growths and renal tuberculosis. It is to be remembered in this regard that congestion and acute nephritis accompany many of the acute fevers such as scarlatina, diphtheria and typhoid. In chronic nephi-

ritis the number of red cells is a rough guide to the severity of the disease. Toxic agents such as turpentine and phenol will also induce severe congestion and inflammation. In tuberculosis and malignant disease, the cystoscope and ureteral catheter should be employed to determine which kidney is affected. Especially in malignant disease, bleeding is prone to begin suddenly with no assignable cause, to be uninfluenced by treatment, and may cease as suddenly as it began. It usually occurs early, and is the only reliable symptom. Exploratory examination of the kidney is justifiable, if all other means of diagnosis have failed. Many times an x-ray picture will clear up the condition, especially if there is a calculus. Nephrectomy is of course necessary if tuberculosis or malignant disease of the kidney is diagnosed and the other kidney is found healthy.

Rarer causes for renal hemorrhage are trauma, movable kidney, constitutional disorders, as scurvy and purpura, certain parasites, as the distoma, filaria and echinococcus, renal infarction, as in ulcerative endocarditis, and the idiopathic so-called "renal epistaxis" which is practically an angioneurotic hematuria.

Vesical hemorrhage has few characteristic features. Large or irregular-shaped clots may form. There is a slight bleeding in cystitis from the rupture of congested capillaries, the urine showing the characteristic picture of cystitis. Vesical calculus gives an intermittent hematuria and the determination of the stone accounts for the bleeding. Vesical ulceration, cancer, trauma, new growths and parasites must be considered, and excluded by the urinary picture, by the cystoscope and by concomitant symptoms.

Urethral hemorrhage is most marked at the beginning of urination, and blood generally drips from the meatus. The more common causes are gonorrhea, impacted calculus and instrumentation. A gush of pure blood following urination is a characteristic sign of inflammation of the posterior urethra. Frequently hematuria occurs in tuberculosis and congestion of the prostate. Here bleeding is intermittent, comes at the end of urination, and is not due to urethral ulceration but to prostatic congestion.

3. Having relieved the immediate hemorrhage, and diagnosed the source and cause of the bleeding, it remains to institute treatment designed to cure or alleviate the cause. This treatment must be directed toward the particular condition present in a given case, as has been indicated. In that group of cases in which hematuria depends on acute congestion or inflammation of the kidneys, the indication is to promote vicarious elimination, through the bowels and skin, and to decrease so far as possible the production of toxins in the body. In those cases in which local disease is suspected, as cancer or tuberculosis, the skilled use of cystoscope and ureteral catheter is required for diagnosis, and surgical relief is necessary. The administration of hexamethylenamin in 5-grain (0.30) doses three times a day may act as a valuable prophylactic against vesical or renal infection, but it should be remembered that hematuria has been caused by large doses of hexamethylenamin.

Hematuria is in no wise a disease entity, but only a symptom. Its importance lies either in the actual loss of blood, or more commonly, in its significance as showing the nature and location of a disease-process somewhere in the urogenital tract. The latter consideration is always present, and the physician must never rest until the cause for a hematuria has been accurately determined.

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[For other information see second page following reading matter]

SATURDAY, JULY 27, 1912

ACID-FORMING AND BASE-FORMING FOODS

The balance of acids and bases in the body is a matter of no small concern for the maintenance of healthy physiologic equilibrium. The nicety of the adjustment which normally prevails in this respect is brought to light whenever a pathologic upset enters into the usual routine of metabolism. When, for example, a condition of acidosis is brought about by the abnormal production of such products as diacetic acid, beta-oxybutyric acid or lactic acid, the organism makes a strenuous effort to eliminate the toxic acids after neutralization with fixed alkalies, alkali earths or ammonia. The therapeutic administration of alkali salts such as sodium bicarbonate or sodium citrate is, of course, based on the desirability of averting undue loss of basic tissue constituents for the purposes of such neutralization. The tendency toward an equilibrium of reaction constitutes a fundamental property of the animal organism.

Obvious though these facts are to the average practitioner, it is rarely realized that, on a smaller scale, this same type of adjustment between acid-forming and base-forming elements is going on constantly in the body. The substances that we eat contain the so-called "ash constituents," which are now recognized to have an importance for nutrition quite as prominent in many respects as that of proteins, fats and carbohydrates. Certain foods contain a surplus of base-forming elements, like calcium and magnesium, so that they yield a strongly alkaline ash on burning; whereas other foods lose acid-forming elements like sulphur and phosphorus in ashing and show that acid-forming elements must have predominated in the food. The sulphur and phosphorus of the proteins yield sulphuric and phosphoric acids in their oxidative destruction in the living organism just as readily as they do in the chemist's crucible. The composition of the urine represents the equilibrium between the acidic and basic end-products of metabolism, in which, ordinarily there is a slight preponderance in favor of the acids—hence the normally acid reaction of the kidney secretion.

How are the acid-forming and base-forming elements distributed among the ordinary food substances? Professor Sherman of Columbia University has devoted con-

siderable attention to this question. From the elaborate compilations and analyses made by him and his pupils¹ it appears that meats and fish show a decided excess of acid-forming elements. These likewise predominate in eggs, though to a somewhat less degree than in lean meats. Grain products show a smaller preponderance. Milk shows a slight predominance of bases, which is much greater in vegetables and fruits. The latter fact may surprise those misguided individuals who forbid "acid" fruits to their patients in the belief that these foods actually contribute fixed acid to the organism. As a matter of fact, the acids of fruits and vegetables are essentially organic in nature, like citric and malic acids—compounds which are burned up in the organism and in no degree contribute to the establishment of acid conditions. Citrate of sodium, for example, behaves in metabolism essentially as does the carbonate of sodium in equivalent amounts, i. e., it functions as an alkali.

How real is the rôle of the acid-forming and base-forming elements in metabolism is at once brought out by dietary experiments. When potatoes, in which the base-forming elements predominate, are replaced in the diet by an amount of rice of equal energy value, the acidity and likewise the output of ammonia in the urine at once increases. The shifting of equivalent amounts of these two common vegetable foods is sufficient to produce a readjustment in the urinary equilibrium.

Studies in this field are still in their early beginnings. The inorganic constituents of the diet have started to take on new importance and command some attention in practical dietetics. It is becoming clear that the elements must not only be supplied in adequate amounts, but also stand in appropriate quantitative relations to each other. It is not too much to expect that when these are better understood such annoying pathologic situations as arise in phosphaturia, for example, will readily yield to a rational readjustment of the dietary along the lines here laid down.

THE STEADY ADVANCE OF THE PLAGUE

Within a short time the plague has made its appearance in several West India islands closely connected with this country by commercial and political ties. Trinidad, Porto Rico and Cuba have all suffered invasion, and experience elsewhere does not promise a speedy eradication of the disease under such conditions as prevail in these islands.

It is a time to face the situation soberly but with a full appreciation of what the future may have in store for us. Our ports on the Gulf and the Atlantic coasts generally are to a considerable degree rat-infested. If plague-infected rodents have been introduced into any of these coast cities it will be a difficult—some would say an insuperable—task to prevent the gradual extension of

1. Sherman and Gettler: The Balance of Acid-Forming and Base-Forming Elements in Foods and Its Relation to Ammonia Metabolism, Jour. Biol. Chem., 1912, xi, 323.

the disease in this country. Invasion threatens elsewhere. In spite of the great energy and skill with which the campaign for the destruction of ground-squirrels has been prosecuted on the Pacific Coast, infected squirrels are still being found in numbers far from negligible. During the week ending June 1, 1912, according to the reports of the Public Health Service, positive diagnosis was made of sixteen plague-infected ground-squirrels found in Alameda and Contra Costa counties, California. The opening of the Panama Canal will unquestionably increase the danger that the disease may be introduced at other points. The possibility that infection may be brought in over the Mexican border can likewise not be overlooked.

The immediate danger of plague introduction is clearly and forcibly set forth in detail in King's article appearing in this issue.¹ Few will dissent from the conclusion there expressed that immediate, decisive and concerted action by national, state and local authorities should be taken. Even if one is not sanguine as to ultimate success, it is not soldierly to confess to defeat before the event. One thing is certain, that if the plague does get a real foothold, the cities that are overrun with rats and are in a general unclean condition are likely to suffer most severely.

It must be remembered that one of the most baffling peculiarities of the plague is its often slow, insidious, almost unnoticed extension. After being "endemic" for a time among rats, it may suddenly, and for some unknown reason, become more readily communicable to man. Like a forest fire that smolders in the peat and flares up from time to time even after heavy rains and apparent extinction, the plague is difficult to stamp out. Epidemiologists are unable to explain the entire absence of the plague from Europe during all the early part of the nineteenth century and its unparalleled world-wide extension in the last two decades. Whatever the cause for the singular rise and fall of this disease, it is significant that the same creeping slow advance now observed has apparently preceded all the previous great outbreaks of the Black Death. Modern conditions of life are very different from medieval conditions, but many sanitarians are wondering anxiously how far our modern knowledge of disease and our methods of warfare against it will avail in combating the spread of a disease so peculiarly difficult of control.

We do not wish to appear as alarmists, but we feel it desirable to recognize the situation as one of great gravity, meriting the earnest attention of national and state health officials. The general public should be made definitely aware of the peril and should be urged to cooperate in the difficult, costly and tedious, but absolutely necessary, measures of prevention. Thorough measures may prevent the plague from getting a foothold in the United States, and those responsible should at once take up the necessary work.²

RAT EXTERMINATION A PUBLIC DUTY

In addition to the article referred to in the preceding editorial, we publish in this issue one by Rucker¹ on the necessity for rodent extermination in seaports. This paper was prepared for and read at the Atlantic City meeting of the Association. Many of the statements in this paper have already been proved prophetic by the outbreaks of plague in Porto Rico and Cuba which have occurred since it was written; for instance, the statement that it is a "well-known fact that plague may smolder in a rodent community for a considerable time before accident brings about a closer contact between infected animals and man, thus giving rise to an epidemic." This is plainly what has occurred in Porto Rico and Cuba. Rucker asks: "Who can doubt that if the rats of the great seaports of the world were examined, the infection would be found in many cities hitherto considered plague-free?" Had thorough and systematic trapping and examination of the rats along the harbor front of San Juan been made there can be little doubt that the infection would have been detected sooner and much of the already considerable morbidity and mortality among human beings and the serious interruption to commerce been avoided.

Plague is already known to be present among human beings in some of the ports of South America² and the West Indies; there is every reason to believe that it is present but unrecognized in the rodent population in many other of these cities. Under the circumstances it is folly to suppose that the rats (and ultimately the human beings) of our seaports will long remain free from the disease; in fact, no one conversant with the situation would be surprised to hear of cases developing in some of them at any time. Yet but little more than a month ago when Rucker read his paper he had to admit that aside from the extensive work which has been carried on in California, no effort of any magnitude has been made in America to check the inroads of rats or to determine whether or not they are infected with plague — work of the utmost importance, for the fewer the rodents, the less would be the likelihood of the infection gaining an entrance or of spreading.

The plague situation in the West Indies has within the last few weeks stimulated some of the larger seaports to undertake a systematic destruction of rats, but a much more extensive campaign should be undertaken if the country is to be thoroughly protected against this, one of the most insidious of diseases and one of the most difficult to control.

Rucker outlines the salient features of such a campaign. The haphazard trapping and poisoning of rats are of but secondary importance; the young are born in such numbers that the removal of a few simply enables others to survive. The essential things are to destroy the nesting places ("to build the rat out of existence")

1. King, Howard D.: Plague, the Menace of the United States of America, p. 237.

2. See also General News, this issue.

1. Rucker, W. C.: The Necessity for Rodent Extermination in American Seaports, p. 243.

2. THE JOURNAL A. M. A., July 6, 1912, p. 43.

and to render their access to food impossible; "the famished rat does not linger." But while Rucker makes it evident that much of this work should ultimately be done by the individual householder it is equally evident that the latter needs the advice, assistance and leadership of the local health officers, and in many cases appeal will have to be made to the law to compel the individual to take precautions necessary to protect the public. Only a few of the local health officers of the country have had any experience in work of this character; they will need the assistance and leadership of the federal authorities. The latter, fortunately, are qualified to a remarkable degree to become the leaders of such a movement. Not only has the present Surgeon-General of the Public Health Service had years of intensely practical experience in such work, but he has a number of assistants who are similarly qualified by work at home and abroad to direct campaigns of this character.

The services of these men should be available to state and city health officers for the organization and inauguration of antirrat campaigns; the Hygienic Laboratory should offer courses to such officials on the laboratory diagnosis of plague; officers of the service should be available for public lectures on the subject. Even the most ardent advocate of local government would admit that the federal government should do at least this much, for as Rucker points out, "plague is essentially a disease of commerce" and no power is better secured to the federal government than the control of interstate commerce.

Will Congress make it possible for the Public Health Service to do the federal government's share in this work? We believe it will, although recent events are not altogether encouraging. Thus the House Committee on Appropriations recently reduced the contingent appropriation for the prevention and suppression of epidemics from \$500,000 to \$100,000, the chairman stating that the latter sum (although as a matter of fact inadequate to meet even a small epidemic) would probably suffice until Congress met again—a statement which prompted ex-Speaker Cannon to make the homely but prophetic remark that epidemics "care no more for the coming and going of Congress than does a duck for a June bug." It is inconceivable that the House (controlled as it is by a party pledged by its platform³ to promote the efficiency of the public health service) will not immediately remedy this and restore the epidemic fund to at least its present figure.

The sooner the country recognizes that it is face to face with a most serious problem, the better it will be for the health and lives of the people and also for commerce. Loud protests are heard against any decrease in the efficiency and preparedness of the army and navy, although the danger of war seems very remote; much louder protests should be heard against our present lack of full preparedness to meet an enemy at our very gates.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION

Dr. J. B. Murphy, the retiring President, in his address to the House of Delegates at the recent Atlantic City session of the American Medical Association, commented on the apparently small increase of membership of the Association during the last two or three years. This comment was unfortunate, in that it misinterpreted the actual facts and conditions, and gave to a certain class of medical journals apparently good reasons for pessimistic criticisms. As might have been predicted, the opportunity has not been neglected. Much more important, however, is the fact that true friends of the Association—who may not have grasped fully the explanations published in the Association's official reports—have been prompted by President Murphy's address to ask why there has been a slow increase in the Association membership—in one year an actual loss—during the last three years. On the surface it does look as though there was a reason for anxiety; actually, however, there are good reasons for congratulations. Let us look at the facts.

Following is a tabular statement of the members and subscribers, taken from the 'Trustees' report¹ of 1912: (The figures do not include copies sent to libraries, exchanges and advertisers, sample copies, etc.)

Date.	Members.	Subscribers.
Jan. 1, 1900.....	8,445	4,633
Jan. 1, 1901.....	9,841	8,339
Jan. 1, 1902.....	11,107	10,795
Jan. 1, 1903.....	12,553	12,378
Jan. 1, 1904.....	13,899	14,674
Jan. 1, 1905.....	17,570	15,698
Jan. 1, 1906.....	20,826	17,669
Jan. 1, 1907.....	26,255	20,166
Jan. 1, 1908.....	29,382	20,880
Jan. 1, 1909.....	31,999	18,983
Jan. 1, 1910.....	33,032	19,832
Jan. 1, 1911.....	33,540	20,504
Jan. 1, 1912.....	33,250	21,620

The table given above shows a loss in the membership columns of 290² in 1912, while a gain of 1,116 is noted in the subscription column. What is the explanation of the loss in members? From the report³ of the Secretary to the Los Angeles meeting we quote:

The membership of the American Medical Association on May 1, 1911, was 33,960, a net loss for the year of 216. This would be discouraging without explanation. In their reports the Trustees have frequently referred to the fact that membership was being recruited almost entirely from those who at first were listed as subscribers. In other words, until the last year, continued efforts were made to get those who were taking THE JOURNAL as subscribers and who were eligible to membership in the American Medical Association, to have their names transferred to the membership rolls. For the past year, however, we have relaxed our efforts in this direction on account of the uncertainty of the final ruling of the Post-Office Department regarding the mailing of THE JOURNAL to members as such.

Few of our readers are aware of the desperate efforts that have been made by the enemies of the Association

1. THE JOURNAL A. M. A., June 8, 1912, p. 1787.

2. The difference between the figures of the 'Trustees' report and that of the Secretary is explained by the fact that the former is of Jan. 1, 1912, while the latter is of May 1, 1911. Further, the Secretary's list includes *ex officio* members.

3. THE JOURNAL A. M. A., July 1, 1911, p. 57.

3. THE JOURNAL A. M. A., July 13, 1912, p. 126.

During recent years to have *THE JOURNAL* debarred from the second-class postal rates, on the alleged ground that members receive it "free." It is unnecessary to go into this matter here. Suffice it to say that for the two years preceding last March the situation was decidedly serious, and for a time it looked as though the present arrangements regarding membership and *THE JOURNAL* would have to be abrogated. The consequence was that during this period little effort was made to increase membership at the expense of the subscription list.

Happily, last March the post-office matter was satisfactorily arranged, and the former method of encouraging the transfer has been resumed. During the present year we may expect an increase of from 3,000 to 4,000 on the membership list. Of the 21,000 subscribers at present on the list, probably a third are eligible to membership in the American Medical Association.⁴

The important facts are: The great majority—we estimate approximately 80 per cent.—of the members of the American Medical Association were originally subscribers to *THE JOURNAL*. The membership has been increased by building up the subscription list and then by placing on the membership list those who were eligible and wished to be transferred. A reading of the reports of the Board of Trustees will show that during the last five years over 15,000 subscribers have been transferred to the membership list.

There has been another cause for a falling off in our mailing list, but this affected both subscribers and members, and not only our journal, but also all periodicals. Until two years ago it was the custom to carry delinquents on the mailing list for two or more years. In March, 1911, a post-office ruling went into effect that periodicals which allowed their subscribers to be more than one year in arrears would not be carried at second-class rates. This ruling compelled us to drop over 5,000 names. Many of these have since been restored.

Thus, instead of being pessimistic, the friends of the Association should feel encouraged. To-day the Association is stronger than it has ever been before; its membership roll is larger and now rapidly growing; its prospects for usefulness to the public and to the medical profession are greater. It is accomplishing, for both the public and the profession, more than the most enthusiastic would have dreamed possible ten years ago, and its activities in promoting better things are steadily increasing and broadening.

THE EFFECTS OF SUMMER HEAT ON INFANTS AND OLDER CHILDREN

A series of extremely interesting observations have been made by Schlesinger¹ on the effects of summer heat on infants and older children in some of the various districts in Germany, more particularly in Strasburg. The abnormally high mortality among infants during an extraordinarily hot summer occasioned the study.

On comparison of various districts, all having the same climatic conditions, the milk-supply and general care of infants being also practically identical, Schlesinger found that in one district the mortality was higher than in the others. In this district the houses were tightly packed, with but little open space between. In such places the air does not cool off at night during the summer, the temperature in one place remaining practically constantly above 30 C. During the winter the child is often subjected, during the day when washing and cooking are going on, to a similar high temperature, but at night cooling takes place. In the summer there is heat stagnation. In addition, because of similar activities during the summer, a relatively higher humidity exists, making it still more difficult for cooling to take place. In the other districts considered, the heat was intermittent, as open spaces allowed circulation of air.

During the course of this study, Schlesinger noted in infants a heat prostration similar to that in adults, occurring most commonly in well-nourished children, fed on prepared foods or condensed milk, and kept covered or wrapped up, the temperature about them being high and constant. Although these heat strokes occurred but seldom, there were other and more constant evidences of the effects of summer heat in the form of lowering of the general vitality and resistance, making the children more subject to infection; practical cessation of growth in bottle-fed children; increase of the severity of gastrointestinal diseases, and marked exacerbations of skin diseases.

A study of the effects of heat on 260 school children, between the ages of 6 and 10, was made, and it was found that 30 per cent. lost appreciably in weight from May to August; in 5 per cent. this loss was extreme. Males lost more than females, the older children less than the younger, and the better nourished less than the weaker, or those who could least afford it. By comparison with previous statistics, it was determined that the cause of this was undoubtedly the heat stagnation during an extremely warm season, the children being confined in warm schoolrooms, with a high humidity over long periods during the day. In these children the effects were apparent in restlessness, lassitude, headache, nose-bleed and similar symptoms. With shorter hours, and a vacation extending over seven weeks, the heat remaining the same, all the children regained their previous weight and most of them added to their former weight.

The treatment and care of infants during the summer should not be confined to the ordinary medication of definite diseases, but should be directed especially toward offsetting the effects of the heat. Less concentrated food should be given than in cool weather, and in smaller quantities; plenty of water, however, is desirable. Children should wear little and loose clothing, and frequent cool and tepid baths should be given. Heat stagnation should be avoided so far as possible.

4. See Association News, this issue.

1. Schlesinger: *Deutsch. med. Wchnschr.*, 1912, xxxviii, 558.

Current Comment

INSTINCTIVE FACTORS IN CUSTOMS OF DIET AND FOOD PREPARATION

It is a curious and almost inexplicable fact that there are certain dietetic customs, without any historic association but frequently with an underlying common physiologic significance, which have been practiced in common for years by untutored people at various places on the earth. This is true, for example, of the use of tea, coffee and the cacao products, which originated in the most diverse geographic regions, yet is undoubtedly based on an identical physiologic effect probably associated with the methylated purins, notably caffeine, which they all contain. Thus instinctively in widely separated countries individuals unrelated by common racial bonds have sought precisely the same stimulants hidden, in the different cases, in plants of widely different botanic characteristics. A somewhat similar story might be told of the unconnected ways in which alcoholic beverages have found ready manufacture in diverse countries and a wide-spread use among peoples who have never experienced any intercommunication which might lead to the introduction of common habits of living. A most interesting instance of the instinctive solution of a chemical problem and the satisfaction of a dietetic need is found in the naive use of "male" and "female" salt by certain tribes in the interior of Africa. Several hundred miles up the Atbara River salt is extracted, by leaching with water and boiling down in the usual way, from earths which contain only a little over 2 per cent. The natives employ for this purpose two different earths, one of which contains what they term the "male" and the other the "female" salt. They believe that neither of these is edible alone, but that if the earths are mixed a good quality of salt is furnished. Analyses made some years ago in the Wellcome Research Laboratories at Khartoum bore out these statements. The "male" salt contains such a large proportion of sodium sulphate as would render it of little use as table salt. Similarly the "female" salt contains an excessive proportion of calcium chlorid. The "male" and "female" earths, when combined, unite to form calcium sulphate which precipitates on evaporation, leaving the common salt, sodium chlorid, in the mother liquor. The outcome is ideal from the standpoint of dietetics. How are such unique practices initiated in regions where a knowledge of both chemistry and physiology is as unknown as the *x*-ray was to our ancestors?

WHAT IS AN ENZYME?

There are few persons who have the facility of expressing a somewhat abstract scientific conception in terms of an analogy that strikes home at once. Emil Fischer furnished an admirable illustration of what we have in mind when he elucidated, by a now famous phrase, the specificity of enzymes, that is, the capacity of digestive ferments to attack one substance and not another which may even be closely related. Enzyme and substrate, according to Fischer, bear a relation to one another like that of a key to its lock. Not all keys will open all locks. The configuration of the two factors must be

appropriate. Decidedly forceful and unquestionably unique is the description of the distinctive peculiarity of enzymes lately published by the London physiologist, Professor Halliburton,¹ in a primer intended for the general reader. "We may roughly compare an enzyme," he writes, "to an ill-disposed person who comes into a room full of good-natured people, and who succeeds in setting them all by the ears. He has produced a change in them without undergoing any change himself, by his mere presence. He is, moreover, able to repeat the process over and over again in fresh roomfuls *ad infinitum*." Perhaps the expression "enzyme" will now acquire a wider usefulness as a descriptive term for a not entirely unknown type of human being.

THE POINT OF VIEW

In a nostrum advertisement recently printed in a daily newspaper, three endorsements from "doctors" were prefaced with this engagingly ingenuous statement:

When a doctor endorses a preparation it means more than an ordinary testimonial. His opinion is always that of the professional man devoted to the welfare of the people.

Strange what a difference it makes in a nostrum-promoter's attitude whether doctors are endorsing or condemning his stuff! When a doctor endorses it, then "his opinion is that of the professional man devoted to the welfare of the people." But when the doctor condemns the dope or advocates any measure that will compel honesty in business, then he is "trampling on the liberties of the people," and seeking to form a "medical trust"!

RABIES IN 1911

In 1909 the Public Health and Marine-Hospital Service instituted an investigation as to the incidence of rabies in the United States during the year 1908. All possible sources of information were utilized and complete verification of the cases was attempted in every instance. A comparison with the figures obtained in 1911² would seem to indicate that the infection is on the increase. In 1911, cases were reported from 1,381 localities as against 534 in 1908, while there were only ninety-eight deaths in 1911, notwithstanding the largely increased number of localities from which the disease was reported, as compared with 111 deaths in 1908. This is accounted for probably by the large increase in the number of institutions in which the antirabic treatment could be obtained and by the fact that the victims availed themselves more largely of this treatment. In 1908 there were twenty-three institutions in the country where this treatment was administered; in 1911 there were at least forty-two. In addition there are a number of laboratories which supply material for inoculations to practicing physicians. The number of persons known to have taken the treatment in 1908 was about 1,500, while in 1911 it was 4,625. The figures for 1911 show that the period of incubation in nineteen out of sixty-five cases was between twenty-one and thirty days, this

1. Halliburton, W. D.: *Physiology, Dent's Scientific Primers*, London, 1911.

2. *Pub. Health Rep.*, July 12, 1912.

being the greatest number for any given incubation period. Three cases occurred over twelve months after the injury. The average incubation period of all cases, excluding those over one year, was 49.25 days. The decrease in the number of deaths in 1911 as compared with 1908 amounted to nearly 12 per cent. Striking facts brought out in this report are the wider distribution of the infection, its spread on the Pacific coast, which section in 1908 seemed to be entirely free from the disease, and the decreased death-rate owing to better facilities for treatment and better distribution of the antirabic virus. The situation calls for still greater efforts toward the complete eradication of this preventable disease.

Medical News

IDAHO

State Association Meeting.—The Idaho State Medical Association met in Portland, Ore., together with the state associations of Washington and Oregon, July 5-6. Dr. J. W. Gue, Caldwell, was elected president; Dr. F. W. Mitchell, Blackfoot, vice-president, and Dr. E. E. Maxey, Boise, secretary-treasurer (reelected). The next meeting will be held in Twin Falls.

ILLINOIS

School Physicians for Peoria.—The school board of Peoria has decided to employ seventeen physicians as school inspectors thus providing for one inspection a week of each school child.

Dunning Now State Hospital.—Cook County Institutions, Dunning, for many years the county poor farm and insane hospital, on its transfer to the state of Illinois became the Chicago State Hospital.

Hospital for Peru.—At a meeting of the Peru Hospital Association, July 10, plans were presented for the new hospital, which is to be four stories in height and is to cost between \$60,000 and \$75,000, of which \$26,000 has already been contributed.

Personal.—Dr. Charles D. Thomas, Peoria, has been elected first vice-president of the Central Illinois Association of Country Clubs.—Dr. J. S. Watson, Amora, has been bequeathed one thousand dollars by the will of the late Mrs. May Valentine.—Dr. William Hartford, Urbana, fractured his right arm in two places and dislocated his right shoulder while cranking his automobile, near Chebanse, recently.—Dr. and Mrs. Byron C. Stolp, Wilmette, have sailed for Europe.

Chicago

Personal.—Drs. Frank Billings, Arthur D. Bevan and M. L. Harris returned from Europe, July 20.—Dr. S. R. Pietrowicz, formerly superintendent of the Cook County Institutions, Dunning, was presented with a gold watch and chain by employees of the institution.—Dr. and Mrs. Louis Bernheim sailed for Europe, July 13.—Dr. Julia Anna Norris has been elected head of the department of health and physical training for women in the University of Minnesota.—Dr. Antonio Lagorio has been reappointed a member of the Public Library Board.

INDIANA

Free Treatment of Rabies.—The free treatment for the prevention of hydrophobia under the new state law has already been given to fifty-six individuals, fifty of whom had been bitten by rabid dogs and three each by rabid cats and horses.

State Board to Inspect Summer Resorts.—The State Board of Health has made arrangements to inspect the summer resorts of northern Indiana with regard to general cleanliness, sewage and garbage disposal, water supply, the presence of flies, mosquitos, bed bugs and rats and the quality and handling of the food supply.

Undergraduates Must Not Practice.—The State Board of Medical Registration and Examination has adopted the resolution instructing the secretary to proceed against undergraduate students who are practicing medicine without a license and not under direct supervision of a licensed physi-

cian. The attorney-general has rendered an opinion to the board in which he held that a student practicing in a branch office, without the licensed physician at hand to direct or supervise the practice, is not complying with the law. (Fox)

Personal.—Drs. G. F. Holland, Bloomington, and N. Austin Carry, Silverlake, have been commissioned first lieutenants M. C., Ind. N. G.—Dr. Richard Poole has succeeded Dr. George M. Hays, resigned, as assistant police surgeon of Indianapolis.—Dr. J. P. Simonds, superintendent of the state bacteriologic and pathologic laboratory, has resigned and will become a member of the faculty of the University of Texas. Dr. William Shimer has been appointed his successor.—Dr. John W. Shuss has been appointed superintendent of the Indianapolis City Hospital, vice Dr. John L. Freeland, retired.—Dr. H. A. Duemling has succeeded Dr. A. P. Buchanan as president of the Fort Wayne Board of Health.—Dr. I. M. Myers, Maples, is said to be recovering from a cerebral hemorrhage, sustained while visiting his sister in Akron.—Dr. A. R. Tucker, Noblesville, suffered a cerebral hemorrhage in Chicago, June 22.

MARYLAND

Hospital Wing Opened.—The new wing of the Maryland Hospital for the Insane (Spring Grove), near Catonsville, was opened for patients July 19. The building is intended for women, and sixty patients from Bay View Hospital, the Baltimore Almshouse, have been transferred to it.

Baltimore

Milk Standard Adopted.—A bacteriologic standard for milk has been adopted by the health department. Hereafter no milk must show more than 5,000 bacteria to the cubic centimeter and pasteurized milk must not contain more than 500 bacteria to the cubic centimeter. Dairymen whose milk does not come up to the standard will be published.

Memorial for Pioneer Dental College Man.—A movement has been started in Baltimore to erect a suitable memorial at a cost of \$25,000 to the great dentist, Dr. Chapin A. Harris, who, with Dr. Horace A. Hayden founded the first dental college in the world, the Baltimore College of Dental Surgery. Dr. Harris is said to have been a most original genius. It is to his credit that he did not found the dental school until he had tried to engraft his project on several medical schools, and had been rebuffed. Dr. T. A. Heatwole, dean of the Department of Dentistry of the University of Maryland is in charge of the memorial project. It is proposed to erect a statue to Dr. Harris in one of the public squares of the Monumental City.

Personal.—Dr. Charles F. Bevan, for ten years dean of the College of Physicians and Surgeons, has resigned and has been succeeded by Dr. William F. Lockwood, professor of medicine in the same institution.—Dr. Robert A. Warner has resigned as superintendent of the Sydenham Hospital for Infectious Diseases, and will be succeeded by Dr. Joseph A. Wright, who will assume charge August 1.—Dr. Thomas L. Richardson, quarantine physician, rescued several persons who were in danger of drowning in a storm, off Quarantine, July 13.—Drs. Ernest H. Gaither and Adolf Meyer have returned from Europe.—The honorary degree of Doctor of Science was conferred on Dr. J. Whitridge Williams at the two-hundred and fiftieth anniversary of Dublin University.—Dr. George B. Reynolds, who was seriously injured by footpads in June has recovered and resumed practice.—Dr. Robert Lee Randolph and daughter are taking a trip to the Canal Zone.—Dr. Pearce Keintziag sailed for Europe, July 20.

MICHIGAN

New Officers.—Grand Rapids Academy of Medicine: president, A. J. Baker; secretary, H. W. Dingham.—Alumni Association of the Detroit College of Medicine: president, Dr. Burt R. Shurly; secretary-treasurer, Dr. R. L. Clark, both of Detroit.—Wayne County Medical Society: president, Dr. Ernest W. Haass; secretary-treasurer, Dr. R. L. Clark, both of Detroit.

Tuberculosis News.—More than \$11,000 has already been turned in as the receipts of the Tuberculosis Blue Star Tag Day, Detroit, although less than one-half of the boxes sent out have been returned.—The Board of Supervisors of Houghton County has appropriated \$2,000 to be expended under the supervision of the hospital committee of the Houghton County Anti-Tuberculosis Society.

Water Supply of Detroit.—The bacteriologist of the State Board of Health has reported the result of the examination of a sample of water collected from the Detroit City Pumping Station, July 2. The sample contained one colon bacillus in 7.5

cubic centimeters of the water. He states that practical isolation of the *Bacillus typhosus* from a water which will cause typhoid is impossible. The question of sewage in the Detroit city water is not as to its presence, but whether the sewage has undergone sufficient bacteriologic purification to be regarded as safe when it reaches the intake. Typhoid fever is not the only or the most important consideration in dealing with contaminated drinking water. As Hazen's theory states, "where one death from typhoid fever has been avoided by the use of better water, a certain number of deaths, probably two or three, from other causes have been avoided."

NEW JERSEY

Typhoid at Woodbury.—Because of an outbreak of typhoid fever, the Woodbury Board of Health issued an order July 9, to all residents to boil all water and milk used for drinking purposes, and an inspector with assistants from the State Board of Health will inspect the water system and dairies of Woodbury.

Personal.—Dr. H. E. Shaw, Long Branch, a member of the Monmouth Memorial Hospital staff, was seriously injured at Long Branch, July 4, by the explosion of a cannon cracker. —A reception and dinner were given Dr. Norton L. Wilson, Elizabeth, by his colleagues recently in recognition of his election to the presidency of the Medical Society of the State of New Jersey. After dinner a large silver loving-cup was presented to him by Dr. Victor Mravlag, the toastmaster.

NEW YORK

Personal.—Dr. Anthony W. Rusin, Syracuse, was seriously shocked and burned by electricity in his bath room July 8. —Dr. F. W. Marlow, Syracuse, sailed for Europe, July 24.

Hospital Notes.—Articles of incorporation of the Arnold Gregory Memorial Hospital, Albion, were filed June 22. This institution has been made possible by the gift of property valued at \$8,500. —The women of Flushing have raised \$9,357.47 more than the \$100,000 required for the building of a new Flushing Hospital. The hospital will be built on Parsons Avenue, adjoining the present building. —The Children's Pavilion and Open-Air School of Iola Sanatorium, Iola, were formally dedicated, July 4. —The supervisors of Niagara County decided on July 8 to establish a county tuberculosis hospital to cost \$40,000.

To Educate Girls in Sex Hygiene.—The State Department of Health has undertaken a state-wide campaign of education among women and girls on the subject of sex hygiene. The work is to be done by means of lectures, circulars and exhibits, and will be carried on in cooperation with other organizations, as the Women's Christian Temperance Union, Association of Women's Clubs, etc. It is proposed to reach girls working in industrial establishments. The New York State Cancer Laboratory will cooperate in the teaching of the means of prevention and necessity for early skilled treatment of cancer. In order to carry on this work the Commissioner of Health has appointed a staff of women, selected from different cities throughout the state, to deliver lectures.

New York City

To and From Europe.—Dr. and Mrs. Archibald W. Taves will sail July 31 for a year's residence abroad. —Dr. James Sounet Green has returned after a three-years' stay in Europe.

War on Mosquitoes Begins.—At the suggestion of Dr. Joseph O'Connell, Health Officer of the Port of New York, the Board of Aldermen has appropriated \$10,000 for the purpose of fighting mosquitoes in the vicinity of New York City. The work of extermination will be begun on Staten Island and extended to Flatbush and the marshes of Jamaica Bay.

New Pavilion for Montefiore Home.—A private hospital is to be built at a cost of \$200,000 by the Montefiore Home for Chronic Invalids. This is a new departure, a private hospital exclusively for the use of chronic patients who can afford to pay for exceptional attention. It is to be situated opposite the new Montefiore Home, which is now being constructed at a cost of \$2,000,000.

Cooking Schools for the Public.—The New York Association for Improving the Condition of the Poor will maintain cooking schools on two of the piers during the summer. Special attention will be given to the proper dietary for babies, growing children and adults during the heated season. The East Thirty-Fourth Street and the West Twenty-Third Street piers have been chosen for these demonstrations.

Saved All Their Babies.—The Babies' Welfare Association reports that for the first two weeks in July it has registered 15,000 babies at the ninety milk stations which it conducts in

this city and that there has not been a single death among these babies. It is estimated that there are 250,000 babies in the city and during the week ending July 13 there were 307 deaths of babies under the age of one year. This was a rate of 122.9 per thousand as compared with a rate of 149 for the corresponding week of last year.

A College for Oral Surgery.—Contracts have been signed for the building of the College of Dental and Oral Surgery of New York at 302 East Thirty-Fourth Street. There will be opportunities for research work and scientific investigation into the causes and effects of disease of the jaws and teeth. There will be a free clinic in connection with the institution and special attention will be given to school children sent by the board of education. The new institution will be under the care of the regents of the University of the State of New York.

Failure to Report Births.—Health Commissioner Lederle calls attention to the fact that for the first five months of 1912 there were 56,258 births reported as against 56,082 for the corresponding time in 1911. This would indicate a decrease of 1.10 per 1,000 population. It is not believed that there has been any such decline in the birth-rate in view of the fact that 17 deaths of infants whose births were not recorded were reported for the month of May. If, as statistics show, one out of every five infants born dies before the age of three months, it is highly probable that many more than the 17 which have come to notice have been unreported. The Department of Health wishes to make it clear that this state of affairs must not continue and that negligence will be prosecuted to the full extent of the law.

PENNSYLVANIA

Personal.—Dr. William W. Richardson has resigned as chief resident physician of the Hospital for the Insane, Norristown, to take effect September 1. He will open a private sanatorium in Pittsburgh. —Dr. A. R. Allen, Carlisle, had his left ankle dislocated in an automobile accident, recently. —Dr. C. C. Dibert, Bedford, was seriously injured in a sham battle during a Fourth of July celebration, and is under treatment in the Altoona Hospital. —Dr. W. C. McCandless, Butler, who has been seriously ill with septicemia, is reported to be improving. —Dr. J. A. Gormley, Meadow Land, is ill in the Washington State Hospital with septicemia. —Dr. J. K. White, New Brighton, who has been seriously ill is reported to be convalescent. —Dr. Henry R. Douglas, Harrisburg, has been appointed meat and milk inspector. —Dr. J. C. Gable, Freeland, has accepted a position on the staff of the Palmetton State Hospital.

Philadelphia

New Officers.—Philadelphia Laryngological Society, June 25: president, Dr. Ross H. Skillern; secretary-treasurer, Dr. Charles A. O'Reilly.

Rats on Vessels From Cuba to This Port Killed.—The American tank steamship *Courier*, from Matanzas and Havana, Cuba, ports infected with bubonic plague, was held at quarantine station at Marcus Hook, where most rigid examination of the captain and crew was made before the ship was permitted to proceed. The rats were suffocated by sulphur fumes and strict precautions taken.

Steerage Passengers Vaccinated.—To prevent a repetition of the small-pox cases brought to this city by the steamship *Haverford* on her last trip four weeks ago, every one of the 484 steerage passengers, who arrived on this steamer, July 8, was taken off the ship and vaccinated at the United States Marine Hospital, Lewes, Del. Dr. W. G. Stimpson of the Marine-Hospital Service in this city went to the station at Lewes, where he was joined by Surgeon Kearney, from Washington, and took charge of the station.

Court Approves Jewish Hospital Petition.—The growing needs of the Jewish Hospital Association and the fact that the income from funds now in its possession and eventually payable to the institution out of the residuary estates will reach the statutory limit (preventing a charitable corporation in the State of Pennsylvania to hold property, whose income from invested funds and real estate amounts to more than \$30,000 per annum) made its board of officers petition the court for an increase of the limit of such income to \$250,000 per annum. Judge Bregy in the Court of Common Pleas No. 1 approved this petition June 28.

Personal.—Drs. Charles P. Grayson, Arthur Ames Bliss, Walter J. Freeman, William Zentmayer, H. C. Register, M. B. Hartzell, George Stout and W. W. Woodward, West Chester, have sailed for Europe. —Dr. James Pettigrew, Philadelphia, while experimenting with cartridges, July 3, had his left thigh

badly lacerated by a premature explosion.—Dr. Herbert J. Smith has been elected by the Board of Trustees, clinical professor of dermatology, of the Medico-Chirurgical College, to succeed Dr. J. L. Shoemaker. Dr. Smith is associate professor of materia medica at that college at present.—Dr. William E. Muller has been appointed chief medical examiner of the Civil Service Commission and Dr. J. Clinton Foltz, assistant.

More Baby Saving Shows.—Owing to the good work accomplished by the Philadelphia Baby Saving Show, similar shows are being organized in many cities of the state. Carlisle opened one July 16, and Wilkesbarre July 22, and Erie, Pittsburgh and other cities will follow. Last year 11,009 infants, under two years of age, died in Pennsylvania from cholera infantum, and 80 per cent. of these deaths were during June, July, August, September and October. The State Department of Health will cooperate with any organization in town or village, who will aid in this work of reducing infant mortality.

To Exterminate Mosquitoes.—Councils have appropriated \$5,000 towards the extermination of mosquitoes and Drs. Joseph S. Neff, director of Public Health and Charities, and Henry Skinner of the Academy of Natural Sciences and Director Cooke have been planning to drive the insects from the city.

TEXAS

New Society Organized.—Physicians of Brazos County met in Bryan recently and organized the Brazos County Medical Society, electing Dr. George F. Lee, Wellborn, president; Dr. W. B. Cline, Midway, vice-president, and Dr. R. J. Hunnicutt, Bryan, secretary-treasurer.

Tuberculosis Colony Opened.—The State Tuberculosis Sanatorium, Carlsbad, was formally opened July 4 in the presence of more than 5,000 people. A free barbecue was given and the opening address was delivered by Hon. T. H. McGregor, Austin, who introduced the bill for the establishment of the colony in the State Legislature.

Tuberculosis Hospital for Dallas.—The efforts of the civic societies to provide a home for victims of tuberculosis was rewarded, July 12, when the city commission, by unanimous vote, adopted a joint resolution locating a city and county tuberculosis hospital in the present Union Hospital which has been used for communicable diseases.

Building for Physicians.—At a special meeting of the Harris County Medical Society, a plan was discussed for the construction of a six- or eight-story building thoroughly equipped, with an auditorium for the use of the society, a medical library, and special operating and clinical rooms, etc. The rest of the building is to be divided into rooms and suites for physicians and dentists.

VIRGINIA

New Officers.—Shenandoah County Medical Society at Woodstock, June 25: president, Dr. D. D. Carter, Woodstock, (reelected); secretary-treasurer, Dr. W. F. Driver, Woodstock (reelected).

Southwest Virginia Physicians Meet.—The twentieth annual meeting of the Southwest Virginia Medical Society was held in Pulaski, June 27-28 and the following officers were elected: president, Dr. J. T. Graham, Wytheville; vice-presidents, Drs. J. A. Tipton, Hillsville, and J. W. Preston, Roanoke, and secretary-treasurer, Dr. A. B. Griener, Rural Retreat. Roanoke was selected as the next place of meeting.

Personal.—The office of Dr. Martin L. Dalton, Floyd, was destroyed by fire, July 6.—Dr. R. S. Martin, Stuart, has been elected president of the State Board of Medical Examiners, vice Dr. Rawley W. Martin, Lynchburg, deceased.—Drs. George Ben Johnston, Richmond, J. B. Fisher, Midlothian, and Lewis E. Harvie, Danville, have been reappointed members of the State Board of Health.—Dr. Herbert Old, Norfolk, has been elected secretary and treasurer of the State Board of Medical Examiners.—Dr. Joel Crawford, Yale, has been elected counselor for the fourth congressional district, vice Dr. Samuel A. Hinton, deceased.

WASHINGTON

New Officers.—Lincoln County Medical Association at Davenport: president, Dr. R. P. Moore; secretary, Dr. A. D. Snyder (reelected), both of Davenport. Harrington was selected as the permanent meeting place of the association.

New Officers for State Board.—At the annual meeting of the Washington State Board of Medical Examiners, held in Tacoma July 6, the following officers were elected: president, Dr. H. R. Keylor, Walla Walla; vice-president, Dr. A. Macrae Smith, Bellingham; secretary, Dr. F. P. Witter, Spokane and

treasurer, Dr. W. T. Thomas, Tacoma. The next session will be held in Spokane, June 7, 1913.

State Association Meeting.—At the annual meeting of the Washington State Medical Association held in Portland, Ore., July 5-6 in connection with the meeting of the Northwest Medical Association, the following officers were elected: president, Dr. C. J. Lynch, North Yakima; vice-presidents, Drs. J. R. Brown, Tacoma, and P. D. McCormick, Spokane, and secretary-treasurer, Dr. C. H. Thomson, Seattle. The next annual meeting will be held in Everett.

WEST VIRGINIA

Personal.—Dr. H. D. Hatfield, Eckman, has been given the Republican nomination for governor of the state.—Dr. James McClung, Richwood, is the Republican nominee for state senator.—Dr. Marion R. Stone, Parkersburg, has been commissioned captain, and Dr. Francis T. Ridley, Bluefield, first lieutenant, M. C., W. Va. N. G.

State Society Election.—At the annual meeting of the West Virginia State Medical Association held in Webster Springs, July 16-17, the following officers were elected: Dr. Frank LeM. Hupp, Wheeling, president; Dr. J. R. Bloss, Huntington, vice-president; Dr. A. P. Butt, Davis, secretary (reelected); and Dr. H. G. Nicholson, Charleston, treasurer. The next meeting will be held in Charleston.

WISCONSIN

State Board Appointments.—Dr. J. M. Dodd, Ashland, has been appointed a member of the State Board of Medical Examiners, vice Dr. F. Gregory Connell, Oshkosh, resigned.—Dr. W. L. Thompson, Milwaukee, has been elected president of the State Board of Medical Examiners, and Dr. J. M. Belfel, Milwaukee, has been reelected secretary.—Dr. Charles H. Stoddard, Milwaukee, has been appointed a member of the State Board of Health, vice Dr. Joseph Barber, Marathon, resigned.

Personal.—Dr. F. V. Watson, Antigo, was injured in the Great Northern train wreck near Evansville, Minn., July 14.—Dr. H. R. Adams, Marinette, is said to be critically ill.—Dr. C. J. Rollefson, West Superior, has been appointed instructor in science and medical advisor of the State Normal School.—Dr. E. T. Lobedan, Wauwatosa, has been appointed medical assistant in the charge of child welfare work by the health commissioner of Milwaukee.—Dr. George C. Ruhland has been appointed director of bacteriology of the Milwaukee Health Department.—Dr. Earl F. Baur, Milwaukee, has resigned as resident physician at the Emergency Hospital, to accept a position as surgeon with the Illinois Steel Company, Chicago.—Dr. and Mrs. Joseph Schneider, Milwaukee, have donated \$10,000 to the German-English Academy High School building fund.

GENERAL AND FOREIGN

Railway Surgeons Meet.—At the annual meeting of the Norfolk and Western Railway Surgeons' Association at Cedar Point, near Sandusky, Ohio., June 18-19, the following officers were elected: President, Dr. Joseph A. Hall, Cincinnati; vice-president, Dr. W. V. Atkins, Blackstone, Va., and secretary-treasurer, Dr. T. D. Armistead, Roanoke, Va.

Tri-State Society Meeting.—The Northern Tri-State Medical Association held its thirty-ninth annual meeting in Detroit, July 2-3, under the presidency of Dr. Charles N. Smith, Toledo. It was decided to hold a mid-year meeting in Toledo in January. Dr. Victor C. Vaughan, Ann Arbor, Mich., was elected president; Dr. C. C. Terry, South Bend, Ind., vice-president; Dr. G. W. Spohn, Elkhart, Ind., secretary (reelected), and Dr. J. A. Weitz, Montpelier, Ohio, treasurer (reelected).

Honors for Kocher.—On the completion of his fortieth year as member of the faculty of the University of Berne, Prof. T. Kocher was given an ovation recently, by his friends and pupils. The Swiss government, the universities and institutes sent representatives, as did many of the European surgical societies. The *Deutsche Zeitschrift für Chirurgie* issued a special volume of 818 pages as a *Festschrift* in his honor. He celebrated the occasion by presenting the university with \$40,000 to endow scientific research. It will be remembered that Kocher was awarded the Nobel prize in medicine in 1909 for his works on the thyroid. He was born Aug. 25, 1841, and is thus in his seventy-first year.

International Congress of Medicine.—This congress will meet in London, England, August 6-12, 1912. The Executive Committee for the United States consists of the following: William S. Thayer, M.D., president, Baltimore; Alfred Reginald Allen, M.D., secretary, Philadelphia; Frank Billings,

M.D., Chicago; William T. Councilman, M.D., Boston; George W. Crile, M.D., Cleveland, Ohio; John B. Elliott, M.D., New Orleans; J. Marshall Flint, M.D., New Haven, Conn.; Albion W. Hewlett, M.D., Ann Arbor, Mich.; Abraham Jacobi, M.D., New York; Theodore C. Janeway, M.D., New York; Lawrence Litchfield, M.D., Pittsburgh; Herbert C. Moffitt, M.D., San Francisco. Applications for membership in the congress can be obtained from the Secretary, Dr. A. R. Allen, 2013 Spruce Street, Philadelphia.

Honorary Degrees for Medical Men at Michigan University.—At the seventy-fifth commencement of the University of Michigan, honorary degrees were conferred on graduates of the university and to former members of the faculty. The following is the list of medical men who received degrees with the statement made at their presentation: The degree of Master of Arts was conferred on Dr. James C. Wood, a practitioner of Cleveland, Ohio, surgeon and author, and formerly a member of the faculty of the Homeopathic Medical College of the University of Michigan; Dr. Otto Landman, a practitioner of Toledo, Ohio, a graduate of the literary class of 1884, and of the medical department in 1887; known for his contributions to the science of ophthalmology, and Dr. Harold Gifford, professor of ophthalmology in the University of Nebraska, a graduate of the class of 1882 in the Department of Medicine and Surgery, and a research worker in his chosen specialty. The following received the degree of Doctor of Science: Dr. John Elmer Weeks, professor of ophthalmology in New York University, a graduate of the class of 1881 in the Department of Medicine and Surgery, known as an author and research worker, joint discoverer of the Koch-Weeks bacillus; Dr. John Jacob Abel, professor of pharmacology in Johns Hopkins University; a graduate in arts in this university in 1883, professor of materia medica and therapeutics in this university from 1891 to 1893; distinguished for his researches and original contributions, and Dr. Henry Sewall, professor of medicine in the University of Colorado, professor of physiology in this university from 1882 to 1889. Dr. Sewall's research on immunization to the venom of the rattlesnake, done while a professor in this university, laid the foundation for the discovery of diphtheria antitoxin. The following received the degree of Doctor of Laws: Dr. William Henry Howell, professor of physiology in Johns Hopkins University, formerly a professor of histology and physiology in this university; distinguished teacher and investigator; a physiologist of the first rank, and Dr. James Playfair McMurich, professor of anatomy in the University of Toronto, for thirteen years professor of anatomy in the University of Michigan; distinguished as a teacher and for learned contributions to the sciences of biology and anatomy.

The Plague Situation.—It is reported from San Juan, P. R., that three additional deaths occurred from plague, July 20, in the suburbs of that city, and one additional suspect has been found. These cases had not been reported to the authorities. Up to July 21, there had been thirty-seven cases and twenty-six deaths throughout Porto Rico. The Haffkine serum has been administered to all persons living in the infected district and the extermination of rats is being actively carried on. One additional case of plague is reported from Havana under date of July 22, making three in all, with two deaths. The situation, however, is well in hand. The extermination of rats is being actively carried on and examination of those killed has revealed no infected rats either in Havana or in any Porto Rican or United States port. Havana has been quarantined against by Florida and all passengers attempting to land at Key West or other Florida ports are detained for seven days at the Priscenia station. The detention at other coast ports is not so lengthy on account of the longer passage to these ports. The quarantine against Cuba, first established at Key West, has been relaxed somewhat. First-class passengers with certificates of health and not coming from an infected port are allowed to land. The health authorities, cooperating with those of the Public Health Service, are active at all points from Galveston to Boston in exterminating and examining rats, fumigating arriving vessels, etc. Dr. J. J. O'Connell, health officer of the port of New York, has begun the use of sulphurous acid gas in fumigating vessels in place of sulphur which is burned in the hold of the vessel. The sulphurous acid is in liquid form and after the hatches of the vessels are battened, the liquid is poured through a tube into the various parts of the vessel where it almost instantly volatilizes and penetrates every portion, killing the rats and fleas. Congress has appropriated \$100,000 for the carrying on of plague prevention work by the public health authorities. Col. Jefferson R. Kean, of the commission of army officers, sent to Porto Rico to study the plague situation,

believes it will be difficult to keep the plague out of the United States, though it will probably under the vigorous efforts of the health authorities not attain any extensive foothold in the American ports. One case of yellow fever is reported from Panama on the steamship *Chile* arriving from Guayaquil which seems to be a focus of infection for plague also. The government authorities of that port have arranged to secure the assistance of experts from Panama in a plan for the eradication of tropical diseases from that badly infected port. New Orleans is making extraordinary efforts to keep out the plague. Dr. Oscar Dowling, state health officer, has personally visited Havana to study the situation. Premiums are given for the extermination of rats at New Orleans, as well as at most of the other ports of the coast. *Public Health Reports* of July 19, 1912, contains an article on eradication and prevention of plague by Dr. W. C. Rucker of the Public Health and Marine-Hospital Service, who has had much experience in plague prevention in California. This is a complete summary of the measures necessary for the prevention of plague by the elimination of rats and other flea-carrying rodents in city and country. (The subject of plague is taken up editorially in this issue of THE JOURNAL.)

CANADA

Academy Election.—At the annual meeting of the Toronto Academy of Medicine, Dr. R. A. Reeve was elected president; Dr. H. J. Hamilton vice-president; Dr. W. Harley Smith, honorary secretary, and Dr. W. A. Young, honorary treasurer.

Provincial Medical Association Meeting.—The Manitoba Medical Association held its annual meeting in Winnipeg, May 21-22. The meeting was clinical throughout, and was probably appreciated more than the former gatherings at which programs of formal papers were presented. The following officers were elected: president, Dr. J. S. Matheson, Brandon; vice-presidents, Drs. E. C. Beer, Brandon, and T. R. Ponton, Macgregor; honorary secretary, Dr. Jasper Halpenny, Winnipeg; honorary treasurer, Dr. R. F. Rorke, Winnipeg, and executive committee, Drs. A. E. Walkey, Portage la Prairie; W. A. Bigelow, Brandon; James McKenty, Winnipeg; W. J. Harrington, Dauphin, and R. D. Ferguson, Pilot Mound. The next meeting will be held in Brandon.

Personal.—Dr. J. A. Ashbaugh, medical health officer for Windsor, has been appointed camp sanitary officer of the Western Militia District, Goderich.—Dr. Edward A. Neff, Ingersoll, Ont., has been appointed a member of the staff of Brigham Hall Insane Hospital, Canandaigua, N. Y.—Dr. Lawrence J. Rea, resident pathologist in the Montreal General Hospital and assistant professor of pathology in McGill University, Montreal, has been appointed assistant professor of pathology in Harvard Medical School and resident pathologist to the new hospital of Harvard University.—Drs. W. Turnbull, O. C. Dorman and George Stephens have been appointed assistant medical health officers of Winnipeg.—Dr. M. R. Bow has been appointed medical officer of Regina, Sask., and Dr. J. C. McDougall, Parrsboro, has been appointed Indian agent for Cumberland County, vice Dr. F. A. Rand, Parrsboro.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, July 6, 1912.

The National Insurance Act: Wholesale Resignation of Contract Work

As explained in previous letters to THE JOURNAL, a weak point in the profession's otherwise strong resistance to the national insurance act is that the practically unanimous pledge to refuse to work unless the "six points" are granted could be nullified by the government handing over the administration of medical benefit to the friendly societies for their administration. This has been remedied by the issuance of a supplementary pledge, which has also been signed with practical unanimity, placing the resignations of present contract work by the whole profession in the hands of the British Medical Association, to be used if necessary. Already in several large districts—Leicestershire, Rutlandshire and part of Yorkshire—the local committees of the association have taken the initiative and sent in to the friendly societies the resignations of all contract work. Thus the profession has taken the offensive while the government is investigating the sample accounts of numbers of doctors preliminary to further negotiation. This has produced considerable irritation in the friendly societies.

The negotiations of the British Medical Association with the government appear to have reached a deadlock. In reply to their demands Mr. Lloyd George, the Chancellor of the Exchequer, says that the government has always recognized

that the average medical remuneration per head should be not less than that received under existing conditions, but greater in view of the greater demands that are likely to be made on the work of the profession under the act. The government also recognizes the necessity of paying specially for certain extras, including visits, mileage, etc., but can hold out no hope of such provision as would yield the sum demanded by the association (\$2 per insured person for ordinary medical attendance, to which is to be added payment for extra services as well as for drugs and appliances). The chancellor states that if the demands of the profession were to be granted it would mean that the ordinary assured income of a physician would be not less than \$5,000 per annum, which would be greatly in excess of what are ordinarily believed to be professional earnings. In order to provide such a sum it would be necessary to ask Parliament for another \$5,000,000. The Council of the British Medical Association has replied that the chancellor's figures are purely hypothetical.

Tuberculosis in South Africa

A commission on tuberculosis appointed by the South African government reports an alarming increase, especially among the colored races. The primary factor seems to be its introduction into many centers previously free from it by the immigration of consumptive persons who mostly come to South Africa to obtain the benefits of the climate. It would therefore be desirable to exclude every immigrant suffering from open tuberculosis or any form likely to develop into that stage, but in practice there are several difficulties and objections to this course. The following rules are therefore recommended: 1. A tuberculous immigrant should be admitted only through a recognized port of entry proclaimed for the purpose. 2. He should be admitted only on a permit entitling him to remain in the country for a definite time. 3. The permit should be subject to the immigrant keeping under surveillance and observing measures for the prevention of infection. 4. He must reside at a specified place. 5. He must present himself for periodic examination by the district surgeon.

A New Carrier of Sleeping-Sickness

The Sleeping-Sickness Commission dispatched to Northern Rhodesia has issued a report confirming the view, held by some authorities, that the tsetse fly, known as *Glossina morsitans* is, like the *Glossina palpalis*, a carrier of sleeping-sickness. This fact is of considerable importance in consequence of the different distribution of the two flies. *Glossina palpalis* is found only close to water where there is sufficient vegetation to provide it with shade, and is not known to occur at a greater altitude than 4,000 feet. It is rarely found more than 30 yards from water, except where a few flies have followed men or animals further than this, but which soon return. On the other hand, the distribution of *G. morsitans* is wide; it occurs in belts which may or may not be well defined and which cover enormous areas. It does not seem to be dependent on the presence of water. Thus, in the management of sleeping-sickness due to the *G. palpalis* it is a comparatively simple matter to remove the affected population to such a distance from water as will ensure safety. This measure has proved most effective. In dealing with *G. morsitans* there are three possibilities—removal of the population, removal of the source of infection and removal of the fly. The first presents enormous difficulties arising from the number of persons (about 150,000) concerned, from the distances to be traveled and from the unwillingness of the natives. For the second, something might be done in the way of discovery and segregation of all infected natives, had it not recently been discovered that the trypanosome of the disease is carried by several of the varieties of antelope inhabiting the affected areas. It is proposed to appoint a staff of trained entomologists to investigate the whole question and to determine how the destruction of the flies may be compassed. In the meantime all suitably placed populations are being removed to fly-free areas, domestic animals which might act as reservoirs of trypanosomes or attract the fly are being prohibited and the destruction of game in the immediate vicinity of settlements and villages is being encouraged.

The Parliamentary Committee on Nostrums

Dr. Nestor Tirard, medical editor of the British Pharmacopoeia, has given further evidence. He stated that the general medical council wished to see established a laboratory for the standardization of drugs difficult to standardize by the usual physical methods. There were certain tests involving vivisection which pharmacists could not be expected to perform. Such a government laboratory would standardize

the various serums and vaccines introduced. Every bottle of medicine should have on it a label indicating the amount of scheduled poisons contained in it and exaggerated claims should not be permitted. The proper laboratory for ascertaining the value of drugs was the hospital.

On behalf of the British Medical Association, the medical secretary, Dr. Alfred Cox, gave evidence. Direct and indirect injury to the health of the people arose from the use of proprietary medicines; opium, alcohol and cocaine habits were established and sufferers from cancer were led to trust to a "cure" whereby time was fatally lost. The newspapers obtained a large revenue from advertisements of such productions and consequently gave no help in exposing the nature of the traffic. Frauds were perpetrated on the public both by grossly exaggerated statements as to the curative properties and by false statements as to the component drugs. The association made the following proposals for dealing with the evil: 1. For medicines supplied otherwise than on a medical, dental or veterinary prescription no condition of sale short of the publication on each package of the name and quantity of each of its constituents should be permitted. 2. The label should be made to constitute a warranty and false description, whether on label or advertisement, should be made an offense. 3. The provisions of the Food and Drugs Act should be made to apply to proprietary medicines. 4. The government should institute prosecutions when the conditions of sale did not comply with the preceding regulations. 5. The indecent advertisements act should be amended in accordance with suggestions made by the association to the government. In cross-examination, Dr. Cox was asked whether these recommendations would not destroy to a large extent the sale of proprietary medicines by enabling any persons to make them up from the statement on the labels, and thus their proprietary value would be destroyed. He answered that there would be a great risk of many being destroyed, but that some of the best kind would not, for it was sometimes the method of preparation which gave these articles their chief value. It would be a great advantage to the public to limit the sale of proprietary medicines. Asked whether there was any pecuniary rivalry between the medical profession and the sellers of proprietary medicines, he replied that on the whole the income of the profession was indirectly increased by the traffic. The delay which they caused in the adoption of proper treatment increased the work of the profession. The *British Medical Journal* did accept advertisements of some proprietary medicines, but it was a strict rule that in all cases the ingredients should be disclosed, and that claims that could not be substantiated should not be made.

At a meeting of the Medico-Legal Society, Dr. Eric Pritchard read a paper on the state regulation of the manufacture and sale of patent medicines. The various government departments, he said, had shown themselves singularly remiss in protecting the public against the wiles of the quack, and the deliberate policy of the government appeared to have been to leave the correction of the evils of quackery to the spread of education, rather than to legislation and prosecution. Not only were our laws ill adapted for the protection of the public, but the administration was lax and wanting in energy. England was fast becoming the happy hunting-ground for the filibustering vender of quack medicines, for in almost every other country there had been enactments for the protection of the public. A survey of these measures when compared with our own antiquated and cumbersome machinery afforded ample food for reflection. It was clear that the magnitude of the public interest, and the vastness of the commercial transactions involved in the traffic in secret preparations and other commodities demanded that there should be a separate and independent machinery to control these operations. Advantage would accrue to the public by the adoption of the principle of accurate branding of the goods, and the strict censorship of all the advertisements concerned with them. In the discussion which followed Sir John Tweedy (the president) said that there was no doubt that where remedies were prepared by firms of reputation and standing many of them were very valuable. But it was equally true that many so-called patent foods were wicked frauds. Mr. George Bernard Shaw said that in the work of attempting to minimize the amount of falsity in statements placed before the public they must not expect the support of the public, for they would not get it. They must look for support to a small body of genuinely public-spirited men, men who were not interested in individuals, but in the national health in general. When that small body found itself opposed by tremendous commercial interests, and the way in which the public took up patent medicines, it would find its position exceedingly difficult.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, July 5, 1912.

Foundation in the Paris Medical School of a Clinical Chair of Tuberculosis

About twelve years ago M. Valencourt left his property to found a clinical chair at the Faculté de médecine de Paris, under the direction of his personal friend Professor Debove. The property, which now amounts to \$280,000 (1,400,000 francs), is about to be used to found a clinical chair in the university for research on tuberculosis, the occupant of the new chair to give up all practice outside of the hospital and all idea to change of position. The new policy thus sanctioned by the medical school gives much satisfaction to practitioners who have protested against the use of the title of professor as a means of attracting a more extended practice. There has also been much justified protest against the changes in professorships some of which have become known as "chairs of passage."

The First Meeting of French School Physicians

The first Congrès des médecins scolaires was held in Paris, June 20-22, with M. Guist'hau, minister of public instruction, presiding. The question of medical inspection in public and private elementary schools was first considered. Dr. Doizy, delegate from Ardennes, who recently reported on medical inspection in European and American schools, commented on the conclusion of the report, namely, the organization of an office of local medical inspectors under the supervision of a departmental medical inspector. The local medical inspectors would be appointed by the chief inspector of schools, after competitive examinations and on recommendation of the departmental council of hygiene.

This question called forth an interesting discussion. Dr. Noir recalled the failure of the law on the protection of public health in 1902, and declared that it would be the same with the law on school hygiene, because the medical profession, as a whole, is not connected with the organization projecting this law. Dr. Noir prefers that the office of inspector be given, not to a few physicians after competitive examination, but to all physicians, under the control of the medical *syndicats*. Dr. Jeanne expressed the same opinion, but Dr. Papillon was opposed to giving complete power to the *syndicats*. Dr. Mosny agreed with Drs. Noir and Jeanne. The duty of the school physician, he thought, should be the hygienic care of the whole school; therapeutics being the exclusive domain of the family physician. The selection of a school physician should be made, not by an incompetent functionary, but by all the local physicians, including those who are independent of any professional group. In cities, this would necessitate a competitive examination, to be judged by the local physicians. Dr. Decourt thought that, after giving such a subordinate rôle to the school physician, without the right even to make a diagnosis, merely referring the student to his physician, a competitive examination did not seem justified. Dr. Gourichon, representing the Société des médecins inspecteurs de la Seine, was like Dr. Mosny, of the opinion that competitive examination was the best way of securing academic physicians. In cities of less than 50,000 and in the country the selection could be made by the chief inspector of schools, requiring every possible guaranty. Dr. Lafontaine, representing the Syndicat des médecins de la Seine, moved that the *syndicats* choose the medical inspectors and have the responsibility for their nomination. The minister of public instruction and Dr. Chapon, general secretary of the congress, expressed themselves in favor of competitive examination. The assembly shared this opinion and Dr. Lafontaine's motion was rejected.

The second question taken up by the meeting was that of physical education in elementary schools. After discussion, the following resolutions were adopted:

1. Organized physical education is indispensable in public and private elementary schools. This physical education should be rational and scientific; it should employ games, manual work and gymnastics.

2. Gymnastic instruction should be given for at least half an hour every day. A certain number of points on physical education should be compulsory in all examinations, including those for an academic degree.

The Sale of a "Corn-Cure" an Illegal Practice of Medicine

The Toul court has imposed a fine of \$100 (500 francs) on the managers of a local bazar and coffee room, who put on sale a supposed corn-remover, for illegal practice of medicine, and awarded \$20 (100 francs) damages to the Syndicat des pharmaciens, civil party to the suit.

Intramuscular Etherization

Recently the Société de chirurgie has discussed chiefly the intramuscular method of etherization, advocated by Dr. Descarpentries (THE JOURNAL A. M. A., May 25, 1912, p. 1612). Dr. Peugniez, of Amiens, has tried this new method with a young woman, aged 18, who had a nasopharyngeal polypus. As she weighed nearly 128 pounds (58 kilos), he injected about 60 c.c. of ether, making every two minutes injections of 5 c.c. of ether in each buttock. At no time did the patient sleep; she presented a phase of excitation for twenty minutes, when chloroform had to be given. The quantity of anesthetic used was not modified by the injection of ether and for several days the patient felt very intense pain in the regions in which the injections had been made.

Dr. Sebileau, *agrégé* professor at the Faculté de médecine de Paris, protests against intramuscular etherization. It appears to be advised in operations on the mouth, on the pharynx or on the upper air passages. For such cases, Dr. Sebileau remarks, this method is very practicable and has been used for a long time. An intertracheal tracheotomy is performed and ether-vapor is introduced into the trachea by means of a cannula placed in the wound.

Dr. Pierre Delbet, professor of clinical surgery at the Faculté de médecine de Paris, thinks that this method of intramuscular injections is entirely without experimental basis. A quantity of ether proportioned to the weight of the individual is injected without considering the personal susceptibility of the patient to anesthesia. There are some patients who will be made unconscious by a very small quantity of ether; there are others, often of about the same weight, to whom it is necessary to give a large amount. Again, once the anesthesia is thus introduced into the system, there is no way to suspend its action. If an accident results, one has not the resource of stopping the etherization, as is possible in the inhalation method; and this constitutes a very grave danger.

Dr. Delbet relates the history of a patient operated on by Dr. Picot for an ulcerated tumor on the base of the tongue. Ether was administered intramuscularly from 8:40 until 9:30, about 30 c.c. of ether being used. The operation was started at 9:20 and terminated successfully, with an incomplete but quite sufficient anesthesia. The patient was fully awake at 11; at 2 he had an epileptiform crisis which lasted several minutes and which was followed by another at 5. At 6 he was very restless and his pulse was 140. He died the next afternoon at 3, after having many similar attacks. Autopsy did not reveal the cause of death; the vessels of the circle of Willis and the cerebral arteries were perfectly healthy. It is possible that this may have been a mere coincidence. But, in citing this instance, Dr. Delbet recalls that Doré and Braun, in experiments performed some time ago, produced death by ether injections in a dog; and after these injections the animal had an epileptiform crisis.

Dr. Tuffier, *agrégé* professor at the Faculté de médecine de Paris, agrees completely with Delbet that intramuscular etherization is a blind and dangerous procedure. He never wished to use it, but, urged by those around him, he decided to try it in two cases. The first patient was a young woman from whom he had to remove a tumor of the mouth. He injected 20 c.c. of ether in one buttock, 30 c.c. in the other, and waited vainly one-half hour for anesthesia; finally, he resorted to chloroform, and the patient suffered intensely in the regions in which the injections were made. The second case was an abscess of the liver in a cachectic, exhausted man who weighed 161 pounds (73 kilos). An injection of 70 c.c. of ether was made. The anesthesia was at no time complete, though sufficient to permit the operation. Immediately following the injection, however, the patient was cyanosed, and in the afternoon, after showing symptoms of asphyxia, he died.

Dr. Walther, *agrégé* professor at the Faculté de médecine de Paris, has used intramuscular etherization three times. The first patient was a woman, aged 37, who had a sarcoma of the jaw. She weighed 115 pounds (52 kilos) and an injection of 45 c.c. of ether was made. The operation was begun a quarter of an hour after the first injection. During this time the patient felt some pain in the buttocks; she had tremors, palpitations, a sense of suffocation, and her breath smelled of ether. After two awakenings, ethyl chlorid was given and then chloroform. The patient was awakened at the end of fifty-five minutes. She had not been conscious of the operation, but on the following days she felt very intense pain in the lower limbs and there was an eruption of pigmented spots and ecchymoses on the thigh and the legs which did not disappear until eight days later. The two

other patients were a man, aged 40, operated on for an axillary inflammation, and a young woman, aged 29, on whom a grattage and injections of zinc chlorid were made for a tuberculous osteo-arthritis of the instep. The former patient weighed 150 pounds and received 80 c.c. of ether; the young woman weighed 154 pounds and received, also, 80 c.c. of ether. In the two cases it produced similar symptoms: excitement, pupillary dilatation and palpitations. Anesthesia was incomplete and chloroform was resorted to; after the awakening the patients were seized with vomiting and had a sensation of stifling which lasted throughout the day. On the days following the operation the legs were numb and painful, and spots and ecchymoses, which became confluent, appeared on the thigh and leg, while a large hematoma could be felt deep in the tissues.

On the other hand, Dr. J. L. Faure, *agrégé* professor at the Faculté de médecine de Paris, has had some favorable results with intramuscular etherization. He used this method for the operation of a cancer of the tonsil, large as a turkey egg, in a woman, aged 30. He thus avoided all the inconvenience which other methods of anesthesia in operations on the buccal cavity entail. Anesthesia was obtained by making ten successive injections, which were well borne, but it was twice necessary to have the patient inhale a few drops of chloroform. Eventually, however, she showed symptoms of slight sciatica in the left side. Another patient who received 60 c.c. of ether went to sleep without complaining and a large goiter was removed. A few drops of chloroform were necessary, however, at first. The operation lasted about twenty minutes and the awakening took place under normal conditions.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, June 28, 1912

Personal

Professor Alzheimer, a pupil of Kraepelin, has been called from Munich as director of the nerve clinic at Breslau, to succeed Professor Bonhöffer who has removed to Berlin.

Minor Notes

For the reception of the participants in the sixth international congress for obstetrics and gynecology, which will meet in Berlin next September, the Berlin city government has appropriated the sum of \$3,000 (12,000 marks).

The assistants (interns) at the municipal hospitals have petitioned the municipal government for an increase of salary and a longer leave of absence.

The Free Association of Surgeons of Berlin (*Freie Vereinigung der Chirurgen Berlins*) which has been in existence for twenty-five years, transformed itself at the beginning of this month into the Berlin Surgical Society (*Berliner Gesellschaft für Chirurgie*) and adopted a constitution and by-laws. Sonnenburg was elected president and Israel and Körte vice-presidents.

Museum of Hygiene at Dresden

The Dresden city council has confirmed the plan for the erection of a museum of hygiene. In pursuance of this plan the city under certain conditions gives up its share of the profits of the international hygiene exposition, amounting to over \$250,000 (1,000,000 marks) and contributes land to the extent of at least 6,000 square meters (1.5 acres) and pays in addition a yearly contribution of \$37,500 (150,000 marks). The condition is imposed that the museum shall be opened at latest by the beginning of 1916.

Measles and Diphtheria in the Schools

The frequency of measles and diphtheria and means for their suppression were discussed at the recent meeting of the school physicians of Germany. It was again established that measles is by no means so insignificant a disease as is commonly supposed. In 1909 there were eighty-one classes closed on account of measles in Berlin, as compared with forty-four for scarlet fever and thirty-one for diphtheria. The spread of measles takes place chiefly through the schools and it forms a typical school-epidemic disease. Of the pupils entering school for the first time, from 50 to 60 per cent. have had measles.

The measures hitherto in use by the schools for suppressing measles, namely, the exclusion of those attacked, closing the classes if necessary, and disinfection of the school rooms are not sufficient, according to the opinion of the speakers. Even the immediate exclusion of the sick children cannot hinder the spread of the infection, for communication takes place

before the eruption has appeared, usually at a stage when the child is not known to be sick. The speaker therefore recommended in a similar way as has been recommended by an Austrian medical official, that the class be closed immediately after the discovery of one infected child, for from five to nine days. Also children from families in which there is measles should be excluded from school for fourteen days even if they are well but have not yet experienced measles. With reference to diphtheria many speakers demanded strict exclusion of convalescents and so-called bacillus-carriers.

Organization of the Insurance Physicians of Berlin

The enforcement of the imperial insurance law will cause a notable change in the relations of the *Krankenkassen* in Berlin. The *Krankenkassen* are endeavoring to form an alliance of great extent for which they had already prepared. Hand in hand with this went efforts to unite also the various groups of insurance physicians. In a meeting of the insurance physicians held a few days ago this unification was effected. After a short discussion the following resolutions were adopted: (1) The assembly declares itself satisfied with the formation of the managing committee of insurance physicians for Berlin. (2) As a foundation for this formation there must be a system of equality among the insurance physicians. The following definition is hereby assumed: The committee of the association to be formed has the function of assisting, as far as possible, in the contracts of groups of insurance physicians, without reference to the principle of employment of the insurance physicians which prevails in the insurance company. Accordingly, the committee shall not have the right to decide in regard to the system to be employed in selecting insurance physicians. (3) The committee shall prepare a standard contract for Berlin. It shall have the function of securing an agreement with regard to the standard contract with the central committee of the *Krankenkassen* or with any new insurance organization which may be formed, but the individual organizations of insurance physicians shall assume the duty of termination of the contracts. The contract commission of the *Aerztekammer* is to determine whether the individual contracts correspond in principle to the standard contract. (4) The committee shall at first consist of fifteen members: three from the association of freely chosen insurance physicians; three from the association of Berlin insurance physicians, and three from the association of Berlin factory physicians. The remaining six shall be chosen from the other associations of insurance physicians: two from the groups with a system of free choice; two from those with limited free choice, and two from those having contract physicians. (5) The groups acting under the fee bureau (*Tarifikassen*) of the Leipzig league belong to the system of free choice, as anyone may join the Leipzig league.

These resolutions clearly set forth the purpose of this new organization of the insurance physicians. Without regard to the various systems of employing insurance physicians, a unification of the conditions for appointment for the insurance physicians will be secured, and insurance physicians will be prevented from underbidding each other either in regard to fees or by the provision of other important conditions, and there will be no occasion for one group of insurance physicians to be played off against another by means of the negotiations for the contract. Moreover, all this is to be accomplished in a peaceful way, as the resolutions show that an agreement is to be sought with the central organization of the *Krankenkassen* with reference to standard conditions. In this way a free association will be established corresponding to the provision which the first draft of the imperial insurance law contemplated, but which was not incorporated in the law, namely, that the parties concerned shall form a central commission to have charge of regulation of the relations between the *Krankenkassen* and their medical officers, and especially for an agreement with regard to the future regulation of their medical service.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, July 2, 1912.

American Surgeons in Vienna

A few days ago, a number of well-known surgeons from the United States arrived here to visit the hospitals and clinics of Vienna and observe the medical work. As some of the surgeons brought their families with them, there were over forty in the party and were received with the utmost cordiality. Their trip through Europe has been arranged by the Interurban Surgical Club of America. Drs. Cushing,

Mayo, Finney, Bartlett, Ochsner and Crile are a few of the well-known surgeons of the party, while the others are more or less known by the reputation they enjoy among their confrères who come to Vienna to spend a year or so in study. At the invitation of the professors of the General Hospital, the visitors witnessed several operations in Hochenegg's clinic and an operation for tumor of the brain in Eiselsberg's clinic and gynecologic demonstrations at Professor Schauta's clinic and kidney and prostate surgery at Zuckerkandl's. All other institutes of medical interest were visited; the new clinics, the great lunatic asylum, the x-ray institutes, etc. To those who were interested in fine arts, an opportunity was afforded to view the treasures of paintings and sculptures owned by the emperor and the state. Several excursions were made to see the beauty of the surrounding country.

After a few days' stay in Vienna, the tourists left for Stuttgart and then on to Heidelberg, Frankfurt and Bonn. Having already visited Hamburg, Berlin, Leipzig and Jena before coming to Vienna, they will have gained a fairly good insight into the work done in the German and Austrian medical colleges.

Postgraduate Work in Innsbruck

The university of Innsbruck will arrange for the months of July and August a series of postgraduate classes for practitioners from all countries. Innsbruck is situated in the midst of the grand Alpine scenery of the Tyrol, and is, comparatively speaking, a cheap place. It has about 80,000 inhabitants. Its medical school is regarded as very good especially in surgery and pathology. The postgraduate classes comprise medicine, gynecology and surgery, as well as classes in dermatology and diseases of children.

An Interesting Feat of a Member of Parliament

A record was won quite recently by Dr. Baczynsky, member of the Austrian parliament, which was not devoid of medical interest. For political reasons he resolved to obstruct the parliamentary machine and commenced to deliver a speech at 7 p. m. He continued to speak for thirteen hours and eight minutes. During his speech his friends, from time to time, succeeded in getting a few minutes' rest for his voice by applauding so vehemently and persistently that the chairman had no ground to suppose the orator had finished his speech. When finally at 8:08 the next morning the speech was ended, Dr. Baczynsky was at once taken care of by a medical friend. He was in a state of exhaustion. His pulse was 142, the temperature was 37.5 C. and he complained of a dry, sore parchment-like feeling in the throat. No laryngoscopic examination was made. He had to lie down, was rubbed thoroughly, especially on the thorax, which was very tender, and he fell asleep while being rubbed. Altogether he had had only thirty-five minutes' rest during the speech, which was during the applause; all the other time he was forced to speak loud and distinctly, and had only now and then a sip of water, lemonade and a little soda. He was perfectly well again in the evening, "fit for another thirteen hours' speech" as he remarked. This remarkable endurance has not been equaled, but was nearly reached a few years ago by Dr. Lecher, who spoke for twelve hours continuously in parliament.

Marriages

EDWARD ALFRED JONES, M.D., Winnipeg, Man., to Miss Maude Rebecca Kelley, of Hanford, Cal., at Winnipeg, June 24.

HUGH RAYMOND SPENCER, M.D., to Miss Lillian Estella Elliott, both of Baltimore, at Baltimore, July 6.

ERNEST MONROE HARTFIELD, M.D., to Miss Marie Gabbert, both of Chadwick, Ill., at Chadwick, July 7.

AUSTIN FUNK, M.D., Jefferson, Ind., to Miss Norma Rike, Connorsville, Ind., at Connorsville, July 6.

THOMAS WILLIAMS LEWIS, M.D., Chicago, to Miss Mamie B. Fauntleroy, at Lynchburg, Va., July 11.

C. C. BLISS, M.D., Delphos, Ohio, to Miss Mary Penthana, Springfield, Ohio, at Springfield, July 9.

AUGUST EDWARD GERHARDT, M.D., Seattle, Wash., to Miss Elizabeth Walsh, at Seattle, July 17.

JOSEPH ALLEN LOCKE, M.D., Index, Wash., to Miss Lola B. Gordon, Vancouver, B. C., June 19.

CORTEZ HOLIDAY WHEELER, M.D., to Miss Agnes Ritter, both of Portland, Ore., July 2.

Deaths

Thomas Hewson Bache, M.D. Jefferson Medical College, 1860; a great-great grandson of Benjamin Franklin; one of the founders of the Children's Hospital, Philadelphia; a vice-president of the Pennsylvania Institute for the Deaf and Dumb; a fellow of the College of Physicians of Philadelphia; surgeon of the Seventh Pennsylvania Volunteer Infantry and later major and brevet lieutenant-colonel M. C., U. S. Army, during the Civil War; one of the oldest practitioners of Philadelphia; died at his home, July 8, from senile debility, aged 86.

James M. Alden, M.D. Jefferson Medical College, 1871; a member of the Medical Society of the State of Pennsylvania; at one time superintendent of the Insane Asylum at Norfolk, Neb.; a pioneer physician of Pierce County, who served two terms as state senator from his district; died at the Methodist Hospital in Omaha, May 3.

Levi Lloyd, M.D. Texas Medical College and Hospital, 1874; one of the early settlers of Jacksonville, Texas; in 1902 was elected to the legislature from Cherokee County; in 1908 state senator from the same district; died at his home in Jacksonville, July 7, after an illness of several months.

Alfred J. Ihne, M.D. St. Louis College of Physicians and Surgeons, 1905; of Fosterburg, Ill.; a member of the American Medical Association; died in St. Joseph's Hospital, Alton, July 5, from septicemia a few days after an operation for appendicitis, aged 35.

William G. Moore, M.D. University of Louisville, Medical Department, 1884; of Georgetown, Ky.; coroner of Scott County for the last eight years and well known in central Kentucky; died suddenly, July 7, from apoplexy, aged 65.

John E. Sawyer, M.D. Hahnemann Medical College, Chicago, 1884; for a number of years a practitioner of New Richmond, Wis., St. Paul, Minn., Colorado Springs and Chicago; died recently at his home in Chicago of heart disease, aged 57.

Daniel H. Smith, M.D. College of Physicians and Surgeons, New York, 1873; for nineteen years a police surgeon of New York; died at his home in that city, July 10, aged 60.

James Ray Light, M.D. Maryland Medical College, Baltimore, 1909; of Lebanon, Pa.; a druggist of that city; died at his summer camp at the Union Water Works, North Annville Township, July 9, following a hemorrhage, aged 38.

George Washington Tobias, M.D. Bellevue Hospital Medical College, 1877; a member of the Medical Society of the County of New York; died at his home in New York City, July 4, from cerebral hemorrhage, aged 71.

Zipporah Brooks Wales, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1873; of Elmira, N. Y.; died in the Arnot-Ogden Hospital in that city, July 4, twelve days after a surgical operation, aged 77.

Andrew Buford Marcum, M.D. University of Louisville Medical Department, 1889; for forty years a citizen and physician of Cave City, Ky.; died at his home in that city, July 9, from heart failure, aged 73.

Madison Eugene Boynton, M.D. University of Michigan, Ann Arbor, 1872; for many years a practitioner of Clinton, N. Y.; died at the home of his nephew in Bridgewater, N. Y., May 6, from pneumonia, aged 70.

Francis Floyd Feather, M.D. Starling Medical College, Columbus, 1892; for many years one of the best known citizens of Sandy Lake, Pa.; died at his home in that city, July 9, aged 54.

Arthur H. Pellette, M.D. New York Homeopathic Medical College, 1880; a member of the Medical Society of the State of New York; died at his home in Whitney Point, N. Y., July 6.

Craven Jackson, M.D. Jefferson Medical College, 1868; a member of the American Medical Association; died at his home in Los Angeles, Cal., July 2, from heart disease, aged 69.

John K. Thorne, M.D. Albany Medical College, 1871; for forty years a practitioner of Gloversville and Fulton County; died at his home in Gloversville, July 7, aged 70.

Miles J. O'Reilly, M.D. Albany Medical College, 1874; of Fishkill Landing, N. Y.; died of pneumonia in the Newburg Hospital, July 11, aged 60.

Ira W. Clark, M.D. Eclectic Medical College, Cincinnati, 1880; died at his home in Winfield, Kan., July 10, from typhoid fever, aged 55.

Peter J. Keiser, M.D. Geneva (N. Y.) Medical College, 1866; died at his home in Tamaqua, Pa., July 1, aged 69.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

A GERMAN COUNCIL ON PHARMACY AND CHEMISTRY

Our German confrères have finally come to recognize the evil connected with the proprietary-medicine business and the extent to which this is a detriment to the progress of medicine. This in no small way has been brought about by the reports of the Council on Pharmacy and Chemistry and by THE JOURNAL'S propaganda. Largely through the efforts of Dr. Heubner, editor of the *Therapeutische Monatshefte* and professor of pharmacology at the University of Göttingen, this appreciation for the need of reform has finally culminated in the establishment of a German Council on Pharmacy and Chemistry to be known as "Die Arzneimittelskommission des Kongresses für innere Medizin." This commission or council has made a preliminary report, as noted in our Berlin Letter in THE JOURNAL, May 25, 1912, p. 1613, and in the Current Medical Literature Department, June 22, 1912, p. 2006. The "commission" has prepared a set of rules or principles, according to which remedies improperly advertised shall be excluded from a list of acceptable proprietaries which is to be published. The following are the rules adopted:

No article will be accepted for inclusion in the list of the congress (1) the composition of which is secret. In this sense, "composition" means for simple chemical substances, the scientific name, the empiric formula, and so far as known, the structural formula; for mixtures the amount of each different constituent in a definite amount of the commercial product; (2) for which misleading claims are made in the advertisements regarding its origin, preparation, composition and tests for identification; (3) which shows essential differences in composition in different commercial samples (by an essential difference is meant marked variation in appearance, taste, absorbability, or the quality or quantity of action); (4) which is a mixture of well-known substances bearing a new name, although it shows no essential difference from some already well-known mixture; (5) for the curative value or innocuousness of which, unwarranted and misleading claims are made in the advertisements; (6) the exploitation of which is contrary to the true interests of the patients.

A comparison of these rules with the ten rules of the A. M. A. Council on Pharmacy and Chemistry shows a close agreement. While the German council makes no direct prohibition regarding the exploitation of proprietary medicines to the public, nor makes any provision regarding the proper nomenclature of remedies, yet this is covered by their rule six, for it is to protect the public that our Council objects to the exploitation of proprietary remedies by means of direct advertisements to the public or by means of circulars or labels inclosed with the trade package, or by names which in themselves appeal to the public.

The commission has collected from twenty-one of the most widely circulated German and Austrian medical journals about 1,000 advertisements of remedies for the year 1911, and after a careful investigation has arranged them in three lists. The first list includes remedies, the method of advertisement of which complies with the foregoing rules (positive list). The second list includes remedies the advertisements of which do not comply with the established rules (negative list). The third list includes remedies regarding which it seems to the commission impossible to form an opinion as to whether their advertisements comply with the rules without thorough investigation (doubtful list).

We understand that this report and list are to be placed in the hands of the members of the representative German Medical Association (the Vereinsbund), and hope that eventually the findings of this commission will receive the same recognition in Germany that the reports of the A. M. A. Council on Phar-

macy and Chemistry are receiving in this country. The German commission is proceeding in much the same way as the Council on Pharmacy and Chemistry began its work, and it must be remembered that the present rules and the work done are preliminary. It is evident that the commission has arrived at its decision by an examination of the advertising in the medical journals, with little reference so far to other methods of exploitation which may be employed, and hence its further reports will be looked forward to with interest.

THE PHYSICIAN AND DRUG STANDARDS

Originally founded by physicians, the Pharmacopeia was intended as a collection of valuable drugs, prepared by an approved standard of methods, to be used by physicians. Soon, however, the pharmacist became prominent and then dominant in its preparation, and the character of the work was changed from a list of good drugs for the practicing physician to a standard of all drugs, adopted as official by the members of the Pharmacopeial Convention, dominated by the pharmacists. It was no longer a list of what the physician wanted, but a collection of all drugs which the pharmacists thought should be included. In other words, it was assuming the character of a book of standards. In the succeeding conventions the same question arose. The physician desired that the Pharmacopeia contain only such drugs as were found to be valuable in practical use, while the pharmacist wished to include all of the new drugs that seemed to him of commercial importance.

The Council on Pharmacy and Chemistry has always contended, and THE JOURNAL agrees with the contention, that the Pharmacopeia should contain only good drugs of practical use to the physician. This idea has grown, and a long list of useless drugs was submitted by the Council on Pharmacy and Chemistry and various teaching physicians to the convention for elimination from the Pharmacopeia. Just how far the committee will go in the elimination of these drugs is not known, but present appearances indicate that the wishes of physicians in the matter will be practically ignored.

H. P. Hynson,¹ a pharmacist, in a recent address advocated the preparation of four books having to do with drug standards. First, the Pharmacopeia, should be the official standard of all drugs and should have absolutely nothing to do with therapeutics. It should not be a text-book, but should remain a book of reference and a legalized authority as to standards of identity and strength for use of pharmacists. The second should serve as a repository for formulas of all kinds and should be a legal standard for these formulas. The third book suggested by Hynson should contain a list of drugs of medicinal value, which should be the work of the medical profession and the property of the American Medical Association. The fourth book should be a book of pharmaceutical preparations, made up from the list of drugs contained in the third book referred to and should be published by the pharmacists. Something has already been done toward preparing the third book before referred to in the list of drugs compiled by the Council on Pharmacy and Chemistry, with the cooperation of teachers of therapeutics and materia medica and state board examiners. There has long been a demand for such a book by medical teachers and state board examiners, and it is quite probable that one will soon be announced by a committee created for the purpose by the Council.

The scheme proposed by Hynson is interesting, but it does not seem wholly necessary. It is a recognition, however, of the fact that the two present standards, the Pharmacopeia and the National Formulary, do not fulfil the practical requirements of practicing physicians, teachers and examining boards. It is believed that the proposed book of useful medicines will answer the purpose of the third and fourth books proposed by Hynson. While we still believe that the Pharmacopeia should contain only those preparations which the medical profession considers of value, it is quite evident that for the present, at least, the Pharmacopeia will not be of this character.

1. Bull. Med. and Chir. Faculty of Maryland, March, 1912, p. 152.

Association News

AMERICAN MEDICAL ASSOCIATION MEMBERSHIP¹

At the Atlantic City session, the Board of Trustees announced that it had "modified the records of the membership and subscription departments so that these are now satisfactory to the Post-Office Department relative to second-class rates." This places the Association in position to transfer from the subscription list of THE JOURNAL to the membership roll of the Association those subscribers who can qualify as members. This work has been begun and about five hundred names have been added to the membership roll of the Association since the Atlantic City session. We want to add to the membership roll the name of every subscriber who (1) holds membership in the component society where he is engaged in practice, which includes affiliation with his constituent state association; (2) files a formal application for membership (the prescribed form will be printed from time to time in the advertising pages of THE JOURNAL); and (3) pays his dues to the Association for the current year—an amount equal to his subscription to January, 1913.

Undoubtedly, many are under the impression that they are members, but are on our lists merely as subscribers. Those who are in doubt can determine how they are entered by looking at the address tag on the wrapper of THE JOURNAL. A membership tag contains no date line while the tag used for subscribers indicates the date of expiration of the subscription.

Correspondence

Romanowsky Stain for Entamebas

To the Editor:—I wish to call attention to a method of differentiating the various modifications of the Romanowsky stains, by means of which not only may very beautiful preparations be obtained, but far more accurate knowledge gained of the structure of the nucleus of protozoa. I have been using the method for several months in the study of the common if not the sole pathogenic entameba of this region—*Entamoeba tetragena*. Smears are stained first with Leishman's, Wright's or Hastings' stain, and if, on inspection, a smear contains a sufficient number of entamebas for further study, it is then stained by Giemsa's stain until the film has a purple cast. It is then plunged into 60 per cent. alcohol, to which 10 to 20 drops of aqua ammoniac have been added. The slide is kept in motion and examined from time to time, with either the high-dry or water immersion lens, until the desired differentiation is obtained, when the film will be seen to have a violet color.

The cytoplasm of entamebas is stained various shades of blue, the idiochromidia navy blue, and the nucleus presents an appearance quite different from the usual descriptions based on Romanowsky preparations stained in other ways without differentiating. The nucleus stains rather faintly blue and is seen to be made up of a mass of very slightly refractile globules, which are more evident in some preparations than in others, surrounded by a pale blue halo. Within this nucleus a variable amount of purple-staining substance is seen. This substance, which is usually called the nucleus, but which represents only a portion of the nucleus, presents a varied appearance, sometimes as a ring (karyosome), sometimes as a reticulum, occasionally as fine granules.

By means of this method many of the errors of interpretation, due to the use of other non-differentiating staining methods, are avoided. Bodies which have been mistaken for nuclei and chromidia resolve themselves into more or less defunct erythrocytes, bacteria or white cells. Old dry-stained smears which have been overstained or are otherwise unsatisfactory may be recovered by differentiating with the ammoniated alcohol. The amount of ammonia used may be slightly increased with very thick films, or the action prolonged. With thin films the amount of ammonia must be diminished and the action short-

ened. A number of specimens which had been well stained but not differentiated, and in which it was thought developmental phases of *E. histolytica* could be detected, were seen to resolve themselves into *E. tetragena* on differentiation with ammoniated alcohol. No protozoologist would think of studying protozoa by means of undifferentiated hematoxylin preparations, and as the Romanowsky stains over stain almost equally well, they should similarly be differentiated. The method is recommended for the differentiation of all classes of polychrome-methylene-eosin-blue stains.

SAMUEL T. DARLING, Ancon, C. Z.

Menstruation After Complete Double Oophorectomy

To the Editor:—I notice in the proceedings of the American Gynecological Society (THE JOURNAL, July 6, p. 57) the discussion of the phenomenon of "menstruation without ovaries." At this meeting Dr. Findley reports a case of double complete ovariectomy, the patient nevertheless menstruating every twenty-eight days for a year and a half. He reopened the abdomen for other purposes but was unable to find any trace of ovarian tissue. Seven months after the second operation the patient was still menstruating as regularly as before.

Now, if a physician has dark hair and desires a beautiful iron gray to develop in the course of a year, just let him remove both ovaries, having first told the woman that she will never be worried again with menstruation. I have three such patients, and while I am completely cured, those three women have a worse complaint than ever, so far as the menstrual habit is concerned. My last patient presents a history almost identical with the one reported by Dr. Findley. On reopening the abdomen, which I did on account of distressing pain from adhesions, I found that the omentum adhered to the anterior abdominal wall, and also to the left tube and broad ligament. The omentum I released and resected, but the patient still menstruates, although the ovaries including their ligaments were completely removed. I do not know what I might find in the pelves of the other two.

In reviewing the literature of the last ten years I find in THE JOURNAL, Feb. 9, 1907, p. 519, a communication from Dr. Earl Harlan, Cincinnati, in which he reports a case of vicarious menstruation relieved by double oöphorectomy. He concludes that the stimulus which produces menstruation originates in the ovary; that it is the primary organ of menstruation, etc.

In the *Journal of the Missouri State Medical Association*, October, 1907, Dr. W. B. Dorsett, St. Louis, says that the hilum of the ovary can perform the function of that organ.

Grünbaum, in the *Deutsche medizinische Wochenschrift*, 1907, xxxiii, cites a number of cases of lactation following ovariectomy and even panhysterectomy.

Dr. Noble, Guthrie, Okla., in *Oklahoma State Medical Journal*, January, 1910, reports finding a supernumerary ovary.

Dr. W. W. Chipman, Montreal, at the meeting of the American Gynecological Society, Atlantic City, May, 1911, said that the ovarian ligament frequently contains parenchymatous tissue; that it is generally believed that the ovary has the power to regenerate after its partial removal.

I have searched diligently all the way back to 1902 and am here presenting practically all that has been determined of the relation of the ovary to menstruation.

S. H. LANDRUM, M.D., Altus, Okla.

The Prognosis of Low Hemoglobin Content

To the Editor:—I have somewhat tardily noticed the inquiry of Dr. Barron (THE JOURNAL, March 23, 1912, p. 880) regarding the possibility of recovery of patients whose blood shows 10 per cent. or less hemoglobin; and the value of the Tallqvist hemoglobin scale-book.

In the work of the Commission for the Study of Anemia in Porto Rico, patients were not infrequently encountered showing 10 per cent. or less hemoglobin, and recovery usually followed the expulsion of their parasites—the *Necator americanus*, the so-called hookworm. Several such cases were reported by Ashford and King (A Study of Uncinariasis in Porto Rico, *Am. Med.*, v. 6, (10 and 11) Sept. 5 and 12, 1903, pp. 391-396 and

1. See also Editorial, this issue.

431-438), and in the report of the above commission, "Anemia in Porto Rico," Dec. 1, 1904.

We used the von Fleischl hemoglobinometer in our routine estimations of hemoglobin, but also compared several other instruments with it, including the Tallqvist scale. We found that the Tallqvist scale, while not as accurate as some other methods, was sufficiently so for clinical use.

W. W. KING,
Passed Assistant Surgeon, U. S. P. H. & M.-H. S., and Member
of the Anemia Commission.

Party Platforms and National Health Service

To the Editor:—I read in the issue of July 13 (p. 126), the editorial entitled "Party Platforms and National Health Service." Will it be out of place to call your attention to the plank in the Socialist party platform, adopted at Indianapolis in May, relative to this very thing? The Socialist party must, therefore, be given credit for taking this advanced stand.

The plank referred to is No. 13 and reads: "The enactment of further measures for the conservation of health. The creation of an independent bureau of health, with such restrictions as will secure full liberty to all schools of practice."

E. C. STUCKE, M.D., Garrison, N. Dak.

A Texas Endorsement of the Conclusions of the Committee on Anesthesia

To the Editor:—Apropos of Dr. T. J. Turpin's criticism of the conclusions of the Committee on Anesthesia (THE JOURNAL, July 13, 1912, p. 135), he is at least ten years behind the times. For the past twelve years ether has been the routine anesthetic for all major work, and this, too, in a region of some altitude (4,000 feet), where chloroform was once supposed to be the anesthetic of choice. The same applies to all the larger Texas cities.

B. F. STEVENS, El Paso, Texas.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF FALLING OF THE HAIR

To the Editor:—Many women complain of their hair "coming out," "getting thin," etc. Is there any thing that will actually cause an increase in the growth of the hair? Kindly let me know through your query columns.

L. W. P.

ANSWER.—Falling of the hair is a frequent result of various infections like typhoid, syphilis, etc. In these cases it must be attributed to the influence of some poison circulating in the blood. Analogy would lead us to refer a certain number of cases to auto-intoxication, presumably from intestinal putrefaction but occasionally from deficient elimination of poisons normally present in the body in small quantity, but which when they accumulate exercise an unfavorable influence on nutrition.

Local causes may also act by affecting the circulation of the scalp or there may be actual disease of the hair itself. A common cause, interfering with the circulation of the scalp and with the growth of the hair, is the wearing of tight hats. Failure to brush the hair and to keep up a proper stimulation of the scalp may be responsible for the falling of the hair. The most common local disease leading to a loss of hair is seborrhea.

The treatment should include attention to the general health with a view to removing auto-intoxication by diet (chiefly carbohydrate, the use of buttermilk, etc.), removal of constipation, and the stimulation of the kidneys if needed. Locally, care should be taken to promote the hygiene of the scalp. For this purpose massage may be practiced by the fingers, once or twice daily, in such a manner as to stimulate the circulation. In the case of women, the wearing of artificial hair should be interdicted. The scalp should be rubbed daily with a hair-brush so as to stimulate gently without wounding or irritation. Local treatment includes the cleansing of the scalp by shampooing every few days, following the shampoo by some soothing application, such as lanolin, petro-

latum or equal parts of lanolin, glycerin and rose water. In obstinate cases the nail brush may be used over insensitive parts of the scalp in shampooing. A tincture of green soap with 10 to 20 grains (0.65 to 1.35 gm.) of resorcin to the ounce (30 c.c.) is recommended for use as a soap in shampooing. In addition to the shampooing, lotions or ointments, calculated to excite a mild hyperemia should be used. The following formulas have been recommended:

R.	gm. or c.c.	
Tincture of cantharides.....	15-30	5iv-5i
Tincture of capsicum.....	250	Ol
Alcohol		
Mix.		
R.		
Liquor formaldehydi.....	5-15	5i-iv
Alcohol	250	Ol
M.		
R.		
Corrosive sublimate	0.5-1	gr. viiib-xv
Alcohol	250	Ol
Mix.		
R.	gm. or c.c.	
Hydrarg. bichlorid.....	20	gr. iiij
Tinct. cantharid.....	15	5ss
Ol. amygdal. dule.....	4	3j
Spts. rosmarin.....	30	3j
Spts. vini rect.....	60	3ij
Aq. destill.....	q.s.ad 180	q.s.ad 5vj
M.		
R.	gm. or c.c.	
Hydrarg. chlorid. mit.....	5/33	9 iv
Hydrarg. ammon.....	2 66	9 ij
Petrolati	30	3j
M.		
R.	gm. or c.c.	
Resorcin.....	4	3j
Quinine (alkaloid).....	1	gr. xv
Ol. ricini.....	0 66-2	m x-xxx
Alcohol	128	ad 5vj
M.		

VASECTOMY

To the Editor:—A number of times recently I have seen references in the various medical journals regarding the operation of vasectomy and vasotomy for the purpose of sterilizing criminals, idiots, syphilitics and various other defectives. Please give me the literature on this operation, and also a brief technic.

Dr. B., Missouri.

ANSWER.—A brief description of the technic of vasectomy was given in THE JOURNAL, Sept. 30, 1911, p. 1152, together with a short bibliography. In addition to the references then given the following may be added:

- Marshall, F. B.: Vasostomy and Vasectomy in Acute and Gonorrheal Vesiculitis and Epididymitis, *Jour. Michigan State Med. Soc.*, July, 1910.
- Swinburne, G. K.: Anastomosis of the Vas: Time Following Operation Necessary for Successful Issue, *Am. Jour. Urol.*, July, 1910.
- Schmidt, L. E., and Kretschmer, H. L.: Diagnostic Possibilities of Skiagraphy of the Vas Deferens, *Surg., Gynec. and Obst.*, October, 1910.
- Hoag, J. C.: Relation of Vasectomy to Eugenics, *Ill. Med. Jour.*, March, 1911, and *Chicago Med. Recorder*, January, 1911.
- Preston, C. H.: Vasectomy: Its Ethical and Sanitary Limitations, *West Virginia Med. Jour.*, July, 1910.
- Barrow, B.: Vasectomy for the Defective Negro with His Consent, *Virginia Med. Semi-Month.*, Aug. 26, 1910.
- Bloss, J. R.: Sterilization of Confirmed Criminals and Other Defectives, *West Virginia Med. Jour.*, March, 1910.
- Muren, G. M.: Transplantation of Vas Deferens for Sterility in Men, *Long Island Med. Jour.*, December, 1911.
- Nolan, M. J.: Proposed Sterilization of the Mentally Unfit, *Med. Press and Circular*, Feb. 7, 1912; *Dublin Jour. Med. Sc.*, March, 1912; abstr. in THE JOURNAL, March 16, 1912, p. 819.
- Juliusberger, O.: Sterilization of the Unfit, *Deutsch. med. Wchnschr.*, Feb. 29, 1912.
- Bogart, G. H.: Sterilization of the Unfit, *Denver Med. Times*, May, 1912.
- Bell, C.: Hereditary Criminality and Asexualization of Criminals, *Denver Med. Times*, April, 1912.

ADMINISTRATION OF TYPHOID VACCINE

To the Editor:—Please describe the technic of administration of typhoid vaccine. What is the best preparation?

G. E. KNAPPENBERGER, M.D., Macomb, Ill.

ANSWER.—During the past two years we have published a number of articles on vaccine for typhoid fever. Several of them described the technic of administration in full. The technic is briefly as follows: The skin of the arm, at the insertion of the deltoid, after thorough cleansing, is disinfected, usually by the application of tincture of iodine. The suspension of typhoid bacilli constituting the vaccine is then drawn up into a sterile hypodermic syringe, and injected beneath the skin where the tincture of iodine has been applied. The wound made by the syringe is covered with a drop of collodion. The number of bacilli usually injected at the first dose is 500,000,000. The second inoculation is made from ten to twelve

days later, at which time from 500,000,000 to 1,000,000,000 organisms are injected. Some authors advise a third injection of 1,000,000,000 killed bacilli.

The reader should consult the references given for a description of the reaction which may vary from slight malaise to a considerable degree of fever. The essential point in the administration of this vaccine is strict cleanliness and asepsis.

Preparations of typhoid vaccine for preventive inoculations are made by several of the firms which produce serums and vaccines. The vaccine used by the army surgeons is produced by the laboratory of the Army Medical School, from a single strain of the bacillus. Several of the manufacturers of vaccine advertise that they are using the same strain as is used by the surgeons of the United States Army. Typhoid vaccine is described in N. N. R., 1912, p. 214. The following preparations have been accepted: Typho-Bacterin Immunizing (H. K. Mulford Co.); Typhoid Vaccine Prophylactic (Parke, Davis & Co.); Typhoid Bacillus Vaccine (G. H. Sherman, Detroit). The following articles may be referred to:

Davis, D. J.: Antityphoid Vaccination, *THE JOURNAL*, Feb. 24, 1912, p. 537.

Kean, J. R.: Sanitary Record of the Maneuver Division, *THE JOURNAL*, Aug. 26, 1911, p. 713.

Nelson, K. and Hall, W. E.: A Rapid Method of Inoculation Against Typhoid, *THE JOURNAL*, Nov. 25, 1911, p. 1759.

Phalen, J. M.: Vaccine Inoculation, Prophylactic and Curative, of Typhoid, *THE JOURNAL*, Jan. 6, 1912, p. 9.

Russell, F. F.: Results of Antityphoid Vaccination in the Army in 1911, and Its Suitability for Use in Civil Communities, *THE JOURNAL*, May 4, 1912, p. 1331.

Maverick, A.: Typhoid Vaccination and the Widal Reaction, *THE JOURNAL*, June 1, 1912, p. 1672.

PHYSIOLOGIC ACTIONS OF COLD AND HEAT

To the Editor:—What is the difference, if any, between the effects of cold and heat applied to a part of the body?

G. N. BRAZEAU, M.D., Racine, Wis.

ANSWER.—The temporary application of cold to a part of the body produces a contraction of the peripheral blood-vessels, which is followed in a vigorous individual by a reaction which causes a dilatation of the vessels, and a freer flow of blood through the part. A similar application of heat causes the dilatation of the blood-vessels without the preliminary contraction. The hot application is, therefore, less stimulating to the nervous system than the cold.

Too long an application of cold causes a paralysis of the cutaneous muscles with a passive dilatation of the vessels, resulting in a passive congestion, but an actual hindrance to the passage of blood through the part.

A prolonged application of heat results in a similar paralysis of the blood-vessels.

The general effect of cold is that the heart is stimulated to an increased effort to maintain an active circulation, and as long as the resistance to the cold is effective and the peripheral circulation is maintained, a general tonic effect is produced.

The general effect of heat is quite different. If the temperature is above 104 F., a slight initial stimulation of the blood-vessels may occur, but this is followed by dilatation with steadily falling blood-pressure. This results in rapid beating of the heart in its effort to maintain the pressure at its proper level. The general temperature of the interior rises, the vessels of the abdomen may dilate and the fall of blood-pressure may be so great as further to weaken the heart, leading to cerebral anemia, vertigo, faintness, etc.

PRESCRIPTION FOR TREATMENT OF ALCOHOLISM

To the Editor:—In the June *Century* an article, "Help for the Hard Drinker," by Charles B. Towns, refers to a prescription which he gave to the profession through Dr. Alexander Lambert of New York, and which he states was published in *THE JOURNAL*. If possible, please republish the prescription.

H. S. CUMMING, M.D., Fort Monroe, Va.

ANSWER.—Full details of Dr. Lambert's treatment of the alcohol and drug habits were given in his articles printed in *THE JOURNAL*, Sept. 25, 1909, and Feb. 18, 1911. From the latter we quote the following on the treatment of alcohol addiction. The belladonna mixture referred to is as follows:

R	Gm. or c.c.	
Tincturæ belladonnæ	62	3ii
Fluidextracti xanthoxyli		or
Fluidextracti hyoscyami	31	3i

Dose: From 2 to 20 drops hourly, to the tolerance of patient for belladonna.

To an alcoholic, the belladonna mixture, five compound cathartic pills and 5 grains of blue mass are given simultaneously at the first dose. The belladonna mixture is continued every hour of the day and every hour of the night the same

as with morphin patients, and twelve hours after the initial dose patients are again given from three to five C. C. pills, and at the twenty-fourth hour after the initial dose, they are again given the cathartics followed by salines if necessary, and again at the thirty-sixth hour. After these last cathartics, bilious stools will appear, and by the forty-fourth or forty-fifth hour the castor oil is given. Sometimes it is necessary to carry on the treatment over another period, and the c.c. pills and blue mass are again given at the forty-eighth hour, which would bring the end of the treatment about the sixtieth hour. Elderly or very nervous patients who have been on a prolonged debauch are tapered off with 2 ounces of whisky for four or five doses through the first twenty-four hours. If the patients are excessively nervous it is necessary also to see that they sleep, and the mixture of chloral hydrate, gr. xx, morphin, gr. 1/8, tincture of hyoscyamus, dram 1/2, ginger, m.x., and capsicum, m.v., water, 1/2 ounce, which was recommended before is the best hypnotic for them. These patients should also have cardiac stimulants such as strychnin and digitalis after the first twenty-four hours, sooner if they are weak. If the patient has an alcoholic gastritis and cannot retain medicine, it is wise to give him 5 grains of Tully's powder (pulvis morphinæ compositus) with 5 grains of sodium bicarbonate about every two hours for two or three doses, as this seems to be the most effective method of allaying the vomiting of an alcoholic gastritis.

Other details of the management of the patient during the treatment will suggest themselves to the physician as symptoms arise.

EFFECT OF SUDDEN CHANGE IN ALTITUDE

To the Editor:—What would be the effect on the blood-pressure were one to travel from Moyie, B. C., which has an altitude of 3,044 feet, to Bonner's Ferry, Ida., which has an altitude of 1,773 feet? The train makes this distance in two hours. A week ago a man with Bright's disease died on the train in an instant after having made the above trip. Death took place near Bonner's Ferry. Would this sudden change in altitude have a tendency to raise the blood-pressure?

LESLIE J. STAUFFER, M.D., Bonner's Ferry, Ida.

ANSWER.—There probably would be no effect on the blood-pressure. The change in altitude was slight, and the coming from a high to a low altitude, even if the difference were much greater than that mentioned here, would not result in serious consequences. Therefore, the probability is that there was no relation between the man's death and the change. It is likely that death was due to some other cause, possibly to cardiac failure as a result of exertion on the trip, or to a hemorrhage.

A MISPLACED HEADING IN THE CURRENT MEDICAL LITERATURE DEPARTMENT

To the Editor:—*THE JOURNAL* refers, on page 1155 (April 13, 1912), to an article by Heitz-Boyer, but it does not give the correct reference. The article is listed as among the contents of the *Lyon Chirurgial* for March. The other articles mentioned are found in the stated number of the *Lyon Chirurgial*, but the article by Boyer is neither in this nor in the preceding or following numbers of the periodical.

ARTHUR H. CURTIS, Chicago.

ANSWER.—Many thanks for calling our attention to this blunder. A correction was published at the close of the Current Literature Department, last week. The mistake is that the name, *Lyon Chirurgial*, slipped in one title too high. The Boyer article belongs to the journal listed just above, the *Journal d'Urologie Méd. et Chirurgicale*, the new name for the old *Annales des Maladies des Organes Génito-Urinaires*.

THE METRIC SYSTEM IN PRESCRIPTION WRITING

To the Editor:—The communication (*THE JOURNAL*, June 15, p. 1874) entitled "The Metric System in Prescription Writing," contains an error in arithmetic. The first prescription, calling for 1 grain of sodium bromid to the teaspoonful, is correct, as the proportion of medicament to menstruum is as 1 to 60; but in the second prescription in which the dose of the salt is intended to be 2 (or 5) grains, the solid ingredient alone should be increased in quantity, while the amount of water should remain the same, i. e., 60 c.c.

GEORGE MINGES, Dubuque, Iowa.

ANSWER.—Our correspondent is correct. We are much obliged to him for calling our attention to the oversight.

IS BOILED WATER INJURIOUS?

To the Editor:—Is a long and continuous drinking of boiled water injurious? If so, in what way?

A. M. STAMPS, M.D., Seguin, Tex.

ANSWER.—No, the water will still contain enough salts, so that it is different from distilled water, and we see no reason why it should be injurious.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

SOCIAL REFORMS IN TERRE HAUTE

In the *Survey* for June 20 appears a report of the social hygiene campaign which has been carried on in Terre Haute, Ind., under the leadership of the Vigo County Medical Society. This report is reprinted, in part, as a suggestion to other county societies. What has been done in Terre Haute can be done elsewhere, if our county societies will take the lead and will secure the help of the women's clubs and social organizations. The following report of work done and conditions changing in a whole city in a few months should be read and carefully considered:

"About the middle of January, a year ago, the *Survey* was given to a number of the leading physicians, who after reading Mr. Finn's articles, said the Vigo County Medical Society would thoroughly approve a social hygiene movement in Terre Haute. A few days later, the social workers were invited to attend the next regular meeting of the society when an opportunity would be given to ask formally for its endorsement and cooperation. This was done and before the week was over, the secretary of the society, Dr. B. V. Caffee, arranged for a joint meeting with the social workers, February 14, to discuss the following program on sex hygiene:

- "1. Necessity of instruction.
- "2. Good results possible.
- "3. Progress in public sentiment.
- "4. Means of instruction.

"The first and last subjects were assigned to physicians, the second and third to women, one of whom, Rebecca Torner, was a teacher in the high school. There was so much discussion of the first three topics that for lack of time the fourth could not be considered, and the meeting ended with a resolution that the medical society appoint a committee to work with committees of other organizations for an educational campaign.

"By May 1 a citizens' committee had been formed, consisting of the president, secretary and five or more board members of the following organizations: Society for Organizing Charities, Crittenton Mission, Vigo County Medical Society, Y. W. C. A., Council of Jewish Women, Social Settlement, Light House Mission, Civic League, Boys' Federated Club, Men's Club of the Episcopal Church, Congregational Church Club, Y. M. C. A., Board of Children's Guardians, Ministerial Association and the Women's Council, a federation of about thirty women's clubs.

"May 5 a meeting of this committee was called and Dr. J. H. Weinstein's paper on The Means of Instruction in Social Hygiene, unread at the meeting of medical society and social workers, was the basis of an earnest discussion by the men and women of other professions and callings, who were found to hold widely differing views concerning segregation, the physical necessity for vice districts and venereal diseases. Chi-

cago's vice commission's report had just been made and its findings gave additional emphasis to the necessity of education. This citizen's meeting appointed a committee consisting of the secretary of the Y. M. C. A., Will A. House; the secretary of the Y. W. C. A., Miss Moore, and the officers of the Woman's Council, Mrs. U. O. Cox, Mrs. Adolph Joseph, A. Jeannette Smith and Mrs. Joseph Diekemper, to arrange, if possible, for a series of talks in the fall by Dr. Winfield Scott Hall, of the Northwestern University Medical College. The Woman's Council was asked to finance the campaign. When Dr. Hall arrived in October, he found the heaviest schedule ever assigned him, but he was equal to it; and when he left after making, with automobile help, seventeen addresses in three days, Terre Haute was not just the same place, for it was true as one of its best business men said two weeks later, 'Dr. Hall made a most profound impression upon this city.'

"All the meetings were largely attended, the secretaries of the Y. W. C. A. bringing together the largest audience when Dr. Hall addressed more business girls and women, he said,

than he ever met before at one time. The social workers within a week observed good results from this meeting.

"The supper conference of the citizens' committee of a hundred of the representative men and women of the city around a great table in the Y. W. C. A. dining-room was probably the most unusual feature of the program. Rabbi Leipziger asked the blessing, and after an hour and a half's enjoyment of the supper, Judge Charles S. Batt, of the city court, introduced Dr. Hall, who gave in his quiet, scholarly, forceful, convincing way, a message that certainly did 'appeal to all that is noble and best in man and woman.' Everybody realized, as perhaps never before, what motherhood meant. Many people who could not attend the meetings were reached by the city press which had been wisely helpful from

the first. The papers gave fully and accurately Dr. Hall's very words, and they were read by hundreds of people in the neighboring towns.

"Social hygiene education will be continued through the parent-teacher clubs and social centers of the schools, the physical culture departments of the Y. M. C. A., Boys' Club, Y. W. C. A., and the State Normal School, and through recently organized social service committees of existing organizations."

THREE HUNDRED YEARS BEHIND THE TIMES

"That peculiar outfit of quacks, nostrum-venders, prayer-peddlers, ill-meaning schemers and well-meaning cranks called the League for Medical Freedom—in which our own Works is a burning and shining light—is bitterly opposed to medical inspection and to the teaching of the germ theory of infection in the public schools.

"These people should have lived three hundred years ago. There was no medical science then, no knowledge of the process of growth in plant or animal, no knowledge of the functions of the human organs, no knowledge of therapy, anesthetics, antiseptics, sanitation or hygiene. Any cunning charlatan could peddle elixirs, charms, nostrums.



AMERICAN MEDICAL ASSOCIATION PRIZE CARTOON SERIES, 1912-NO. 3.

NEGLECTED!

"As a result of this entire freedom from medical interference and absence of pestiferous medical teaching and inspection, our ancestors had the inestimable privilege of dying like poisoned rats whenever the small-pox or pestilential fevers broke out in any community, and the capitals of the civilized world were decimated at regular and not infrequent intervals.

"Plagues, such as modern medical science has made unknown, ravaged whole kingdoms and slew thousands by day and by night, until the living were too few to bury the dead, and made veritable those hideous narratives which hold one's horrified eyes glued fast to the pages of Pepys and Defoe.

"How any human being able to read and to compare the history of medical ignorance and its awful results in the past and of medical knowledge and its wonderful, beneficent results in our times can deliberately set himself to oppose the spread of that knowledge and the extension of that noble teaching and practice is beyond the comprehension of normal reason.

"Nothing can be more certain than that if we were to be deprived of all sanitary, hygienic, surgical and therapeutic precautions and remedies which scientific medical men have given us—often at the heroic sacrifice of their own intrepid lives—the whole structure of modern civilization would fall to pieces, and where now millions of people dwell in health and security the terrible angels of fever and pestilence would, at awful intervals, fill the streets with mourning, the houses with the dying and the cemeteries with the loathsome and infectious corpses of the thousands of the dead.

"It fills one with indignation to hear men and women who should have more sense denouncing, in spite of the testimony of all history and in spite of the evidence of their own eyes and ears, the magnificent and blessed achievements of the sciences of therapy and surgery and hygiene and sanitation, and actually advocating a return to the methods, the ignorance and the horrible conditions of 300 years ago. And the fact that a man misrepresenting California in the Senate house of the United States is the leader of such a wicked and senseless crusade against the public health and welfare adds to a natural indignation a still stronger feeling of infinite contempt and disgust."—*San Francisco Call*, July 18.

A Correction.—The article by Dr. A. H. Madry of Aurora, Mo., in this department July 6, was an abstract of a paper read before the Missouri State Medical Association and to be published in the *Journal of the Missouri State Medical Association*. This credit should have been given when the abstract appeared.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: San Francisco, August 6-9. Sec., Dr. Charles L. Tisdale, 929 Butler Building.

NEBRASKA: Capitol, Lincoln, August 14-15. Sec., Dr. C. P. Fall, Beatrice.

Georgia Homeopathic May Report

Dr. R. E. Hinman, secretary of the Homeopathic Board of Medical Examiners, reports the written examination held at Atlanta, May 8, 1912. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. Only one candidate, a graduate of the Hering Medical College, Chicago, 1910, was examined, and he passed with a grade of 78. One candidate, a graduate of the Detroit Homeopathic College, 1911, was licensed through reciprocity with Michigan.

New Mexico April Report

Dr. J. A. Massie, secretary of the New Mexico Board of Health and Medical Examiners, reports the written and oral examination held at Santa Fe, April 8, 1912. The number of subjects examined in was 10; total number of questions asked,

100; percentage required to pass, 75. Thirty-one candidates were licensed on presentation of satisfactory credentials. The following colleges were represented:

LICENSED ON PRESENTATION OF SATISFACTORY CREDENTIALS	
College	Year of Grad.
Yale Medical School.....	(1898)
George Washington University.....	(1904) (1911)
Hahnemann Medical College and Hospital, Chicago...	(1895)
Northwestern University Medical School.....	(1882) (1883)
College of Physicians and Surgeons, Chicago.....	(1911)
Medical College of Indiana.....	(1890)
State University of Iowa, College of Medicine.....	(1897)
College of Physicians and Surgeons, Keokuk.....	(1896)
Hospital College of Medicine, Louisville.....	(1905)
University of Louisville.....	(1893) (1893) (1908)
College of Physicians and Surgeons, Baltimore.....	(1882) (1891)
University Medical College, Kansas City.....	(1909)
Washington University, St. Louis.....	(1886)
St. Louis College of Physicians and Surgeons.....	(1911)
John A. Creighton Medical College.....	(1902)
Cornell University Medical College.....	(1906)
Cleveland College of Physicians and Surgeons.....	(1899)
Jefferson Medical College.....	(1897) (1903)
Vanderbilt University.....	(1882)
University of Nashville.....	(1905)
University of Tennessee.....	(1892)
Memphis Hospital Medical College.....	(1898)*
University of Virginia.....	(1896)
Marquette University, Milwaukee.....	(1911)
Medical College of Mexico City.....	(1905)

* Passed written examination.

Book Notices

THE OCULAR MUSCLES. A Practical Handbook on the Muscular Anomalies of the Eye. By Howard F. Hansell, A.M., M.D., Professor of Ophthalmology in the Jefferson Medical College, and Wendell Reber, M.D., Professor of Ophthalmology in the Medical Department of Temple University. Second Edition. Cloth. Price, \$2.50 net. Pp. 223, with 85 illustrations. Philadelphia: P. Blakiston's Son & Co., 1912.

This manual has been regarded as one of the best text-books of its kind for the undergraduate student, if not for the embryo ophthalmologist. Consequently this second edition is welcomed, especially in its enlarged and improved form. The anatomy and physiology of the oculo-muscular apparatus is set forth clearly at length and illustrated, while the more important functional and organic anomalies are well described and discussed. As the work is intended for beginners it is, of course, quite proper for the authors to pin their faith to one procedure for the advancement of an ocular tendon, viz., the operation of Worth. While it may be agreed that if one method be selected that of Worth is the best for the general run of cases, yet the subject is of such great importance and there are so many excellent advancement methods of American origin—some of them particularly adapted to special cases—that two or three of these might well have been described and pictured. With this exception, however, the little handbook is well adapted to the purpose it has long served, as a reliable guide for the student of ophthalmic surgery.

THE NEW PHYSIOLOGY IN SURGICAL AND GENERAL PRACTICE. By A. Rendle Short, M.D., B.S., Senior Demonstrator of Pathology, University of Bristol. Cloth. Price, \$2. Pp. 201. New York: William Wood & Co., 1911.

The day of guess-work in the practice of medicine is past. To practice this profession intelligently to-day, one must find a basis for what one does in the fundamental sciences which underlie the art. While the importance of physiology has long been recognized, its great value has never been so thoroughly appreciated as it is to-day, perhaps for the reason that during the past few years so many new facts of such great practical importance have been brought to light.

The newer physiology of the internal secretions, of the gastro-intestinal tract, of the vascular system and of the urinary organs, has added so much to our knowledge of the workings of the body in health and disease that the conditions which formerly were not even understood can now not only be satisfactorily explained but also can be treated with every assurance of success.

In this little volume of 200 pages the author has attempted to present this newer physiology, and, as he says, "to explain matters so simply that they may be intelligible to those having the most elementary knowledge of physiology." This task has been well performed and in addition to the facts of physi-

ology there will be found many very valuable therapeutic hints based on those facts. It is often hard to see one's idols shattered, even perhaps when one knows they are false. One of these shattered idols is the belief in the value of the nitrogenous enema. Careful analyses, however, show that the colon does not absorb nitrogenous foods, as the nitrogenous output in patients taking nutritive enemas follows almost identically the same curve as that in the fasting or starving person.

Many other interesting and instructive points of a similar nature will be found in this work.

ANNUAL REPORT OF THE BUREAU OF HEALTH FOR THE PHILIPPINE ISLANDS. By Carroll Fox, Acting Director of Health. Paper. Manila, 1911.

This is a well-written, well-printed and well-illustrated pamphlet of about 225 pages. In addition to statistical tables of births, marriages, deaths and diseases, the report contains a review of the work of the health bureau for the year and the provisions made for sanitation and combating diseases. It shows that the health bureau of the islands is well equipped, up to date and conducted by men experienced in sanitation and tropical diseases. The death-rate amounts to about thirty-three per thousand. Among the interesting facts revealed by the report, one is that the last case of plague in the islands originating locally occurred in April, 1906. Occasional imported cases are reported from time to time. Another interesting item is as to vaccination for small-pox which, while not universal, is carried on pretty thoroughly, with the effect of practically wiping out small-pox in the islands. The virus is manufactured under the control of the Philippine government. More than 10,000,000 people have been vaccinated in the islands without a single death occurring from it. This leads the director of health to say: "It is difficult to see how any observing medical man could question experience, evidence and science so far as to doubt the thoroughly established fact of the practical influence of vaccination on small-pox."

AN INTRODUCTION TO EXPERIMENTAL PSYCHOLOGY. By Charles S. Myers, M.D., Sc.D., Lecturer in Experimental Psychology in the University of Cambridge. Cambridge Manuals of Science and Literature. Cloth. Price, \$0.40 net. Pp. 156. New York: G. P. Putnam's Sons, 1912.

This little volume of 156 pages contains a well-selected series of topics from researches in experimental psychology, presented in a manner to give the reader not only a general notion of the scope of this science, but also a comprehensive view of the special subjects treated therein. Each chapter, being complete in itself, can be read without reference to the others. The following subjects are discussed: (1) color vision; (2) touch, temperature and pain; (3) the Müller-Lyer illusion; (4) experimental esthetics; (5) memory; (6) mental tests and their uses. The most interesting chapters from our point of view are those dealing with memory, mental tests and touch, temperature and pain. This inexpensive little volume, replete with valuable information, may be conveniently carried in one's pocket and read while riding in the cars.

Medicolegal

Physician Not Agent to Bind Patient by Admissions

(*Aldridge vs. Aetna Life Insurance Co.* (N. Y.), 97 N. E. Rep. 399)

The Court of Appeals of New York was divided four to three on the power of a physician to bind the plaintiff by admissions in a letter after he had been requested to write to the defendant. The majority opinion says that the action was on an accident policy, under which the plaintiff claimed to be entitled to a specified weekly indemnity for injuries which caused appendicitis. It appeared in the case that, after the plaintiff had presented to the defendant the usual proofs of loss, the defendant's manager wrote to the plaintiff, stating that, "under the circumstances surrounding the case, it will be necessary for us to have further statistics or a statement from the attending physician. We wish him to advise us, over his own signature, on what dates he treated you for appendicitis previous to this accident which is claimed to

have been sustained." This written request was taken by the plaintiff to his attending physician, whom he asked to write to the defendant in reply to the letter received from its manager. That was all that the plaintiff ever had to do with the letter written by the physician. The plaintiff did not see it or know its contents. It was not a letter dictated by the plaintiff, but one which he asked his physician to write in compliance with the demand made by the defendant. Then, was the letter written by the physician binding on the plaintiff, as though it had been written by himself? The court thinks the proper determination of that question obviously depends on the law of agency, for it can think of no principle on which the plaintiff could be charged with responsibility for the representations concerning his physical condition and treatment made by his attending physician, unless it be that he constituted the physician his agent by authorizing him to make the representations. But the court does not think that the plaintiff was bound in this case, first, because the particular statements in the letter were not written at his request, but rather on the demand of the defendant; and, second, for the reason that he did not see the letter or know its contents until it was produced in court. The defendant's request was not for a more comprehensive or specific statement of fact from the plaintiff, but "for further statistics" from the attending physician "over his own signature." The request was for information peculiarly within the knowledge of the attending physician, and for which he alone was to be held responsible. In these circumstances, the court thinks the physician could not be regarded as the agent of the plaintiff, and that he was rather an independent outsider for whose mistakes or misstatements the plaintiff could not be held responsible. As the physician undertook, however, on his oral cross-examination, to explain certain matters referred to in the letter, if it contained anything in the nature of an admission, it was competent against him, for the purpose of impeaching his testimony, even though it was not binding on the plaintiff.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Niagara Falls, August 20-22.
American Electro-Therapeutic Association, Richmond, Va., Sept. 3-5.
Medical Society of the Missouri Valley, Council Bluffs, Ia., Sept. 5-6.
Minnesota State Medical Association, Duluth, Aug. 14-15.
Nevada State Medical Association, Reno, Sept. 10-12.
New Mexico Medical Society, Roswell, Sept. 12-14.

AMERICAN SOCIETY OF TROPICAL MEDICINE

Ninth Annual Meeting, Held in Atlantic City, N. J., June 3, 1912

Officers Elected

The following were elected for the ensuing year: President, Dr. Edward R. Stitt, Washington, D. C.; vice-presidents, Dr. Richard P. Strong, Manila, P. I.; Dr. Creighton Wellman, New Orleans, La.; secretary, Dr. John M. Swan, Rochester, N. Y.; assistant secretary, Dr. Allen J. Smith, Philadelphia, Pa.; treasurer, Dr. C. Lincoln Furbush, Philadelphia, Pa.

The next annual meeting will be held in Washington, D. C., May, 1913.

The Eradication of Malaria

DR. JOSEPH H. WHITE, New Orleans: Malaria possesses a wider interest than any other of the tropical diseases in the United States, particularly in the South. There have, however, been countless deaths charged to malaria that do not belong to it. The morbidity of malaria, rather than the mortality, is the question that makes it of importance. The morbidity is not over-estimated, although the mortality is largely so. We all know the importance of doing away with conditions that sap the vitality of the race. The filling up of our country has accomplished the desired result in many parts of the Northern and Middle States, practically obliterating malaria, without interference on the part of physicians. There are many places where this is not so; and the remedy

is first to be applied in a palliative way, by excluding the mosquitoes from houses, draining small pools of water near at hand, and oiling those which cannot be drained. The main point is the elimination of the swamps. To arrive at a proper remedy we must appeal to the state and nation, as well as to the citizens. Can we not interest the state and the nation in the obliteration of the big swamps? Should not national drainage go alongside of national irrigation, and is it not as important? Irrigation led only to public wealth; this leads to both health and wealth. If we do not remove malaria from the south lands, we shall find the negro the only man who can stand it.

DISCUSSION

DR. M. P. RAVENEL, Madison, Wis.: I was brought up on the idea that "country fever" (as malaria was called in Charleston, S. C.) was invariably fatal; and that for a white man to spend the night at St. Andrew's Parish—which is across the river from Charleston, would be an act equal to shooting himself. All through the lower regions of the South it is the habit for people to leave their plantations on May 15, and not to go back to them until after the first frost in the fall. Many people say that the negro is immune to malaria, but I have seen many negroes die of it. The plantation negro is immune to this disease; but the negroes from the foot-hills of the mountains, when taken down to the phosphate fields, are found to be very susceptible. The immunity of the negro race to malaria is acquired. The result of progress around Charleston has been such that at present the white man sleeps in St. Andrew's Parish with impunity. This is due to the drainage of the swamps. There is no screening of the houses even. The poor whites of the south are generally accused of laziness; but the fact is that they are as energetic as any people, when they are well. Malaria, together with hookworm disease, has been a primary factor in taking away their ambition. There is no doubt that with the drainage of these malarial districts and the cultivation of areas of land, there has been an enormous material development; so that the public health question is of great importance to this country from that standpoint, as well as the racial one.

DR. B. F. ROYER, Harrisburg, Pa.: Malarial fever in Pennsylvania is a reportable disease and a placard is put on each premise where it exists.

DR. E. H. HUME, Changsha, China: In Central China, where a great deal of rice is raised, there are no anopheles within hundreds of miles; yet in other sections of the rice country, there are crowds of them. The studies now seem to indicate that the presence of anopheles has something to do with the kinds of fish, etc., contained in certain waters. We hope within the next few years to find the solution of this problem. The distribution of malaria is being worked out in China as a problem of much importance, because the disease is so scattered in that country.

DR. WILLIAM H. JEFFERYS, Shanghai, China: There has been a bill passed in the state legislature of Maryland providing that the state will pay two-thirds of the cost of draining any swamps, if the land owners will pay the remaining third. So far, very few land owners have taken advantage of this law. Therefore, the draining of swamps on a big scale will have to be done by the state or Congress.

Bacteriemic Nature of Leprosy

DR. DAMASO RIVAS, Philadelphia: The work is based on the fact that *Bacillus leprae* is easily found in the blood of cases of leprosy. The method consists in collecting 0.1 to 1.0 c.c. of the patient's blood, from the tip of the finger or toe (free from lepra lesions), or from a vein, in about 5 to 20 c.c. of a 2 per cent. solution of acetic acid, in which the erythrocytes are dissolved. The mixture is centrifuged for about fifteen minutes, and the sediment is examined for alcohol acid-fast bacilli. The method of staining is one usually followed in the examination for tubercle bacilli. The sediment is spread on a slide, dried, fixed, stained with carbol fuchsin, decolorized with 30 per cent. hydrochloric-acid solution in 95 per cent. alcohol, and counter-stained with methylene blue. This method is advantageous in

demonstrating the bacteriemic nature of leprosy and also as a means of diagnosis of the disease.

Early Diagnosis of Filariasis

DR. DAMASO RIVAS, Philadelphia: This method is based on finding the microfilaria in the blood in the early stage of the disease; that is, before the symptoms due to obstruction in the flow of the lymph, such as lymphangitis, elephantiasis, etc., are manifested. The procedure consists in collecting from 0.1 to 1.0 c.c. of the blood, from the finger, in about 5 to 10 c.c. of a 2 per cent. acetic-acid solution, in which the erythrocytes are dissolved. After shaking, the mixture is centrifuged for about five minutes, and the sediment examined. Either fresh cover-glass or dried and stained preparations are made from the sediment. With the acetic-acid method, it is immaterial at which hour of the day or night the examination is made. If the case is positive, the microfilaria will be found in the sediment.

Investigation of Louisiana Rice With Reference to the Etiology of Beriberi

DR. CREIGHTON WELLMAN and DR. C. C. BASS, New Orleans: With the purpose of determining whether the experimental results obtained with the polished rice of the Orient could also be obtained with rice grown in Louisiana, we undertook the following series of experiments with chickens. The best culled Louisiana white rice was obtained after chaff had been removed, and was designated as unpolished rice. Another sample of the same lot was obtained after culling and finishing, ready for the market, except that the final coat of glucose and talcum had not been applied. Marked nerve symptoms appeared after from seventeen to twenty-three days in fowls fed exclusively on polished Louisiana rice. The same rice unpolished does not produce the disease, and such rice with a general diet promptly cures the disease. A diet of pure cane-sugar will produce this characteristic more rapidly and completely than the polished rice. Pure corn-starch will also produce the condition rather more slowly than polished rice.

The Public Health Problems in Connection With Beriberi

DR. R. H. CREEL, Ellis Island, N. Y.: In the United States beriberi has been confined to sporadic outbreaks in various parts of the country during the last twenty years. There is no evidence of any increase and in this country the disease has not assumed public health proportions. The origin of beriberi is not known, but the great epidemicity of the disease during the last thirty years has been coincident with the increased output of steam-milled or polished rice. Beriberi in Manila has steadily increased. The disease has been practically suppressed in government-controlled institutions in the Philippines. The prevention of beriberi lies in government control of the milling process of rice. A rice law similar to the corn law of Italy would enforce this requirement on all rice imported or milled locally. The culture of rice having a white pericarp instead of red will materially reduce prejudice against unpolished rice.

Discussion on Beriberi

DR. R. L. WILBUR, San Francisco: We must make a distinction between polyneuritis due to inanition and that due to infectious microorganisms. It is particularly difficult for me to understand why on shipboard a number of sailors and officers should all come down, within the space of a few days, with acute symptoms of beriberi, and even die within a day or two. Certainly one would expect, if it is entirely due to food, that we would get much more scattered cases, rather than epidemic ones.

DR. JOHN M. SWAN, Rochester, N. Y.: In the province of Canton, China, and more particularly in the city of Canton, practically outside of the zone where beriberi is very prevalent, we had, in 1907, a very severe outbreak of beriberi in the military camps, east of the city. We feel that there is little question now as to the causation of beriberi. The question is whether it would be practicable or possible to overcome the difficulties which would arise in recommending laws or taxation, or the adoption of such measures by the different governments, as would control the product of this polished rice. Years ago we supposed beriberi to be contagious; but in recent

years we have not isolated these cases, and have never seen any indication of contagion.

DR. W. H. JEFFERYS, Shanghai, China: It is hard to accept the polished rice theory because the disease apparently does appear epidemically. I am entirely convinced that the epidemicity is due to the fact of the use of certain brands of rice. Shanghai and Hong Kong are the places where beriberi is most pronounced in China. In St. Luke's Hospital we have paid a very high price for rice and have had a great deal of beriberi. Before the theory was established we used to add dried beans to the diet as a regular thing; and that kept away beriberi more or less. With the removal of the beans and a diet of white rice, beriberi used to break out almost like an epidemic in the ward.

DR. JUDSON DALAND, Philadelphia: Ten years ago none of us accepted the actual cause of this disease, but even then the relation of beriberi to rice was referred to. The majority then considered it of bacterial origin. I do not think that the epidemic phase is to be strongly considered in the face of the evidence before us. The polished rice theory seems to be conclusive. Recent experiments show undoubtedly that animals fed on polished rice lose weight, become paralyzed and eventually die. If unpolished rice and other articles of diet are added, this is prevented. If in beriberi we have an example of an individual whose food-supply depends entirely on the carbohydrates contained in rice, and from it you subtract phosphorus, in consequence of which certain unknown changes take place in the body by which we have polyneuritis, we have a condition closely approaching another which brings about neuritis—namely, inanition. Rice which has less than 0.4 per cent. of pentoxid should be looked on as a prejudice to health, and those disposing of such rice should be dealt with accordingly.

DR. HENRY J. NICHOLS, Washington, D. C.: One interesting point about this condition is that it can be produced by the feeding of corn-starch or molasses or cane-sugar. The incubation period of these symptoms of paralysis in the chicken is much shorter than in man. Man will die of starvation before these symptoms are developed. Either on a diet of polished rice, or on no diet at all, you have this same lack of phosphorus, or whatever it is. Cane-sugar, or a thousand other things, might give the same results. It seems to me that beriberi, as we have it in the East, is established as fully in connection with polished rice as scurvy is with lack of fresh vegetables.

DR. R. H. CREEL, Ellis Island, N. Y.: In the Java possessions, where 90,000 persons were fed entirely on red rice, there were only nine cases of beriberi; whereas in those persons fed on white rice there were 280 per every 10,000. It seems to me that this is most conclusive.

DR. JOHN M. SWAN, Rochester, N. Y.: In regard to the infectious nature of the disease, from my reading I have never been convinced of it. Many statements have been published in which beriberi and pellagra are said to be similar, but it seems to me that beriberi is more like scurvy.

Some Investigations in Leprosy

DR. CREIGHTON WELLMAN, New Orleans: Salvarsan is of great value in the early treatment of leprosy. During the past nine months Dr. Duval and myself have been working on the cultivation of the bacillus of leprosy. We have recently come to the conclusion that the chromogenic acid-fast bacillus—first described by Clegg—is to be regarded as the etiologic factor in leprosy. We have isolated from a leprosy lesion a slow-growing, non-chromogenic bacillus, without the polymorphism of the Clegg bacillus, which, with two exceptions, can hardly be distinguished from the tubercle bacillus. First, it will not grow except on a special medium, either in the beginning of isolation or in later transplants. It cannot be coaxed into saprophytic media, but can grow only on special media. This culture has been cultivated on a medium devised by myself. It is made by taking human placenta and infusing at refrigerator temperature for two hours. Human placenta at term is very rich in amido-acids before putrefaction has taken place. This medium is a very close reproduction of the habitat of the leprosy bacillus in infected tissue.

Gangosa

DR. G. L. ANGEXY, Philadelphia: Gangosa has been prevalent in Guam for more than a century. It is destructive, showing ulcerations of the oral and nasal mucous membranes. It begins as an ulcer of the nose, mouth or pharyngeal wall, with no pain or other symptom. The patient is not aware of its existence until the ulcer has reached considerable size. The process may advance until the bone is destroyed. The duration varies from a few months to many years. The general tendency is to recovery. Death is usually due to some intercurrent disease. The etiology is obscure.

DISCUSSION

DR. CREIGHTON WELLMAN, New Orleans: In California I had an opportunity to study some half dozen cases of what had been diagnosed as gangosa in the navy hospital at Mare Island. All the cases which I saw looked very much like lupus. There was one case, however, in which the involvement of the hard palate was puzzling. At this time Dr. Garger had isolated a bacillus which he believed to be closely identified with gangosa, and by the use of autogenous vaccines he had effected an apparent cure in one or two of the worst cases. Patients whom he treated with this autogenous vaccine had been treated for syphilis and grown steadily worse. The bacillus which Dr. Garger isolated was a diphtheroid. The fact that these diphtheroids are so easily isolated from any sore throat makes it probable that this bacillus of Garger's is the etiologic factor.

A Malarial Hotbed Within Sight of the National Capitol

DR. THOMAS W. JACKSON, Fort Washington, Md.: I should like to call attention to the continued existence of malaria within fifteen miles of Washington, though in a greatly diminished degree, owing to improved sanitary conditions and the extermination of the mosquito.

DISCUSSION

DR. DAMASO RIVAS, Philadelphia, Pa.: My experience has been that it is very difficult to get patients to take the quinin faithfully, and it is most efficacious to give it one hour after the temperature begins to fall. We know that at that time the parasite is very young, and is apt to take more quinin than he will later. The doses are about $\frac{1}{2}$ gr. to $7\frac{1}{2}$ gr., always diluted with hydrochloric acid. In regard to the recurrences of malaria, unquestionably these are attributable to bad management—that is, giving quinin at the wrong time.

DR. WILLIAM KRAUS, Memphis, Tenn.: About a year ago I had a patient referred to me for the administration of salvarsan. On the day he arrived, he had a chill. The result of the salvarsan was partial disintegration of rings—pseudo-autumnal form, and no subsequent paroxysm of this same fever. On the day following, however, the malaria became more active, but coincident with that there was the disappearance of parasites and since that time the patient has not had any further recurrence. It is possible that this remedy may have a differential effect, which is the very thing we have been unable to obtain with quinin.

DR. CHARLES CRAIG, Washington, D. C.: I do not think that quinin prophylaxis can be compared with mosquito extermination. Certainly, however, quinin prophylaxis has had a great deal to do with the eradication of malaria. I had an experience at Fort Stoltzenburg, which is supposed to have the worst record for malaria of any post in the United States Army. We tried every way we could to exterminate malaria, and finally started on a thorough quinin prophylaxis. We had the patients come to the hospital twice a week, and made them take it in the presence of an officer. When we did that, the numerical ratio went down over 50 per cent.

DR. JOHN M. SWAN, Rochester, N. Y.: I used to teach my students that it was necessary for them to administer quinin to their patients after their clinical recovery for at least two years. My reasons for teaching that was that I accepted the theory that the recurrences or relapses were due to parthenogenesis. There always seemed to me to be a parallel between this disease and another that I think is due to an animal parasite, namely, syphilis. We know well that after the clinical manifestations of syphilis are gotten rid of, it is necessary to

continue treatment for a long period to prevent tertiary symptoms. I believe the administration of quinin will probably prevent relapses. Therefore it is possible for a person with the parasites in the blood to present a perfectly normal blood picture until he relapses.

DR. JOSEPH H. WHITE, New Orleans: I feel that proper prophylaxis demands not only the destruction of the mosquitoes and the destruction of the unique carriers, but also the use of quinin as a prophylaxis. Just one instance with regard to a unique carrier: Four years ago I was asked if I would not go to a certain town where a case of yellow fever was thought to be. I went, looked the patient over carefully, examined his blood for about an hour, taking two or three specimens, and got nothing. I went back, and looked him over again, after being away two hours in the laboratory; found him with a rising temperature; took another specimen and found organisms.

DR. T. W. JACKSON, Fort Washington, Mo.: The principal objection I have to the widespread, indiscriminate use of quinin is that it undoubtedly vitiates blood diagnosis. Under those conditions, you may frequently be badly put about for a diagnosis, when the quinin taken has been sufficient to drive the parasite from the peripheral circulation. As to the reaction, I do not think that any of us are in a position to lay down a dogmatic length of time over which medicine shall be given; but I think we often make the period too short. The only guide we have is repeated examination of the blood.

Resolution

Resolved, That the American Society of Tropical Medicine endorse the creation of a United States Commission for the Study and Prevention of Malaria.

Resolved further, that Congress be called upon to appropriate funds for this purpose.

AMERICAN SURGICAL ASSOCIATION

Annual Meeting, held at Montreal, Canada, May 29-30, 1912

(Concluded from page 218)

Hemorrhage Into the Peritoneal Cavity Caused by Accidental Rupture of the Ovary

DR. ALEXANDER PRIMROSE, Toronto: The two cases seen by me were not connected with pregnancy. In both instances what appeared to be a normal graafian follicle had ruptured as the result of an accidental strain. In one instance, the patient lifted a heavy weight and the rupture immediately occurred. In the other case the patient had a violent attack of vomiting in the early stage of an acute appendicitis and this brought about a similar result. In both instances serious hemorrhage occurred into the peritoneal cavity and almost proved fatal in one of the patients. The sequence of events in the latter case was quite obvious. The patient had an attack of acute appendicitis two days before her monthly period was due, and a violent attack of vomiting had brought about rupture of a graafian follicle. The hemorrhage into the peritoneal cavity had been slow and had shown no symptoms but was only discovered when the abdomen was opened for the removal of the appendix twelve hours afterward. Had the patient been left until morning not only would she have run considerable risk from an attack of acute suppurative appendicitis, but she might have lost her life from hemorrhage. These two cases have some points in common. Thus, an accidental strain caused rupture of an ovarian blood-cyst and induced the hemorrhage. In both the graafian follicle was ruptured two days before a menstrual period was due. In each instance the extravasated blood was clotted in the pelvis and had remained fluid in the upper part of the peritoneal cavity.

Surgical Diseases of the Abdomen and Uterus Complicating Pregnancy

DR. MAURICE H. RICHARDSON, Boston: A pregnancy threatened by surgical conditions within the uterus should not be interrupted unless it is clear that pregnancy cannot possibly

go on. For pregnancy to be allowed to continue it must appear that the life of the child is practically safe while the danger to the mother is slight. To allow the pregnancy to continue uninterruptedly it must appear that at the last moment, through intervention, both mother and child may be saved by a cesarean section or by an operation no more dangerous to the mother than would have been an early operation destructive to the child and saving to the mother. To allow pregnancy to continue it must appear that the child can live without jeopardizing by delay the success on the mother of a radical operation for malignant or other disease, as in cancer of the cervix, the breast, or elsewhere; acute appendicitis, acute cholecystitis, pyelitis, etc. Pregnancy, complicated by abnormal surgical conditions that seem to demand its forcible interruption, should be carefully watched, as it were, knife in hand, but never interfered with unless the need for interruption is plain.

DISCUSSION

DR. HOWARD LILIENTHAL, New York City: A woman, aged 32, married two months, had menstruated for the last time six weeks before I saw her, and then after an indiscretion in diet she vomited and became very faint. In a few hours another attack of faintness came on, followed by others at short intervals; she had all the symptoms of hemorrhage. Incision revealed a fibroid as large as a coconut attached to a pregnant uterus, and the peritoneal cavity full of blood. The fibroid was removed and the uterus sutured; the site from which the hemorrhage came could not be discovered. The patient made a good recovery, and there had been no miscarriage at the time of this report, three weeks after operation.

DR. THOMAS W. HUNTINGTON, San Francisco: It is a wise precaution to remove at an early date in pregnancy an "occult" appendix, that is, one which causes few symptoms, but which every now and then gives sufficient evidence of its existence to warrant removal, considering that adhesions might result from such an appendix which might later be a source of serious difficulty.

DR. ELLSWORTH ELIOT, JR., New York City: A young woman, 18 years of age, was supposed to be suffering from an attack of acute appendicitis. Operation revealed no disease of the appendix, but the peritoneum was filled with blood; there was a laceration of the right fallopian tube near its fimbriated extremity. This extremity was amputated, but microscopic examination gave no evidence of a tubal pregnancy.

DR. JOHN B. DEEVER, Philadelphia: I consider acute appendicitis more important in the female than in the male. I believe that salpingitis often results from the condition of the appendix. I have seen more cases of tubal abortion than of tubal rupture. In acute appendicitis during pregnancy, I advocate immediate removal of the appendix.

DR. RICHARD H. HARTE, Philadelphia: A woman long past the menopause was driving when she suddenly experienced violent pain on the right side; operation disclosed a large ovary, about twice the normal size, ruptured directly across, and the pelvis filled with blood. The ovary was removed, and after much examination microscopically a report was finally sent in of angiosarcoma. This case occurred over a year ago and up to the present time there has been no recurrence of the condition in the pelvic organs.

DR. ROBERT G. LE CONTE, Philadelphia: I had a patient who was admitted to the hospital with all the symptoms of ruptured ectopic pregnancy; at operation a quart of clotted and fluid blood was removed; the right ovary was ruptured and had the appearance as if a graafian follicle had existed filled with blood and had been torn across, the vessels still bleeding; ovary was removed and tube left. It more closely resembled a laceration of the ovary than an extra-uterine pregnancy.

DR. ARPAD G. GERSTER, New York City: Twice I have seen a pregnant uterus removed, once supposedly for an ovarian tumor and once for a fibroid growth.

DR. CHARLES A. PORTER, Boston: A woman of 30, married and pregnant two months, had pain, tenderness and fever,

then increasing constipation and tenderness in the left iliac fossa. Visible peristalsis. Operation showed an almost complete obstruction of the cecum and a large intramesenteric abscess, probably a diverticulitis. Abscess was drained and a lateral anastomosis was done without excision. Patient has made a good recovery and so far, two months since operation, there has been no interference with the pregnancy.

Acute Diverticulitis of the Sigmoid Flexure

DR. CHARLES A. POWERS, Denver, Colo.: A very obese man, aged 49, manifested symptoms of an acute left-sided appendicitis. Operation was done at an early hour, a gangrenous diverticulum the size of an olive being removed from the middle of the convex border of the sigmoid flexure, together with a considerable amount of adjacent gangrenous epiploic fat. Careful closure of the wound in the intestine, stab wound drainage through the left flank. A stormy period of two days was followed by a smooth course. On the seventh day the temperature and pulse had been normal for some days and the patient was apparently making an excellent recovery, when he suddenly succumbed to pulmonary embolism, death taking place one hour after the first thoracic symptom. Post-mortem examination revealed a clean abdomen without peritonitis, the suture of the sigmoid being intact, and the intestine showing no appreciable narrowing at the seat of the affection.

Radical Operations for Cancer of the Rectum and Rectosigmoid

DR. WILLIAM J. MAYO, Rochester, Minn.: Failure to remove carcinomas of the rectum by a block dissection, and not any especially malignant character of the process itself, is responsible for the pessimism of the medical profession as regards the operative cure. Cancer of the rectum is a slow process and the lymphatics are involved late. The true rectum lies between the third sacral vertebra and the levator ani muscle, and is a distinct organ. When this portion is involved in malignant disease it should be removed entire, as would a malignant process in any other organ. The terminal rectum or anal canal is involved in only about 6 per cent. of the cases; its lymphatics drain into the coccygeal, rectal and into the inguinal glands. Radical operations on the rectum for malignant growths, as a rule, injure the muscles and nerves to so great an extent that rectal control is damaged or lost. In most cases a permanent colostomy through the left rectus muscle or a sacral anus gives good functional results and permits a wide dissection of the entire rectum with removal of the fat, fascial structures and lymph-nodes, and greatly diminishes the operative risks. Ninety per cent. of the operative deaths are due to sepsis, usually fecal leakage from attempts to conserve function. Preliminary exploration through the abdomen is necessary to avoid operating on patients with hopeless metastasis. This may be omitted in those who for any reason are poor surgical risks, to reduce hazard. In such cases the sacral operation is indicated.

Perineal or posterior sacral operations, one stage, gave the smallest mortality. The procedure is indicated in the very fleshy, and in the anemic, and in poor surgical risks. The modified sacral operation gives good space, and enables wide extirpation at a single operation. Operations through the abdomen or abdominal combined with perineal in one stage, gave the highest mortality. Operations in two stages, first, abdominal exploration with temporary or permanent colostomy, and second, a week later, after thorough cleansing of the lower fragment, complete posterior dissection, gave the best results with a mortality approaching that of operations through the perineum and posteriorly, and less than one-half the mortality of the abdomino-perineal in one stage. This operation is the one of choice in the large percentage of cases if the patient is a good risk and especially if there is good prospect of restoration of function. Diverting the fecal current temporarily greatly improves the prospect of successful union of the proximal and distal fragments of bowel.

The Treatment of Fistula in Ano

DR. ARTHUR W. ELTING, Albany, N. Y.: Two cardinal principles underlie the treatment of fistula in ano; first, the sepa-

ration of the fistulous tract from the bowel, and second, the closure of the communication with the bowel and removal of the diseased rectal tissue. The operation proposed is the removal of the lower bowel to a point just above the level of the internal fistulous opening by the Whitehead method of operation, with thorough curettage of all the fistulous tracts. When no internal opening can be demonstrated, the bowel is removed at the line of insertion of the levator ani muscle, care always being taken to keep the dissection near the mucosa and to avoid all injury to the sphincters. The healthy skin and mucosa are approximated with interrupted silk sutures. This method has been employed without mortality in 105 consecutive cases; ninety-six of these were histologically non-tuberculous, and nine were histologically tuberculous. In all the cases complete and permanent cure was obtained, with preservation of normal function in all but four, in all of whom more or less destruction of one or both sphincters antedated the operation.

Acute Inflammation of Long Bones

DR. ROBERT G. LECONTE, Philadelphia: Trauma still plays a considerable part in predisposing to the disease, while the exciting cause is one of the organisms of suppuration, principally *Staphylococcus pyogenes aureus*. Whether the starting-point of the lesion is in the cortex, the medullary cavity, the end of the bone, or the epiphysis, success in treatment depends on opening up the original focus at the primary operation. The necessity of prompt operation, with adequate drainage of the primary focus of infection and the removal of all diseased bone at the primary operation, even if that removal entails a more or less complete resection or excision of the shaft, should be emphasized. When the condition of the patient warrants it at the primary operation, such radical treatment greatly shortens the time of convalescence, prevents further destruction of bone, lessens the subsequent number of operations, and reduces the mortality.

Surgery of the Long Bones

DR. JAMES E. MOORE, Minneapolis: The open treatment of fractures has an established place in surgery, but at present is being overdone. The Lane plate is the best device for fixing fragments through open wounds. The plates requiring removal have usually been very close to the surface. The plate cannot be used in compound fractures satisfactorily, because of the lowering of the resisting power of the tissues by the accident. The wound sometimes heals over a plate after infection. The use of the bone splint taken from the patient's own person is doubtless the best resource in patients who have not good bone producing power. The greatest advance in surgery of the long bones in recent years is in treatment of fracture of the neck of the femur. Since using the two-way pull of Maxwell I have been as confident of securing bony union in fracture of the neck of the femur as in the shaft. Fracture of the neck of the femur is quite common in children, and very commonly neglected. Non-union is the usual result after treatment by the older methods, but even then the case is not hopeless, for the fracture can be successfully treated through an open wound.

Safety in the Operative Fixation in Infected Fractures of Long Bones

DR. HOWARD LILIENTHAL, New York City: Accurate fixation is fully as important in cases of infection with fracture as it is in clean cases. In septic fractures operative fixation should be by temporary apparatus which is easily removable. I would also emphasize the importance of drainage in cases which are septic or in which sepsis threatens.

Operative Treatment of Fractures

DR. JOHN B. WALKER, New York City: In a series of twenty-one cases of fractures of the femur, operation was performed only after the best efforts of conservative treatment had failed. In every case before operation general anesthesia had been employed to assist the efforts in reduction, also suitable extension had been applied. Nevertheless, in every case there persisted over 2.5 cm. shortening. Axial rotation was

present in all cases, together with angulation. In operating I try to carry out scrupulously every minute detail of Lane's technic for there is no province of surgery in which results depend more on the mechanical skill and cleanliness of the operator. Under no circumstances whatever do the fingers ever enter the wound. After the strong plate has been most satisfactorily applied by snug screws to the shaft of the femur it would seem as if no motion were possible. If, however, moderate strain be applied to the leg, some motion at the fracture can be appreciated. If this be continued the screws will become loosened and the fragments disarranged. For this reason no strain must be permitted. The plate must be considered only of value merely to approximate the fragments and not at all sufficient to hold them. For this purpose the whole reliance must be placed on the solid external plaster cast, most accurately and carefully applied. If this does not succeed in absolutely immobilizing the fragments, the operation may fail. The rapidity of union is proportional to the accuracy of reduction and the retention of fragments; delayed union is very largely due to faulty adjustment. Plating the fragments does not increase the nutrition but it brings the fragments into early intimate contact. As our experience grows, we will be able to select after a study of skiagrams those cases in which operation is indicated.

DISCUSSION

DR. CHARLES L. SCUDDER, Boston: The ideal toward which all should strive would be that point where a surgeon on seeing a fracture could definitely make up his mind as to which method, the operative or the non-operative, would give the best results, and to proceed accordingly. I approve of the operative treatment in carefully selected cases, but I believe many results obtained by it might also be obtained by the ideally carried out non-operative treatment in the ordinary cases.

DR. JOSEPH RANSOHOFF, Cincinnati: About 70 per cent. of fractures are not treated by surgeons, but by the country practitioner. It should be an aim of the Association to put means in such practitioners' hands to facilitate the reduction of fractures. For this purpose I propose the use of a pair of common ice-tongs. These tongs can be driven into the lower end of a fractured femur without the use of an anesthetic, and extension up to 40 pounds can be put on, which will usually prove sufficient for reduction. I have overcome the possibility of stiffness of the knee-joint resulting by applying these tongs with the limb on a double-inclined plane.

DR. THOMAS W. HUNTINGTON, San Francisco: As a rule, in the hands of competent and skilled surgeons, the operative treatment of fractures is safe. Before treatment can be instituted in many cases of compound fractures, there is an infection of the medullary cavity, and the introduction of foreign bodies proves an inviting field for the extension of such infection along the medullary cavity with a resulting osteomyelitis and possibly either loss of a limb or the patient's life. I believe in allowing compound fractures to take their own course with as little interference as possible after apposition of fragments is obtained, until after the wound is healed and danger of osteomyelitis is passed.

DR. MAURICE H. RICHARDSON, Boston: Operative treatment of fracture should be performed only by skilled men under the most favorable circumstances.

DR. OTTO KILIANI, New York City: It should be impressed on the profession and the laity that excellent functional results can be obtained without an anatomically perfect alignment of bony structure.

DR. FRED B. LUND, Boston: In employing the operative method on old fracture cases there is the difficulty to be overcome presented by callus and adhesions, and the majority of bad results occur in such cases. In carefully selected cases this operative method is applicable to early fractures, particularly those of the long bones, transverse fractures of the femur, certain oblique fractures of the tibia with much overlapping, fractures of the humerus in which the ends do not come together, and fractures of both bones of the forearm. A patient is more comfortable when put in a plaster-of-Paris spica dressing than with a Buck's extension with which the adhesive plaster is so apt to slip.

DR. GEORGE E. ARMSTRONG, Montreal, Canada: A device which should always be tried in compound fractures in order to lock the fragments is to notch the ends so that they dovetail into each other. I have obtained excellent results by this procedure. This operative method should not be attempted if it is possible to lock the fragments without it.

DR. CHARLES L. GIBSON, New York City: It is perfectly proper for Mr. Lane to operate on fractures, but only one man in a thousand is so qualified, and therefore such work should be undertaken only by skilled surgeons.

DR. G. G. DAVIS, Philadelphia: Not enough attention is paid to the methods of lateral traction or abduction in the reduction of fractures of the femur, and too much attention is given to Buck's extension.

DR. RICHARD H. HARTE, Philadelphia: Many of the poor results obtained in simple fractures treated by the conservative methods to-day are due to the fact that the setting and reduction of these fractures in the large hospitals, are, as a rule, relegated to the hospital intern, whose experience is not sufficient to warrant such responsibility being placed on him. The attention of the chief, all too frequently, is directed to fracture cases only when they begin to do badly.

DR. JOHN H. GIBSON, Philadelphia: One cannot jerk a fracture into place in five minutes, but in many cases in which the traction is allowed to extend over several days and there is a long and steady pull, the reduction may easily be accomplished. This applies particularly to fractures of the upper third of the femur and the surgical neck of the humerus. In fractures of the surgical neck of the humerus, treated by abduction and Buck's extension, with the arm at right angles to the chest and the patient in bed, reduction can be safely accomplished.

DR. THORKILD ROVSING, Copenhagen: I have obtained successful results from the use of Lambotte's method, especially in contused fractures. With regard to aseptic ankylosis in joints, I have met with considerable success from the use of the injection of sterilized petrolatum into the joint.

DR. JOHN B. MURPHY, Chicago: Osteomyelitis is in reality a condition like a gangrenous appendix in the end of the bone. Early and radical operation is indicated. A delay of forty-eight hours is not only extremely serious but often fatal. In these cases I suggest the advisability of utilizing the method of bone transplantation, after resection of the diseased portion.

The Conservative Treatment of Giant-Cell Sarcoma, With the Study of Bone Transplantation

DR. JOSEPH C. BLOODGOOD, Baltimore: It is a question whether the so-called giant-cell sarcoma should be included among sarcomas. I prefer the term "giant-cell tumor." Up to the present time I have been unable to find an authentic case in which this giant-cell tumor produced death by metastasis. The evidence so far demonstrates that amputation and, in many instances, resection in continuity, are unnecessary, or avoidable, surgery. Curetting should be the operation of choice in the first instance. It should be performed under an Esmarch bandage, the bone cavity disinfected with pure phenol (carbolic acid), followed by alcohol; if the resulting cavity is large healing will be accelerated by filling the cavity with a piece of transplanted bone. After resection the wound should also be disinfected as after curetting; if possible, the defect should be filled by a piece of bone taken from the shaft of the bone involved by splitting longitudinally the remaining uninvolved bone. If this is not feasible the tibia is the best bone from which to take the transplant. The diagnosis of a medullary giant-cell tumor cannot be made positively until the tumor is explored with the knife. The only hope for increasing the number of cures in the more malignant forms of sarcoma of bone is in the early and systematic diagnostic employment of the x-rays.

DISCUSSION

DR. WILLIAM B. COLEY, New York City: I disagree with Dr. Bloodgood that giant-celled sarcoma never produces metastasis. There are certain cases of giant-celled sarcoma in which it is not safe to use conservative treatment and in which even the most radical treatment, amputation of the proximal joint,

offers little or no chance of a cure. In twenty cases a clinical diagnosis of giant-cell sarcoma was confirmed by the microscope: ten were of periosteal, ten of central, origin. In fifteen of the twenty cases the mixed toxins of erysipelas and *Bacillus prodigiosus* were used before or after operation. In ten cases amputation was performed. In nine cases either no operation or a conservative one (curetting) was done; in three of the nine cases the disease was too far advanced for the most radical operation, even a hip-joint amputation, and in one case, a subperiosteal sarcoma of the femur involving the lower third, metastasis had taken place. This patient is now well ten years after the toxin treatment was begun. In addition there had been two recent cases of sarcoma of the long bones in the hands of English surgeons in which the limb was saved by the use of the mixed toxins. In twenty-one cases, out of a personal series of 107 cases of sarcoma of the long bones, the patient lived and remained well more than three years after operation. I believe the value of the mixed toxins in many of these cases to be quite beyond question.

DR. EMMET RIXFORD, San Francisco: I had a case of giant-cell sarcoma of the lower end of the ulna treated by resection of the lower end of the bone, which remained well without recurrence for eighteen years.

DR. JOHN B. MURPHY, Chicago: In judging of the malignancy of a giant-cell sarcoma I rely more on the x-ray picture than on the microscopic examination; the disease in malignant cases is found to cross the epiphyseal line, while in the more benign form it does not do so. I approve of resection rather than of curettement in these cases, following the resection by the transplantation of another piece of bone for the maintenance of support.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Bulletin of Johns Hopkins Hospital, Baltimore

June, XXIII, No. 256, pp. 159-190

- 1 *Intestinal Obstruction: Study of Toxic Factors. H. B. Stone, B. M. Bernheim and G. H. Whipple, Baltimore.
- 2 *Primary Carcinoma of Liver. M. C. Winternitz, Baltimore.
- 3 *Method of Correlated Teaching of Pathology and Bacteriology in Second Year of Medical Instruction. F. P. Gay, Berkeley, Cal.
- 4 Richard Bright's Travels in Lower Hungary: Physicians' Holiday. F. H. Garrison, Washington, D. C.
- 5 Austin Flint: His Contributions to Art of Physical Diagnosis and Study of Tuberculosis. H. R. M. Landis, Philadelphia.
- 6 Cyrano De Bergerac's Opinion of Medical Profession. C. G. Cumston, Boston.

July, XXIII, No. 257, pp. 191-222

- 7 *Effect of Ligation of Common Iliac Artery on Circulation and Function of Lower Extremity. W. S. Halsted, Baltimore.

1. **Intestinal Obstruction.**—The authors summarize their findings as follows: High loop obstruction in dogs causes very rapid death, twenty-four to sixty hours, as a rule, even when the loop contains no food material or secretion from the stomach, liver and pancreas. Low loops (ileum) of similar nature are much less rapidly fatal. Surgical drainage of this loop will save the dog's life. Excision of this duodenal loop does not necessarily disturb the animal's health. The material obtained from obstructed loops is toxic when injected into dogs, the high loop material being much more toxic. This material causes profound splanchnic paralysis with extreme congestion of all this area, particularly the small intestine. The toxic material introduced into normal animals produces many changes similar to those found in the animals with closed duodenal loops, namely, low blood-pressure and temperature, excretion of large amounts of fluid into the intestinal canal and fatal shock. This toxic substance given in a single injection causes a reaction in the dog which is almost identical with the picture of anaphylaxis in this animal. The toxic material is not injured by heating at 60 C. for any length of time, centrifuging and filtering in any manner. It is not impaired by prolonged autolysis, by pancreatic digestion and bacterial fermentation. Hydrolysis with dilute acids

probably destroys it. No such toxic substance may be obtained by autolysis, digestion or putrefaction of the normal intestinal mucosa. Injections of sublethal doses of this toxic material will protect against subsequent large doses and probably prolong life after a closed duodenal loop has been established.

2. **Primary Carcinoma of Liver.**—Primary carcinoma of the liver was found by Winternitz to be a rare condition, occurring in 0.28 per cent. to 3 per cent. of all autopsies from various statistics. It occurs most frequently in adult males, but is proportionately relatively common in females and may occur at any age. A number of cases have been described in infancy. Clinically, the disease is difficult to differentiate from cirrhosis of the liver. Its rapid course, the presence of an enlarged, irregularly nodular liver, hemorrhagic ascites, or metastases to accessible regions, which is exceedingly rare, may be of assistance in the diagnosis. The tumor may occur in normal or in diseased livers. In a tremendous percentage of cases the liver presents an ordinary type of cirrhosis, but various other types of chronic hepatitis caused by syphilis, parasites, etc., may occur. The tumor may arise either from the smaller bile ducts or from the liver cells. It is generally agreed that the cirrhosis precedes the neoplastic formation where these two are associated. The tumor, however, brings about pressure atrophy directly and necrosis of the hepatic parenchyma through its extensive vascular involvement and in this way a fibrosis may result secondary to the tumor growth. The tumor is not in any respect unique. It is unicentric in origin, distributes itself through the vascular system, forming a more or less diffuse growth in the liver and develops autogenously. The rarity of extensive extrahepatic metastases in view of the tremendous tumor thrombi which not only involve the portal, but also the hepatic veins and the vena cava is worthy of note.

3. **Teaching of Pathology and Bacteriology.**—The concentration system has been put in force in the University of California for the first two years' instruction in the medical school. As a result, the student enters the second semester of his second year with physiology, physiologic chemistry, pharmacology and anatomy (with the exception of two half days a week in regional anatomy which includes auscultation and percussion) off his hands. His work in the department of pathology and bacteriology comprises, therefore, four whole days a week (32 hours) for seventeen weeks (544 hours). The average class at present numbers about twenty men and women and the teaching staff consists of three full time ranking men and one half time assistant. In a general way, the work is divided into three closely correlated parts in each of which one of the full time teachers is particularly experienced and interested and for which he is responsible. The four forenoons of the week are devoted to histopathology, morbid anatomy (including individual experience in autopsy work), the experimental production of lesions in animals, and general histopathologic technique. The afternoons are divided nearly equally between general bacteriology and experimental work in infection and immunity. The class exercises both in histopathology and in bacteriology are usually preceded by an introductory talk; more formal lectures in these subjects are regarded as unnecessary in view of the existence of wholly adequate text-books to which students may be referred. A more formal set of lectures, two a week, covers the intermediate field between the better recognized branches of pathology, by discussing the progress of each disease that is being synchronously studied in respect to cause and effect. The elaborateness and practicability of the data of infection and immunity renders their study particularly fitted to represent this field of functional pathology. The rapid development in these subjects moreover, admirably exemplifies the value of the experimental method in the study of disease.

7. **Effect of Ligation of Common Iliac Artery.**—A critical consideration of seventy-six cases collated from 1812 to 1912 by Halsted shows that the uncomplicated ligation of the common iliac artery is not likely to be followed by gangrene, the percentage being from 3.3 to 6.6 instead of 33.3; and that the mortality, contrasted with 60 per cent. as estimated by

Dreist is at most 10 per cent. and probably not more than 6.6 per cent.; or it may even be as low as 3.3 per cent. The data are too meager to justify an expression of opinion as to function. Halsted's patient being the only one observed for sufficient time. In this man, although there may be no visible signs of disturbed circulation, the fact that he is unable to walk further than a very short distance without cramp-like pain would seem to indicate that the impairment of function should be attributed to ischemia of the limb. The operation does not invariably cure aneurysm. The ideal operation in Halsted's opinion is one which causes only so much disturbance of the circulation as is necessarily incident to a spontaneous cure of the aneurysm, namely its obliteration. The condition of the patient permitting, a thorough operative investigation should be made in all cases of aneurysm or wound of the external iliac artery. A fatal termination might have been avoided in a very considerable number of the cases of ligation of the common iliac if this vessel had been temporarily compressed and the precise condition investigated at the first operation. As a general proposition, Halsted would be disposed to ligate permanently, just outside of the sac, all arteries which in the natural course of performance of the Matas operation would be clamped temporarily. And, inasmuch as all arteries leading from the sac should, when feasible, be under the control of clamps (when not controllable by the elastic bandage) before the sac is opened, there are good reasons for removing under the circumstances a sac which has, in the process of the exposure of the arteries for clamping, become almost enucleated.

Military Surgeon, Washington, D. C.

June, XXX, No. 6, pp. 619-746

- 8 Military Absenteeism in War, With Special Reference to Relation of Medical Department Thereto. E. L. Munson, U. S. A.
- 9 Medical Department of United States Army in Civil War; Battle of Bull Run. L. C. Dunean, U. S. Army.
- 10 Typhoid Prophylaxis in National Guard. W. P. Morrill, U. S. Army.
- 11 Report of U. S. Army Board for Study of Tropical Diseases as They Exist in Philippine Islands. W. P. Chamberlain, E. B. Vedder and J. R. Barber, U. S. Army.
- 12 Skin Complications of Gonorrhea. W. S. Pugh, U. S. Navy.
- 13 Gunshot Wounds of Gall-Bladder. C. E. Fronk, U. S. Army.
- 14 Balantidium Coli as Cause of Dysentery in Philippine Islands. H. R. Weston, U. S. Army.
- 15 Eye, Ear, Nose, Mouth and Throat in Leprosy. P. C. Field, U. S. Army.
- 16 Leucopenia. C. L. Cole, U. S. Army.
- 17 Case of Strangulated Inguinal Hernia. T. H. Bratton, U. S. Army.

Journal of Biological Chemistry, Baltimore

June, XI, No. 5, pp. 443-561

- 18 Physiologic Action of Some Pyrimidin Compounds of Barbituric Acid Series. I. S. Kleiner, New Haven, Conn.
- 19 Phytin and Phosphoric Acid Esters of Inositol. R. J. Anderson, Geneva, N. Y.
- 20 *Presence of Active Principles in Thyroid and Adrenals Before and After Birth. F. Fenger, Chicago.
- 21 New Method for Determination of Total Nitrogen in Urine. O. Folin and C. J. Farmer, Boston.
- 22 Apparatus for Absorption of Gases. O. Folin and W. Denis, Boston.
- 23 Determination of Urea in Urine. O. Folin, Boston.
- 24 Determination of Ammonia in Urine. O. Folin and A. B. Macallum, Boston.
- 25 Urocanic Acid. A. Hunter, Ithaca, N. Y.
- 26 Sphingosin. P. A. Levene and W. A. Jacobs, New York.
- 27 *New Methods for Determination of Total Non-Protein Nitrogen, Urea and Ammonia in Blood. O. Folin and W. Denis, Boston.

20. Active Principles in Thyroid and Adrenals.—For this series of experiments, which were carried out during March, 1912, thyroids as well as adrenals were used and in the case of cattle, four stages of age were selected, namely, the fetus about three months old, the fetus about eight months old, young suckling calves six to eight weeks old and full-grown cattle. The results obtained indicate definitely that the thyroid of these animals contains iodine, not merely at time of birth but long before. Since the amount of iodine in the thyroid is an indication of the relative activity of this gland there is evidently a gradual rise in activity of the gland in the fetus and this activity is increased rapidly shortly after birth, reaching its maximum in the young growing animal. The iodine content of the glands from the full-grown animals is very low. This is, however, not unusual as the iodine content varies considerably. The glands were collected during the

same period as the glands from the various fetuses. The active principle of the adrenals is also present in the fetus long before maturity and in comparatively higher quantities than in the full-grown animal.

27. Determination of Total Nitrogen in Urine.—In principle this new method is described as a microchemical method based on the Kjeldahl-Cunning process for decomposing nitrogenous materials and on the methods of Nessler and of Folin for the determination of ammonia. Rapidity in every stage of the process is secured by reducing the amount of urine taken for an analysis. The method is described in detail.

West Virginia Medical Journal, Wheeling

June, VI, No. 12, pp. 399-434

- 28 Surgical Treatment of Musculo-Spiral Paralysis. F. L. Hupp, Wheeling.
- 29 Early Diagnosis of Tuberculosis. O. W. McMichael, Chicago.
- 30 Management of Acute Anterior Urethritis. W. S. Robertson, Charleston.
- 31 Lord Lister. R. M. Baird, Wheeling.
- 32 Obstetrics Among American Indians. J. N. Alley, Fort Lapwai, Idaho.
- 33 Vascular Surgery in Emergency Work. W. W. Golden, Elkins.

Journal of Cutaneous Diseases, New York

June, XXX, No. 6, pp. 319-388

- 34 *Influence of Milk Fat on Skin. D. W. Montgomery and G. D. Culver, San Francisco.
- 35 *Comparison of Pemphigus Foliaceus and Dermatitis Exfoliativa Neonatorum (Ritter), and Etiology. H. H. Hazen, Washington, D. C.
- 36 Fibroma Subcutis. M. L. Heidingsfeld, Cincinnati.
- 37 *Unusual Case of Dilated Capillaries. W. Frick, Kansas City.
- 38 Views of De Beurmann and Gougerot on Sporotrichosis. E. D. Chipman, San Francisco.

34. Influence of Milk Fat on Skin.—The skin in carrying out its functions uses vast quantities of fat and there is no doubt in the authors' mind that the kind and quantity of fat delivered to it is of very great importance to its health. It is also their opinion that the quantity and quality of fat ingested does not act directly as a poison, but that it lowers the resistance and increases the susceptibility to bacterial attack, rendering the patient liable to acne, seborrheic eczema, furuncle, carbuncle and erysipelas.

35. Pemphigus Foliaceus.—Hazen believes that some cases of pemphigus foliaceus are undoubtedly due to a *B. pyocyaneus* infection and death may take place from a generalized cutaneous infection, probably with the *Staphylococcus albus*. The two diseases are different, though there may be gradations between them.

37. Dilated Capillaries.—The personal history in the case cited by Frick was entirely negative. The patient, male, aged 50, had, at times, some disturbance of his digestion, which was called dyspepsia or indigestion. This was supposed to have been due to his eating at restaurants and boarding houses and to have been the cause of the dilated blood-vessels in his face. He never was intemperate in his habits, never used alcoholics or tobacco excessively and consequently they could be ruled out as the cause of this trouble. In the last ten years this dilation of the capillaries had been slowly extending over the body from the neck down, gradually involving more and more of the skin until almost all of the integument of the body became involved. On the nose it still had the appearance of dilated capillaries, but on the cheeks and forehead it had a purple color which looked like there might be a deposit of pigment. At times this color would disappear to a great extent and simply appear as a very red face, in which points of intensity could be seen everywhere. On the face, pressure with a glass slide was not sufficient to render the face pale, or press the blood out of the skin, but on some other parts of the body where the diseased process had not extended quite so far, the blood could nearly all be pressed out, leaving the skin pale, but with this paleness minute red points could be seen, indicating minute collections of blood-cells (which Frick afterward found were within the capillary blood-vessels). The skin below the knees and on the feet seemed to be free of this condition, and was normal in appearance. The palms of the hands were not involved, but the backs of the fingers were. The mucous membrane of the mouth and the nose also contained dilated capillaries and whenever there was a flushed condition of the face, or an unusual amount of blood brought

to the surface of the body, he felt a fulness in his throat which occasioned a slight cough.

Since March, 1909, he had had an occasional looseness of the bowels, without apparent cause; at times this could be denominated a diarrheal condition, but it seemed rather easy to control. More recently there was observed an increasing inability to control the sphincters of both rectum and bladder, making frequent visits to the lavatory a necessity. When sleeping there was incontinence of urine. Also, there was a tendency to stagger when he walked and especially when he arose to his feet after being seated for a time. On several occasions he fell simply on account of his inability to retain his equilibrium (without any apparent cause). When he lost his balance forward he continued falling forward and when it was lost in the opposite direction he staggered backward until he came in contact with something that would support him, else he would fall. In other words, he was unable to regain his balance when it was partially lost. He said repeatedly that this staggering was not due to dizziness, but seemed to be simply a loss of balance.

Physical examination indicated normal lungs and a normal heart, with possibly an accentuated second sound; the liver was very much enlarged; it felt somewhat nodular and extended down to the umbilicus in the center and almost to the crest of the ilium on the side of the abdomen; also somewhat farther upward than normal. A peculiar thing about the liver was that sometimes it appeared somewhat larger than at other times. A tumor mass was also felt in the median line, just at the edge of the enlarged liver mass. (This mass during life was taken to be a part of the liver, but the autopsy showed it was a tumor involving the lymph-nodes.) His liver was slightly sensitive to touch, but the patient did not complain of any special pain from the increased size of this organ. The spleen was hardly palpable. After a hearty dinner, in the afternoon, at a time when there was a tendency to an increase of color from the blood in the skin, a specimen of urine taken showed an abundance of albumin present, also a high specific gravity and the presence of epithelial and granular casts. At other times it was normal. Committed suicide by shooting through the head. Necropsy showed enormously dilated capillaries with blood-cells collected in some places, and no blood outside the blood-vessels.

Northwest Medicine, Seattle, Wash.

June, IV, No. 6, pp. 165-196

- 39 Hypophysis Cerebri and Its Importance to Surgeon. A. C. Behle, Salt Lake City, Utah.
- 40 Raw Cow's Milk an Unsafe Food. K. Winslow, Seattle, Wash.
- 41 The A B C of Artificial Feeding of Infants. W. F. Amos, Portland, Ore.
- 42 Modern Methods of Sputum Examination. R. W. and R. C. Matson, Portland, Ore.
- 43 Toxemia of Pregnancy and Eclampsia. J. O. Evans, Salt Lake City, Utah.
- 44 Impressions Gathered on Recent Trip to Some of Surgical Clinics of Europe and America. R. C. Coffey, Portland, Ore.

Journal of Experimental Medicine, New York

July, XVI, No. 1, pp. 1-102

- 45 *Effect of Certain Experimental Procedures on Islands of Langerhans. R. L. Cecil, New York.
- 46 *Permanent Intubation of Thoracic Aorta. A. Carrel, New York.
- 47 *Physiologico-Pathologic Study of Case of Heart-Block Occurring in a Dog as Result of Natural Causes. G. Bachmann, Atlanta, Ga.
- 48 *Pneumococcus Infection in Animals. A. B. Wadsworth, New York.
- 49 *Action of Immune Sera on Pneumococcus Infection. A. B. Wadsworth, New York.

45. **Experiments on Islands of Langerhans.**—Although the results of Cecil's study were of a negative character, the conclusions drawn from it have an important bearing on the true anatomic character of the islands. He found that neither inanition nor the prolonged injection of secretin has any noteworthy effect on the number, size or structure of the islands of Langerhans in the dog's pancreas. The islands of Langerhans in the guinea-pig's pancreas are in no way altered in phlorizin diabetes. The islands of Langerhans are not formed out of exhausted or degenerated acini, but develop from the ducts or acini with which they are often in direct continuity.

46. **Permanent Intubation of Thoracic Aorta.**—Carrel extirpated part of the anterior wall of the abdominal aorta of a dog, and replaced it by a piece of rubber covered with vaselin. Fifteen months after the operation, the circulation was still normal. The vessel wall was intact inside and outside of the rubber. It was found also that the circulation could take place for six days through a glass tube lying free in the abdominal aorta. Thrombosis occurred subsequently owing to displacement of the tube. Encouraged by these results, he operated on a number of dogs with the purpose of learning the precautions that must be taken in order to make the intubation successful. In all instances the operations were performed on the thoracic aorta of medium-sized dogs. The thoracic cavity was opened under ether anesthesia by the method of Meltzer and Auer, and a glass or metal tube was inserted into the lumen of the descending aorta. The tubes were straight, but their edges were slightly everted. The glass tubes were crude, their edges being often irregular and sharp. Before being used, the tubes were paraffined. As soon as the tube was inserted into the lumen of the vessel, the silk threads that had been put around the aorta previously, were tied. The ligature should be tight enough to cut the wall of the artery. This wall is easily injured. The clamps were removed and the circulation was reestablished through the intubated segment. Generally there was no hemorrhage from the incision through the aortic wall and in some cases the opening was not closed. In others it was sutured with fine silk. The pleura was sutured along the aorta. Before closing the thoracic cavity, slight compression was made on the trachea in order that the lungs might regain their normal size. The muscles and then the skin were united by continuous sutures.

These experiments have shown that under certain conditions aortic blood can flow through a glass tube for more than three months without the occurrence of an obliterative thrombus. If the aortic wall was lacerated, a deposit of fibrin took place, and caused a partial or complete occlusion of the tube or of the vessel. The success or failure of the intubation depended on the presence or absence of laceration of the vascular wall. Carrel suggests that the use of a tube of proper caliber, form and composition, for instance, a smooth edged, gold tube of relatively small caliber, would be followed by better results. It is possible also to line the tube with a vein in order to prevent more surely the occurrence of a thrombus.

47. **Heart-Block in Dog.**—What is believed to be the first known case of heart-block arising in a dog as a result of an ingenerate pathologic lesion is reported by Bachmann. The auriculoventricular dissociation was of that degree known as relatively complete block and became apparent on section of the right vagus nerve. Stimulation of the peripheral end of the cut vagus failed to inhibit the ventricles, although complete inhibition of the auricles occurred. The same results were obtained during the ventricular acceleration produced by strophanthin, so that the failure of the vagus to inhibit the ventricles is not due to the latter's infrequent action, but more probably to a normal lack of direct chronotropic influence on the ventricular muscle. These findings are similar to those obtained by Erlanger in experimental heart-block. To small repeated doses of strophanthin injected intravenously the heart reacted as follows: (a) irregular slowing of the auricles and conversion of the relatively complete into an absolutely complete a-v block; (b) a rise in the irritability of the cardiac muscle manifested by a rapidly progressing auricular and ventricular frequency, the ventricular frequency surpassing ultimately the auricular frequency; (c) complete arrest of the auricles, the ventricles continuing at their high rate; (d) sudden fibrillation of the ventricles and shortly afterward arrest in diastole.

There were found post-mortem myxomatous-like thickenings at the free edge of the septal tricuspid leaflet and at the attached margin of the posterior aortic leaflet and along part of the right anterior aortic leaflet. There was also a grayish patch on the right side of the auricular septum above the auriculoventricular junction. The thickenings at the edge

of the valves consisted of dense, circumscribed masses of what appeared to be new connective tissue. The same tissue was found pressing against the bundle along the greater part of its course. There was considerable fatty infiltration of the auricular musculature immediately above the bundle and, to a slight extent, of the bundle itself. The fibers of communication between the auricular muscle and the node of Tawara were relatively few as compared with those of the normal heart.

48. Pneumococcus Infection in Animals.—In summing up the results of his investigations Wadsworth calls attention in particular to the facts that dead pneumococcus culture material does not contain the active poisons formed in infection by living pneumococci. Characteristic lesions are not induced by dead cultures. But substances are present in the pneumococcus cells, and especially in culture filtrates free from pneumococcus cells, that give rise to an immunity in which the poisons of virulent pneumococci are inactive. In immune sera specific agglutinative, precipitative, lytic and opsonic activities are present. But to the action of immune sera, virulent pneumococci are singularly insusceptible. This is due chiefly to qualities acquired by the organisms during their propagation through animals. In the test-tube this insusceptibility is overcome only under exceptional conditions which destroy these qualities or neutralize their effects. Lysis may be brought about by inhibition of growth and phagocytosis by loss of virulence. In the tissues inhibition of growth and resistance to the poisons of the pneumococcus are brought about, but in ways more subtle if less exceptional, for both lysis and phagocytosis are active factors in the recovery of certain animals from infection.

49. Action of Immune Sera on Pneumococcus Infection.—From the results of his study of the action of immune sera on pneumococcus infection Wadsworth says it is evident that immune sera vary greatly in their curative value. Immune sera possess protective action, but protective action is not necessarily indicative of curative action. Sera from animals immunized with dead pneumococcus cells which had been washed free from their products, failed to exert materially greater curative action than normal sera. Sera from animals immunized with culture filtrates free from pneumococcus cells possessed, in some instances, a slight curative value, but often this curative action was not apparent. In animals actively immunized, however, the presence of an immunity to culture filtrates was readily demonstrated. In the immunity produced by injections of dead culture material the strength was not sufficiently exalted for the sera to possess a practical curative value. It was only after immunization with virulent living cultures that the blood-serum acquired marked curative action. After pneumococcus infection in the rabbit had become established, treatment with this serum induced crisis and cured the animals. Since the recovery of animals from pneumococcus infection differs in no essential from that of man, since the unaided protective mechanism of man as compared with that of susceptible animals is exceptionally efficient and since it is possible by treatment with sera from animals highly immunized with living cultures of virulent pneumococci to cure pneumococcus infection in the most susceptible animals, Wadsworth says it is difficult to conceive of the infection in man failing to yield similarly to the administration of such sera.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

June, XIV, No. 6, pp. 349-413

- 50 Management of Tubercular Hip Disease. W. Moncure, Raleigh, N. C.
- 51 Some Cases of Neuritis and Neuralgia of Varied Type and Causation. F. W. Sinkler, Philadelphia.
- 52 Case of Lymphatic Leukemia. F. H. Smith, Abingdon, Va.

Southern California Practitioner, Los Angeles

June XXVII, No. 6, pp. 257-312

- 53 Malta Fever in Arizona, Report of Cases. C. E. Yount and R. N. Looney, Prescott, Ariz.
- 54 Practice in Mexico. J. V. Gaff, Los Angeles.
- 55 Posture and Neurosis. C. E. Reynolds, Los Angeles.
- 56 Esophagoscopy for Removal of Foreign Bodies. W. P. Mills, Los Angeles.
- 57 Nurse as a Citizen. S. A. Simons, South Pasadena.
- 58 Tubercles of Chorioid. G. C. Armstrong, Los Angeles.

Lancet-Clinic, Cincinnati

June 29, CVII, No. 26, pp. 695-722

- 59 *Colloid-Chemical Analysis of Absorption and Secretion. M. H. Fischer, Cincinnati.
- 60 Serum Therapy in Tetanus. A. P. Cole, Cincinnati.
- 61 Causes and Surgical Relief of Intestinal Stasis and Ptosis of Colon. J. E. Pirrung, Cincinnati.
- 62 Procrastination in Diseases of Eye. K. L. Stoll, Cincinnati.
July 6, CVIII, No. 1, pp. 1-26
- 63 *Acute Edema of the Kidney. A. D. Dunn, Omaha.
- 64 Case of Transient Blindness, Complete in One Eye. Partial in the Other, with Double Optic Neuritis. H. F. Hansell, Philadelphia.
July 13, CVIII, No. 2, pp. 27-54
- 65 Physical Welfare of Policyholders. E. L. Fisk, New York City.
- 66 Amebic Dysentery. W. Scott, Loveland, Ohio.
- 67 Schiötz's Tonometer. K. L. Stoll.

59. Colloid-Chemical Analysis of Absorption and Secretion.—Absorption and secretion are defined by Fischer as mirror images of each other, not alone because the one process is the biologic reverse of the other, but because the conditions that favor the one, hinder the other, and vice versa. After reviewing the evidence which shows that no essential difference exists between absorption and secretion in a multicellular organism, it is pointed out that all which remains to characterize absorption and secretion in the multicellular organism is its one-sided character, that the intestine is, for example, (predominantly) an absorbing organ, while the kidney is (predominantly) a secreting one. This difference between the behavior of any unicellular organism and the individual absorbing or secreting cell of a multicellular organism is brought into connection with the fact that while the former is surrounded on all sides by the medium, the latter is in contact with different media at different parts of its protoplasm. Absorption and secretion in the former represent the single attempt of getting into equilibrium with the one medium surrounding it; in the latter, the attempt to get into equilibrium with two or more mediums. Out of the latter grows the fact that absorption and secretion in the higher animals occur predominantly in one direction. The fact is emphasized that the absorption or the secretion of any solution is never a single process, it is the composite of the absorption or the secretion of the solvent plus the absorption or the secretion of each individual substance dissolved in that solvent.

It is pointed out that the absorption of the solvent, the water, from the injected solutions is identical with the absorption of water by such emulsion colloids as fibrin or gelatin when these are exposed to the same external conditions. Peritoneal absorption is next shown to be parallel point to point with absorption from the intestinal tract, and both of these are then shown to be the mirror image of secretion as occurring from the kidney. Evidence is adduced to show that the formation of lymph is analogous to the secretion of urine. The absorption and secretion of dissolved substances, and their selective character, are held to be dependent on the unequal distribution of the dissolved substances between, what we may call broadly speaking, three phases (water, secretion or absorbing tissues, blood) that constitute every absorptive or secretory system in one of the higher animals; and it is pointed out how this is entirely analogous and explainable on the same grounds as are inequalities observed in the distribution of dissolved substances between three such phases as water, a solid colloid and a liquid colloid.

The prevailing theories of absorption and secretion are touched on in brief, reviewed and criticized. Filtration is held to be of no real interest in the problem under physiologic conditions. Diffusion is looked on as of fundamental importance both in the matter of determining the rate of absorption and secretion and their character, though owing to the colloid constitution of living matter diffusion does not appear in as pure a form in biologic material as in a homogeneous solvent. The osmotic conception of water absorption is cast aside. It is briefly indicated how experiments which are designed to support "physiologic," "secretory" or "vitalistic" conceptions of absorption or secretion do not do so, but are interpretable in the terms of the colloidal theory of water absorption and the inequalities in the distribution of dis-

solved substances between the various phases constituting the absorptive or secretory system. As of greatest value in the theoretical formulation of the problem are held certain scattered remarks to the effect that imbibition plays a rôle in the process of absorption (von Wittich) and the clearer experimental demonstration of this fact by Hamburger; and in the problem of secretion Hofmeister's clear-cut expression of the truth that secretion of fluid into the intestine under the influence of the saline cathartics is identical with the loss of water by swollen gelatin plates when immersed in solutions of these same salts.

63. Acute Edema of Kidney.—The parenchymatous nephritides, acute and chronic, parenchymatous degenerations, cloudy swelling, etc., are regarded by Dunn as being essentially edemas, and hence symptomatic of an underlying cause. The immediate cause is excessive acid accumulation or acid production in the kidney. The treatment must be directed toward neutralizing this acid and removal of the source or cause of the increased acidity. The hypertonic saline-alkaline treatment is an effective, though a symptomatic treatment. The colloidal conception of "nephritis" makes imperative the search for the underlying causes of the acidity. In differentiating acute edemas of the kidney accompanied by pain from stone, the value of blood incorporated in casts as a diagnostic point is suggested.

Journal of South Carolina Medical Association, Seneca

June, VIII, No. 6, pp. 149-186

- 68 Inguinal Hernia, Operative Treatment *vs.* the Truss. C. F. Ross, Anderson.
69 *Low Ureteral Calculus, Operation, Recovery. A. B. Knowlton, Columbia.

69. Abstracted in THE JOURNAL, June 15, p. 1891.

Vermont Medical Monthly, Burlington

June 15, XVIII, No. 6, pp. 131-156

- 70 Diagnosis and Management of Epidemic Variola. C. S. Caverly, Rutland.
71 Towne Method for Drug Habitués. W. F. Waugh, Chicago.
72 Few Points Gained from Use of Cystoscope. W. B. Thorning, Houston, Texas.
73 English Translation of Secondary Effects of Salvarsan. E. Finger.

New York Medical Journal

July 6, XCVI, No. 1, pp. 1-52

- 74 *Rotation Treatment of Scoliosis. A. M. Forbes, Montreal, Canada.
75 Gastric Crises of Tabes. J. Friedenwald and T. F. Leitz, Baltimore.
76 Neurasthenia in the United States. J. M. Taylor, Philadelphia.
77 Facial Paralysis Complicating Suppurative Otitis Media: Atypical Mastoid Operation. E. Amberg, Detroit.
78 American and European Medical Schools. A. L. Soresi, New York.
79 Acute Anterior Poliomyelitis. F. E. Butler, New York.
80 Maternal Nursing. W. M. Hartshorn, New York.
81 Treatment of Chancroids. R. M. Toll, Scranton, Pa.

July 13, XCVI, No. 2, pp. 53-100

- 82 *Direct Treatment of Syphilitic Diseases of the Central Nervous System. H. F. Swift and A. W. M. Ellis, New York.
83 Indications for Removal of the Faucial Tonsils. H. Hays, New York.
84 Study of Infant Mortality in Rochester; the Relation of Market Milk Thereto. J. R. Williams, Rochester.
85 Physical Welfare of Policyholders. E. L. Fisk, New York.
86 *Mixed Vaccines in Septic Conditions. W. R. Thomson, Warsaw, N. Y.
87 Roentgen Therapy in Acne. M. K. Fisher, Philadelphia.
88 Cryptogenic Sepsis Treated with Autogenous Vaccine. A. Orenstein.
89 Curiosities of Hindu Medicine. B. P. Bharâti, Calcutta, Bengal.

74. Rotation Treatment of Scoliosis.—Describing the pathologic changes of scoliosis, Forbes says: There is a prominence of the ribs on one side posteriorly, and at the same time there is a bulging of the ribs on the other side anteriorly. Scoliosis is more than a deformity of the spinal column. It is a deformity of the trunk, and especially of the thorax as a whole. Pathologic scoliosis may be simulated by a physiologic change in the form of the trunk due to attitude, and in order to understand pathologic scoliosis it is necessary to understand the relationship which it bears to physiologic scoliosis. Every attitude is either one of strain or non-strain. If one bends to the left side, the ribs on the left side become more prominent posteriorly, and flattened laterally. Thus in certain attitudes the thorax is in a position simulating the deformity of scoliosis, and further, if the patient remains in

this pseudoscoliotic position long enough he will tend to become deformed—pathologic scoliosis will be produced. The aim of the treatment suggested by Forbes is to place the thorax in a position as far as possible from the abnormal by the production of physiologic scoliosis on the reverse side to the pathologic scoliosis, and to maintain it in this position, that the forced change of form and function of the thoracic parietes may be followed by certain definite changes in their external conformation. He describes in detail the apparatus used and method employed.

82. Treatment of Syphilis of Central Nervous System.—

There is considerable evidence that the blood-serum of treated syphilitics has curative powers. For the past eight months, Swift and Ellis have been studying the therapeutic effect of such serums when injected intraspinaly into patients with tabes and other syphilitic affections of the central nervous system. At first the serum was obtained by withdrawing blood from the patient on the day following a salvarsan treatment. Gradually the time has been shortened so that now the blood is withdrawn an hour after the intravenous injection of salvarsan or neosalvarsan. They have used the serum of syphilitic patients to make serum agar culture media for the growth of *Treponema pallidum* after Noguchi's method. Cultures in media made with serum obtained before treatment grew practically as well as in that made with normal serum, while in media made with serum obtained an hour after intravenous injections of salvarsan, the spirochetes developed much more slowly or not at all. In media made with serum obtained in six to twenty-four hours after treatment, the growth approximated that in normal control tubes. From these experiments it seems that the serum has the greatest inhibitory action shortly after the injection of salvarsan.

The results of some of these treatments are as follows: Four tabetics had received repeated intravenous injections of salvarsan, in addition to mercurial treatment, with resulting symptomatic improvement and reduction in the cell count in the spinal fluid. On instituting intraspinal injections of their own serum obtained shortly after intravenous injections of salvarsan, the cell count promptly fell to normal, the globulin decreased in amount much more rapidly than previously, and in two of the patients the Wassermann reaction in the spinal fluid became negative, even when 0.5 c.c. of fluid was used. In the other two patients the treatment had little effect on the Wassermann reaction. Another patient with tabes was treated from the beginning by combined intravenous and intraspinal methods. With five treatments in two and a half months, there was a drop in cells in the spinal fluid, from 130 to nine, a disappearance of the Wassermann reaction in the spinal fluid, and considerable decrease in globulin. During this time there was also symptomatic improvement.

The authors feel that their results up to the present are of sufficient value to warrant a continuation of the work and its institution on a larger scale. Doubtless the best results can be obtained from the intravenous treatment with salvarsan or neosalvarsan, combined with intraspinal injections of the patient's own serum, possibly with the addition of small amounts of neosalvarsan.

It is hoped that the treatment here outlined will be of aid in these forms of syphilis, the treatment of which has formerly been so unsatisfactory.

86. Mixed Vaccines in Sepsis.—Thomson feels that there can be no question of a doubt that several of his cases would have ended fatally if the vaccines were not given. In all of his cases he has used the stock mixed vaccines, of *Streptococcus pyogenes*, *Staphylococcus pyogenes aureus*, *Staphylococcus pyogenes albus*, *Staphylococcus pyogenes citreus*, *Bacillus coli communis*, *Diplococcus pneumoniae*. The initial dose was always one half of the vial or 375,000,000 bacteria. The mixed vaccines were used because he had no time for reports on cultures, and also because he felt that in at least some of these cases there was a great probability of a mixed infection. The injections were given on the first day that infection was evident, except in one case.

New Orleans Medical and Surgical Journal

July, LXV, No. 1, pp. 1-112

- 90 Parasitic Amebæ of Man and their Relation to Disease. C. F. Craig, Washington, D. C.
 91 Tonsils and General Health. W. Scheppegegrell, New Orleans.
 92 What General Practitioner Should Know About the Nose. P. J. O'Kelley, New Orleans.
 93 Ear as a Complication of General Manifestations of Disease. R. C. Lynch, New Orleans.

Maryland Medical Journal, Baltimore

July, LV, No. 7, pp. 157-182

- 94 What is Maryland Doing in Her Fight Against Tuberculosis? F. H. Heise, Baltimore.

Medical Record, New York

July 6, LXXXII, No. 1, pp. 1-46

- 95 De Keating-Hart Method of Fulguration. W. S. Bainbridge, New York.
 96 *Relations of Calcium to Pretuberculous States, Arteriosclerosis, and Insanity. C. F. Disen, Minneapolis.
 97 *Advantages and Disadvantages of Plaster-of-Paris as a Fixative Apparatus. R. Hammond, Providence, R. I.
 98 Indicanuria and the Proteins. J. C. Warbrick, Chicago.
 99 Innocent Colon Bacilli in Urines. A. Bassler, New York.
 100 *Differential Diagnosis of Pulmonary Tuberculosis. I. P. Starr, New York.

July 13, LXXXII, No. 2, pp. 47-92

- 101 Indications for Operations in Diseases of the Digestive Tract. M. Einhorn, New York.
 102 Immigration of the Tuberculous into the United States. A Problem for Every Nation. S. A. Knopf, New York.
 103 Anesthesia in Submucous Resection of the Septum Nasi. J. Allan, Liverpool, England.
 104 Visual Acuity and the Montessori Method of Instructing Children. S. H. Brown, Philadelphia.
 105 Study of Folie a Deux, with Report of a Case. W. A. Boyd, Westport, Conn.
 106 What Part Should the General Practitioner Take in the Campaign for the Conservation of Vision. P. B. Hough, New York.
 107 An Unusual Case of Tabes with Toxic Complications in the Etiology. T. A. Williams, Washington, D. C.

96. Calcium, Arteriosclerosis and Pretuberculous States.—Is there any relation between arteriosclerosis and pretuberculous states or tuberculosis? This question Disen answers in the affirmative. He says: In practice we are interested in early arteriosclerosis, mainly of the gouty type, which again is found in the heavy meat-eater, the sedentary, or in the hard laboring man: he appears as the opposite of the pretuberculous, enjoys a good appetite for fat as well as for other foods, and usually gives the idea of a robust farm-bred or overfed person. The pretuberculous, on the other hand, with an innate disgust for fat, gives us the picture of a city-bred, delicate or neuropathic individual. The physician at a glance recognizes each class. So, at least a *prima vista*, we have two distinct types among humanity, viz.: the anti-tuberculous and the pretuberculous; denoting respectively the gouty and those descending from tuberculous ancestry or otherwise being predisposed to tuberculosis.

Arteriosclerosis is considered to consist primarily in a degeneration of the tunica media, effected by high tension. This, again, is caused by overwork and strain, bodily or mental, or by anything constricting the arterioles, as nitrogenous materials in excess of needs or with deficient excretion. Omitting the numerous other causes of early arteritis as tobacco and other vasoconstricting poisons, exogenous and endogenous, it seems that in the gouty type the difficulty is principally due to mechanical strains or nitrogenous excess. As we all know, arteriosclerosis does attack the tuberculous after some time, but the rationale of the pathogenesis is of a different nature. We here have, besides denutrition, vasodilatation, giving diminished tension, and although agreed that arteriosclerosis depends on mechanical strain on the media, possibly interfering with the vasa vasorum, we would take exception in the case of tuberculosis. As arteriosclerosis first attacks the part of the media with no vasa vasorum, and this part as well as the intima is nourished by imbibition from the main blood-stream, it must be plausible that in tuberculosis with vasodilatation the arteriosclerotic changes must be operated by direct imbibition of toxin, independently of either tension or interference with the vasa vasorum. Also in the pretuberculous arteriosclerosis develops under circumstances very different from those connected with the gouty type.

A deficiency of calcium is held by Disen to be responsible for these conditions and the therapy he advocates rests on this basis.

97. Plaster-of-Paris As a Fixative Apparatus.—The recent work of some Italian and German surgeons seems to indicate that in using plaster-of-Paris dressings in the rachitic deformities of the legs, a softening of the bones takes place, so that at the end of four to six weeks, the leg can be easily moulded into a corrected position. This is accomplished without giving an anesthetic and without performing an operation. It is rather startling to be made to realize that a plaster bandage, which we have applied in the firm belief that it aided in producing solid union and calcification, should really cause the bones to soften and the lime salts to disappear. When we consider the evidence, however, Hammond says, the truth of the assertion is convincing. It is well known that in taking a Roentgen plate of a limb which has been in plaster for several weeks, the bone shows much increase in radiability throughout its textures, due to disappearance of lime salts. This occurs in a healthy as well as a diseased or fractured bone. It has been observed for many years in our hospital wards that if children were allowed to walk after the legs had been in plaster for a few weeks, the bones bent, showing that softening had occurred.

Hammond has recently treated cases of bowlegs, especially those of the anterior type or saber deformity, by the use of plaster to obtain softening of the bones. At first he followed Anzoletti's method, and applied the plaster before attempting to correct the deformity. More recently he has given ether first, and corrected the deformity manually as much as possible. The correction gained at the first sitting may be only slight, but by changing the plaster at intervals of two weeks, the ultimate correction is obtained just as well and in a shorter space of time. This method is, of course, more applicable in young children with pliable bones. Osteotomy and osteoclasts are preferable in older children and in cases where the bone is sclerotic.

100. Differential Diagnosis of Pulmonary Tuberculosis.—From Starr's figures it would seem that the commonest condition to be mistaken for pulmonary tuberculosis is chronic bronchitis associated with emphysema. His experience, however, leads him to believe that the association of these two conditions is much more frequent than its recognition. Thus, while in the series of cases analyzed by him there were fifty-three cases of chronic bronchitis and emphysema discharged as not tuberculous, there were twenty-four cases of pulmonary tuberculosis complicated by chronic bronchitis and emphysema, separately or in combination. The difficulty in excluding tuberculosis in these cases is due to the variety rather than the deficiency of physical signs. In a chest full of râles and presenting the emphysematous type of resonance and breath sounds it is sometimes difficult or impossible either to detect or to exclude tuberculosis, however suspicious the symptoms or history. Often only a positive sputum after a number of negative examinations decides the question. Contrary to the older teaching, the two conditions seem to occur together with comparative frequency. That these 519 non-tuberculous cases were not easy of recognition or differential diagnosis, Starr says, can be attested by the fact that the majority of the patients were sent through other clinics and from competent observers. The only conclusion to which a study of these cases has brought Starr is the familiar and often repeated caution not to base a diagnosis hastily on insufficient data or too brief a period of observation.

Albany (N. Y.) Medical Annals

June, XXXIII, No. 6, pp. 315-376

- 108 Duty of Family Physician in Management of Surgical Cases. J. M. L. Finney, Baltimore.
 109 Pathology of Lungs. E. Kellert, Albany.
 110 Diagnosis of Diseases of Lungs. C. B. Hawn, Albany.
 111 Roentgen Rays in Examinations of Chest. A. F. Holding, Albany.
 112 Surgery of Lungs. J. H. Gutmann, Albany.

New Mexico Medical Journal, Las Cruces

June, VIII, No. 3, pp. 271-296

- 113 Preventive Medicine. E. D. Strong, El Paso, Texas.
 114 Blood-Pressure. T. Merrill, Colorado, Texas.
 115 Chronic Diarrhea. E. C. Prentiss, El Paso, Texas.

Boston Medical and Surgical Journal

July 4, CLXVII, No. 1, pp. 1-36

- 116 Remote Metastases Following Cancer of the Breast. J. C. Hubbard, Boston.
117 Blood and Stool Examinations in a Company of Philippine Scouts. E. S. Tenney, Cotabato, Mindanao, P. I.
118 Theories as to the Causation of Monsters. C. J. Klekham, Brookline, Mass.
119 Suppurations of the Urinary Tract. H. Terry, Providence, R. I.
120 Suppurations of the Urinary Bladder. H. C. Pitts, Providence, R. I.
121 Suppurative Lesions of the Kidney and Ureter. O. C. Smith, Hartford, Conn.

July 11, CLXVII, No. 2, pp. 38-72

- 122 *Cancer of the Uterus. F. Cobb, Boston.
123 Surgical Treatment of Cancer of the Uterus. C. A. Porter, Boston.
124 Advantages of Abdominal Hysterectomy. F. B. Land, Boston.
125 *Hopeful Aspects of Cancer of the Uterus. W. P. Graves, Boston.
126 Another Conception of Anaphylaxis. W. M. Barton.
127 Means of Determining the End Results of Operations on Hospital Patients. C. C. Simmons, Boston.

123. Cancer of Uterus.—In the eleven years from 1900 to 1910 inclusive, 306 patients with cancer of the uterus were admitted to the Massachusetts General Hospital, including cases of cancer of the cervix and cancer of the body of the uterus. By far the great majority of the cases are squamous cell disease of the cervix, with a small number of cases of cancer of the body. In discussing the radical operation and the late results, cases of cancer of the cervix have been distinctly separated from those of the body of the uterus. Cobb's statistics corroborate what is already known in regard to the relation of age, heredity and pregnancy to cancer of the uterus. The greatest number of cases were between the years of forty-one and forty-five. The youngest patient was twenty-one. In 9 per cent. there was a family history of cancer.

Of the 306 cases, fifty-two were inoperable in the opinion of the surgeons who examined them, and 148 were thought unsuitable for anything but a palliative operation; in other words, 200 cases, or almost two-thirds, came to the hospital too late, an operability of 35.2 per cent. Of these Cobb has been able to follow to the fatal end 133. The usual early symptom was irregular hemorrhage. This was present in 130 cases. Pain in the pelvis and back is said to be the first symptom in fifty-three. Loss of weight and strength in seven. Some foul discharge in thirty-nine.

Vaginal hysterectomies, fourteen. Immediate mortality, nothing. Three cases cancer of the body, no cures. Eleven cases cancer of the cervix, of which eight were traced. Cures, two, or 25 per cent.

Abdominal hysterectomies for cancer of the fundus, 21; immediate mortality, 4, or 19 per cent. Of the 17 patients that survived the operation, 16 have been traced. Five are alive and without recurrence five to eight years after operation, a percentage of cures of 31.2.

Abdominal hysterectomies for cancer of the cervix, 71. Squamous cell, 70, adenocarcinoma, 1. In forty-nine cases, an ordinary hysterectomy, with no attempt at dissection of the ureters or pelvis, was the operation; in twenty-two cases a more or less radical dissection was done. Of the forty-nine in which no attempt was made to widely remove the parametrium, seventeen died as a direct result of the operation, an immediate mortality of 34.6 per cent. Of the thirty-two who survived the operation, twenty-nine have been traced, four are alive without recurrence for more than five years, a percentage of cures of 13.7 per cent.

In the twenty-two more or less radical hysterectomies there were five deaths, an immediate mortality of 22.7 per cent. All of the seventeen surviving patients were traced. Five are alive and well and free from recurrence from five to eleven years, a percentage of cures of 29.4. One patient (a successfully completed Werder operation) lived over eleven years and now has probable recurrence in the pelvic bones.

The cause of death in the abdominal hysterectomies was in the majority of cases septic peritonitis; shock was the next most frequent cause.

126. *Id.*—Graves has operated in thirty-one cases of cancer of the uterus. Of these, thirteen were cases of adenocarcinoma of the body. In this series of thirteen cases of adenocarcinoma,

there were no deaths, and there are at the present date no recurrences. These operations were spread over a period of between five and six years. Graves has operated in eighteen cases of cancer of the cervix by the extended operation through the abdominal route. Among these eighteen cases of cancer of the cervix, there were two deaths resulting from the operation, making a primary mortality of 11 per cent. Both patients died from shock. Besides these two primary deaths, there have been six deaths from recurrence. Out of the eighteen cases, ten patients are well without recurrence. Of these patients one was operated on four years ago, three were operated on three years ago, one was operated on two years ago, three were operated on over one year ago, while two were operated on within six months. Graves has made it a practice to do the radical operation in every case in which there is the slightest possibility of extirpating the uterus and vagina. Many of the cases in his series were far advanced. The ten patients who are well without recurrence, most of them were fairly favorable, and Graves is confident that most of them are permanently cured, although no statement as to cure can be made before the five-year limit. There has been no sepsis in any of the thirty-one cases, excepting a stitch abscess. There were two cases of vesico-vaginal fistula, one of which healed spontaneously, and one case of fecal fistula which has not healed.

Wisconsin Medical Journal, Milwaukee

June, XI, No. 1, pp. 1-38

- 128 Important Points in Diagnosis of Tuberculosis. F. M. Pottenger, Monrovia, Cal.
129 Early Diagnosis of Pulmonary Tuberculosis. O. W. McMichael, Chicago.
130 Typhus Fever. Case Occurring in Milwaukee. A. P. Patek, Milwaukee.

Journal of Michigan State Medical Society, Battle Creek

July, XI, No. 7, pp. 401-470

- 131 Prophylaxis and Management of Cardiovascular Diseases. M. A. Mortensen, Battle Creek.
132 Pre-Eclamptic Toxemia. W. E. Welz, Detroit.
133 Treatment of Puerperal Eclampsia. A. Deenhouts, Holland.
134 Newer Methods of Diagnosis of Kidney and Bladder Lesions. C. V. Brown, Detroit.
135 Tuberculous Laryngitis. G. H. McFall, Detroit.
136 Remuneration of Physicians. J. L. Irwin, Detroit.

St. Paul (Minn.) Medical Journal

July, XIV, No. 7, pp. 325-378

- 137 Asepsis, Antisepsis and Listerism: Ancient, Medieval, Renaissance and Modern. J. Knott, Dublin, Ireland.
138 Effects of Tobacco Smoking on Cardiovascular System. J. S. Gilfillan, St. Paul, Minn.
139 Treatment of Surgical Infections. F. J. Savage, St. Paul, Minn.
140 Etiology of Toxemia, Septicemia, Pyemia. A. E. Comstock, St. Paul, Minn.
141 Nature of Infections, General Reaction. E. M. Jones, St. Paul.
142 Complications of Senile Enlargement of Prostate. F. R. Wright, Minneapolis.

Journal of Maine Medical Association, Portland

July, II, No. 12, pp. 861-896

- 143 Intratracheal Etherization. A. Ehrenfried, Boston.
144 Diagnosis and Treatment of Gall-Stones. W. M. Spear, Rockland.
145 Gall-Stones. H. H. Purinton, Kennebunk.
146 Country Physician as Surgeon. W. E. Sincok, Caribou.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Edinburgh Medical Journal

June, VIII, No. 6, pp. 481-576

- 1 Ataxia: Symptom. J. J. G. Brown.
2 *Acute Myelocythemia Associated with Osteosclerosis and Other Unusual Features in Infant. A. Goodall.
3 *Delirium Due to Bromid. D. K. Henderson.
4 *Soaps and Their Effects on Skin: Analytic Research. F. Gardiner.
5 Insufficient Data as Cause of Faulty Interpretation of Radiographs. A. McKendrick.

2. Acute Myelocythemia.—A case of myelocythemia in an infant of ten weeks is described by Goodall in which a fatal termination occurred in three weeks. The case appears to be the third on record in which leukemia has been associated with osteosclerosis. There was considerable difficulty in staining the myelocyte granules.

3. Delirium Due to Bromid.—The case which Henderson reports is somewhat complicated by the fact that from time to time the patient has had petit mal seizures. The relation, however, of the bromid which he was taking to the delirium seems to be sufficiently clear to warrant making the diagnosis of bromid delirium. The delirium was characterized by confusion, hallucinations of sight and hearing, misidentification, restlessness and retrograde amnesia. Quite a striking feature in the mental picture was the grandiose trend, and that, associated with the physical signs, e. g., sluggish pupils, thick speech, difficulty in writing, exaggerated tendon reflexes and tremors, made Henderson think at first that the case was one of general paralysis. That diagnosis, however, was ruled out from the fact that the examination of the cerebrospinal fluid, except for a partially positive globulin reaction, was negative, that the Wassermann reaction with the blood-serum was negative, and that such a rapid recovery took place both mentally and physically on withdrawal of the bromid.

4. Soaps and Their Effects on Skin.—From Gardiner's experiments it may be concluded that all soaps, from their chemical constitution, must be irritant to the normal skin. The effect varies with the individual skin, and is more pronounced in senile and diseased skins. Cotton-seed oil and other and rancid fats are probably largely responsible for the irritant effects in cheaper soaps. They are much more commonly used now than in former years. Gardiner thinks that the first mentioned is, uncombined, a skin irritant, but this is a matter for further inquiry. The bactericidal power of soaps is *nil*, and even when combined with antiseptics they are of no value as germicides. There may be some reason for the introduction of such substances as sulphur and ichthyol into soaps because of their effects on the glands and blood-vessels of the skin, but, clinically, antiseptics, and, above all, phenol, increase irritation. There is no scientific basis for the addition of extra fat to soaps, as when soap is mixed with water the alkali freed will at once unite with the superfluous fat. Rosin and impurities have no significance from the present standpoint, but paraffin and benzene derivatives, when incorporated with soaps for cleansing purposes, increase the harmful effect on the skin. The minimum of soap should be employed and it should be well washed off.

Dublin Journal of Medical Science

June, III, No. 486, pp. 491-480

- 6 Treatment of Congenital Dislocation of Hip; Six Cases. W. C. Stevenson.
- 7 Muscular Dystrophy. J. Craig.
- 8 Teaching of Anatomy. T. G. Moorhead.
- 9 Bacterial Symbiosis. J. C. Johnson.

British Journal of Children's Diseases, London

June, IX, No. 102, pp. 241-288

- 10 *Mucous Gastritis in Infancy. E. Cautley.
- 11 Dermato-Myositis in Child, with Pathologic Report. F. E. Batten.
- 12 *Pneumococcal Peritonitis in Children. H. C. Cameron.

10. Mucous Gastritis in Infancy.—In the treatment of mucous gastritis Cautley has not found lavage of great value, except as a temporary expedient for a few days at a time. Sometimes it appears injurious. Nevertheless he recommends it as a measure worthy of trial in all cases in which there is much mucus secreted, using an alkaline lotion for the purpose either once or twice a day. In some cases the frequent administration of small doses of lime-water, bicarbonate of soda or citrate of soda is more beneficial. The diet, he says, must be simple and easily digestible. Cow's milk is curdled very readily, increasing the vomiting and distress. He has obtained the best results from sweet whey powder, a dram in 2 ounces of water providing a mixture analytically identical with freshly made whey. It is simpler to prepare than whey and differs from it in some biologic or chemical characters, for it does not so constantly produce the green stools passed by infants fed on whey.

All infants, he finds, are lacking in the antiscorbutic properties of fresh milk. In mild cases diluted peptonized milk can be tried. Asses' milk sometimes agrees. As soon as the worst symptoms have subsided and the secretion of mucus has diminished, small quantities of cream are gradually

added to the diet. The diet of cream and whey is gradually replaced by peptonized milk, and then by milk and water or barley-water. Milk-sugar is preferable to cane-sugar. The latter is apt to increase the catarrh. Citrated milk can be tried when recovery is well advanced. Alcohol is contra-indicated, except in emergencies. Bismuth, especially the liquor of bismuthi, is occasionally beneficial, but is more often disappointing. Cautley attaches far more importance to diet than to drugs, except in so far that alkalies help to dissolve the mucus and enable it to pass more easily through the pylorus.

12. Pneumococcal Peritonitis in Children.—The treatment of pneumococcal peritonitis commonly advised is by immediate laparotomy and the establishment of drainage. Against this procedure as an invariable practice Cameron urges the following objections: (1) In pneumococcal peritonitis there exists no focus of infection which can be extirpated as in appendicitis. In those cases in which there is an acute local enteritis, and they appear to be relatively uncommon, the condition of the gut is not such as to encourage attempts at excision. (2) The peritonitis is always in the first instance a diffuse general peritonitis involving the whole peritoneal cavity to its furthest recesses. Such a general infection renders efficient drainage almost an impossibility. (3) It is by no means certain, even if it were possible to drain off the exuded lymph, that it is wise immediately to attempt to do so. The lymph not improbably has a protective function and diminishes the absorption of toxins. In what Cameron has called the second stage of the illness, which coincides with the copious exudation of lymph, there is often in favorable cases an amelioration of all toxic symptoms. (4) The disease in the early stages is essentially a septicemia and the danger is in proportion to the virulence of the general infection. Death may occur within a few hours of the time at which the local infection of the peritoneum takes place and while the peritoneum itself is involved to but a small extent. (5) In some instances patients have been allowed to survive the acute peritonitis and the septicemia in their own homes without operative interference, and have presented themselves with a residual abscess, usually subdiaphragmatic, drainage of which has been followed by a complete recovery. In these cases the diagnosis has commonly been in the early stage that of appendicitis, or pneumonia, or typhoid; in a later stage tuberculous peritonitis is simulated.

To compare with these Cameron examined the results of immediate laparotomy at Guy's Hospital. Eight patients admitted in the acute stage, for one reason or another, were not operated on before death. In seven of these, pleurisy, pneumonia, peritonitis or endocarditis or a combination of these were present as well as peritonitis. The eighth patient died as soon as admitted. Twelve patients were immediately submitted to laparotomy. Nine of these died, four on the day following operation, the remainder within a few days. Three patients recovered, but in none is it possible to trace any immediate benefit from the operation. All passed through a long and tedious illness, marked by a persistent high temperature and rapid pulse, developed in convalescence the signs of abdominal abscess, and only recovered after a second operation by which the pus was evacuated. No patient recovered as a result of immediate laparotomy without the formation of residual abscesses and without the necessity for a second operation. Such a clinical course presents a close analogy with the train of events in pneumococcal septicemia with the more usual localization in the lung followed by an empyema.

For these reasons Cameron thinks that, although ultimately laparotomy and drainage of a residual abscess almost invariably become necessary, it is unwise to submit all patients to immediate laparotomy as a matter of routine. No doubt there are many cases in which at the onset the violence of the toxemia is such that early death occurs under any circumstances, whether laparotomy is performed or not. There are others in whom unnecessary and premature interference is able to turn the scale against recovery. He suggests that, in most cases the better plan is to wait, to place the patient

in a sitting posture, to apply ice to the abdomen, to give morphin and to endeavor to combat toxemia by saline infusion.

Journal of Laryngology, Rhinology and Otology, London

June, XXVII, No. 6, pp. 297-352

- 13 Contribution to Serum and Vaccine Therapy in Treatment of Intracranial Complications of Middle-Ear Suppuration. A. L. Turner.
- 14 Examination of 1,050 Skulls. Some Points in Surgery of Ear and Nose. W. S. Syme.
- 15 Method of Detecting Fixation of Stapes. F. P. Sturm.

Practitioner, London

June, LXXXVIII, No. 6, pp. 761-902

- 16 *Hemophilia. Sir T. Oliver.
- 17 Treatment of Some Emergencies in Urinary Surgery Met with in General Practice. H. Lett.
- 18 Non-Malignant Stricture of Rectum. P. L. Mummery.
- 19 Intracranial Mechanism in Health and Disease. T. B. Hyslop.
- 20 *How Far Is Trauma a Possible Factor in Production of Disease? A. J. Hall.
- 21 Treatment of Placenta Prævia. W. F. Shaw.
- 22 Present State of Organotherapeutics. J. Dardel.
- 23 Vicious Circle as Cause of Sudden Death. J. B. Hurry.
- 24 When to Operate in Permeating Mastoid Meningitis. J. B. Pike.
- 25 Prognosis of Diphtheria. A. Harris.
- 26 Case of Morphinomania. W. K. Anderson.

16. **Hemophilia.**—The internal administration and the subcutaneous or rectal injection of epinephrin, ergot, hamamelis and calcium salts, etc., have been recommended in hemophilia, but Oliver has not observed any striking results follow the administration. In the case of a boy 5 years old, who had been bleeding for nearly forty-eight hours from a small wound inside the lower lip caused by a fall on a fender, the injection of horse serum by the rectum very rapidly and permanently arrested the hemorrhage. In other cases, equally good results were obtained.

20. **Trauma in Production of Disease.**—That many pathologic conditions owe their inception to trauma is a belief defended by Hall. He says that trauma may play a more or less important contributory part in precipitating various morbid conditions of the central nervous system. A neuropathic tendency, inherited or acquired, is usually preexistent in such cases. Trauma may similarly contribute to the occurrence or exacerbation of various diseases due to known microorganisms, such as tuberculosis, pneumonia, etc., either by increasing the activity of the organism, or by reducing the resistance of the host. How far trauma can stimulate the formation or development of tumors is uncertain, but that it may do so there is considerable evidence to show.

Journal of Tropical Medicine and Hygiene, London

May 15, XV, No. 10, pp. 145-160

- 27 Case of Trypanosomiasis Treated in Livingstone Hospital During 1911. G. W. Ellacombe.
- 28 *Numerous Cases of Edema of Legs and Albuminuria Occurring in a Reformatory, with Contribution to Study of Bilharziasis. E. F. Bour.

28. **Edema of Legs and Albuminuria.**—Edema of the legs and albuminuria occurred among many of the boys in a reformatory and were ascribed to a combination of ptomain absorption, an over-large salt ration, and bilharzia. Forty-four per cent. of the inmates were found by Bour to have bilharziasis and a strict prophylaxis was enforced. Researches were undertaken concerning the ova and larvæ of bilharzia. No evolution of the miracidium was detected in water, where it died after some forty-eight hours. In the human serum, the miracidium threw out globular buddings of a granular aspect, which may be sporocysts. This transformation was never observed in media other than serum. The prophylaxis in the reformatory was directed against the infection from the miracidium through the cutis, and especially self-reinfection through the prepuce or the meatus. It has now been established for five months and since its beginning 30.8 per cent. of the boys who previously had bilharzia do not now show any ova in their urine after centrifugalization.

Glasgow Medical Journal

June, LXXVII, No. 6, pp. 401-475

- 29 *Antityphoid Inoculation. Sir W. B. Leishman.
- 30 Analysis of One Hundred Consecutive Cases of Stricture of Gullet. W. Downie

- 31 Estimation of Sugar in Urine. H. H. Green.
- 32 Pathography of Julian Dynasty. F. Kanniglessner.

29. **Anti-Typhoid Inoculation.**—The conclusion Leishman has come to with regard to the use of typhoid vaccine in the treatment of actual cases of enteric fever is that it is a most valuable means of treatment and that the vaccine therapy of these general infections will in time prove of great use. His experience in treatment was that small doses did no harm, but, at the same time, did no good. The dose was then increased from 50 to 100 millions every third day, with which excellent results have been obtained. All who had to do with the patients thought they had benefited greatly. The enteric facies disappeared, the patients said they felt better, and, in two or three cases, they even asked that the vaccine should be repeated. Also, it seems to reduce the size of the spleen and to increase the flow of urine, which is thought to be a favorable sign. Shortening of the fever is difficult to judge. As to the temperature, the result of vaccination is to raise the temperature in the following twenty-four hours about 1 F. over what might have been expected; but it soon falls, and to a 1 degree lower point than before inoculation. About the third day after inoculation it tends to rise again; another injection is given, and the same result follows. And, finally, the temperature touches normal, and remains there. As to the relative advantages of using a stock vaccine or an autogenous vaccine Leishman thinks stock doses appear inefficient, and, as far as our present knowledge goes, he would recommend starting at a dose of 50 millions, and cautiously increasing it to 100 or 150 millions. In his opinion the vaccine treatment of enteric fever is sound practice, and will grow in favor as time goes on.

Archives des Maladies du Cœur, etc., Paris

June, V, No. 6, pp. 369-432

- 33 The Myocardium During Inanition. J. Heitz.
- 34 *Leukocytolytic Treatment of Pneumonia. (La leucocytolyse et sa valeur dans la pneumonie.) J. J. Manoukline.

34. **Leukocytolytic Treatment of Pneumonia.**—This article is part of an extensive study of the behavior of the leukocytes in various acute infections. A number of Russian authors and others have called attention to the gradual lowering of the resisting power of the leukocytes by the third day of pneumonia until it is much below normal by the time of the crisis. The leukocytes succumb in consequence to the action of the bacterial toxins, and the substances set free by disintegration of leukocytes start the production of antibodies. Manoukline describes the technic with which he has determined this in his research on thirty-seven pneumonia patients, and he has utilized the information thus learned in treatment of pneumonia. As the leukocytes are broken up, the pneumococci feel the toxic action of the bactericidal elements thus released and become weak and attenuated, so they fall a prey to the phagocytes. The course of the pneumonia process can be traced in this way by study of the blood; first a hyperleukocytosis, then, commencing about the third day, marked leukocytolysis and then marked phagocytosis. In the five cases which terminated fatally, the total absence of leukocytolysis foretold the fatal outcome, as also the lack of bactericidal and antitoxic properties in the blood-serum. The high mortality of pneumonia in the aged and in drinkers corresponds to the diminished power of elaborating leukocytolysins, antitoxins, etc. The aim in treatment should be to stimulate leukocytolysis, and here the Russians and others have obtained encouraging results by reinjecting the heated blood taken from the same patient, with or without admixture of salt solution, or taken from convalescents, or injections of metallic ferments or of extracts of rabbit leukocytes, or musk or spermin, etc., or prepared serum. Manoukline himself used leukocytes taken from 7 c.c. of the patient's own blood, killed by freezing and thawing out, suspending the leukocytes in 1 c.c. of physiologic salt solution. He gives some tracings of the results of this leukocytotherapy which open encouraging prospects. He thinks the organism is better able to take care of its own elements when reinjected

than of any elements which are of an alien nature, so his method answers all the indications with the least strain on the organism. But any means of stimulating the leukocyte-producing organs to more active functioning and of promoting leukocytolysis will answer the purpose. The only problem now, he says, is to ascertain the simplest and most innocent means of accomplishing this.

He gives a detailed description of the simple technic he applied in estimating the extent of the destruction of leukocytes in a Wright capillary pipette.

Archives de Médecine des Enfants, Paris

June, XV, No. 6, pp. 401-480

- 35 Dwarf Growth with Defective Bone and Muscle Development; Six Cases. (Dystrophie ostéo-musculaire avec nanisme. Rachitisme tardif, amyotrophie et impotence musculaire, obésité et retard des fonctions génitales.) V. Hutinel and P. Harvier.
- 36 *Abscesses in or Back of the Tonsils. (Traitement des abcès amygdaliens et retro-pharyngiens.) J. Comby.
- 37 *Diatheses in Children. (Les diathèses infantiles.) G. Schreiber.
- 38 The "Blue Spot" in the Sacral Region. (La tache bleue sacrée dite mongolique.) A. Bruch.

36. **Abscess in or Back of the Tonsils.**—Comby calls attention to the advantages of opening such abscesses with a grooved sound or probe, or even the finger, rather than with a cutting instrument. The fear of hemorrhage or injury of other organs from the use of the bistoury leads us to defer the operation as long as possible, which is a mistake. By using a blunt instrument this danger is avoided, while the procedure is just as effectual. The sound passes into the abscess as easily as into butter and the opening is then enlarged with hemostatic forceps. He reports six cases to show how this technic frees the operation from all its dangers.

37. **Diatheses in Children.**—Schreiber shows that the exudative diathesis is merely a new name for the old conception of the gouty tendency in children—infantile arthritis. The primary manifestations of it occur in the skin, mucous membranes and lymph organs and glands, but an array of secondary nervous disturbances are liable to manifest themselves sooner or later, and Rosenstern has recently called attention to hypereosinophilia as a constant phenomenon in all children with the exudative diathesis. When the lymph apparatus is predominantly involved the condition might be called lymphatism. Such children are peculiarly exposed to lesions of the skin, mucosæ and lymph apparatus. When these lesions are the work of ordinary microbes they run a rapid course, but when the tubercle bacillus is involved the course of the attenuated tuberculosis is torpid and protracted, corresponding to the old picture of scrofula. As the diathesis is hereditary, the marriage of persons with a similar diathesis should be discountenanced. During pregnancy, special care should be paid to hygiene, and the children should be watched for the first manifestations of trouble in skin, mucosa or lymph apparatus, with treatment as they develop. The main point in prophylaxis and treatment is the diet, and this has to be tentatively regulated in the individual cases. Comby permits eggs, vegetables and cooked fruits and salads; Czerny excludes even eggs and milk. A change of scene is often of wonderful benefit, eczema or asthma vanishing when the child is sent to the country or the mountains; the seaside is particularly useful when the lymph apparatus is mainly involved. A course of mineral waters on the spot may also prove useful, as also arsenic and cod liver oil. But the iodids should be avoided as although they have an unmistakable action on the lymph apparatus, yet they induce hyperemia and are thus liable to produce disturbances in the skin and mucous membranes.

Lyon Médical, Lyons

June 2, XLIV, No. 22, pp. 1185-1252

- 39 Estimation of the Blood-Pressure. (La mesure de la tension artérielle dans la pratique médicale courante.) L. Gallavardin. Commenced in No. 21.
- 40 *Non-Suppurative Encephalitis. (L'encéphalite non suppurée.) L. Bériel.

June 9, No. 23, pp. 1253-1308

- 41 Solid Basis of Serotherapy in Tuberculosis. (Applications des conquêtes sur l'immunité à la clinique de la tuberculose.) Teissier and F. Arloing.
- 42 *Chronic Ulcer of the Bladder. (2 cas d'ulcère simple chronique de la vessie.) Desgouttes and Reynard.

40. **Non-Suppurative Encephalitis.**—Bériel maintains that there is a diffuse non-suppurative encephalitis showing clinical symptoms quite distinct from those of localized brain lesions and also from those of functional psychoses. He cites a case of his own. The patient was a woman of 41, with severe headaches for some years and later periods of somnolence. For twenty days before admission to hospital she had been in bed in a somnolent state, only rarely rousing; admitted as a typhoid case, but the microscopic findings at necropsy showed it to be a case of diffuse, non-suppurative, non-hemorrhagic encephalitis, probably alcoholic in origin. He describes the findings in detail. The dominating symptom in the case was a gradually progressive annihilation of the cerebral functions—a sort of asphyxia of the brain, such as is characteristic of the encephalitis of sleeping-sickness. Bériel urges a further study and discussion of similar cases in order to distinguish them clinically from purely functional encephalopathies, on one hand, and from general infectious diseases antecedent to brain lesions, on the other.

42. **Chronic Ulcer of the Bladder.**—Desgouttes and Reynard report two cases of ulcer of the bladder. The first was in a woman of 27 who for four years had had frequent painful micturition, hematuria and occasionally passed gravel in urine, the symptoms increasing in severity. She was sent to the hospital with a diagnosis of vesical calculus but cystoscopic examination showed an ulcer, nearly as large as a silver quarter, on the median line on the posterior bladder wall. The second patient was a woman of 46, who had suffered for twelve years from frequent painful micturition without hematuria or gravel. Symptoms had commenced after a difficult labor for which she was anesthetized. Both patients were operated on by suprapubic incision in the Trendelenburg position and excision of the ulcer, with complete recovery in both cases. Tuberculosis was suspected in the first case from the histologic examination but animal inoculation was not tried. Inoculation was negative in the second case. These ulcers offer a favorable prognosis if diagnosed and operated on early. Extremely careful cystoscopic examination is necessary for an early diagnosis.

Presse Médicale, Paris

June 19, XX, No. 50, pp. 525-532

- 43 The Arthritic Diathesis. (L'arthritisme—diathèse d'anaphylaxie.) J. Galup.
- 44 Acquired Hemolytic Jaundice. (Ictère hémolytique acquis avec hypocholestérinémie.) P. Oulmont and L. Boidin.

June 22, No. 51, pp. 533-548

- 45 Physical and Chemical Properties of Organic Fluids. (Applications de la physico-chimie à l'étude des liquides de l'organisme. Cryoscopie, Conductivité. Pression osmotique.) A. Javal and Boyet.

Revue de Chirurgie, Paris

April, XXXII, No. 4, pp. 535-684

- 46 *Action of Chloroform on the Adrenals. (Chloroformisation et capsules surrénales.) P. Delbet, A. Herrenschildt and A. Beauvy.
- 47 Fractures of the Ankle. (Les fractures du cou-de-pied.) E. Quénu and P. Mathien. Commenced in No. 1.
- 48 Anatomic Classification of Thyroid Tumors. L. Bérard and H. Alamartine.
- 49 *Tumors of Multiple Structure. (La notion de tumeur mixte.) P. Nadal.
- 50 Successful Arteriovenous Anastomosis. (Traitement de la gangrène d'origine artérioscléreuse des membres inférieurs au moyen de l'anastomose artérioveineuse.) I. M. Glasstein.

46. **Action of Chloroform on the Adrenals.**—Delbet and his coworkers state that both experimental and clinical research since 1909 has confirmed anew the fact that chloroform has a special affinity for the adrenals and checks their functioning. The logical conclusion is that epinephrin should be given with the chloroform to tide the patient past the stage of defective functioning of the adrenals, while they are suffering from the effects of the anesthetic. These effects are responsible for operative shock, they think, in many cases and for sudden quiet death in coma after an operation, when all seems

do be doing well. Delbet injects 0.0004 or 0.0006 gm. epinephrin subcutaneously and has found that it renders the general anesthesia more regular, does away with operative shock, and, he is convinced, will render less frequent sudden post-operative fatalities. If the patient is much prostrated, he sometimes repeats the dose of epinephrin the following day.

49. Mixed Tumors.—Nadal regards the mixed tumor as an organized syndicate of tissues, and malignant degeneration assumes this same character of organized concerted action by the malignant tissue syndicate. He remarks that the classic theories that have prevailed to date in regard to mixed tumors have reached their menopause, and they should make way for young and fruitful theories.

Semaine Médicale, Paris

June 19, XXXII, No. 25, pp. 289-300

- 51 Constitutional Tendency to Secrete and Retain Excess of Water. (Hydrosyntasie et hydrophilie; considérations sur la pathogénie de l'œdème, de la phlegmatia alba, de l'obésité, etc.) II. Iscovesco.

June 26, No. 26, pp. 301-312

- 52 Symptoms of Auto-Intoxication from Gangrene of Ovarian Tumor. (Les accidents d'auto-intoxication consécutifs à la gangrène des tumeurs ovariennes par torsion du pédicule.) R. de Bovis.

Berliner klinische Wochenschrift

June 17, XLIX, No. 25, pp. 1165-1212

- 53 *Emotional Factors in Disease of Organs with an Internal Secretion. (Ueber die ätiologische Bedeutung psychischer Insulte bei Erkrankungen der Blutdrüsen.) A. Münzer.
54 *Early Diagnosis of Primary Lung Tumors. A. Ephraim.
55 *Syphilis of the Heart. (Beitrag zur Syphilis des Herzens.) G. Orkin.
56 Diagnosis of Echinococcus Disease of the Lungs. (Zur Diagnose des Lungenechinococcus.) P. Hampeln. (Ueber spezifische Antikörper bei Echinokokkenkranken.) O. Thomsen and G. Magnusson.
57 Changes in Tubercle Bacillus in and Outside of the Body. (Veränderungen der biologischen Eigenschaften des Tuberkelbacillus ausserhalb und innerhalb des Organismus.) E. A. Lindemann.
58 Radium Emanation and the Blood. (Blutanreicherung mit Radiumemanation und Messmethodik.) P. Lazarus.

53. Emotions in Causation of Disease.—Münzer presents arguments to show that worry, fright and similar emotions induce more or less organic change in the brain. This is the primary result of the emotional stress; the effect of these changes in the brain may be felt in the glands with an internal secretion. The central mechanism regulating the secretion being out of order, the functioning of the glands suffers in turn. He thinks that we have every reason to assume that this explanation applies to certain of the pathologic states in the ductless glands which are known to have developed after emotional stress.

54. Early Diagnosis of Lung Tumors.—Ephraim states that in four cases in the last year he was able to diagnose a tumor in the lung by direct bronchoscopy. In two of the cases roentgenoscopy and night sweats suggested pulmonary tuberculosis, and in another case several features pointed to tuberculosis, but roentgenoscopy was negative. In the fourth case local endobronchial measures cured the bronchitis and revealed that the suppuration persisting at one point was due to ectasia from a carcinoma in the depths of the right bronchus. The patient was a man of 47; after excision of the protruding portion of the tumor conditions returned clinically to normal and the general health showed notable improvement. After removal of the obstruction, the suppuration behind it dried up. The early diagnosis of a tumor prevents useless courses of treatment for assumed tuberculosis, and endobronchial removal of protruding parts or possibly of the whole tumor is usually of great benefit. In each of Ephraim's four cases the hemorrhages which had been frightening the patients did not recur after excision or cauterizing of the protruding parts. Kahler has reported a case in which he removed a papillary cylinder-celled carcinoma from the right bronchus under bronchoscopy and there has been no sign of recurrence during the two and a half years to date. A supplementary tracheotomy might render the tumor more accessible. Another possibility opened up by early bronchoscopic diagnosis of tumors in the lungs is that of effectual radiotherapy. Radium could easily be applied to act on a mediastinal tumor.

55. Syphilis of the Heart.—Orkin has been analyzing the records of ninety-four cases of heart disease at the Charité public hospital, Berlin. Syphilis was positive or probable in twenty-eight of the fifty-nine men and in seventeen of the thirty-five women. In several of the women nothing was known of syphilitic infection, so that the positive Wassermann reaction was the first clue to the nature of the heart affection. Four of these women were between 20 and 30 and six between 30 and 40. Orkin does not include in the list cases of pronounced valvular defect, nephritis, exophthalmic goiter or heart trouble of thyroid origin. Excluding these, he found syphilis certain in 35.8 per cent. of the total ninety-four; 30.5 per cent. among the men and 50 per cent. among the women. A sudden onset of the myopathy, especially in the young, angina pectoris, recurring fleeting edema at the ankles, should suggest syphilis, and the Wassermann test will clear up the case. Treatment of the syphilis, if commenced in time, before irreparable lesions have developed, may arrest the process, and it always helps. Symptomatic measures may be useful, but specific treatment is the chief and urgent indication.

Deutsches Archiv für klinische Medizin, Leipsic

CVI, Nos. 5-6, pp. 411-602. Last indexed June 15, p. 1886

- 59 Bacterial "Partial Toxins." (Ueber Partialgifte im Bakteriencytoplasma.) II. Lüdke.
60 Viscosity of the Blood in Healthy and Anemic Japanese. (Ueber die Viskosität des Blutes bei gesunden und anämischen Japanern, mit bes. Berücksichtigung der Beziehung derselben zu dem Nennengeräusch.) J. Matsuo.
61 Goose Flesh. (Klinische Untersuchungen über das Auftreten der Cutis anserina.) II. Koenigsfeld and F. Zlerl.
62 *Adams-Stokes Disease and Bradycardia. (Klinische und anatomische Beiträge über Adams-Stokes'sche Krankheit und Vagusbradycardie.) D. Gerhardt.
63 Research on Circulation Through Non-Breathing Regions of Lung. (Durchblutung nicht atmender Lungengebiete.) R. Hess.
64 Action of Cold on Circulation in the Lungs. (Wirkung der Kälte auf den kleinen Kreislauf.) R. Hess.
65 Psychic and Chemical Influencing of Gastric Secretion. (Ueber die Bedeutung der freien HCl für die Pepsinverdauung und über die psychische und chemische Beeinflussung der Magensekretion, nebst Bemerkungen über die Indikatorenmethode zur HCl-Bestimmung.) G. Ewald.
66 Ferments in Living Isolated Loop of Small Intestine. (Fermentuntersuchungen an einer isolierten menschlichen Dünndarmschlinge und deren Bedeutung für einige neuere Pankreasfunktionsproben.) II. Schlecht and G. Wittmund.
67 Modified Resistance of Red Corpuscles to Saponin in Various Diseases. (Ueber die Saponinresistenz der roten Blutkörperchen des Menschen bei verschiedenen Krankheiten.) J. Heuberger and W. Stepp.
68 Blood Changes in Various Forms of Anemia. (Ueber die Häufigkeit basophil gekörnter und polychromatophiler Erythrocyten bei verschiedenen Anämien.) II. Wicher and F. Piotrowski.
69 *Chronic Jaundice with Chronic Splenomegaly. (Ueber chronischen acholurischen Icterus mit chronischer Splenomegalie.) L. Lichtwitz.
70 Fever from Destruction of Blood-Plates. (Ueber Fleber durch Blutplättchenzerfall.) II. Freund.
71 *Influence of Forced Feeding on Oxidation Processes. (Einfluss langdauernder, starker Ueberernährung auf die Intensität der Verbrennungen im menschlichen Organismus—Untersuchungen bei Mastkuren.) E. Grafe and R. Koch.
72 Resistance of Red Corpuscles to Hypotonic Salt Solutions After Splenectomy. (Resistenz der roten Blutkörperchen gegenüber hypotonischen Kochsalzlösungen bei entmilzten Hunden.) L. Pel.

62. Adams-Stokes Syndrome and Bradycardia of Vagus Origin.—Gerhardt reports three cases with typical Adams-Stokes attacks, in the first two of which post-mortem examination showed marked changes in the bundle of His, and in the third a tumor which pressed on but did not involve the vagus. The first patient had been free from attacks for over six years when he came under observation; the clinical symptoms would last only a few days and in the intervals he felt well. During the attacks complete heart block; ratio of venous and arterial pulse 3 to 1; between attacks pulse slow and regular. The patient also had an old callous stomach ulcer and the Adams-Stokes attacks were generally coincident with bleeding from the stomach. There was also sclerosis of the coronary arteries, most marked on the left. In the second case there was a calcareous area, evidently of long standing, encroaching on both branches of the bundle of His, entirely cutting off the left branch in places, but there were no clinical symptoms until three months before death. At first only slight attacks of dizziness, then typical Adams-Stokes attacks and finally frequent changes from normal pulse to partial or total heart block. It is noteworthy

that the attacks improved under epinephrin, but that complete dissociation first occurred while it was being administered. In the third case an inoperable carcinoma of the parotid region caused the attacks by the pressure of the tumor when the head was bent backward. Graphic pulse curves were not obtained and there was no visible pulsation in the neck, so Gerhardt is not certain whether it was heart block or only slowing of the entire heart, but thinks the latter more probable. The attacks improved under atropin. He mentions another case in which attacks were brought on by emotional disturbances but no microscopic examination was made of the bundle of His. He thinks that attacks of real heart block are not caused by vagus stimulation alone, but that there is either myocarditis involving the ventricle or some undetected lesion of the bundle of His.

69. Chronic Acholuric Jaundice with Chronic Splenomegaly.—Lichtwitz reports two cases of long standing jaundice with good general health. Physical examination showed enlarged liver, enormous enlargement of spleen, and the blood-picture of a severe anemia, with occasional myelocytes and myeloblasts, nucleated reds and eosinophilia. In the first case the patient, a girl of 17, had been chlorotic for three years. The second patient had had jaundice since birth, as also his grandfather. Lichtwitz says he has found forty-three similar cases in the literature, twenty-seven of which were congenital cases and thirty-three familial. He calls attention to the fact that though the skin was jaundiced and bilirubin was present in the blood-serum, no bilirubin was excreted in the urine. This suggests as a possible explanation that the skin discoloration may be due not to bile pigment but to some product of hematin from the broken-down blood-cells.

71. Effect of Long Continued Overfeeding on Metabolism.—Grafe and Koch report two series of tests carried on for fifty-four days in one case and fifty-one in the other. Tables are appended showing in detail the increase in weight, nitrogen-balance, changes in temperature and pulse and variability in oxidation at different periods in the experiments. His results show in general that there was marked increase in weight at first, later much less increase in weight for a given amount of food and greatly increased oxidation, as shown by respiration tests. It is probable, however, that different individuals have a different capacity for adapting themselves to changes in the amount of nourishment, and that this adaptability depends on the inherent differences in their cells with regard to oxidation.

Deutsche medizinische Wochenschrift, Berlin

June 20, XXXVIII, No. 25, pp. 1169-1216

- 73 *Gangrene of the Lungs as Complication of Gastro-Intestinal Operations. (Die Lungengangrän als Komplikation nach ausgedehnten Magen- und Duodenumresektionen.) H. Coenen.
- 74 Chronic Otitis Media and Cholesteatoma. P. Manasse.
- 75 Anaphylactoid Phenomena with Repeated Injections of Salvarsan. (Ueber die "anaphylaktoiden Erscheinungen" bei wiederholten intravenösen Salvarsaninjektionen.) W. Wechselmann.
- 76 Roentgenotherapy of Climacteric Hemorrhage. (Behandlung klimakterischer Blutungen mittels Röntgenstrahlen.) E. Runge.
- 77 *Improved Technic for Examining the Cerebrospinal Fluid. (Eine neue Methode zur Untersuchung der Lumbalpunkate.) H. Braun and Husler.
- 78 Diagnosis of Brain Lesions. (Zur Diagnostik organischer Gehirnerkrankungen.) M. Raether.
- 79 Roentgenoscopy of Intermittent Hour-Glass Stomach. (Ueber intermittierenden Sanduhrmagen.) E. Klose.
- 80 Medical Moving Pictures. (Ueber medizinisch-photographische und kinematographische Aufnahmen.) A. E. Stein.

73. Postoperative Gangrene of the Lung.—Coenen remarks that the complications on the part of the lungs liable to develop after extensive operations on the stomach or intestines may be due to the anesthetic, to disturbances in the circulation, to infection, or to embolism. A process tending to gangrene seems to be particularly liable after resection of the stomach or intestine. At the Breslau clinic in charge of Küttner, this occurred eight times in the last four or five years in a total of 136 resecting operations on the stomach and two on the duodenum. None of the eight patients with the complicating gangrenous process in the lung recovered. Fatal postoperative pneumonia occurred in only five patients, and fatal suppurative bronchitis in only two. The experi-

ences from other clinics give about the same percentage of complicating gangrene of the lungs, and show likewise that it occurs most frequently after operations on the stomach. In one case there was an interval of two weeks after the operation before the gangrenous pneumonia developed; this confirms the embolic nature of the process as also the pathologic anatomic findings in some of the other cases. In two additional cases the process did not progress quite to the point of gangrene. One patient died, but the other recovered, the embolic suppurative pneumonia healing. This material indicates that postoperative gangrene and postoperative pneumonia are similar infectious processes, reaching the lungs by the bronchi or by the blood or lymph routes from the abdominal cavity.

77. Improved Technic for Examining the Cerebrospinal Fluid.—Braun and Husler call attention to Sachs and Altmann's hydrochloric acid method as the simplest and most reliable means of determining pathologic conditions in the cerebrospinal fluid. They relate their experiences with the test in forty-one cases, the findings confirming the value of the test. Only 1 c.c. of fluid is needed, readily obtained by lumbar puncture, and an interval of a few days does not interfere with the result. The reagent is a mixture of one part normal hydrochloric acid in 299 parts distilled water. Five volumes of the reagent to one volume of the cerebrospinal fluid gives the clearest results, the fluid becoming distinctly turbid in case of meningitis, especially the tuberculous, while normal fluid persists limpid. The proportions are thus 1 c.c. cerebrospinal fluid to 5 c.c. n/300 HCl.

Medizinische Klinik, Berlin

June 28, VIII, No. 25, pp. 1015-1054 and Supplement

- 81 The Modern Treatment of Syphilis. C. Bruhns. Continued.
- 82 *The Secondary Phase of Tuberculosis. (Ueber "sekundäre" Tuberkulose.) G. Liebermeister.
- 83 Pituitary Extract in Treatment of Osteomalacia. (Zur Behandlung der Osteomalacie mit Hypophysenextrakt.) C. Koch.
- 84 Alkaline Ionization of the Intestines. (Enterale Ionentherapie.) A. Zimmer.
- 85 Roentgenoscopy of Pancreas Cysts. (Zur Bewertung der Röntgenuntersuchung bei der Diagnose von Pankreascysten.) E. Schlesinger.
- 86 High Frequency Electric Currents in Treatment of Heart Disease. (Die Hochfrequenzbehandlung der nervösen und organischen Herz-Störungen.) P. Grabley.
- 87 Mendel's Laws Applied to Human Heredity. (Ueber Mendelsche Vererbung beim Menschen.) F. Hammer.
- 88 *The Heart and Morphin. Siebert.

82. "Secondary Stage" of Tuberculosis.—Liebermeister classifies the manifestations of tuberculosis as primary, secondary or tertiary, analogous to syphilis. The tertiary phase represents the localized tuberculous process; the secondary the suspects, those in the inactive phase without local findings. He has been inoculating guinea-pigs with blood from patients in the tertiary stage and obtained positive results in from 11 to 48 per cent. according to the severity of their lesions. The results were also positive in six cases of inactive secondary tuberculosis. These results confirm anew the great importance of positive findings on injection of animals, but they demonstrate also that the method is not sensitive and that negative findings are far from conclusive. On the other hand, he says, by combining Sträubli's acetic acid technic with Uhlenhuth's antiformin method, tubercle bacilli in the blood can be detected with great certainty. By this combined technic the presence of tubercle bacilli in the blood was demonstrated in all of his fifteen cases of open tuberculosis and in eleven of his thirteen closed cases. In seventy patients free from localized manifestations of tuberculosis he found acid-fast bacilli in the blood, apparently identical with the tubercle bacilli. These positive cases included thirty-seven patients with rheumatism, a number with scrofula, and others who had apparently long outgrown their scrofula. The discovery of tubercle bacilli in the blood in such a large proportion of cases increases the resemblance to syphilis, and demonstrates that secondary tuberculosis is extraordinarily frequent, but does not necessarily entail the tertiary stage. Many apparently entirely cured persons still have tubercle bacilli in their blood. The youngest child examined was 2 weeks old and the findings were positive. The fact that tubercle bacilli can circulate

in the blood while the patients have long been apparently entirely well shows that they may be entirely harmless and the bearers relatively immune to their own bacilli, but large numbers of tubercle bacilli in the blood suggest impending flaring-up of the infection. The skin manifestations of the secondary phase of syphilis are encountered in tuberculosis only in the potential stage; that is, they develop only in response to the Pirquet test or similar specific irritation. His experience with tuberculin during the secondary phase of tuberculosis has not been encouraging.

88. Morphin in Advanced Heart Disease.—Siebert writes from the public hospital at Hamburg, in charge of Rumpel, to extol the efficacy of morphin as an excellent tonic in advanced heart disease; it tranquilizes the patient, regulates the heart action and may even display a tendency to cure. In one of the five extreme cases reported, large doses of morphin kept up for twenty-three months restored the patient to a comparatively active life. He was a young man with advanced degeneration of the heart and valvular insufficiency after recurring acute articular rheumatism, his earning capacity entirely gone and a speedy death apparently impending. Recurring infarcts in lungs, kidneys and spleen tormented him besides. The outline of the heart was two fingerbreadths to the right of the right margin of the sternum, and the same distance to the left of the nipple line. He improved under the morphin until he was able to play ball and resume continuous light work. He was in the hospital twenty-three months, and had received daily from 0.02 to 0.09 gm. morphin during the first six months, then from 0.12 to 0.34 gm. daily for a year with progressive large doses of chloral. After in this way progressively increasing the doses, they were reduced gradually to zero in the course of the following five months, and the young man was discharged in fairly good condition. He had two recurrences of the rheumatism during the following year but compensation was maintained and the heart did not seem to suffer. There were no indications of morphin poisoning at any time, and the earning capacity has persisted unimpaired during the nearly two years since. Siebert reviews what others have written on morphin in heart disease; he is inclined to ascribe its efficacy to the breaking up of a vicious circle involving the nervous system and the heart.

Münchener medizinische Wochenschrift

June 18, LIX, No. 25, pp. 1361-1416

- 89 Albumin from Lymph in the Urine. (Lymphurie?) H. Quinke.
- 90 The Wassermann Reaction in the Cadaver. (Untersuchungen mittels der Wassermanschen Reaktion an der Leiche.) G. B. Gruber.
- 91 Salvarsan in Chorea. (Salvarsan bei Chorea minor.) J. Salinger.
- 92 Thyroid Disease of Tuberculous Origin. (Ueber Schilddrüsenerkrankungen auf tuberkulöser Grundlage bei Einstellungsuntersuchungen.) V. Hufnagel.
- 93 Tendovaginitis at the Styloid Process of the Radius. (Zur Frage der stenosierenden Tendovaginitis am Processus styloideus radii—De Quervain.) H. Flörcken.
- 94 Endothelioma of Nasal Septum. G. Trautmann.
- 95 *Duodenal Ulcer. (Ueber Duodenalgeschwüre.) H. Kehr. Commenced in No. 24.
- 96 Wassermann Reaction in Internal Medicine. (Bedeutung der Wassermanschen Reaktion bei internen Erkrankungen. Methodisches und Klinisches.) R. Massini. Commenced in No. 24.

95. Duodenal Ulcer.—Kehr insists that the reason why duodenal ulcer is diagnosed and operated on less frequently in Germany than in England and America is not because the Germans are less skillful in diagnosis and in surgical skill but because they believe in letting a sleeping lion lie. When gall-stones and duodenal ulcers cause absolutely no symptoms or merely slight transient trouble and subside again at once into their former latent condition, the Germans refrain from operating. At the same time, he admits that the Germans do not operate quite often enough in the cases in which operative measures are absolutely needed. The safe middle course can be learned only by the cooperation of internists and surgeons and he urges surgeons to attend the meetings of internists and internists to relate at meetings of surgeons their experiences and to be present at laparotomies. He remarks that Americans agree to an operation far more readily than German patients. When the physician says

"appendicitis," it elicits in an American patient a reflex action which drives him to the surgeon at once; within two hours that patient's appendix will be in its jar of alcohol. Kehr reiterates that indiscriminate operating in all cases of duodenal ulcer and gall-stones is more dangerous, even at the best, than expectant treatment when the course of the case to date justifies delay. In reviewing his experience with ninety-four operations on the duodenum in his 954 laparotomies for cholelithiasis since 1904, he states that there was ulceration in the duodenum in only twenty-nine of the cases. He explains the "hunger pain" as the result of accumulation of bile in the gall-bladder, and its distention. When food is taken the gall-bladder empties itself by the reflex action set up at once. With duodenal ulcer there are liable to be adhesions which bind the gall-bladder and kink it as it fills up, thus inducing the hunger pain; it subsides of course as soon as the gall-bladder contents pour out. To determine the correctness of this explanation, he had a confrère with a fistula into the gall-bladder turn day into night, that is, he took his breakfast at 8 p. m., lunch at midnight, dinner at 2 a. m., supper at 8 a. m., and slept during the day. As anticipated, the outward flow of bile altered to correspond, becoming profuse during the day and scanty at night, when the bile passed into the digestive tract and was utilized in the course of digestion. Only during the hours of fasting did the bile pour out of the fistula; if there had been no fistula the bile would have accumulated in the gall-bladder with resulting distention and pain if the organ had been bound down by adhesions. Among the differential points discussed he mentions the sex; in sixteen cases of gastric ulcer there was only one male patient and only three women in his twenty-nine patients with duodenal ulcer. Two of the men with duodenal ulcer were shoemakers, accustomed to press their lasts against the epigastrium, and trauma was suspected in some of the other cases. The history of the case is more important for the diagnosis than physical examination; even when there are positive findings and symptoms, they are rarely absolutely characteristic. In one case traction from the ulcer had drawn the neck of the gall-bladder out like a diverticulum; in another the duodenal ulcer had caused colics, vomiting and chills, but the gall-bladder was sound; in another case fever and jaundice were the symptoms. In ten cases the patients had been taking all kinds of remedies and courses at spas for the assumed cholelithiasis, no one suspecting the duodenal ulcer. When an operation is done it must be radical, he emphasizes. A gastro-enterostomy alone is not enough, as he shows by a case in which the pylorus region had not been excluded (which he now regards as indispensable); gastro-enterostomy had been done three times, enterostomy twice, and part of the bowel resected, before the patient was finally cured of disturbances from an ulcer in the pylorus region.

Wiener klinische Wochenschrift, Vienna

June 20, XXV, No. 25, pp. 947-990

- 97 *Total Exclusion of Segment of Intestine. (Zur totalen Darmausschaltung.) K. Hochenegg.
- 98 *Resection of Posterior Spinal Nerve Roots. (Indikationen und Erfolge der Resektion hinterer Rückenmarkswurzeln.) O. Foerster.
- 99 Operative Treatment of Exophthalmic Goiter. (Zur Frage der chirurgischen Behandlung der Basedowschen Krankheit.) A. Pulawski.
- 100 *Electric Accidents. (Organisation und Durchführung der ersten Hilfe bei elektrischen Unfällen.) S. Jellinek.

97. Total Exclusion of Part of Intestine.—Hochenegg reports the case of a woman of 40 who fifteen years before had various operations performed to cure a tuberculous pelvic process. A segment of the bowel including part of the transverse colon, cecum and ileum, had been shut off from the rest of the intestines and finally was cut off and left as a sac closed at both ends. It had caused no trouble until quite recently when this blind sac became distended with secretions and their sediment, with resulting colic and stiffening of this segment until the pains were unendurable, and the whole was removed without opening. The excluded segment had been drained outward by an artificial fistula at first, but this soon became occluded. The case teaches the

necessity for implanting in the bowel one or both ends of such an isolated segment of intestine, to permit the escape of the secretions. But this method of complete exclusion from the diseased region has a number of advantages over an ordinary entero-anastomosis. In three recent cases the latter had been done by other surgeons and the complications soon compelled an emergency operation to remedy conditions.

98. Resection of Spinal Nerve Roots.—Foerster here brings down to date the history of the operation generally called by his name, stating that it has been done to relieve tabetic crises in forty-four cases; the resection was not extensive enough in some so that the pains recurred later; in some other cases crises developed in other nerve regions. Five of the patients died, and no benefit was obtained in three cases. Another cause for failure may be that in certain cases the vagus is responsible for the crises. Rhizectomy has been done further for spastic paraplegia in fifty-nine cases, with benefit in forty-six, no benefit in five, and eight patients died. The operation can do no good unless the disturbance is of actual centripetal origin; this excludes athetosis, chorea, convulsive tic, motor spasms, etc. The affection must be stationary or only very slowly progressive. Rapidly progressing affections contra-indicate the method. Careful oversight and training afterward are indispensable and where they are not possible the method had better not be applied. He advises to sever nerves enough to answer the purpose, but to spare always the third or fourth lumbar nerve as this is involved in the knee extension reflex.

100. Electric Accidents.—Jellinek gives six illustrations of resuscitation of the victim of an electric accident. They are taken from a booklet which has been adopted in the leading electric establishments, etc., of Austria. One of the new points in this booklet is that the rescuer is warned, if alone, not to leave the victim to go for a doctor. The immediate aid he can render is more important than anything else at first. The minute lost by going to seek help may transform the apparent death into actual death. Another new point emphasized is to keep the head raised; a rolled-up coat is enough for this. If the head is kept low the congestion in the brain vessels may entail additional injury. Jellinek gives an illustrated description of a little pocket insulated instrument to grasp the wire in releasing the victim; most of the instruments used by professionals for the purpose are so large that they are not always at hand, while his *Isolierzange* in its rubber guard can be conveniently carried in the pocket at all times. He commends the Silvester-Brosch method of artificial respiration as the easiest for the inexperienced, but he advises to have the head alone raised, keeping the shoulders on the ground or table and grasping the elbows, not the upper arm. The Schäfer method is not so effectual, he thinks. The pulmotor has the disadvantage, he says, that the oxygen may be forced into the esophagus as well as into the air passages, and dilate the stomach and thus harm the heart, but it is possible to avoid this by light pressure on the larynx which the layman can apply at the Adam's apple. The larynx stands the pressure without harm while it prevents the passage of air or oxygen into the esophagus. No measures besides the artificial respiration should be attempted if the rescuers have to suspend the artificial respiration to do them. The artificial respiration is the main thing. But if assistance is at hand, brushing the soles of the feet and other stimulating measures might be tried, pouring alternately hot and cold water over the chest and abdomen. Rectal injection of ice-cold water is a vigorous stimulant and he urges that a tube and vessel for the purpose should be kept on hand where electric accidents are liable to occur. If ice water is not obtainable, hydrant water may be used, injecting a pint or quart. The victim must be carefully watched to note the moment when he begins to breathe spontaneously or regain consciousness. Stimulants by the mouth are then permissible. When full consciousness is regained repose is imperative for that and the following day at least, regardless of how well the rescued individual may feel. The blood-pressure is liable to be very high after an electric accident—a vasoconstrictor phenomenon—and cautious inhalation

of chloroform may prove useful in bringing it down to normal. The physician must watch to see that stomach content is not forced up and into the air passages by the artificial respiration. Faradization of the phrenic nerves may be tried, as also venesection or lumbar puncture; many victims of electric accidents have an abnormally high pressure on the brain. Physicians connected with establishments where there is danger of electric accidents, should keep in the emergency kit a tongue holder, some chloroform, camphor, ether and epinephrin solutions, instruments for venesection and lumbar puncture, a Pravaz syringe, dressings, a rectal and stomach tube, and eventually have access to a faradization apparatus and pulmotor. They should also drill the employees in rescue work until every individual employee is familiar with the technique. Great progress might be realized, besides, he says, if it were possible to take a photograph at once of the conditions, victim, destroyed material, etc. Such photographs would not only promote the scientific study of the subject but would have great instructive value in prophylaxis. In conclusion Jellinek reviews the legislation in different countries and private efforts in the line of prevention of electric accidents, and mentions a number of instances in which the victim was able to save himself—in one case merely by jumping up off the ground. As soon as the contact with the ground ceased, the current no longer fastened his hands to the wire and he was saved in the moment before his feet touched the ground again.

Zeitschrift für Geburtshilfe und Gynäkologie, Stuttgart

LXX, No. 2, pp. 373-726. Last indexed, May 18, p. 1554

- 101 Displacement of Organs in Chest by Ovarian Tumors. II. (Veränderung des Situs der Brustorgane durch Riesenoarialtumoren.) W. Rübsamen.
- 102 Determination of Age of Fetus. (Ueber Altersbestimmung des Fötus auf graphische Methode.) T. Heuser.
- 103 Influence on Vagina of Medicated Vaginal Douches. (Einfluss medikamentöser Scheidenspülungen auf die normale und pathologische, nicht puerperale Scheide.) O. Polano.
- 104 Appendicitis Following Salpingitis. (Wurmfortsatzveränderungen nach Tubenentzündungen.) E. Moritz.
- 105 Abortion. (Klinische und bakteriologische Beiträge zur Lehre vom Abort.) O. Bondy.
- 106 Pelvis Deformed from Osteomalacia in Youth. (Ueber ein Erwachsenenbecken nach chronisch-juveniler Malacie.) II. Hinselmann.
- 107 Staphylococci in Genital Passages of Normal Parturients. (Ueber die Staphylokokken in den Geschlechtswegen normaler Schwangerer.) R. Amersbach.
- 108 *Pseudo-Eclampsia. O. Polano.
- 109 *Tuberculosis of Genital Organs and Peritoneum; 100 Cases. A. Labhardt.
- 110 Adenomyositis of Uterus and Rectum. II. Renisch.
- 111 Changes in Liver During Pregnancy. (Die anatomischen Veränderungen der Leber in der Schwangerschaft.) P. Heinrichsdorff.

108. Pseudo-Eclampsia.—Polano calls attention anew to cases presenting the syndrome of eclampsia but which prove to be abortive pneumonia or poisoning from other cause. Two patients were recently brought to his service (Würzburg) in one afternoon with the diagnosis of eclampsia and the symptoms sustained this assumption. Necropsy failed to show in the first case the lesions characteristic of eclampsia. The urine distending the bladder was free from albumin, and some arsenic was found in the liver. The woman had been taking arsenic and morphin powders for a nervous affection and had probably mistaken the powders, or possibly the ordinary dose may have had a toxic influence on account of the pregnancy and exceptional debility. In the second case, the eclamptic lesions were accompanied by bacteriemia, swarms of Gram-positive cocci being found in certain vessels. The findings resembled those recently reported by Raubitschek as liver necrosis following childbirth. Polano is inclined to regard the bacteriemia as the primary affection, causing a syndrome simulating true eclampsia.

109. Gynecologic Tuberculosis.—Labhardt's hundred cases of tuberculosis of the genital organs or peritoneum or both, 1900-1910, teach the importance of individualizing treatment, combining conservative and operative measures as indicated. An operation is scarcely advisable in the severe cases with complications and mixed infection, as evidenced by high fever. It is not needed further in the mildest cases, as the tuberculosis rapidly improves under conservative measures. If these fail, then operative treatment should be advised. Fever always renders the outlook graver. The operation should be

as radical as possible, avoiding contaminating the abdominal cavity or wound with tuberculous material. With tuberculous peritonitis alone, conservative measures should be the rule. If there is much ascites the fluid should be evacuated by a laparotomy, not puncture; this permits oversight of the ovaries and tubes. The laparotomy must not be regarded as a certain cure in itself, not even in the form with effusion. The experiences with injection of camphorated oil before and during the operation have been encouraging to date. None of the patients died from the genital tuberculosis but tuberculous peritonitis may prove fatal alone. The patients generally succumb to the progress of tuberculous processes elsewhere, in the lungs, as a rule. The results reported seem to indicate that the removal of the pelvic focus permits recuperation and checks metastasis. Of the ninety-eight patients followed to date, 71.5 per cent. of the fifty-seven women operated on are still living and 54.8 per cent. of those treated with conservative measures; all but 5 per cent. of the first and 14 per cent. of the second group have their earning capacity unimpaired. The symptoms of genital tuberculosis resemble those of any affection of the adnexa: pain is the rule, more or less spasmodic as the tubes contract. Adhesions also induce pain, increasing as the acute phase of the onset subsides. Fever was noted in 50 per cent. of the cases; more frequent and higher when the peritoneum was involved. About 20 per cent. of the nonfebrile patients have died and 50 per cent. of those with fever.

Zentralblatt für Chirurgie, Leipsic

June 15, XXXIX, No. 24, pp. 809-840

- 112 *Improved Technic for Suture of Transverse Abdominal Incision. (Zur Erleichterung der Naht beim queren Bauchschnitt.) O. Sprengel.
113 *Management of Knee After Resection. (Die Nachbehandlung der Knierektion unter Anwendung der Schienenschraubenkontension.) K. Kolb.
114 *Operation for Perforated Gastric and Duodenal Ulcer. F. Hölcher.

112. Technic for Suture of Transverse Abdominal Incision.—Sprengel first draws the lips together in the center and holds them with one stout mattress suture on the median line. Then the peritoneum incision is sutured on each side. Then three wide mattress sutures are taken through the muscles and skin on each side but are not tied until the ends of the suture material are drawn up tight together, thus coaptating the lips the entire length at once, tying then each suture separately.

113. Screw Contention of Knee After Resection.—Kolb writes from Wilms' service to describe with illustrations the stout screws driven horizontally into the bone above and below the knee and the strong adjustable frame fitting over them and immobilizing the joint, used at the clinic during the last year with gratifying results. The screws pass entirely through the leg and the frame stands so high above the knee that it does not interfere with dressing or massage of the part. The apparatus has been applied in eight cases to date and consolidation occurred in the most favorable manner in all. The aim is the exact reverse of extension.

114. Rapid Treatment of Perforated Gastric or Duodenal Ulcer.—Hölcher commends the views of those who advise not to waste time in careful suture of a perforated ulcer when the general condition is too menacing, but to run a suture thread around the opening and draw it up and then tampon and conclude with gastro-enterostomy, if at all feasible; that is, if the condition of the heart permits. He reports two cases of gastric and three of duodenal ulcer in which he applied this technic and always with the best results, the patients being still free from disturbances to date, over two years in most. The edges of the ulcer must be freshened, and he lays great stress further on the necessity for suturing the ulcer to the anterior abdominal wall. This reduces the size of the persisting morbid area and allows superficial tamponing. The simpler the conditions left, the easier it is to bring the intestines back to normal functioning. In one of his cases the patient required gastro-enterostomy later, and the primary ulcer was found entirely healed. The region had worked loose from the abdominal wall with which it was connected only by one short, thin band.

Zentralblatt für Gynäkologie, Leipsic

June 15, XXXVI, No. 24, pp. 761-792

- 115 Outcome of Posterior Colpotomy for Inflammation in Ovaries or Tubes. (Resultate operativer Behandlung entzündlicher Adnexerkrankungen mittels Kolpotomia posterior.) J. W. C. van Kesteren.
116 Local Anesthesia for Anterior Colpohysterotomy. (Zur Anwendung der Lokalanästhesie und der lokalen Suprareninamämlerung bei der Kolpohysterotomia anterior.) H. Thaler.
117 Atresia of Esophagus. (Fall von blinder Endigung des Halsstalles des Oesophagus mit Kommunikation seines Bruststalles mit der Luftröhre.) A. Müller.
118 Formation of Artificial Vagina. (Schnbert'sche Scheidenbildung und Bericht über einen weiteren Fall.) Flöel.

Zentralblatt für innere Medizin, Leipsic

June 15, XXXIII, No. 24, pp. 597-620

- 119 Calcium Metabolism During Constipation and Diarrhea. (Kalkstoffwechsel bei Obstipation und Durchfall.) F. Krone.
June 22, No. 25, pp. 621-644
120 *Improved Technic for Test for Occult Blood. (Eine Modifikation der Guajakprobe.) L. de Jager.
121 Formol-Urea Test for Organic Fluids. (Ueber Sedimentierung mehrerer Körper mittels Formolharnstoff.) L. de Jager.
122 Improved Technic for Jager's Test for Sugar. (Eine Modifikation der von mir beschriebenen Zuckerprobe.) L. de Jager.

120. Modified Technic for Guaiac Test for Occult Blood.—Jager says that the ordinary Weber-van Deen test is rendered much more sensitive if a few drops of solution of sodium hydroxid or ammonia are added to the ether extract before starting the guaiac test. This renders the blue tint much more distinct, while the reaction seems more specific.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 16, XXXIII, No. 72, pp. 753-768

- 123 Differential Diagnosis of Serous Meningitis and Brain Tumor. A. Ceconi.
124 Peptone Injections in Treatment of Hemorrhagic Tendency. (A proposito di uno stato emorragiparo grave e sulla terapia colle iniezioni di peptone.) F. Pernissia.

June 18, No. 73, pp. 769-776

- 125 Identity of Cow-Pox and Small-Pox. (Le piu recenti constatazioni sulla unicità del vaiolo-vaccino.) E. Bertarelli.

June 20, No. 74, pp. 777-784

- 126 Epidemiology of Cholera. (Il colera nel territorio padovano e nel Polesine.) M. Vivaldi.

June 23, No. 75, pp. 785-800

- 127 Extensive Quinin Prophylaxis. (Chinizzazione profilattica universale e chinizzazione degli ex-malarici.) E. Bertarelli.
128 Pseudotumors in the Intestines. (Pseudotumori intestinali di origine fecale.) G. Mann.

Policlinico, Rome

June 9, XIX, No. 24, pp. 857-892

- 129 *Intramuscular Injection of Ether for General Anesthesia. (L'anestesia generale per mezzo di iniezioni intramuscolari di etere.) E. Lay.

June 16, No. 25, pp. 894-928

- 130 *Chagas' Trypanosomiasis. (Il morbo di Carlo Chagas o tiroidite parassitaria.) C. Basile.
131 Intravenous Injection of Strophanthin in Typhoid and in Valvular Disease. (Buoni effetti terapeutici delle iniezioni intravenose di strofantina.) L. Meoni.

June, Surgical Section No. 6, pp. 241-288

- 132 Streptococcus Responsible for Erysipelas. (Possono altri germi, indipendentemente dallo streptococco, indurre erisipela?) A. Poggiolini.
133 Experimental Transplantation of Ureter and Vas Deferens. (Ricerche sperimentali sui trapianti di vasi in uretere e di uretere nei vasi e sull'anastomosi uretero-deferenziale.) A. Chiasserini.

June, Medical Section No. 6, pp. 239-286

- 134 The Blood in Experimental Jaundice. (Osservazioni ematologiche nella coleemia sperimentale.) C. F. Zanelli.
135 Case of Verrucous Aortitis. S. D'Antona.
136 The Organic Fluids in Cholera. (Valori fisico-chimici di liquidi organici di colerosi.) E. Calceaterra and A. Conio.
137 Reaction in Milk Specific for Malta Fever. (Sulla lattoreazione per il micrococco melitense.) C. Cantieri.

129. General Anesthesia by Intramuscular Injection of Ether.—Lay reports two cases in which he removed a cancer of the face under general anesthesia from intramuscular injection of ether. The conditions thus provided for the operation were exceptionally favorable. He extols the harmlessness and the superiority of the technic for operations on the head. He injected 70 c.c., the two women weighing 57 and 78 kilograms. The patients slept on after the operation for about an hour. The points where the ether had been injected were slightly painful for two and five days and in one case there was ecchymosis. Both patients had slight transient hemoglobinuria the second day afterward. [See Paris Letter in THE JOURNAL, May 25, 1912, p. 1612.]

130. Chagas' Disease.—Basile reviews what has been published to date on the trypanosomiasis or parasitic thyroiditis caused by the *Schizotrypanum cruzi*, the parasite first described by Chagas. [The disease was mentioned editorially in THE JOURNAL, 1910, iv, 603.]

Riforma Medica, Naples

June 8, XXVIII, No. 23, pp. 617-644

- 138 Cavity in the Spinal Cord Resulting from Pressure on the Medulla Oblongata. (Caso di cavita midollare consecutiva a compressione bulbare nell'uomo. Studio sperimentale delle cavita spinali da compressione.) J. Lhermitte and P. Boveri.
- 139 Abdominal Contusions with Subcutaneous Rupture of the Wall. (Le contusioni dell'addome con rottura sottocutanea della parete.) M. Dardanelli. Commenced in No. 20.
- 140 Experimental Traumatic Femoral Aneurysm. (Aneurisma traumatico ottenuto sperimentalmente.) A. Pignatti.
- June 15, No. 24, pp. 645-672
- 141 Compound of Quinin and Urethan. (Sulla unione del cloridrato basilico di chinina all'uretano.) P. Marfori.
- 142 *Malta Fever in Infants. (Febbre mediterranea nei lattanti.) F. Luna.
- 143 *Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. (Sulla cura della tubercolosi polmonare col pneumotorace artificiale.) M. Ferretti.

142. Malta Fever in Infants.—Luna reports three cases of Malta fever in infants from one to two years old, and suggests that possibly it is more common in young children than hitherto recognized. Long, irregular febrile affections in infants may perhaps be due to the Bruce micrococcus in certain unsuspected cases. Agglutination was early and very pronounced in his cases, and the children recovered in less than two months in the two cases traced after the first visit. No characteristic blood findings were noted in the infants.

143. Artificial Pneumothorax for Pulmonary Tuberculosis.—Ferretti gives the complete details of his five cases, adding that the technic of the method is extremely simple and the by-effects are insignificant. The action was most favorable on the expectoration and tendency to hemorrhage. The method is applicable only when the tuberculosis is restricted to one side and the pleura is free from adhesions and only a small number of patients present these conditions. Subcutaneous emphysema is liable to follow the injection but this is rapidly reabsorbed; aside from this, he has witnessed no inconveniences from the method.

Brazil-Medico, Rio de Janeiro

June 8, XXVI, No. 22, pp. 217-228

- 144 Advisability of Introducing Vaccination Against Typhoid. U. Paranhos.

Semana Medica, Buenos Aires

May 30, XIX, No. 22, pp. 1001-1044

- 145 Foreign Bodies in the Esophagus or Bronchi. (Algunas consideraciones sobre dos casos interesantes de cuerpos extraños del esofago y del bronquio derecho, extraidos por la via natural por medio de la endoscopia.) E. Botella.
- 146 Reflex Sign of Irritation of the Peritoneum. (La semi-ereccion del penis como signo casi constante de reaccion peritoneal.) N. L. Gross.

Hospitalstidende, Copenhagen

June 19, LV, No. 25, pp. 701-736

- 147 Little if any Danger from Sulphur Used in Milling Cereals. (Om svovlpræparerede Gryn som Aarsag til Forgiftning.) K. Schroeder.

June 26, No. 26, pp. 737-760

- 148 Metabolism in Delirium Tremens. (Nogle Stofskifteforhold ved Delirium tremens.) G. E. Schröder.

Hygiea, Stockholm

May, LXXIV, No. 5, pp. 481-624

- 149 Principles for Treatment of Cripples. (Några riktlinjer för vanförevården.) P. Haglund.
- 150 Operative Treatment of Chronic Suppuration of the Middle Ear. (Den kroniska otorrens kirurgiska behandling.) E. Stangenberg.
- 151 Development of Fetus Outside of the Membranes. (Om hafvandeskap utanför hinnorna—Graviditas extramembranacea.) K. Lewenhagen.

Nordiskt medicinskt Arkiv, Stockholm

XLIV, Internal Medicine No. 3. Last indexed Feb. 24, p. 600

- 152 *Albuminuria After Severe Physical Exercise. (Die Anstrengungsalbuminuria. Eine Studie über die Einwirkung maximaler Körperanstrengung—des Sports und des Trainings—auf die Nieren.) I. Jundell and K. A. E. Fries. Commenced in No. 1.
- 153 Hydrochloric Acid in Nephritis. (Zum Studium des Verhaltens der Salzsäure im Magensaft bei Nierenentzündungen.) C. Sebadt. To be continued.

Internal Medicine No. 4

- 154 Twin Monster Without a Heart. (Ueber Acardie. Zur Frage von den Zwillingssmissgeburten.) C. J. Heijl. To be continued.
- 155 *Local Treatment of Tuberculous and Other Infectious Processes with Combined Action of Sodium Iodid and Ozone. (Kausistik zur Behandlung lokalinfektöser Prozesse mit Jodnatrium und Ozon, bezw. Wasserstoffsperoxyd.) S. A. Pfannenstill.

152. Athletics and Transient Albuminuria.—The conclusions of Jundell and Fries' research were given in THE JOURNAL, Nov. 25, 1911, p. 1810. This final installment gives tables of the special findings in the 265 persons examined. The tests were made mostly on athletes competing in races or great games or preparing for such. The material is further classified according to the nature of the sport.

155. Two-Route Treatment of Local Infectious Processes.—The principles on which this treatment is based were given in THE JOURNAL, July 16, 1910, p. 264. By taking the iodid internally and applying ozone to the lesion, nascent iodine is generated in the tissues of the lesion. Pfannenstill gives the ultimate history of some of his early patients thus treated, the outcome encouraging further application of the method.

Ugeskrift for Laeger, Copenhagen

June 13, LXXIV, No. 24, pp. 889-926

- 156 *Pyuria in Children. (Erfaringer om Pyuri hos Børn.) A. H. Meyer.

June 20, No. 25, pp. 927-956

- 157 *Rectoscopy and Sigmoidoscopy. (Om Rekto-Romanoskopi.) Kramer-Petersen.

156. Pyuria in Children.—Meyer has encountered pyuria in twenty-eight young infants, in seventeen between 1 and 2 years old, and in twenty-three children older than this, a total of sixty-eight cases; 70.6 per cent. of the patients were girls and in forty-seven cases the kidneys were involved. In thirty-eight cases the colon bacillus was found in pure cultures; in forty-four cases the primary trouble was enteritis. He states further that pyuria was encountered in 25 or 30 per cent. of all his cases of cholera; in two of the pyuria cases there had been a preceding infectious sore throat; in another case measles. The bacilli found in the cholera pyuria cases were the same as those found in the stools. Nine of the children died; thirty entirely recovered but nineteen still had pyuria when they left the hospital, one nephritis and nine still had bacteria in the urine. Recent reexamination of fifty-six showed that two still had chronic pyuria, one bacteriuria, one nephritis; four had succumbed to the urinary affection and seven to intercurrent disease; forty were healthy. The experiences related confirm anew the dependence of the urinary affection on primary intestinal disease. Conditions in the urinary organs return to normal sooner or later, with or without treatment, after the intestinal process has healed. The aim in treatment therefore should be to discover and cure the primary affection. Copious ingestion of boiled or distilled water is invaluable; it can be given by the stomach tube or in enemas if the child refuses to drink. Meyer is rather skeptical as to the efficacy of hexamethylenamin and vaccine therapy; only eight of the twenty-two patients treated with the former were cured at the time and six recovered later. Of the seven treated with vaccine therapy, three were uncured; two others given hexamethylenamin in addition recovered.

157. Proctoscopy.—Petersen reviews his experience with direct visual inspection of the rectum and sigmoid flexure and emphasizes the clinical importance of proctoscopy. He describes the various findings liable to be encountered and their interpretation, citing some typical examples, and insists that proctoscopy should be applied to every patient who has pain or tenesmus in the lowest bowel unless they can be explained by hemorrhoids or a fissure. In order to discover incipient cancer, direct local inspection should be the routine procedure for every patient with obstinate rebellious diarrhea and those with intestinal obstruction developing suddenly or in the course of a few weeks, and which does not yield to ordinary treatment. Also for patients with blood, mucus or pus in the stools when digital examination is negative. By heeding this advice and systematically endoscopic these three classes of patients, we will be saved many tragic surprises later.

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THE FUNCTION OF THE PARATHYROID GLANDS *

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NEW YORK

The remarkable advance in our knowledge of the organs of internal secretion which has taken place in recent years has brought much light on the parathyroid glands, but still their function and relations to the other organs are very obscure.

Their anatomy is by this time fairly well known, particularly to surgeons to whom they have become an object of especial care in operations on the thyroid. Lying, as the parathyroids do, along the posterior margin of the thyroid usually two in number on each side, they may be found as small, flat, soft, yellowish-brown bodies embedded in the loose connective tissue or in the fat or plastered against the thyroid. Generally there is one at the notch of entrance of the inferior thyroid artery and one somewhere else either above or below, sometimes even far down in the fat below the lower pole of the thyroid. They have their own blood-supply from a branch of the inferior thyroid, in the one case, and often from a branch of the communicating trunk between superior and inferior thyroid, in the other. So inconsistent is their arrangement, however, that a composite picture of many dissections shows them occupying every point in a band from top to bottom of the thyroid. Accessory nodules also occur sometimes, now embedded in the thyroid, now in the thymus, at other times free in the loose tissues of the neck. Relatively easy to find in the dissection of a normal neck, they become widely displaced and flattened out of all recognition in the very cases of goitrous enlargement of the thyroid in which it is so important that they should be discovered and spared, and surgeons have devised many means for safeguarding them by giving them a wide berth.

The parathyroid glands were twice discovered—once in 1882 and again in 1892—and their name, as well as their situation, has suggested that they must be intimately related, if not identical with, the thyroid. In spite of this assumption, which it has taken years to escape and which is still tenaciously adhered to by certain English investigators, it is now well established that embryologically, histologically and in their functions they are entirely distinct from any other organ of the body—quite as distinct as the adrenal or the hypophysis. Composed of anastomosing strands of cells with a rich blood-supply, they are very easily recognized under the microscope, not only by their general structure, but

by the peculiarities of their cells which fall fairly readily into two or even three groups.

These glands have been studied with regard to their function by the familiar methods of extirpation and of watching the effects of their extracts, but so striking are the symptoms which rapidly follow their destruction that these symptoms alone have engaged the attention of most investigators. Collectively they are spoken of as tetany, and no matter in what way the inadequacy of the parathyroids be produced, these symptoms are nearly constant in their character though not in their severity. Indeed, it is not necessary that the parathyroids be disturbed at all for these symptoms to appear, for under some conditions which we understand most imperfectly the severest form of tetany may arise in spite of the presence of the intact glands. Then we must regard them as relatively insufficient or inadequate to the increased strain imposed on them.

If we parathyroidectomize an animal, outspoken symptoms appear only after the lapse of a day or two, although in the meanwhile a gradual change in the excitability of the nervous system develops and finally reaches such a degree that its effects become evident in the form of muscular twitchings over the whole body, a curious fibrillary quivering of the muscle fibers of the tongue, tonic contractions of the facial muscles which distort the face, of the laryngeal muscles which produce a stridorous breathing, and of all the muscles of the body which stiffen the limbs and the trunk and render the animal awkward or helpless.

With this rigidity come more and more violent clonic convulsions of all the muscles—the jaws snap, biting the tongue, and the whole body is thrown into the most intense spasms. So furious is the muscular work that the temperature quickly rises, and in the case of the dog there appears a most rapid panting respiration brought on by the reflex attempt to dissipate heat. In an attack of this sort the animal may die or it recovers and lapses into complete fatigue, only to become again rigid and seized with convulsions.

These are the most striking symptoms, but there are also sensory disturbances, paresthesias and painful sensations and disturbances of the alimentary tract, of the vasomotors, etc., as well as an underlying cachexia which, even if the motor symptoms are lacking, may lead to the death of the animal.

In watching such symptoms, one is impressed with the probability that they arise from some disturbance of the nervous system, and, indeed, it is easy to recognize objective signs of this. On tapping over a motor nerve a muscular jerk is produced by a tap of the finger which would be unnoticed by a normal animal. So, too, electric shocks far too weak to cause any muscular jerk in a normal animal will produce a violent contraction in the animal in tetany. Accurate measurements of this

* Read in the Symposium on Internal Secretions in the Joint Meeting of the Sections on Practice of Medicine and Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

electrical hyperexcitability of the motor nerves can easily be made, and it is found that it is especially the response to the cathode's opening shock that is characteristically altered, although the other forms of stimuli are also more readily responded to. Whereas, 5 milliamperes are needed to produce the slightest contraction in the normal, when passed through the nerve, 1/10 milliamperè may suffice in the course of tetany to cause a violent jerk. Apparently, this same electrical hyperexcitability is present in the sensory, the vegetative and the sympathetic nerves and it is the underlying cause of all the symptoms, although it, itself, is the effect of the change that follows the loss of the glands.

All workers have inquired as to the localization of the disturbance which produces all these symptoms, and it has been generally assumed, though not proved, that there must be some change in the circulating blood since the affection is so general. Recently, by the aid of experiments, I have been able to throw some light on this. If, constantly testing the electrical excitability of the motor nerves, one cuts such a nerve during tetany, the muscle becomes flaccid and twitching stops, but the excitability of the nerve to the electric shock remains unchanged. If the nerve is cut and then the parathyroids removed, there develops gradually in the separated extremity of the cut nerve the same hyperexcitability as in the intact nerve of the opposite side. Obviously, therefore, some change in the circulating blood produces this change in the nerves. If we so anastomose the blood-vessels of an animal in tetany with those of the leg of a normal animal that the nerves of that leg are bathed with tetany blood, the nerves become hyperexcitable like those of the tetanic animal. If we reanastomose the femoral vessels with their own stumps in the normal animal so that the nerves of the leg are again bathed in normal blood, their excitability returns to normal. If we bathe in the same way the peripheral nerves of one leg of an animal in tetany with the blood of a normal animal, their excitability becomes normal, while it returns to the tetany level if we reanastomose those femoral vessels with their own stumps and thus let the tetany blood flow through again. All this can be done by perfusion from a bottle, and it is seen that whenever tetany blood circulates about the nerves they become hyperexcitable. Since normal impulses from the normal spinal cord produce no convulsions even through hyperexcitable nerve-endings (for it is the nerve and not the muscle which is hyperexcitable) and impulses from the cord of a tetanic animal produce no twitching through nerve-endings rendered normal by circulation of normal blood, it follows that spasms of the muscles must come only when the ganglion cells send out abnormally violent impulses to abnormally sensitive nerve-endings.

The chemical nature of this change in the blood is not known. It may be an active poison or it may be something which withdraws a moderating and quieting influence from the nerve-cells and leaves them in an unbalanced and hyperexcitable condition. We shall see that there is much to say in favor of the latter view.

It has been thought that much would be learned by studying the metabolism of such animals, but the results have been disappointing. There is an increased nitrogenous output, probably on account of the violent muscular work, and most investigators have found an increase in the ammonia fraction. Indeed, there were some who for a time thought that the symptoms might be the result of a poisoning with this excess of ammonia, but that has been abandoned, and it even appears that with proper technical methods there may be no such

excess of ammonia excreted. The other nitrogenous substances are not characteristically changed.

More attention has been devoted to the inorganic substances, such as calcium, magnesium, phosphorus, etc., with the most variable results. It was found that the injection of calcium salts into the veins would quickly cut short all symptoms of tetany, and consequently interest was centered for a time on the extent of the excretion of calcium and its proportion in the blood and brain of tetany animals. Most authors have found evidence of the impoverishment of the blood and brain with regard to calcium and also of an excessive excretion of this substance, while others have not agreed with this but have tried to show, on the contrary, that the conditions are either normal or vary so slightly from normal as to give no basis for the explanation of the symptoms. Others, still, have found rather a change in the proportion ordinarily maintained in the tissues between the alkalies and the earthy alkalies, and declare that this is the important point.

The interpretation of such results is difficult at best, for the metabolism of calcium is so complicated and irregular and we are so ill informed as to the states in which it occurs in the tissues, whether as mobile or as fixed calcium, that our crude methods of analysis by incineration, etc., give us little useful information. Nevertheless, the hypothesis which is based on the well-known observation that withdrawal of calcium from a cell, leaving a greater proportion of sodium and potassium, renders the cell hyperexcitable is a tempting one and the facts rather tend to support it.

Of course, the mere fact that it is possible to abolish the symptoms of tetany by injecting calcium into the blood proves nothing, since calcium, like strontium and magnesium, depresses the excitability of even normal nerves to a very low point, and doubtless it is through this property that it masks the symptoms of tetany. So, too, it seems questionable whether the withdrawal of calcium from the food will allow any hyperexcitability to develop, although animals fed for some time with oxalates and citrates develop twitching and convulsions. On the other hand, Erdheim and his co-workers have shown that in those animals in which protracted or chronic tetany can be produced, an extraordinary disturbance of the processes of calcification occurs. The incisor teeth of rats become soft and break off because no calcium is deposited in the dentin, and bones fail to heal because the callus calcification is so delayed. But the implantation of a parathyroid will at once reestablish the calcification, which continues as long as the graft lives.

On the whole, then, the idea that the symptoms of tetany are produced by the withdrawal of calcium from the cells, leaving them hyperexcitable, forms a plausible working hypothesis supported by some facts and not detracted from by any cogent arguments. So it may well be that the change in the blood in tetany is caused by the presence of something which precipitates or renders useless the calcium of the nerve-cells.

That there may be other factors at work is suggested by the occurrence of various trophic disturbances in nails and skin and in the crystalline lens which becomes opaque in some protracted cases of tetany; but it will appear that in attempting to explain the various forms of spontaneous tetany in man, the possible relation of disturbances of the calcium metabolism comes constantly to one's mind.

The ideas as to the intimate correlation of the organs of internal secretion, which have been so elaborated with

regard to the thyroid, adrenal and pancreas, are only beginning to be applied to the parathyroid, and there are experimental data which seem to show vaguely that the activities of the other organs are in some way influenced by the activities of the parathyroid and *vice versa*. Thus, for example, the production of glycosuria is much influenced by these glands, since it appears more readily after their extirpation or the injection of epinephrin than in the normal animal or in the thyroidectomized one. Only a beginning has been made, however, in the study of these relations.

In human disease the parathyroid plays a part, so far as we know, in the various forms of spontaneous and postoperative tetany and also in certain diseases which exhibit a disturbance in the process of calcification, such as osteomalacia and rickets.

The simplest example is undoubtedly the postoperative tetany in which the parathyroids may have been removed or crushed or their circulation so impaired that they are unable to function. Usually in such a case there is left behind some gland-tissue sufficient to maintain life if the immediate emergency be tided over, so that there is time for it to reestablish itself or even undergo compensatory hypertrophy. The smallest gland or even a portion of a gland if in good condition seems to be sufficient to carry on the functions of the whole in otherwise normal persons, but still in such persons there is often a long period in which insignificant disturbances seem capable of bringing on symptoms.

It is much more difficult to understand those forms of spontaneous tetany which are not dependent on any injury or disease of the parathyroid glands, but arise as the result of the production in an extreme degree of those conditions which occur in the blood and tissues after parathyroidectomy in spite of the presence of the normal glands. This may perhaps be regarded as an excessive strain before which the normal glands are relatively insufficient. Such, for example, is the tetany which occurs in pregnancy and lactation, although we have no satisfactory information as to the character of the material which so overtaxes the parathyroids, unless it proves correct that pregnancy and lactation themselves involve the extraordinary withdrawal of calcium.

Possibly some different explanation is required in the case of that tetany which occurs sometimes in several members of a family or in some localities in certain sorts of workmen, especially shoemakers. Recently it has been suggested that the character of their food may be at fault and especially the rye bread which at certain seasons contains ergot, since it has been actually found that many of the symptoms of tetany can be experimentally reproduced by poisoning with ergot. Other poisons, too, such as phosphorus, lead, tuberculin, etc., seem capable of producing such symptoms in predisposed persons.

Infantile tetany occurs almost entirely in artificially nourished children and the possibility at once suggests itself that the symptoms are caused by something in the food. Since cow's milk, which is known to be rich in calcium, generally forms the basis of this food, Stoeltzner has actually thought of the tetany as a direct calcium poisoning. Others have shown, however, that relatively little calcium is absorbed by these infants from cow's milk and assume that there must be some other injurious material there. It is at least fairly clear that when the child is given mother's milk or even starchy food, the symptoms tend to disappear, and some have even reported definite cures from the administration of calcium. Analysis of the blood and brains of these infants

has given various results, some authors finding the calcium present in normal quantities, others finding it much decreased, while still others lay less stress on its absolute quantity than on the proportion between the alkalies and the earthy alkalies.

Erdheim and his associates have felt that some injury of the parathyroid must be present as the underlying cause and have actually found hemorrhages in the glands (probably produced mechanically at birth) which they think prevent the proper development and functioning of the glands. But these have been observed in normal children, too, and spasmophilic infants have been found without them, so that on the whole the argument for their causal importance does not seem quite convincing, especially when we remember how little parathyroid tissue is required to maintain an otherwise normal animal in health.

Gastric tetany is also practically unexplained in spite of the great amount of study which has been devoted to it and the numerous theories proposed with regard to it. Evidently it is not due to any absolute insufficiency of the parathyroid glands, for they have always been found intact, but rather to the development of a change in the circulating blood like that which arises on the loss of the glands, but produced in some other way, and of such intensity as to cause symptoms in spite of the presence of the glands. Whether this change is due to the absorption of poisonous materials from the obstructed stomach or to the loss of great quantities of gastric juice with its hydrochloric acid one cannot as yet say, although there is some experimental evidence in favor of the latter view.

With regard to osteomalacia and rickets, it may be said that Erdheim's theory as to the important part played by the parathyroid glands rests on his observation of their control of calcium metabolism and ossification, but partly also on the finding of adenoma-like nodules in the glands in several cases of osteomalacia. The obvious similarity between the failure of calcification in osteomalacia and in the parathyroidectomized rats would suggest an insufficiency of the parathyroids in osteomalacia, but the presence of tumor-like growths in these glands seem to point rather to an extraneous cause of the metabolic disturbance and a relative insufficiency of the glands.

With even this slight knowledge of the nature of tetany, several therapeutic measures suggest themselves and have been put into practice with more or less success. Of course, it is well known that gastric tetany can be relieved at once by gastro-enterostomy, that the tetany of pregnancy often stops on the delivery of the child and that infantile tetany may be cured by dietetic and hygienic measures, but in other cases in which the cause is not so plain or in which the parathyroid glands have been destroyed treatment is not so satisfactory.

In postoperative cases and indeed in many others the symptoms may be so violent and threatening as to constitute an emergency, so that some heroic measure is needed to save the patient's life. But when the symptoms are limited to slight twitchings or feelings of uneasiness, other forms of treatment may succeed which would be valueless in the violent form.

As in the case of the thyroid gland, it has been attempted to replace the function of the parathyroid by administering an extract of the gland, and, indeed, this is possible. One can stop the symptoms in a parathyroidectomized animal for a short time by injecting intravenously an extract of the gland. Such injections could hardly be practiced over a long time, however, and the extract has therefore been given by mouth. It has

been shown that the active principle of this extract lies in the nucleoproteid which can be precipitated from the watery suspension by an acid, and Dr. Berkeley reports good results from the use of this material in human cases. The fresh glands could be used in the same way, but the extract is more convenient and much more easily procured. Reported results differ widely, however, for while Berkeley and a few others apply it with enthusiasm, many, including Pincles and Escherich, have found no result from giving parathyroid by mouth. In experimental animals I have never been able to observe much effect from its administration in this way.

Blind efforts have been made for years and are still being made to cure tetany by feeding thyroid extract—sometimes apparently with good results. The explanation that parathyroid material is included in the dried thyroid seems, however, absurd, for the doses would be infinitesimal.

Soluble calcium salts will stop the symptoms of tetany after parathyroidectomy very promptly if injected intravenously, and even if given by mouth in large doses, and it is possible in that way to keep such an animal alive for a long time. It does not cure the condition, however, but only masks the symptoms which appear again when its effect is worn off. Its use must then be, like that of strontium or magnesium, to tide over in emergencies the period of danger, or in protracted cases of a milder type, to relieve the symptoms. Often, after an operation in which the destruction of the parathyroids has not been complete, the remnants will recover their function and hypertrophy so as to be practically adequate to maintain health, and it is in this period of recovery that calcium may be especially useful. In the spontaneous cases of severer character, some writers have reported good results from its use, but others have observed no effect whatever.

Naturally the ideal therapeutic measure would be to implant with their circulation complete new parathyroid glands to take the place of those which were destroyed or to add their influence to that of the relatively insufficient glands, but on account of their small size, this is impossible. Nevertheless, they have been implanted, without reestablishing their circulation, in the sheath of the rectus muscle and other places; and sometimes, even though the central part becomes necrotic, the more superficial layers remain alive. Dr. Halsted has experimented with this method and has succeeded in keeping a dog alive and well for months with such a graft. Its efficiency was proved by the fact that the dog quickly died of tetany when the graft in its turn was excised, and at autopsy no other trace of parathyroid was found. Dr. Halsted states that it is impossible to get parathyroids from animals of another species to grow and very difficult to succeed with glands from another animal of the same species; further, that even with the transplantation of one of the animal's own glands, it is necessary that there should be an actual need of parathyroid function before the graft will take. Still, these are the conditions which exist when the surgeon suddenly realizes that he has excised the parathyroid with the thyroid, and much may be hoped from their immediate reimplantation. Several cases have already been reported in which this and even the implantation of a gland from another person have been successful.

In conclusion, then, it becomes evident that we are very imperfectly informed concerning the parathyroids. It is certain that they exercise a peculiar and very important function in preventing the appearance of an extraordinary change in the circulating fluids, which in turn

produce an extreme hyperexcitability of the whole nervous system. What metabolic process is responsible for this change we do not know, but it sometimes makes itself felt in spite of the parathyroid glands. There is much evidence that it produces or even consists in a disturbance in the metabolism of calcium which may well be the cause of the heightened nervous irritability. That the parathyroids control this is shown by the curative effects of injecting their extract or implanting them, and we must hope that in the near future we may be able to perfect this method so as to gain the mastery of the disease.

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THE INTERNAL FUNCTION OF THE PANCREAS *

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The view that the pancreas produces an internal secretion has been generally accepted. No one, however, has been able to obtain from the pancreas an internal secretion and proof of its existence is not complete.

Before reviewing the evidence at hand it would be well to describe briefly the nature and actions ascribed to the internal secretions. The internal secretions are defined as the products of a specific activity of an organ or tissue which pass through the blood to other organs or tissues in which they exert a stimulating or inhibitory influence on the material or energy stored up in the cells. These chemical bodies which form the internal secretions are called hormones, a term derived from a Greek verb, meaning to awake or excite. They are divided by Biedl into the assimilatory and the dissimilatory hormones. The former aid in the upbuilding of the living substance in the cells, the latter in the breaking down of the living substance. Both regulate the activity of the cells.

The internal secretions, unlike the external secretions, are not formed exclusively in epithelial cells. Epinephrin is produced in the chromaffin tissue which is closely related genetically with the sympathetic nervous system, and there is evidence that the internal secretion of the testicles is formed in the interstitial tissue. Little is known of the chemical constitution of hormones except that it probably varies greatly with the secretion, and may be a simple or complex body. As all internal secretions are stimulatory substances and do not furnish nutritive material to the cells they are able to exert their specific action when present in very small quantity.

The existence of an internal function of the pancreas, although not necessarily an internal secretion, has been a justifiable assumption since the discovery of von Mering and Minkowski¹ that total removal of the pancreas of dogs always produces a severe and rapidly fatal diabetes. The glycosuria reaches its maximum in two or three days, and persists even when the animal is on a diet free from carbohydrates, or when no food is given. Depancreatized dogs die within a few weeks. The symptoms resemble those of severe human diabetes, and acidosis, although not common, may develop.

After partial pancreatectomy, if more than one-tenth of the pancreas is left behind in the body, glycosuria

* Read in the Symposium on Internal Secretions in the Joint Meeting of the Sections on Practice of Medicine and Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Arch. f. exper. Path. u. Pharmacol., 1889, xxvi, 371.

may not result. Sandmeyer² showed that mild diabetes would gradually develop if the greater part of the pancreas was extirpated and at the same time the pancreatic ducts were tied. Lamson, Marks and myself³ found that a rapid sclerosis and atrophy of the pancreas were produced by separating the pancreas from the duodenum after all the ducts had been tied. Later Spooner and I⁴ discovered that in dogs this atrophy was associated with a diminished tolerance for carbohydrates. The limit of assimilation did not fall so low that glycosuria developed on a non-carbohydrate diet. In a hitherto unreported experiment we found that the removal of the processus lienalis and the processus uncinatus, amounting to nearly two-thirds of the entire pancreas, was followed by no lowering of the limit of assimilation for glucose. Both before and after the operation the dog could take up to 125 gm. of glucose without the appearance of sugar in the urine.

Important evidence in favor of the view that the pancreas produces an internal secretion is furnished by the results of the transplantation of pancreatic tissue. Minkowski,⁵ Hédon,⁶ and others have shown that if a portion of the pancreas (processus uncinatus) with its mesenteric attachment be drawn out of the abdomen and placed beneath the skin it will prevent the development of diabetes after extirpation of the remainder of the organ. The removal of the graft is promptly followed by a fatal diabetes.

The extirpation experiments would seem to offer convincing evidence that the diabetes that follows the removal of the pancreas is due to the lack of pancreatic tissue. Pflüger,⁷ however, maintained that it might be the result of cutting the nerves that pass to the pancreas. He attempted to explain the prevention of diabetes by a subcutaneous graft as dependent on the presence of nerves in the mesenteric stalk running to the graft. When the mesenteric attachment was cut, lack of blood-supply caused necrosis of the transplanted piece of pancreas, and diabetes resulted. So Pflüger's claim was difficult to disprove.

In three instances reported by Hédon⁶ and in one experiment of Lombroso⁸ the stalk was cut without diabetes resulting. In Lombroso's animal the autopsy showed that a blood-vessel from the skin had grown into the graft. The external secretion produced in the subcutaneous graft escapes through an opening made in the skin. The absence of diabetes after the loss to the body of all the external secretion indicates that diabetes is not due to any change in the pancreatic juice. This was clearly proved in our experiments in which all the pancreatic juice was excluded from the intestine. Five of the dogs that lived from five months to two years after the operation were found at autopsy to have almost total atrophy of pancreatic tissue, so that in addition to an absence of pancreatic juice from the intestine there was little or no production of pancreatic juice in the body during a period of many months.

Martina,⁹ of Greifswald, an assistant of Payr, transplanted a portion of the pancreas into the spleen. Removal of the remainder of the pancreas resulted in diabetes, but of a less severe type, it was claimed, than that seen in depancreatized dogs. The animal lived the

unusually long time of three months after the onset of the diabetes. At the autopsy living pancreatic tissue was found in the spleen. Details of this experiment were not published owing to the death of this young investigator. Minkowski, the great student of experimental diabetes, at the time a professor in Greifswald, and in a position to judge of the accuracy of Martina's observation, regarded the work as furnishing important evidence against the neurogenic hypothesis and in favor of an internal secretion.

A more successful and more convincing experiment than that of Martina has been made by Murphy and myself. The greater part of the processus uncinatus of a dog was placed in the spleen. The artery which entered the distal end of this portion of the pancreas was not cut. Ten days later the remainder of the pancreas was extirpated. At this second operation the site of the transplantation into the spleen was occupied by an abscess about 4 cm. in diameter. The pus was removed and the mesenteric stalk which carried the blood-vessels to the graft was cut. We feared that all the pancreatic tissue had been destroyed by the suppurative process. The dog, however, rapidly recovered from the operation and the urine remained free from sugar. There was the usual rapid loss of weight and strength seen after excluding the pancreatic juice from the intestine. The weakness became so extreme that it was necessary to feed fresh pancreas. As a result the dog regained its strength in fair measure and lived for six months. Its tolerance for carbohydrates dropped to a low level (glycosuria followed the feeding of 40 gm. of glucose) but true diabetes did not develop.

At the autopsy, a large thick-walled abscess was found, from one side of which projected the remains of the spleen. A cone-shaped mass of fibrous tissue occupied the lower part of the spleen with its base formed by the abscess wall. On microscopic examination a small amount of pancreatic tissue was found imbedded in the fibrous tissue. The pancreatic graft was 1 cm. or less in length and 1 to 3 mm. in width. It was composed of small areas of epithelial tissue, separated by fibrous tissue which contained nerves and ganglion cells. There were distinct well-formed acini, but no structures that resembled islands of Langerhans.

No other pancreatic remains were found either attached to the duodenum or elsewhere; hence the internal function of the pancreas must have been performed by this small bit of the gland in the center of the spleen. Does not the conclusion seem justified that this small collection of pancreatic cells produced an internal secretion which prevented the development of diabetes? That this internal secretion was regulated by nervous impulses is probable and does not militate against the theory of an internal secretion. I know of no other reasonable explanation of our findings.

Pflüger quoted Hédon as saying that he would not accept the view that the pancreas produces an internal secretion, until pancreatic diabetes could be checked by administering some pancreatic product. The fact that in depancreatized dogs no diminution of the glycosuria has been produced by injecting or feeding fresh pancreas is not a valid argument against the existence of an internal secretion. The chromaffin tissue forms an internal secretion which contains a definite and well-recognized chemical substance, epinephrin, yet the administration of epinephrin or the fresh adrenal gland does not lessen the symptoms of adrenal insufficiency in Addison's disease.

2. Ztschr. f. Biol., 1894, xxxi, 12.

3. Tr. Assn. Am. Phys., 1909, xxiv, 226.

4. Arch. Int. Med., 1911, vii, 665.

5. Arch. f. exper. Path. u. Pharmacol., 1893, xxii, 271.

6. Arch. d. Physiol., 1892, iv, 617.

7. Arch. f. d. ges. Physiol., 1907, cxviii, 267.

8. Ergbn. d. Physiol., Wiesbaden, 1910, ix, 11.

9. Deutsch. med. Wchnschr., 1908, No. 1, 45.

As already stated, all attempts to obtain from the pancreas an internal secretion have failed. Spooner and myself⁴ have published evidence which seems to indicate that the gland removed from the body does contain an internal secretion. A dog with atrophy of the pancreas produced by separating the gland from the duodenum was under observation for nearly three years. After the limit of assimilation for glucose had fallen to a low level fresh sheep pancreas was fed. The tolerance slowly rose to the normal and remained there for several weeks after the administration of pancreas was discontinued. It then slowly fell a second time to a low level. About a year later the tolerance was raised by feeding pig's pancreas, and it was maintained at a high point as long as the gland was fed. Two attempts to increase this dog's assimilation for glucose by feeding the gland in summer failed, possibly owing to changes in the pancreas due to decomposition, although the glands were placed in cold storage as soon as received from the abattoir.

In other dogs, in which the administration of pancreas was begun a shorter time after the onset of atrophy, the increase in tolerance has been less marked. Evidence was sought to decide whether or not the property of the pancreas to raise the tolerance was due to a thermolabile substance, but the results were inconclusive owing to the fact that this test was made in summer with pancreas that may have been inactive before it was heated.

In considering our feeding experiments it should be remembered that our dogs, unlike those of other investigators, did not have severe diabetes. When on a non-carbohydrate diet the urine was free from sugar. In depancreatized dogs it has been asserted that the absorption of fat and protein is not increased by the feeding of pancreas; but in our animals the absorption of food material was greatly improved and there was a striking gain in weight and strength.

Can the increase in the assimilation of glucose be attributed to the improved general condition of the animal? There is no evidence known to me that supports such a view. No matter how excellent is the health and nutrition of a dog, total pancreatectomy is always followed by glycosuria within from twenty-four to forty-eight hours and the output of sugar reaches a high point a few days after the operation.

As already stated, the increased tolerance had persisted at the maximum level for several weeks after the feeding of pancreas was discontinued; in one instance, it continued to rise for a short time thereafter. The view that the improved condition of nutrition favored the hypertrophy of the atrophic remains of the pancreas and that this increase in pancreatic elements explains the greater power to assimilate glucose seems untenable because the increased tolerance soon fell to a low level after the feeding of fresh pancreas was discontinued. That the pancreas fed to the dog contained an internal secretion which was absorbed from the intestine into the blood is a justifiable assumption.

The theory that there is an internal secretion essential to carbohydrate metabolism is the only one that seems to explain these findings. The results of these feeding experiments speak even more strongly against the neurogenic theory than do those of the organ-transplantations.

In the dog that lived thirty-four months with an atrophied pancreas the autopsy showed that the entire pancreas had become converted into a small thick strand of fibrous tissue, the outlines of which merged into the surrounding mesentery. The corpus pancreatis was reduced to a nodule the size of a bean. Microscopic examination

of different parts of this pancreatic remains showed neither acini nor islands of Langerhans, but only scattered groups of epithelial cells interpolated between bundles of connective tissue. The main pancreatic duct, somewhat dilated, was found near the center of the sclerosed tissue. The evidence is convincing that these small groups of cells, although so changed as no longer to be recognizable as pancreatic epithelium, were able to functionate so effectively as to prevent the development of glycosuria. In four other dogs and in two cats no islands of Langerhans were found in the atrophied pancreas, but acini were easily demonstrable. None of these animals developed diabetes.

Much has been written on the islands of Langerhans and their relation to the internal secretion and to diabetes, and excellent studies have been made. The structure of the islands of Langerhans favors the view that their function is to furnish an internal secretion in diabetes and the alterations in the islands described by Opie and others point to this conclusion. Weichselbaum asserts that by use of special methods changes in the islands of Langerhans can be found in every case of diabetes. His observations and conclusions lack confirmation. Too much has been claimed by the supporters of the island theory. The incorrect statement is found repeatedly in the literature that the acini atrophy and disappear after the pancreatic ducts are tied, but the islands remain intact. The observations made in our laboratory clearly prove that both structures undergo progressive atrophy and destruction and become greatly diminished in number.

Some interrelation of the several organs of internal secretion is probable; although this is a domain rich in hypothesis it is poor in fact.

The view that the pancreas inhibits the action of epinephrin in mobilizing sugar has rested chiefly on the results of Zuelzer's¹⁰ experiments. This investigator found that when epinephrin was mixed with pancreatic extract its power to produce glycosuria was lost. Now we know, thanks to the work of von Fürth and Schwarz, that the absence of glycosuria was not due to any inhibitory action of the pancreatic extract, but to the toxic action of the injected pancreatic extract (foreign protein) on the kidneys.

I wish to report two recent observations which seem to indicate a chemical correlation between the pancreas and two organs of internal secretion — the thyroid and the sexual glands.

In three dogs in which at the time of death chronic pancreatic insufficiency had existed from five to thirty-four months I found the thyroids so altered in microscopic appearance as to be scarcely recognizable. The size, color and consistency of the thyroids were natural, but histologic study showed either a partial or total disappearance of colloid and in its place were desquamated epithelial cells, so numerous as to fill many of the alveoli. The cells varied in size, but large ones predominated. Their nuclei took the stain deeply and uniformly.

So far as I know, this change in the thyroid has not been hitherto described. Whether it indicates a compensatory action on the part of the thyroid or is simply a degenerative change can probably be decided by extirpation of the thyroids in animals with pancreatic insufficiency in which the atrophy of the pancreas is extreme and of long duration.

Atrophy of the pancreas was induced in a female puppy about 6 months old. This animal was under

10. Berl. klin. Wehnschr., 1907, p. 474.

11. Wien. klin. Wehnschr., 1911, xxiv, 115.

observation for nearly three years after the separation of the pancreas from the duodenum. She never menstruated and the nipples and external genitalia did not develop. It seemed to be a clear case of sexual infantilism of pancreatic origin. The dog in its actions remained a puppy to the end of her life.

The association of sexual infantilism with hypofunction of the pancreas is another bond which binds the pancreas to the undoubted organs of internal secretion, the thyroid and the glandular part of hypophysis cerebri. My observation is difficult to explain in any other way than that the pancreas furnishes something to the blood which influences the development of the secondary sexual characteristics, in other words, an internal secretion.

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THE ANATOMIC AND PHYSIOLOGIC EFFECTS OF IODIN ON THE THYROID GLAND OF EXOPHTHALMIC GOITER *

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The major interest in the pathology of the exophthalmic goiter syndrome still hinges about the thyroid gland as it has done in an indefinite manner since 1840 and in a specific way since Gauthier and Möbius in 1886 and 1887 advanced the hypothesis that the symptom-complex was dependent on hyperactivity of the thyroid gland with a resultant thyroid intoxication.

But, notwithstanding the large amount of study and experiment that has been directed to this subject during the past twenty-five years, the thyroid hypothesis of the etiology of the exophthalmic goiter syndrome still remains an hypothesis.

In recent years the clinical evidence, especially that of surgical therapy, tends to support the thyroid hypothesis, while at the same time the evidence from pathologic anatomy, chemistry and pathologic physiology rather suggests that the thyroid does not play a primary rôle in the production of the symptom-complex.

I. ANATOMIC CHANGES IN THE THYROID

From the standpoint of pathologic anatomy the changes are body-wide and highly variable. The most striking and most constant are those of the lymphoid and thyroid tissues.

Confining ourselves to the thyroid changes, widely different views have been expressed as to their significance. Thus Virchow,¹ summarizing the literature to 1863, stated that there "was neither a distinct variety nor a distinct size nor yet a distinct stage of goiter associated with the symptom-complex," and concluded that such changes could not be considered as causal or primary.

Beginning particularly with the development of the thyroid hypothesis of Gauthier and Möbius and the operative treatment of exophthalmic goiter, the thyroid changes were more extensively studied and the trend of opinion favored the view that the morphologic changes were constant and characteristic. Thus the published

studies of Greenfield,² Haemig,³ Farner,⁴ Lewis,⁵ Ewing,⁶ Wilson⁷ and many others strongly supported such a view.

On the other hand, the studies of Virchow,¹ A. Kocher,⁸ Reinbach,⁹ Brissaud,¹⁰ MacCallum,¹¹ and Simmonds¹² have shown a wide range of morphologic changes in the thyroid.

My own experience during the last seven years includes careful anatomic examinations of 137 operative and autopsy specimens of the thyroid from patients with exophthalmic goiter. The results of part of this series have already been published,¹³ and those still unpublished will not materially alter the proportion or types of changes then noted. I found that the symptom-complex as at present diagnosed was not associated with either constant or characteristic changes in the thyroid, although in about three-fifths of all cases some degree of active hyperplasia was present at the time of removal.

Thus, as larger series of cases have become available for study, opinion is again returning to the view of Virchow, that the symptom-complex may be present with the thyroid in any anatomic state—normal, actively hyperplastic, colloid, in glands the seat of tumors, benign or malignant, or with high degrees of atrophy. These changes, as has long been known, are those common to goiter in general, irrespective of their clinical association but with this difference that the proportion of glands showing active hyperplasia (developing goiter) at the time of operation is at present higher in a series of exophthalmic goiters than in ordinary goiter.

II. IODIN CONTENT OF THE THYROID

Turning to the iodine contents of thyroids in relation to goiter formation, it is now established that the iodine content varies with the amount of visible colloid and inversely with the degree of active epithelial hyperplasia. This relation has been found constant for all mammalian thyroids thus far studied.

The effect of iodine on active thyroid hyperplasia has also been studied in some detail and in all the so-called simple hyperplasias of man and the lower animals it has been found that following the administration of iodine there is a rapid storage of iodine in the thyroid in association with the accumulation of colloid and a progressive involution (throughout three to five weeks) of the active hyperplasia to its colloid or resting stage.

With these facts concerning the iodine relations established for simple thyroid hyperplasia (goiter) and with the anatomic similarity of the hyperplasia found in exophthalmic goiter with that occurring spontaneously in simple goiter or in experimentally induced hyperplasia, it is of importance to ascertain whether iodine induces the same effects on the hyperplasia of exophthalmic goiter. Clinically both good and bad results have followed the use of iodine in exophthalmic goiter and it is still the prevailing opinion that iodine should not be used in this disease, although clinicians generally have noticed a reduction in the size of the thyroid following

* Read in the Symposium on Internal Secretions in the Sections on Practice of Medicine and Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Virchow: *Die krankhafte Geschwülste*, 1863, iii, 74.

2. Greenfield: *Brit. Med. Jour.*, 1897, ii, 1261.

3. Haemig: *Arch. f. klin. Chir.*, 1897, iv, 1.

4. Farner: *Virchows Arch. f. path. Anat.*, 1896, cxliii, 509.

5. Lewis: *Surg., Gynec. and Obst.*, 1906, iii, 477.

6. Ewing: *Tr. Assn. Am. Phys.*, 1906, xxi, 567.

7. Wilson: *Am. Jour. Med. Sc.*, 1908, cxxxvi, 851.

8. Kocher, A.: *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1902, ix, 1; *Arch. f. klin. Chir.*, 1910, xcii, 442; *Virchow's Arch. f. path. Anat.*, 1912, cxviii, 86.

9. Reinbach: *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1901, viii, 247.

10. Brissaud: *Semaine méd.*, 1895, xv, 326.

11. MacCallum: *THE JOURNAL A. M. A.*, Oct. 5, 1907, p. 1158.

12. Simmonds: *Deutsch. med. Wchnschr.*, 1911, xxxvii, 2164.

13. Marine and Lenhart: *Arch. Int. Med.*, 1911, viii, 265.

its use. While individual cases, in which the histologic structure and the iodine content of the gland have been examined following the administration of iodine, have from time to time been reported by Oswald¹⁴ and others, it has only been during the last two or three years that this question has received extended investigation. Thus A. Kocher¹⁵ reported a series of 160 thyroid examinations and in those known to have received iodine he found that there had been a definite storage of iodine in the thyroid and that this accumulation of iodine was associated with an involution of the active hyperplasia. It was on the basis of this finding that Theodore Kocher introduced the hypothesis of active and inactive iodine in the thyroid as an attempt to explain the well-known clinical observation that the highest iodine contents were usually found in the milder cases.

Last year Lenhart and I¹³ reported our observations on the effect of feeding iodine, on the iodine content and histologic structure in a series of fifteen cases of undoubted exophthalmic goiter. Our findings were similar to those of Kocher, that a rapid storage of iodine in the gland takes place and an involution of the hyperplasia to the colloid state results.

Thus the thyroid hyperplasia of exophthalmic goiter behaves toward iodine exactly as does any other thyroid hyperplasia of any animal thus far investigated and one can with certainty conclude that physiologically as well as anatomically there is as yet no known attribute of the thyroid of exophthalmic goiter that may not be shared by the thyroid overgrowth of any other clinical association.

III. EFFECT OF THE ADMINISTRATION OF THYROID

Another series of experiments that have been the obvious though natural outcome of the Gauthier-Möbius hypothesis of the thyroid origin of exophthalmic goiter are those in which the effects of extracts of thyroid, or desiccated thyroid from exophthalmic goiter, on normal animals, on cretin or myxedematous animals, and lastly on exophthalmic goiter patients themselves have been studied.

To review briefly the development of this phase of the subject: It had been observed from the beginning of thyroid opotherapy that patients with exophthalmic goiter were relatively more affected than were patients with ordinary goiter, and clinically this reaction was an exaggeration of the existing symptom-complex. Ballet and Enriquez¹⁶ had reported the experimental reproduction of the exophthalmic goiter symptom-complex in dogs by the use of large amounts of desiccated thyroid, and Notthaft¹⁷ had observed the development of the symptom-complex in a normal individual following the use of excessive amounts of desiccated thyroid. All these observations were interpreted as proof of the Gauthier-Möbius hypothesis.

On the other hand, the more extensive experimental observations which followed this new suggestion have not confirmed the earlier views. Thus Cunningham¹⁸ failed to produce in birds or mammals any symptom-complex resembling exophthalmic goiter. In our feeding experiments on dogs we were unable to produce any noteworthy rise in the temperature or pulse-rate or to bring about thyroid enlargement or exophthalmos by feeding thyroid either fresh or dry. The effect of thyroid substance was in general proportional to the iodine content, and Sto-

land¹⁹ has recently reported similar results from the use of normal and hyperplastic dog thyroids on rats and guinea-pigs.

The latest extensive work is that reported by Carlson, Rooks and McKie,²⁰ who likewise have been unable to reproduce any symptom-complex resembling exophthalmic goiter. All the recorded observations, whether interpreted positively or negatively, have shown essentially identical pharmacologic reactions for the thyroid substance—increased appetite, loss of body weight, diarrhea, increase in the nitrogen and carbon dioxide output and oxygen consumption—and the different conclusions reached seem to be dependent on the interpretations placed on this common pharmacologic reaction.

Since iodine has been found to have such an intimate relation to the physiologic activity of the thyroid, and since large doses of iodine have long been known to exaggerate the symptom-complex in certain types of exophthalmic goiter, this element also has been advanced as an etiologic factor in exophthalmic goiter, and Kocher has introduced the term "iodine-Basedow" in this connection. Kocher,²¹ Goldflam,²² Cerioli²³ and others have reported cases in which an existing symptom-complex was exaggerated and also cases in which the symptom-complex was initiated by the excessive use of iodine. But here, as in the thyroid feeding experiments, extensive experimental investigation has revealed a common pharmacologic and toxicologic action for iodine in all forms of thyroid hyperplasia and the different conclusions are dependent on the different interpretations that have been placed on this common action.

Turning to the experiments with exophthalmic goiter thyroid, Soupault²⁴ found that feeding such gland to guinea-pigs produced less evidence of physiologic activity than did normal human or sheep thyroid. Hutchison²⁵ also fed the thyroid proteins of exophthalmic goiter glands to patients and later used extracts experimentally on dogs with negative results. Gley and Cleret²⁶ injected intravenously into dogs and rabbits serums obtained from six patients with exophthalmic goiter, but observed no changes in the blood-pressure or pulse-rate. Gley²⁷ used fresh extracts of thyroids from patients with exophthalmic goiter, simple goiter, thyroid cyst fluid and ox thyroids injected intravenously into dogs in doses of 0.5 gm. per kilogram. He found, as others had found, that all thyroid extracts tend to cause a slight fall of blood-pressure and was unable to make out any difference between the action of exophthalmic goiter extracts and those of ordinary goiter. The normal ox thyroid extracts induced about twice the effect on the circulation that like amounts of exophthalmic goiter extracts did. Schoenborn²⁸ had two years before used fresh normal salt solution-glycerin extracts of seven exophthalmic goiters, three ordinary goiters and twenty-three thyroid tumors. He used these extracts intravenously in cats and rabbits and came to the conclusion that there was no essential difference in the cardiovascular action of the thyroid juice dependent on clinical association, but that the slight differences noted were due to

19. Stoland: *Am. Jour. Physiol.*, 1912, xxx, 37.

20. Carlson, Rooks and McKie: *Am. Jour. Physiol.*, 1912, xxx, 129.

21. Kocher: *Arch. f. klin. Chir.*, 1910, xcii, 1166.

22. Goldflam: *Berl. klin. Wchnschr.*, 1911, xlviii, 423.

23. Cerioli: *Policlinico*, Rome, 1909, xvi, sez. prat., 527.

24. Soupault: *Rev. de Neurol.*, 1897, p. 630.

25. Hutchison: *Brit. Med. Jour.*, 1896, ii, 896.

26. Gley and Cleret: *Jour. de physiol. et de path. gén.*, 1911, xiii, 928.

27. Gley: *Jour. de physiol. et de path. gén.*, 1911, p. 955.

28. Schoenborn: *Arch. f. exper. Path. u. Pharmacol.*, 1909, lx, 390.

14. Oswald: *Virchows Arch. f. path. Anat.*, 1902, clxix, 453.

15. Kocher, A.: *Arch. f. klin. Chir.*, 1910, xcii, 442.

16. Ballet and Enriquez: *Semaine méd.*, 1894, xiv, 66.

17. Notthaft: *Centralbl. f. inn. Med.*, 1898, xix, 353.

18. Cunningham: *Jour. Exper. Med.*, 1898, iii, 147.

ifferences in the amount of iodized thyroglobulin, as on Cyon and Oswald²⁹ had found.

Recently Klose³⁰ and Lampe, Liesegang and Klose³¹ have repeated some of this work and have arrived at opposite conclusions. They urge as objections to all previous work that the exophthalmic goiter thyroid extracts must be fresh (from twenty to thirty minutes after operative removal from the patient) and that one must use susceptible animals which in their experience are to be found in nervous, irritable fox-terrier dogs. They were able to reproduce a pulse and temperature reaction lasting from two to six days in some ways similar to the postoperative pulse and temperature reaction in exophthalmic goiter. Their conclusion is the more striking when they state that the toxic principle is present only in the freshest gland and then, without any knowledge of the iodine content of the glands with which they worked, they believe the toxicity is dependent on a masked and abnormal iodine combination which they designate as "Basedow-iodine" because potassium iodide and sodium iodide introduced intravenously in large doses produced, in their hands, a somewhat similar temperature and pulse reaction and even the so-called Basedow blood-picture.³²

Baruch³³ has reported the production of exophthalmos, tachycardia, glycosuria and lymphocytosis in dogs, rabbits and rats by injecting whole-gland emulsions into the peritoneal cavity in from 5 to 20 c.c. doses. His results differ from those of Klose in that he was able to reproduce the clinical picture of exophthalmic goiter with extracts of several clinical types of goiter in young bitches irrespective of their nervous temperament.

Another series of observations bearing on the same phase were those reported by Fonio³⁴ from Koehrer's clinic. Fonio studied the effects of exophthalmic goiter thyroid preparations on the nitrogen metabolism and the blood-picture of myxedema patients with the object of finding out whether exophthalmic goiter thyroids were therapeutically more active than ordinary thyroid. He concludes that exophthalmic goiter thyroid is no more potent than other thyroid preparations of like iodine content or, in other words, that the activity varies with the iodine content.

During the past year, in Dr. Hoover's clinic at the Lakeside Hospital, we have made some observations bearing on this same question, but from another angle. We have fed desiccated exophthalmic goiter thyroid to patients with the complete exophthalmic goiter syndrome, in from 0.5 to 1.0 gm. doses daily for from ten to fifteen days, both with and without the use of iodine in addition. These thyroid preparations were low in iodine, varying from 0.01 to 0.03 per cent. In two patients the gradual fall in the pulse-rate due to rest continued throughout the experiment, while a third patient, who was getting 1 gm. of desiccated exophthalmic goiter thyroid daily and 0.7 c.c. syrup of ferrous

iodide three times daily, showed no appreciable difference in the average pulse-rate at the beginning and at the end of the eleven days' feeding. We have also used normal desiccated sheep's thyroid in about one-third the above doses in typical cases of exophthalmic goiter observed at the Lakeside Hospital Dispensary and in such cases it is well known that one usually gets in the course of a week's feeding a definite increase in the pulse-rate if there has been a definite increase in the total metabolism with a loss of body weight. One may therefore conclude that the effect of exophthalmic goiter thyroid when fed to patients with the exophthalmic goiter syndrome varies with the iodine content, and in this respect is similar to like preparations of other clinical associations.

SUMMARY

1. Neither specific nor constant anatomic changes in the thyroid of exophthalmic goiter have as yet been demonstrated.

2. The iodine content, the storage of iodine in the gland and the involution of active hyperplasia by the use of iodine are, so far as is at present known, identical with those iodine relations common to other clinical associations.

3. The thyroid of exophthalmic goiter has no different pharmacologic action on animals or therapeutic action on myxedema or toxic action on patients with exophthalmic goiter than thyroid preparations of other clinical associations with like iodine contents.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. PRATT, MARINE AND MACCALLUM

DR. CHARLES H. MAYO, Rochester, Minn.: If we are to believe Dr. Marine's statement there is no real reason for operating on the thyroid, as we now do, except to obtain the indirect effects of the operation. Why should a patient with exophthalmic goiter be relieved by an operation on the thyroid? That is the question which naturally arises. The bulk of the 137 cases practically all came from Dr. Crile's clinic. Dr. Crile is interested in experimental physiologic and clinic work, as well as is Dr. Marine, and yet he is satisfied with his results from the clinical standpoint. His patients are also satisfied and most of his new patients come to him because urged to do so by patients previously operated on. If Dr. Marine is correct, our present knowledge of exophthalmic goiter would lead us to believe that there is no real change in the gland and that pathologists the world over have been mistaken in their interpretation of the cell-increase. Dr. Marine's opinion is based on experience in comparative pathology of the thyroid gland and a small experience in thyroid disease in the human. His observations lead him to an opinion which is not supported by the surgeons of the present day.

DR. H. S. PLUMMER, Rochester, Minn.: Dr. Marine has done excellent work on the thyroid. My observations, however, do not confirm his conclusions, i. e., that the anatomic changes in the thyroid in cases of exophthalmic goiter are neither constant nor specific. We have known for several years that hyperplasia of the thyroid is present in most cases having a well-developed clinical complex of Graves' disease; that marked hyperplasia is seldom noted in the thyroid except in cases having Graves' disease, and that exophthalmos is but rarely associated with any type of goiter except the hyperplastic. In each year of our series, in fact, in all reported series, there have been sufficient exceptions to the above rules to cause doubt in definitely associating the toxic symptoms, exophthalmos and hyperplasia of the thyroid. In going over my statistics for the last five consecutive years I find that exceptions to the above rules have gradually diminished. This has come about from a clearer conception of the clinical pic-

29. Von Cyon and Oswald: Arch. f. d. ges. Physiol. (Pflüger's), 1901, lxxxiii, 199.

30. Klose: Arch. f. klin. Chir., 1911, xcv, 649.

31. Lampe, Liesegang and Klose: Beitr. z. klin. Chir., 1912, lxxvii, 601.

32. Bardenhewer (Arch. f. klin. Chir., 1912, xcvii, 729) has repeated Klose's experiments with potassium iodide and sodium iodide, and in six dogs he was unable to obtain any reaction comparable to those reported by Klose. That is, he found no noteworthy change in the pulse-rate or temperature, no albuminuria or glycosuria, no tremor or sweating or exophthalmos as reported by Klose. Klose in a short reply to this work (ibid., p. 829) states that these experiments do not repeat his because Bardenhewer did not use the nervous, excitable fox-terriers which Klose claims are absolutely essential.

33. Baruch: Zentralbl. f. Chir., 1912, xxxix, 316; 1911, No. 35.

34. Fonio: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1911, xxiv, 123.

tures that may accompany hyperplasia and "simple goiter" (adenoma and diffuse colloid).

The statistics of operation at the Mayo clinic seem to warrant these conclusions: (1) that hyperplasia of the thyroid never exists without a production of thyroid secretion in excess of the demands of the individual; (2) that exophthalmic goiter is a clinical entity associated with a definite pathologic process in the thyroid; (3) that, if hyperplasia of the thyroid is of a sufficient degree or extends over a long enough period, exophthalmos is almost sure to develop; (4) that no matter how intense the intoxication from an adenoma or colloid goiter not associated with hyperplasia, exophthalmos will not develop. Patients having simple goiter noticed the goiter at the average of 22.8 years, the evidence of intoxication at 36.6 years, and came to operation at 39.6 years. That a patient 23 years of age having an adenoma has a definite fixed chance of developing thyrotoxicosis during her thirty-seventh year and that the symptoms may so closely resemble the clinical complex of Graves' disease that the two cannot be distinguished is one of the strongest arguments in favor of the latter disease being directly due to a disturbance of the function of the thyroid.

DR. G. W. McCASKEY, Ft. Wayne, Ind.: The tremendous importance of the internal secretions has not yet been fully recognized by the medical profession. With regard to the results of the implantation of such a minute fragment of pancreas in the spleen, the question naturally arises whether the secretions might not have been due to an accessory pancreas somewhere along the gastro-intestinal tract. In spite of what Dr. Marine and others have said, the primary rôle of the thyroid in exophthalmic goiter appears to me to be established. I want especially, however, to speak of the probable rôle which the internal secretions play in immunity processes. Sir A. E. Wright says that while we do not know the precise point of origin of the immune bodies, we should consider every chemical compound in the body which has to do with the cure of disease as derived from internal secretions. Probably Wright used this term in a very broad sense, a sense which Dr. Meltzer apparently does not approve, as, for instance, the internal secretion of a single cell. In this broad sense it would include, for instance, chemical bodies elaborated by isolated cells, such as the leukocytes. As to the rôle of the thyroid in the immunity processes: in the acute infections it has been found by Roger that the thyroid gland is almost invariably increased in size. The normal gland is said to weigh about 25 gm.; in measles, typhoid, etc., the gland weighs 30 to 70 gm. The histologic change giving rise to the enlargement is that of a compensatory hypertrophy. It seems probable indeed that such an enlargement of the thyroid occurs in every acute infection. I recently had a case under observation, which, to my mind, points to the possibility of the thyroid playing a similar rôle in the early stages of chronic affections.

It seems to me quite possible that in the early stages of chronic infections, as well as in all acute infections, the thyroid and perhaps other glands, as well as isolated cells with dual functions, play a definite rôle. This would be in line with what Wright said, and I believe it is in this direction that we should look for the source of the immune bodies.

DR. LOUIS B. WILSON, Rochester, Minn.: We have come so definitely to a realization of the direct relationship between morbid anatomy of the thyroid and symptoms of thyrotoxicosis in our clinic, that the clinician can now prophesy in above 95 per cent. of his cases, before the patient is operated on, the presence or absence of hyperplasia. And the pathologist, without any knowledge whatever of the clinical symptoms, can, in above 85 per cent. of the patients having hyperplasia, tell from his examination of the thyroid what was the clinical stage of the case. If this is only guessing, it is mighty good guessing. The difficulty most men have encountered in attempting to explain the relationship of the morbid anatomy of the thyroid to the symptoms in exophthalmic goiter has come from their supposing that what is found in the gland is the thing that is doing the work in the body. There is an internal secretion in the gland, but when it stays in the gland it is doing nothing. It is only when it gets out of the gland

that it does something. If we once get that fixed in our minds it will help us to explain the questioned relationship. Drs. Blackford and Sanford, working in our laboratory at Rochester, have recently repeated and materially extended Gley's experiments. They have shown that when such a tolerance has been established by two or three injections of a given gland, as the thyroid, there is no tolerance established to injections of the same animal with extracts from another gland with known depressor qualities. They are now utilizing this new and apparently very important reaction in an extensive study of the relationships of the thyroid to other glands of supposed internal secretion. This field of investigation promises to be a very fruitful one. Its practical bearing can be appreciated, for example, in this, that the depressor action of extract of patients with exophthalmic goiter is very much greater than the depressor action from the extract of a simple thyroid. Since, however, the colloid goiter contains much more iodine than the exophthalmic gland, it would seem that the iodine, quite contrary to Dr. Marine's contention, instead of being a factor in the production of the depressor symptoms, has really nothing to do with the case.

DR. J. H. PRATT, Boston: Dr. McCaskey said that the results obtained in the transplanted pancreas experiments might have been due to an accessory gland. If an accessory pancreas had been present this might have been true, but I stated in my paper that careful search at the autopsy failed to reveal any pancreatic tissue except the transplant in the spleen.

DR. DAVID MARINE, Cleveland: From what we at present know of the thyroid and its physiology, it seems that the popular explanation of the good results from surgical treatment is inadequate; that is, there are more facts known than such a view would include. Dr. Plummer has stated in substance that in all their cases there was active hyperplasia; that may be true, because the presence of an active hyperplasia at the time of operation would rather indicate the stage of the disease than that all cases of exophthalmic goiter coming to operation have active hyperplasia as he seems to think. The active hyperplasia of the thyroid in exophthalmic goiter is histologically identical with the active hyperplasia of other clinical associations or of other animals, and I do not believe that any one can distinguish essential differences between a hyperplasia of the piscine thyroid and a hyperplasia of the human thyroid. It has long been known that all developing goiters are actively hyperplastic. In about 90 per cent. of cretins there is thyroid overgrowth, and in the developmental or actively hyperplastic stage of this overgrowth it is indistinguishable so far as we have been able to observe it in children, lambs, calves, pups and fish from the active hyperplasia of exophthalmic goiter. About three-fifths of our cases of exophthalmic goiter showed active hyperplasia, but of varying degrees, from the earliest change to the marked hyperplasia, and the pure colloid phase was several times observed in cases with the classical syndrome. Therefore, I do not believe that there is either a constant type of active hyperplasia or that active hyperplasia is constantly associated with the symptom-complex. In children, at puberty, in many infectious diseases and in malnutritious the thyroid may undergo hyperplasia, which is indistinguishable histologically from the hyperplasias of other clinical associations. The experimental compensatory thyroid hyperplasia produced in dogs is likewise indistinguishable from the hyperplasia of exophthalmic goiter.

In the cases I have seen I think it would have been impossible to prognosticate the clinical symptoms from the anatomical state of the thyroid, and vice versa, and in the reports of Kocher, MacCallum, Simmonds and others there have been a great variety of pathologic conditions present—tumors, benign and malignant, all degrees of active hyperplasia and pure colloid glands.

DR. W. G. MACCALLUM, New York: I support what Dr. Marine has said about the conditions in exophthalmic goiter. I have already expressed the opinion that the changes in the thyroid are probably secondary in character, although we do not know the primary cause of the disease. I can agree that one rather frequently sees instances in which the changes in the thyroid are by no means characteristic. The occurrence

anatomically similar changes in the thyroid of animals without any symptoms of exophthalmic goiter supports this view, and gives one the impression that the thyroid is changing in response to some alteration external to it.

I was somewhat disappointed not to hear more discussion of the part played by the islands of Langerhans in diabetes, and would call attention once more to a case described by me in which the ligated and degenerated portion of the pancreas maintained carbohydrate metabolism. It was found that this portion of atrophied pancreas contained what appeared to be nothing but islands of Langerhans. More recently, in a similar experiment in a guinea-pig, it was demonstrated that these islands are really islands of Langerhans.

FEWER METHODS OF DIAGNOSIS OF PATHOLOGIC CONDITIONS OF THE LIVER*

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Until recently the doctor and the liver have been comparative strangers. This all-important organ, in its lam-like shyness, has presented only its size, position and delicate anterior border for examination. The question, is the liver diseased, could only be answered in a most general way by our inability to reconcile a chain of symptoms with the determined conditions of other organs. I believe I speak conservatively when I say the greatest need of clinical medicine and surgery is simple and exact methods of determining the presence of pathologic conditions in the liver and pancreas and knowledge of the functional activities of these organs.

I present here in the simplest and most direct manner the technic of two tests of liver function and their theoretic and practical interpretation. They have for some time been in routine use by the Neisser clinic in Vienna, where I have had ample opportunity to demonstrate their great practical value. German literature bounds in allusions to these tests and one begins to see references to them in American medical literature, but as yet they are here comparatively unknown and unused.

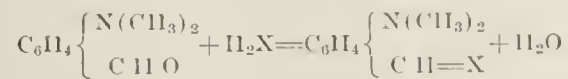
I. THE UROBILINOGEN TEST

History.—Jaffé first discovered urobilin in pathologic urine, described its fluorescence with zinc salts, its spectroscopic lines and showed it to be an oxidation product of a mother-substance urobilinogen. Müller proved both these substances to be derivatives of bile-coloring matters, under the action of bacteria in the intestines. Then the indefatigable Ehrlich,¹ in 1901, discovered that para-methyl-amino-benzaldehyd gave on standing with some urines a cherry or rose-red coloration. He was less fortunate than in the case of his diazo-reaction in being unable to discover the cause. Pappenheim, in 1903, first noted that the reaction was commonly present when urobilin was abundant in the urine and Neubauer,² in the same year, demonstrated that the Ehrlich reaction was due to urobilinogen.

Method.—The test is known as "Ehrlich's aldehyd test," or as the "urobilinogen test."³ A stock solution is made with para-di-methyl-amino-benzaldehyd, 4 gm., or 2 per cent.; hydrochloric acid, 10 gm., or 20 per cent.; water and a few drops of alcohol to 200 c.c. One or two drops of this solution are added to 5 c.c. of fresh urine. In the presence of urobilinogen there develops,

usually in the first few minutes, a rose-red color. Exceptionally, the extreme depth of color is not reached until one-half to two hours have elapsed. The reaction is somewhat more common in dark than in light colored urines. In a dark, bile-laden urine bile pigments obscure the test. The urine with the reagent is then shaken with a few drops of chloroform, when the red color appears in the chloroform at the bottom of the test-tube.

Theoretical Consideration.—Neubauer states that the reaction is due to pyrrol derivatives. The cherry pigment produced before the spectroscope gives absorption bands between Fraunhofer's lines D and E. Ehrlich and Pröscher⁴ state it is an aldehyd reaction, although it is not given and even prevented by formaldehyd and all simple aldehyds. They give the probable reaction:



Many normal urines react to this test on boiling, when the color is usually more yellowish than is a cold reaction, as the hue depends somewhat on the action of the hot hydrochloric acid. The presence of $C_8H_{13}N$ (hemopyrrol) in the urine is the agent which reacts at boiling temperature to give the color. Urobilinogen is the only known substance present in urine which reacts to the cold reagent to produce the cherry color. Ehrlich discovered only one medicine—antipyrin, the administration of which would increase this reaction in the urine to a very moderate degree. The following may roughly express relations:

Bile-coloring matters — (Bilirubin and Biliverdin)
+ $H_2O + H =$ Urobilinogen.

Urobilinogen + O = Urobilin.

Gall-stones of the ox,⁵ containing large quantities of biliverdin, may be reduced by sodium amalgam to a mixed solution of urobilin and urobilinogen. The solution then gives the aldehyd reaction.

Urobilin formation is a complicated chemical change involving pyrrol derivatives. When the end of this process is reached is uncertain, so that a pure product cannot be obtained from a complex mixture like urine. It appears probable that urobilins from different origins and formed under differing conditions may be different in chemical composition, though spectroscopically identical.

A urine containing urobilinogen on standing in the air and sun will soon lose its urobilinogen by oxidation to urobilin and give no pink color with the aldehyd reagent. Such a fresh urine loses its reaction immediately on adding hydrogen peroxid through rapid oxidation. Urobilinogen can be preserved in urine for some time by keeping it in tightly stoppered, dark, glass bottles.

Städeler and Maly⁶ have shown that bilirubin can be reduced to a crystalline substance, hemibilirubin, which gives all the reactions of urobilinogen and by decomposition results in a coloring matter with all the chemical and spectroscopic urobilin reactions. This identical substance can be extracted from alkalinized urine by shaking with chloroform. Hemibilirubin crystallizes in unstable monoclinic prisms. It reacts to Ehrlich's aldehyd test in dilution of 1:640,000, and after standing reacts to alcoholic zinc acetate solution with fluorescence in a dilution of 1:1,280,000. This substance can be extracted from all urines, even those giving no visible

* Chairman's Address, Section on Pathology, State Medical Association of Texas, Waco, May 8, 1912.

1. Ehrlich: Med. Woche, 1901, No. 15.

2. Neubauer: Sitzungsbericht der Gesellschaft für Morphologie und Physiologie in München, July, 1903, ii.

3. Berghausen: THE JOURNAL A. M. A., Jan. 8, 1910, p. 99.

4. Pröscher: Ztschr. f. physiol. Chem., xxxi, 520.

5. Zentralbl. f. inn. Med., 1905, No. 34, p. 836.

6. München. med. Wchnschr., 1912, No. 15, p. 799.

aldehyd reaction. This absence of the reactions in normal urines is due, it is surmised, to either extreme dilution or the presence of inhibiting agents, chief of which are probably the bile acids.

Fischer and Meyer-Betz⁶ have recently shown that the administration of large quantities of bile by the mouth is followed in those with sound livers by a slightly increased physiologic rose-red aldehyd reaction in the urine, and in those with diseased livers by an intense pathologic deep-red urinary reaction. Similar results follow the administration of hemibilirubin.

For years it was taught that urobilin was the agent giving the yellow color to urine. This is now known to be urochrome, urobilin being brown in color. A fresh stool is light in color; its alcoholic extract contains urobilinogen. On standing the outer surface of the stool becomes darker brown from oxidation, in part by the oxidation of urobilinogen to urobilin. The stools of infants and children are uniformly lighter than those of adults, probably because of comparative scarcity of oxidizing bacterial flora.

Physiologic Origin of Urobilinogen.—The result of years of discussion by chemists and physiologists may be summed up by saying that no practical amount of urobilinogen is ever formed in the body except by transformation of bile in the intestines, largely by the action of bacteria. Blood-clots, hematomas, bowel hemorrhages and hematoporphyrin do not give a urobilinogen reaction to the urine. Through the portal vein the liver is constantly receiving blood containing products of digestion, bile-coloring matters, urobilinogen and urobilin. The normal liver cells retain the bile-coloring matters, reconvert the urobilin and urobilinogen and retain these as bile-coloring matters. Urobilinogen in the urine must appear from two causes:

1. Impaired liver cells, which have failed to stop, or transform the urobilinogen coming to them through the portal vein from the bowels and which allow its entrance into the general circulation.

2. Congestive circulatory influences, by which the urobilinogen-laden blood normally passing through the liver is deflected into the collateral circulation of the portal system—as through the hemorrhoidal veins to the iliac veins in constipation, or to the general circulation through a *caput medusæ* in advanced hepatic cirrhosis.

Animal experimentation shows the following changes in the urobilinogen content of the urine when the common bile duct is tied in the dog:

1. On the first day urobilinogen appears in the urine.
2. On the second day the conjunctivæ are icteric, and urobilinogen and bile are found in urine.
3. On the third day the dog is totally yellow; bile is abundant in the urine, but the urobilinogen is greatly diminished.
4. On the fourth day the urine is loaded with bile, but contains no urobilinogen.

Urobilinogen in the Healthy.—Animal experimentation and clinical experience lead to the acceptance of the following facts:

1. Normal liver cells never let an appreciable quantity of urobilinogen pass into the blood of the general circulation.
2. A very slight loss of normal liver function, even in a part of the liver, is followed by the appearance of a pathologic amount of urobilinogen in the urine. The test is a very delicate one and is not a measure of the gravity of the pathologic condition, but it enables one to

answer whether or not the liver is functioning in an absolutely normal manner.

3. Urines from healthy individuals often give a slight pinkish reaction, which is not pathologic. The test is only positive when the color is a deep cherry or rose-red. The presence of such small quantities of urobilinogen in the urine is for the most part explained by constipation and resulting congestion and escape of some of the blood of the portal system through its collateral circulation. Such physiologic amounts of urobilinogen usually entirely disappear on free purgation. Thus no final diagnosis of impaired liver function is justified except after a free saline purge.

Urobilinogen in the Diseased.—In all diseases of the liver and in infections of the bile passages which have reached the liver, or in the presence of obstructions which have backed up the bile the urobilinogen in the urine is increased and constantly present in more than physiologic amounts and gives to the aldehyd reaction, not the physiologic faint rose-red hue, but a deep red coloration.

When the common bile duct is suddenly occluded, the action of the liver cells is rapidly impaired by the back pressure. The bile already in the bowel comes to the liver in part as urobilinogen, which is passed by the impaired hepatic cells to the general circulation and appears in the urine for about three days. As the bile in the intestines is exhausted, less urobilinogen comes to the liver and gradually disappears from the urine. The patient may be deeply jaundiced at this time, but with a negative urobilinogen test. The reaction thus may be made to indicate a rapid and complete closure of the common or hepatic ducts. If the obstructing agent after a time allows bile to flow into the intestine, even for a short period, urobilinogen appears in the urine. Intermittent opening and closing of the common duct has in this way been repeatedly demonstrated.

The detection of the presence of bile-pigments in the stools is of little significance. These pigments are nearly always present in the stools of those with the deepest obstructive jaundice; indeed, the intestinal mucosa is often stained deep yellow. Bile is also introduced through the bile-stained pancreatic secretion, about three pints of which are poured into the intestines in twenty-four hours.

Urobilinogen may be absent from the urine in the terminal stages of cirrhosis and syphilis of the liver, when the bile is so altered as to contain almost no biliary-coloring matters. Such a condition has been observed before death in severe phosphorus poisoning accompanied by almost complete fatty degeneration of the liver.

This aldehyd test is one of the greatest aids in the diagnosis of complicated kidney, liver and heart diseases accompanied by ascites. If these three organs are in question, we administer digitalis. If urobilinogen and albumin diminish in the urine, that is, if the liver and kidney conditions improve, the primary trouble is indicated in the heart. If the urobilinogen remains unaltered in quantity and the albumin becomes less, the liver is indicated as the principal causative agent. If the urobilinogen diminishes and the albumin and casts are unaltered, the kidney is probably primarily diseased. This principle, while in practice sometimes obscured, offers in many instances invaluable assistance in diagnosis.

Urobilinogen appears in the urine with the beginning of parenchymatous liver degeneration in the advanced

stages of all infectious diseases and intoxications.⁷ The approach of this point can be noted by testing the urine for urobilinogen in pneumonia, typhoid, scarlet fever, tuberculosis, septicemia, rheumatism, pleurisy, myocarditis, pulmonary congestions, etc. The appearance of urobilinogen in pathologic amounts marks the oncoming of greatly increased toxemia and reduced resistance.

This test has cleared up the diagnosis of many obscure cases of sallow, subicteric individuals. Their skins continually look as though they were slightly jaundiced, and they are rarely cleared by any purgation; one feels sure that their urines contain bile, but none is ever found. The aldehyd test will often show this condition to be accompanied by large amounts of urobilinogen in the urine. The French term this brown discoloration of the skin a "urobilin cirrhosis." The condition of the liver is usually one of subacute irritation and cellular degeneration from absorption of toxins from the bowel or diseased bile passages. Old cases of this subicterus, in which the patients suddenly become very yellow and in which urobilinogen is absent in the urine usually present carcinomatous obstructions developing at the points of chronic irritation.

Stones in the gall-bladder or common duct produce a greater or less degree of urobilinogenuria, in the measure as they impair the hepatic cells by toxic products of inflammation, ascending infection, or back pressure of bile.

Catarrhal jaundice⁸ is marked by the appearance in the urine of large amounts of urobilinogen several days before jaundice or much fever appears, which shows it to be not a mere inflammation of the bile passages but a true hepatitis.

II. THE GALACTOSE TEST

Recently the power of the healthy liver to store carbohydrates and the diminution of this power in diseased livers has been attempted to be utilized for diagnostic purposes.

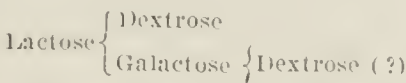
History of Sugar Tests.—The first test suggested was the dextrose test. The normal liver can store about 200 gm. of cane-sugar. The test was applied by giving 100 gm. of cane sugar in tea, and if sugar afterward appeared in the urine, detectable by Fehling's or Haines' test, impaired liver function was concluded. This conclusion was often false, as the liver may let much dextrose pass, which may be taken care of by the tissues; pancreatic disease also complicates the test, greatly diminishing the tolerance and storage power of the liver and muscle cells for dextrose. Any test resting on the elimination of dextrose is worthless.

An advance was made by substituting levulose in the form of honey. Levulose-elimination by the urine is very constant in liver diseases. In fact, the test is too delicate, as positive reactions occur whenever the urobilinogen test is positive. A dose of 100 gm. of honey in tea or water for breakfast is sickening and is followed in 50 per cent. of the cases by vomiting and diarrhea. Levulose-elimination is also increased in pancreatic diseases and diabetes. The test is advocated by high authorities, but is greatly inferior to the following galactose test.

Bauer,⁹ of Vienna, first noticed that a man with a Hanot's cirrhosis who partook of large amounts of milk passed sugar in the urine, which sugar was not fermentable and was proved to be galactose. The glycosuria disappeared on stopping the milk. The great value of

this observation has been proved by a large clinical experience.

Theoretically, the value of lactose as a test is believed to be based on the double work thrown on the liver in its digestion. Cane-sugar is with comparative ease split into equal parts of dextrose and levulose. Honey is almost pure levulose and cared for by the body cells as such. Lactose must be first split into equal parts of dextrose and galactose and galactose must be further transformed into dextrose, thus:



So far as known, galactose cannot be used by the muscles and liver without change and is eliminated in the urine whenever contained in blood sent to the kidneys. Pancreatic disease seems not to influence its elimination. One liter of milk, 2 pints, contains about 48 gm. of lactose, which will produce 24 gm. of dextrose and 24 gm. of galactose.

The Test.—Forty gm. of milk-sugar are given in tea in the morning, after free purgation. The solution is

TABLE SHOWING CONCLUSIONS DRAWN FROM THE COMBINED USE OF GALACTOSE AND UROBILINOGEN

Disease	Galactose Test	Urobilinogen Test
Hepatic congestion	—	+
Cholelithiasis, complicated	—	+
Compression and obstructive icterus..	—	+
Neoplasms	—	+
Carcinoma	—	+
Gumma	—	+
Echinococcus	—	+
Cirrhosis	+	+
Alcoholic	+	+
Biliary	+	+
Banti's liver (syphilis)	+	+
Hepatitis	+	+
Catarrhal icterus, infectious	+	+
Acute yellow atrophy	+	+
Poisoning	+	+
Phosphorus	+	+
Chloroform	+	+
Lead, etc.	+	+
Toxic parenchymatous degeneration of infectious diseases	+	+

not unpleasantly sweet and does not nauseate. Normally, only small amounts, 0 to 1 gm. of sugar can be detected later in the urine. This appears, if at all, in the first hour, smaller traces in the second and third hours, and by the fourth hour, certainly, all traces have disappeared. In cases in which the liver cells are diseased 1 to 10 gm. of galactose are eliminated by the kidneys. The amount is large for from three to six hours and continues for from ten to fourteen hours. Usually a quantitative test is unnecessary. In practice the patient takes the sugar at 9 a. m., urinates at 12 and calls at the office at 1. A single qualitative test of urine there passed usually demonstrates normality or abnormality. Galactose is detected as usual by Fehling's or Haines' test. Glycosuria seen in cirrhosis is usually due to a milk diet. In cases of pyloric obstruction, gastric dilatation, atonic conditions and other states which would delay the absorption of sugar from the alimentary tract, the test must be interpreted accordingly.

CONCLUSIONS

The urobilinogen test is a very delicate test for impaired liver function. Any localized diseased cells will let pathologic amounts of urobilinogen pass to the urine. The galactose test on the contrary is a general functional test. Galactose is not passed in localized

7. Wlen. klin. Wehnschr., No. 10, 1912.
8. Deutsch. med. Wehnschr., 1908, No. 35, p. 1505.
9. Bauer: Wien. med. Wehnschr., 1906, Nos. 1 and 52.

hepatic diseases when the remaining part of the liver has good compensatory function. In the various forms of cirrhosis the galactose test is uniformly positive, strongest in alcoholic cirrhosis. In septic conditions or advanced stages of infectious diseases, a positive galactose test results from liver degeneration. In cases of phosphorus poisoning, chloroform and mineral poisons, liver degeneration is not shown by the galactose test until some days after administration of the poison; in phosphorus poisoning, sometimes not until the second or third week. The great value of these tests for differential diagnosis lies in the conclusions which can be drawn from their combined use, as will be seen from the accompanying table.

The foregoing tests, used regularly in my work, are of such great value in diagnosis and so easy of application as to commend themselves in the routine examinations of all hospital and private practice. In my opinion, the urobilinogen test will be adopted in insurance examinations.

Western National Bank Building.

REPORT OF 150 CASES OF PULMONARY TUBERCULOSIS TREATED WITH TUBERCULIN

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The material for this report was derived from the histories of 150 cases of pulmonary tuberculosis treated with tuberculin at the Rhode Island State Sanatorium during the five years 1907 to 1912 inclusive.

In this series of cases tuberculin was not usually given to incipient or far advanced patients. The usual type of patient selected was the chronic one whose disease had been arrested or improved, but who was still having tubercle bacilli in the sputum with a moderate amount of signs. Tubercle bacilli had been present at some time in 132, or 88 per cent., of the cases. Only three or four had cavity signs. In a few cases, however, tuberculin was tried in those who had completely failed to improve under the usual hygienic-dietetic régime and who had sufficient temperature to indicate an active process. The tuberculin was given after the manner advocated by Trudeau, an effort being made to develop tuberculin tolerance by gradually increasing doses with as few reactions as possible. Tenderness at the point of injection, which was regarded as a local reaction, was present at times in the majority of cases. Slight general reactions occurred in 20 per cent. of the cases. There were no severe reactions. Fifty-six of the patients were given Watery Extract, forty were given Old Tuberculin, thirty-seven Bacilli Emulsion, and the remainder Bouillon Filtrate. The tuberculin books published by the Outdoor Life Publishing Company, recording in detail the prominent symptoms, were used to watch the progress of the cases in many patients who had sufficient education and intelligence to use them. In a few instances the treatment was discontinued because of the onset of temperature or continued loss of weight, yet it was thought proper to include these cases. A large proportion of the patients did not take the treatment as long as advised, as they could see no effect from it. Most of the patients were above normal weight when the tuberculin treatment was begun, yet ninety-one patients gained an average of 4.7 pounds, while forty patients

averaged a loss of 3.4 pounds. Over 3,000 doses were given, or an average of twenty doses per patient and the average duration of treatment was sixty days. About half of the patients taking Watery Extract reached a maximum dose of over 0.5 c.c. of Solution 100, many taking a full cubic centimeter. The maximum dose of Old Tuberculin was about 0.331½ c.c., and the maximum doses of Bouillon Filtrate and Bacilli Emulsion were much smaller. One patient developed pleurisy with effusion, another patient developed tuberculous meningitis, and three patients who had improved little or none on the ordinary sanatorium régime failed rapidly a few weeks after commencing tuberculin treatment, but as such complications and failures occur about as often no matter how patients are treated, they may be regarded as coincidences. In a few cases striking improvement occurred, but equally striking instances occur on the usual sanatorium régime, and on the whole these patients appeared to do neither better nor worse than patients not so treated.

No attempt will be made to review the voluminous literature on the subject, yet it may be useful to point out that many writers have reported too few cases, often without adequate subsequent histories, and many have contented themselves with ascribing improvement to the tuberculin which may have been due to other causes. Others have allowed their judgment to be influenced by a few striking instances of improvement which follow the use of tuberculin and have forgotten to mention striking instances of improvement which occur without its use. Some appear to labor hard to find something favorable to tuberculin.

In forming an opinion as to whether or not any treatment is beneficial, parallels should be drawn between two classes of patients, those who take the treatment and those who do not, and these parallels should be made from cases that are as similar in prognosis as possible. For this study, an attempt was made to match each one of the 150 patients taking tuberculin against another patient of the same classification, according to the National Association, and also anatomically according to Turban, and likewise to match only cases having similar records of bacilli in the sputum, temperature, pulse, respiration, general condition, weight, race and year of discharge.

An unsparing logic would also demand that the amount of intelligence and self-control, duration of disease, family infection, amount of sputum, sex, age, duration of sanatorium residence and many other factors should also be similar, but this was found impossible, as all the available material, comprising about 1,500 patients who did not take tuberculin, was barely sufficient to fulfil the conditions first named. There were, however, few marked differences in age and about 75 per cent. of the cases were matched as to sex. The condition on admission was allowed to stand unless tuberculin was given a long time after admission, during which time the condition had undergone marked change, when the case was reclassified. The length of time patients had fever and the number of febrile attacks were considered of more importance than mere height of the fever. The pulse averages for the first week were the same within ten beats. Respiration was only matched when abnormal, as was also the temperature. Under the general condition were considered not only strength and vigor, but digestive disturbances. No attempt was made to match the exact gain or loss in weight in pounds but only to match slight or marked changes, or the general

tendency. No negroes took tuberculin and none were used for this comparison. Patients were matched against those discharged within a year of each other, except in two instances.

To eliminate bias in the selection of cases they were chosen from printed records containing the main clinical facts as to classification, pulse, temperature, etc., but not containing the names of the patients, so that a knowledge of the subsequent histories should not create prejudice. Two or three options were selected in this way, then the names of the patients were ascertained, their charts studied, and the one having the greatest similarity accepted; if all were unsuitable, more options were found in the same way. Of course, no pretense is made that the two classes of cases were exactly matched in prognosis, but no pains were spared to carry out the method as completely as possible. Drawbacks to the use of this method are the abundance of material required and the amount of labor necessary to carry it out. While not perfect it should be much superior to slip-

TABLE 1.—CONDITION OF PATIENTS ON ADMISSION

	With Tuberculin	Without Tuberculin
Incipient	10	10
Moderately advanced..	137	137
Far advanced	3	3
Total.....	150	150

TABLE 2.—CONDITION OF PATIENTS ON DISCHARGE

	With Tuberculin	Without Tuberculin
Apparently cured	13	11
Arrested	80	51
Improved	38	61
Unimproved	19	27
Died	0	0
Total.....	150	150

TABLE 3.—COMPARISON OF PRESENT CONDITION OF PATIENTS WHO DID NOT TAKE TUBERCULIN AND OF THOSE WHO DID

	With Tuberculin	Without Tuberculin
Well	47	43
Living and working...	14	20
Living	23	19
Dead	66	68
Total.....	150	150

shod methods of stating results of treatment and if widely adopted it would help to weed out more rapidly worthless methods of treatment in pulmonary tuberculosis. If applied to mooted questions like the "value of climate," it would eventually solve them, as the fruitless war of theories and opinions would eventually be displaced by evidence.

Patients did not as a rule take tuberculin until several weeks or months after admission, so that ample records were available prior to the specific treatment.

The average duration of sanatorium residence for the tuberculin-treated patients was 11.1 months against 5.1 months for those who were not so treated. This difference in the duration of treatment would probably account for the difference in condition on discharge, as many patients who remain only two or three months are steadily progressing toward arrest or apparent cure, which terms nevertheless require time limits, from the last symptoms of activity, of two and three months, respectively. Of the patients who did not take tuberculin 37.3 per cent. remained less than four months, against 2 per cent. of those who took it. About 60 per

cent. of the patients have been discharged over four years and 86 per cent. over three years.

The tuberculin-treated class has 2.7 per cent. more recoveries and 1.3 per cent. fewer deaths, but the untreated class has 1.3 per cent. more able to work. The present condition of these two classes of patients is therefore as nearly identical as one could expect it to be if the tuberculin treatment had been entirely without value.

The average length of life of those tuberculin-treated patients who have died up to this time was 22.1 months from the date of discharge against 14.2 months for those who did not take tuberculin. This extra eight months of life cannot be taken as sufficient evidence that tuberculin prolonged life because the tuberculin-treated patients remained in the sanatorium six months longer. In fact, if the tuberculin-treated patients, remaining as they did six months longer in the sanatorium, had not lived longer, it would have been evidence that the tuberculin actually did harm because it cannot be denied that sanatorium treatment prolongs life.

Through the courtesy of Dr. von Ruck, Watery Extract was furnished free of charge and was given to fifty-six of the above series. The solutions as furnished were convenient for administration and they seemed

TABLE 4.—CONDITION OF PATIENTS AT BEGINNING OF WATERY EXTRACT TREATMENT

Arrested	21
Improved	22
Unimproved	13
Total.....	56

TABLE 5.—PRESENT CONDITION OF PATIENTS WHO TOOK WATERY EXTRACT

Well	15
Living and working.....	1
Living	4
Dead	36
Total.....	56

more easily given without reactions than some of the other tuberculins, B. E., for instance. So far as known it gave neither better nor worse results than the others, but as it was given at an earlier period (1907), more time has been allowed for the progress of the disease and death. The patients given Watery Extract were for the most part moderately advanced cases who had been in the sanatorium long enough to be in good general condition and the Watery Extract was given as recommended by Dr. von Ruck.

Nearly all of those classified as improved were above normal weight and fell but little short of the requirements of arrested cases. The average duration of treatment with Watery Extract was sixty-five days; the average maximum dose was slightly over 0.5 c.c. of Solution 100.

Even when these patients who were classified as unimproved at the initiation of Watery Extract treatment are excluded from consideration, 53 per cent. of the patients are dead.

CONCLUSION

While other observers using other methods of tuberculin administration and with more prolonged treatment may get different results, established by equally thorough statistics, this analysis furnishes no evidence that these 150 patients taken as a whole were influenced by the tuberculin treatment.

GASTROCOLOPTOSIS

ITS PATHOLOGIC SIGNIFICANCE AND ITS SURGICAL
TREATMENT*

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Essentially there are two theories which have governed medical men's conception of ptosis as a secondary, rather insignificant phenomenon: the one, Glénard's theory, tends to show that enteroptosis is the result of an enigmatic nutritive disease, a *diathèse hépatique*, which involves atrophy and subsidence of the small intestines, whereby the organs lying above lose their support, which secondarily leads to gastropptosis, hepatoptosis, etc. This theory has now been abandoned by most in favor of Stiller's hypothesis which, in place of Glénard's mysterious liver-disease, sets up a so-called congenital, universal asthenia, a congenital weakness, laxity and gracility of the entire structure of the body, as of the individual tissues. The ptosis and the constipation are due to laxity and atony of the tissues, the pains and the nervous symptoms to neurasthenia, the whole simply being a manifestation of degeneration, and, as degeneration cannot be cured, it is natural that all votaries of this doctrine must regard a surgical therapy for enteroptosis as senseless. Simple logic tells us, therefore, that Stiller's theory is in the main at fault, and tells us to look around for another explanation of the overwhelming frequency of ptosis with women. In my opinion a very simple explanation is found in two circumstances peculiar to women, 1, their misuse of corsets and laces, and 2, the changes which pregnancy and childbirth involve in the intra-abdominal pressure.

Of Stiller's theory, then, there remains only this: that the corset and lace pressure when brought to bear on quite young, half-grown girls with soft, relaxable ribs naturally has especially easy play with those of the degenerative type, among whom the bones and tissues are particularly relaxable and flaccid.

Even in my article in *Hospitalstidende*, in which in 1898 I reported my first case of gastropexy, which led to a permanent cure of the considerable sufferings of this ptosis-patient, I set forth in its main features the conception that all the morbid symptoms and conditions which we find typical in patients with enteroptosis allow themselves naturally and spontaneously to be explained as a result of the ptosis. The correctness of this conception has been confirmed by the observation and study of the 400 cases which I have personally treated, the statistics of which I shall submit to you to-day.

I. VIRGINAL GASTROCOLOPTOSIS

Symptomatology.—In the course of the first or second year after the commencement of puberty, and when the wearing of corsets commences, the previously healthy individual begins to suffer from persistent constipation, to which is quickly added weariness, headache, loathing of food. In addition to these symptoms there occurs after some time cardialgia in the form of severe pains, which are always situated to the left of the median line and occur as soon as the patient partakes of food. The quality of the food has no significance so far as the

rise of these pains is concerned, whereas the quantity—the mass and weight of the food—is of great importance, for which reason these patients can get along only by taking many, quite small meals during the twenty-four hours. In many instances, the commencement of the pains is accompanied by vomiting, and with a small group of these patients each meal is invariably and immediately succeeded by the discharge of a part or the whole of the food partaken of. In the first instance, the patients may maintain an astonishingly healthy appearance for many years; but if they disgorge everything, and are furthermore frightened by fear of the pains from attempting to eat, emaciation sets in, which may often reach an extreme degree, and present that aspect which I have called gastropptosis-cachexia, and which may result in the death of the patient as a consequence of inanition.

By examining the chemical function of the stomach one generally finds that the measure of acidity is normal, but in a certain number of cases one finds achylia, and in others, conversely, hyperacidity and even gastrosuccorhea. In more than half of the cases, the motor function is completely normal, inasmuch as the stomach empties itself entirely in the course of four or five hours. In from 30 to 40 per cent. of the cases there is a slight delay (five to seven hours), while food-remains are rarely found eight hours after one of Bourget's experimental meals.

With many of these patients a whole series of nervous symptoms develop gradually as a result of this state of auto-intoxication and inanition, such as oppression across the loins, in the pelvis and the abdomen, clammy hands and feet, palpitation of the heart, physical depression; with some a mental relaxation and with others a sensation of dread. Finally disturbances in the function of the genital organs develop very rapidly, because the menstruation becomes irregular and is accompanied by diffuse pains in the abdomen and a deterioration of the regular symptoms. The menstruation is frequently very deficient and for years may entirely fail to appear.

I look for the cause of the virginal ptosis patients suffering so much more than the maternal ptosis patients do from pains and vomitings after meals in the circumstance that the tight abdominal wall and the narrow abdominal cavity do not permit of the free subsidence of the loosened organs. The result is that the stomach and also the colon fold themselves transversely with the longitudinal axis, and angles and bends occur which hinder the natural passage of the food and produce stasis and pains. The fact of the matter is, that all the vessels and nerves to the stomach from the large vessels and nerve-roots have their course just between the peritoneal layers, which either form the suspensory ligaments or cover these. They form, so to say, an integral part of the suspensory ligaments and, when these are folded, are also subject to bends and folds, and when the ligaments are stretched and lengthened by the subsidence of the stomach, a considerable drag is also exercised on the vessels and nerves. That such a distention of the sympathetic threads and thereby of the semilunar ganglion and of the vagus nerves, which, with the esophagus, extend into the thorax cavity, cannot fail to affect the activity of these nerves seems evident, and here, surely, is to be found the explanation of many of the nervous symptoms of these patients. As regards the invariable pains in the left side of the epigastrium, it seems to me that these are explained naturally as having their origin in the drag on the sensitive nerves which have their course in the subperitoneal tissues.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space this article is abbreviated in THE JOURNAL. It appears in full in the Transactions of the Section.

Diagnosis.—The three wrong diagnoses under the flag of which virginal ptosis most frequently sails are (1) *ulcus ventriculi*, (2) *colitis* and (3) nervous diseases of the stomach or hysteria.

Those cases in which violent cardialgia and vomitings occur as an immediate result of meals and dominate the aspect are naturally confounded with *ulcus ventriculi*. This confusion happens all the more easily because the violent and frequent vomitings by no means rarely show streaks of blood, or even such a strong admixture of blood that they assume the character of *hematemesis*. The presence of constipation, indeed, only strengthens the diagnosis, because it is so often a symptom with *ulcus*.

In addition to this the examination of the position of the stomach by scraping auscultation, or by roentgenoscopy after a bismuth meal often reveals a subsidence which is disproportionate to the acute symptoms.

The differential diagnosis from ulcer is, as a rule, easily determined from the following facts: (1) the seat of the cardialgia being to the left of the center line; (2) the independence of the cardialgia of the quality of the food, but its dependence on the quantity of this (an ulcer patient suffers pain from eating rich, sour, spiced food, no matter how small the quantity, but stands milk; while a ptosis patient stands all such food equally well so long as the quantities are quite small, but suffers severe pain from milk and other neutral food when the quantity is too large); (3) the influence which the position of the body has on the symptoms. These are always worse in an upright position, and always improve and often disappear entirely with confinement to bed.

The cases in which constipation dominates the aspect of the disease, while the stomacheic symptoms are comparatively minor, are often confounded with *colitis*. In many cases the confusion is promoted by this, that the constipation involves in reality a *colitis* with periodically occurring diarrhea. Here, also, is a differential diagnostic symptom of great value: that with ptosis, confinement to bed has a highly favorable effect on the constipation; while constipation arising from other causes generally gets worse with confinement to bed.

The diagnosis of hysteria and nervous disease of the stomach is generally given with such patients as have for a long time been vainly treated with ulcer-therapy or anticonstipation treatment, partly because their having been vainly treated for a supposed organic disease leads to the diagnosis of functional neurosis, and partly because these patients, little by little, on account of their protracted sufferings and the fruitless treatment, become in a great degree psychically exhausted and nervous individuals. The differential diagnosis from hysteria is, however, by no means difficult, when one analyzes the history and the aspect of the disease; because, it then always appears that constipation and dyspepsia have been the first symptoms of the disease, and still constitute the central feature in the aspect of the disease. Scraping auscultation and roentgenoscopy show us the presence of the ptosis, and, finally, an exact examination shows that the really hysterical stigmata are practically always wanting.

More rarely, the pure ptosis is confused with cancer. This happens with those patients who have become completely emaciated by vomitings and abhorrence of food lasting over many years, and who have acquired a cachectic complexion from the auto-intoxication arising from the stagnating contents of the large intestine.

I have already mentioned that, even where no trace of ulcer can be proved at the operation, *hematemeses* are

not infrequent with gastropotosis. Such *hematemeses* are probably due to stasis in, and swelling of, the mucous membrane at the places where the wall of the stomach is creased.

Finally, in a certain number of cases, the virginal ptosis leads to the development of an hour-glass stomach. I think, indeed, that I dare assert that the solution of the long disputed question of the pathogenesis of the hour-glass stomach is to be sought for in the fixation of the creases of the subsided stomach caused by corsets and laces. The two theories which have hitherto stood in opposition to each other are, as is known, first, that the hour-glass stomach is a congenital deformity, and second, that it is due to ulcer, according to which the hour-glass form is due to cicatricial shrinkage.

An investigation of the history of the disease as regards the twenty-six cases of hour-glass stomach which I have personally observed shows that the first symptoms of the disease have always occurred during the years of puberty, when the misuse of the corset and the tight lacing commence; in their main features these symptoms entirely resemble those of virginal ptosis. Little by little the increasing hindrance of the passage, the retention and the dilatation in the proximal part of the stomach are maintained as an aspect of the disease, and, if *hematemesis* and *melena* occur in consequence of developing ulcerations, the aspect becomes more and more that of *ulcus stenosis*.

By my numerous operations for gastropotosis I have been able to observe all the stages of the development of the hour-glass stomach, in consequence of which I have formed in my own mind a consecutive view of this.

With virginal gastropotosis the bends of the creases occur essentially and naturally in two places: (1) on the lesser curvature at the transition between the *pars cardiaca* and *corpus ventriculi*, in the very place where the triangular solid gastrophrenic ligament (called by some *pars condensata omenti minoris*) ceases and is relieved by the more elastic portion of *omentum minus*; (2) on the medial edge of the hepatoduodenal ligament where the free portion of the duodenum (with the pylorus) bends toward the fixed part.

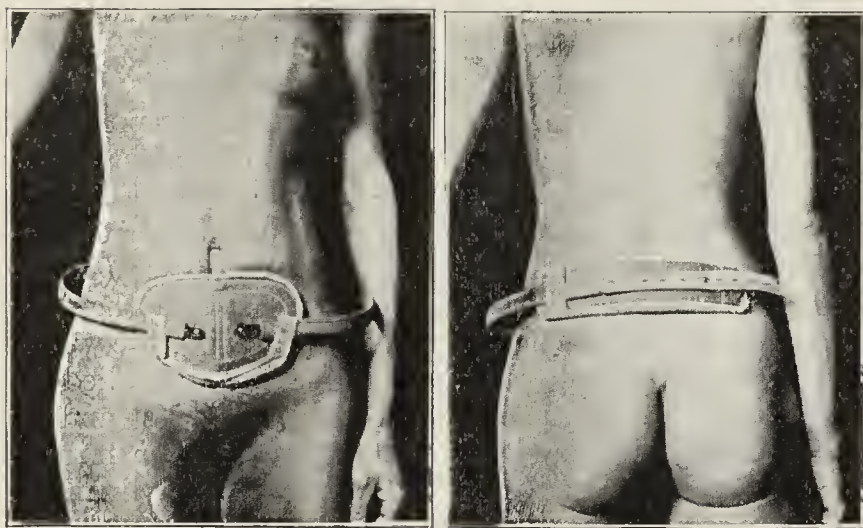
The hour-glass formation is generally due simply to the fine adhesions which form themselves in the folds of the serosa surfaces which rest one on the other.

The development is sometimes greatly favored by the fact that the *omentum minus* by coalescing with the *omentum majus* assumes a lace-formation. With gastropotosis we very frequently find a complete loosening of the *omentum minus*, the central part of which subsides and hangs over the anterior side of the stomach like a tongue-shaped clump of the omentum. It may then come in contact with the tip of the *omentum majus* and coalesce with this in a ribbon which draws a deep furrow in the stomach. The adhesions mentioned as occurring between the peritoneal surfaces, which I have seen in all stages, from the thin, veil-like adhesions, which are easily loosened, to the quite solid ones which are hermetically soldered, fix the ptosis creases, and these, like partition walls, protrude into the lumen of the stomach.

II. THE MATERNAL GASTROCOLOPTOSIS

It is this form we find in women whose abdominal wall consequent to past pregnancies and confinements has become distended and relaxed. Hereby the intra-abdominal pressure is altered, and the support, which the air-filled intestines offered to the subdiaphragmatic organs while the vigorous elastic abdominal wall acted, fails.

With women whose stomachs lie in a normal and secure position at the moment when the relaxation of the abdominal wall commences, it depends entirely on the strength of the ligaments whether a gastropsis ensues at all. With strong women this does not occur; but with others, whose abdominal wall is less capable of resistance, a ptosis develops little by little; the development differing from the virginal ptosis in this, that the coloptosis is generally primary. Colon transversum, which is no longer borne up by the small intestine pelotte, is weighted down by the heavy feces so that it hangs like a downward convex festoon suspended by the two flexures. The pull first affects ligamentum gastrocolicum and mesocolon, which are elongated and dragged downward. It is quite common to find the gastrocolic ligament elongated to three or four times its normal length, when it is quite thin and perforated in many places. Second, it affects the stomach, the suspensory arrangement of which is also, little by little, stretched and elongated. The constipation and accumulation of fecal matter in the colon resulting from coloptosis affects with steadily increasing strength the downward drag on the colon and the stomach. It frequently happens that the heavy, feces-filled colon lies right at the bottom of the pelvis and, like an anchor, holds the stomach fixed



The truss as worn (see description in text).

in its subsided position. Furthermore, the stomach can drag down with it the lower part of the esophagus, and then we encounter gastropsis in its extreme form.

With maternal ptosis the aspect of the symptoms differs from that of virginal ptosis in this, that the stomachic attacks—cardialgia and vomiting—are far weaker—are often, indeed, absent. It is due to the far more favorable conditions of space, as the stomach is not jammed or liable to be folded and bent as is the case with the virginal abdomen. For the same reason these patients do not generally suffer the innumerable pains and nervous sensations which characterize the others. That it is the distinction as regards space which causes the difference in the aspect of the disease is quite clearly perceived in the transition of a virginal ptosis to a maternal ptosis. So soon as the first confinement is accomplished, a great improvement occurs in the condition of the patient so far as these symptoms are concerned.

With maternal ptosis, the constipation with all its consequences is the dominant feature in the aspect. In course of time the effect of the auto-intoxication from the intestine reveals itself. The patient grows emaciated and sallow, suffers from headache and, in addition, from an ever-increasing sensation of subsidence, and from

the unpleasant, depressing feeling that something is subsiding in the abdomen and from an oppressive feeling of fatigue across the loins. The drag of the subsided stomach on the cardia and the esophagus causes constant pain in the left side of the epigastrium and, not infrequently, difficulty in the passing of the food through the esophagus, so that a spasm of the cardia may arise; similar conditions sometimes occur with secondary dilatation of the esophagus.

It is characteristic of the disease that all these symptoms improve or vanish entirely with confinement to bed, while they at once recur or become worse with an upright position.

The coprostasis may attain such stages that attacks resembling ileus may occur, and, in extreme cases, the stomach may also become so loose that volvulus ventriculi may occur.

There ought not to be any rivalry between the medical treatment and the surgical treatment—if only for the reason that these patients always seek the medical man first, and it is only when all medical treatment has proved vain that they seek the surgeon, and then very frequently with one of the above mentioned erroneous diagnoses.

When the surgeon has comprehended the correct nature of the disease, the question is whether the case lends itself to bandage-treatment or whether it demands an operative treatment.

As regards the indication for the employment of a bandage, this varies greatly with the two forms of ptosis which I have described. While the majority of the maternal ptosis patients may be helped sufficiently with a good and rational bandage, with virginal ptosis patients one only quite exceptionally obtains an effect worth mentioning. This simply lies in the fact that the virginal abdominal wall is so muscular, vigorous and elastic that, to overcome its resistance, such a strong pressure would be necessary as would be unendurable to the patient. With maternal ptosis, on the other hand, we are able to obtain good results through the relaxed thin abdominal wall with a good bandage.

Numerous bandages for ptosis patients have been described, but only a few of these are of real value. An effective and good belt must comply with three requirements:

1. The pressure must act widely over the hypogastrium by aid of a large and rather firm pad.
2. The pressure must be powerful and invariable.
3. One must be able to adjust the belt in a recumbent position in the morning, before the patient rises, and while the organs still lie in their right position. For this reason all bandages which fasten at the back with laces are banned. I have returned to a copious, firmly stuffed pelotte, on a steel-spring belt. Here, as with the English double hernial truss, the pressure is exercised by two spiral springs which are movably connected with the large abdominal pelotte in front, and at the back are supported against os sacrum or against symphysis sacroiliacæ by one or two small pelottes. These springs can be made as powerful as one wishes, and relax but slowly and slightly, when they are easily tightened again. But even this powerful belt, which I recommend as the best, is impotent with most virginal ptoses as also with those particularly severe cases of maternal ptosis in which the colon transversum has subsided into the small pelvis, and is on that account beyond the range of the belt, being squeezed rather than raised by this.

In all these cases, then, the only help for the patient is an operative procedure which will raise the stomach and

colon into their normal position. For the achievement of this object we are in the possession of various methods: (1) direct gastropexy as it has been for the first time performed, independently of each other and after different methods, by Duret and Rovsing, and (2) the indirect operations which endeavor to raise the stomach, either by basting together and shortening the omentum minus as proposed by Stengel, Bier and Beyea, or from below as with Coffey's operation which, by stitching the omentum majus firmly to the anterior abdominal wall, raises the stomach and colon.

Notwithstanding the theoretic attraction of the indirect operations I must in accordance with my experience advise direct gastropexy as the safest and best method.

When in 1897, I thought for the first time of performing gastropexy on a patient who was admitted with the diagnosis of cancer ventriculi, but who only showed gastropptosis pure and simple, I at once employed the method which I firmly recommend as the best. Parallel with the lesser curvature I lead three strong silk threads in and out through the serous coating of the anterior surface of the stomach, leaving the pars pylorica free. The upper thread is placed close under the lesser curvature, and the two others, with an interval of about 2 cm., are placed in such a way that the greater curvature and a rather large piece of the wall above this are left free. With a fine needle the serosa coating between the threads is now scarified in all directions, also the surface of the parietal peritoneum, and eventually that part of the under side of the liver to which one wishes the stomach to adhere. The ends of the silk threads are led out through the entire thickness of the abdominal wall, that on the left as far from the center line as the rib-curvature permits, and that on the right at about 3 cm. to the right of the center line. The peritoneum is now joined with catgut, and the fascia and skin with aluminium bronze, and, after the line of wound has been covered with collodion and cotton wool, the silk sutures are tied over a glass plate covered with sterile gauze, the dimensions of which are a little larger than the stomach-surface which has to be fixed. In this way it follows that the anterior surface of the stomach lies flat, and close to the abdominal wall, without shrinkage and folding. These threads are left for four weeks and are then easily removed. A perfectly secure and solid adhesion is then obtained without leaving any foreign body in the abdomen.

Since 1897, when I performed my first gastropexy, till Jan. 1, 1911, I have myself performed the operation 163 times, and have received information from other Scandinavian surgeons of ninety-three operations performed in accordance with my method. All these 256 patients have been traced and their condition since the operation carefully examined, with the following results:

RESULTS WITH AUTHOR'S METHOD OF GASTROPEXY		
Result	No. of Cases	Per Cent.
Complete cure	162	63.2
Great improvement	33	12.8
Improvement	18	7.0
Slight improvement or no change...	32	12.8
Deaths	11	4.6

AUTHOR'S RESULTS COMPARED WITH THOSE OF OTHER SURGEONS

Results	My Statistics Cases		Statistics of Scandinavian Surgeons Cases	
	No.	Per Cent.	No.	Per Cent.
Cure	92	50.6	70	75.2
Great improvement	24	11.0	9	9.6
Improvement	18	11.0	9	9.6
Slight improvement or none	21	12.8	11	11.8
Deaths	8	4.9	3	3.2
	163		93	

First, as regards the mortality, it may well be said that a mortality of 4.6 per cent. is *per se* small. But on analyzing the cause of death in the individual cases the real mortality from gastropexy proves to be far smaller. As concerns my own patients, two died a fairly long time after the operation from tuberculosis of the lungs, while four extremely exhausted patients died from bronchopneumonia during the week following the operation, but without any morbidity at all in the peritoneum. On the other hand, two died from ileus: the one from a duodenoventricular ileus due to the strangulation of the duodenum over an old adherence, the other from ileus of the small intestine due to an accidental strangulation of a coil of the bowels over an old adherence due to an old hysteropexy.

As regards the three deaths mentioned in the statistics of the other Scandinavian surgeons, two of them had absolutely nothing to do with the gastropexy as such: the one was due to a casual perforative appendicitis, the other to bleeding from a gastro-enterostomy performed simultaneously with gastropexy. In the third case, however, death must be ascribed to gastropexy, inasmuch as it was due to ileus of the stomach, the necessity of hepatopexy having been neglected; the sunken liver then rode over the pyloric part of the fixed stomach.

The mortality with gastropexy proper is then three in 256, or 1.17 per cent. As regards the recoveries, seventy-one, or 75 per cent., of the patients were cured to the extent of being relieved of their pains, of regaining a healthy appearance and their strength, and, from being incapable, depressed, miserable wrecks, of becoming able-bodied, healthy and happy people.

There then remain about 25 per cent. of the cases in which the effect of the operation has not been satisfactory: in 11 per cent. the condition was improved considerably, but in 12.8 per cent. the improvement was quite insignificant or *nil*. As regards the cause of the bad results an analysis of these cases warrants the hope that still better results may be attained in the future.

In some cases an imperfect diagnosis has been the cause of the bad result, as for instance the overlooking of an ulcer in the stomach or in the duodenum, or of cancer in another organ.

Finally there is a very important point which explains the difficulty of obtaining in many cases a complete cure for these patients, that is, the many consequences of enteroptosis and lacing which are coordinate with gastropptosis and coloptosis. First, the straightening of the lowest aperture of the thorax may be so considerable that there is no longer any room at all for the liver and the stomach, and therefore it is impossible to fix the stomach in a satisfactory manner without jamming it, just as it is impossible to get the colon sufficiently raised and to straighten out its folds and bends.

Even if the condition of the patient improves somewhat, the pains and the constipation in particular will nevertheless continue after the gastropexy.

Where the stomach is concerned I think that one may obtain better conditions: partly by giving up any idea of its reposition, inasmuch as one fixes it lower down where there is room for it, and partly by making the abdominal cavity more capacious with a plastic enlargement of the abdominal wall. In such cases I have attained an excellent result by doubling the width of the *musculi recti*.

Here, in this fortunately small group of cases, is, according to my experience, the real indication for Arbuthnot Lane's "shortening" by ileosigmoidostomy,

which I have employed with excellent results in two otherwise desperate cases.

What still has great influence on the results of gastropexy is the ptosis of other abdominal organs, above all, of the liver and the kidneys, which is so frequently present.

Therefore, with attendant hepatoptosis, hepatopexy should always be performed simultaneously with gastropexy. How frequently this is indicated is seen by my having had to perform hepatopexy in no less than sixty-eight of my cases. I perform this in part directly with silk sutures which fasten the serosa covering on the convexity of the liver to the diaphragm, and in part indirectly with the aid of the ligamentum teres. This is severed after a double ligature, and the topmost end sewed to the diaphragm with strong silk thread, whereby the liver is raised up. It is of great importance that hepatopexy shall be performed very substantially with wide scarifications, in order that the heavy organ shall not tear itself loose again and sink down on the stomach. Sometimes the lacing involves the development of a large hypertrophied left lobe of the liver, which pushes against the lesser curvature, and thus makes impossible the replacement of the stomach in its normal position. In four cases I have been obliged to remove such a lobe of the liver by resection, in order to be able to perform gastropexy.

In some few cases in which pains and constipation remain after gastropexy this is due to the subsidence of one or both kidneys, and the patients do not then recover entirely until after a nephropexy. With ten of my cases it was not until after a unilateral or a bilateral nephropexy that I succeeded in attaining an absolute result. A right-sided nephroptosis, especially, often involves a subsidence of colon ascendens and a pressure on the cecum, thereby keeping up the constipation and pains.

Gastro-enterostomy is never indicated with a simple gastropexy, experience even showing indeed that it is a highly injurious operation, inasmuch as not only do the existing symptoms deteriorate greatly, but an entirely new complex of symptoms also supervenes: nausea and gall-vomitings. This is simply due to the fact that gastro-enterostomy does not at all strike at the cause of the stasis which lies in the large intestine and far down in the small intestine at the opening into the cecum, but, on the contrary, instead of removing the drag and the weight which the subsided stomach exercises only increases this further, and a bend will very easily arise on the subsided folded coil of the anastomosis, which leads to a more or less pronounced *circulus vitiosus*.

Gastro-enterostomy, then, only increases greatly the sufferings of the ptosis patients, and even reduces them to a condition of extreme emaciation and misery. At one time or another I have had eight such patients under treatment. With four of these I have obtained a complete cure and with the other four a very great improvement by separating the intestine and the stomach at the point of the anastomosis, and, after having individually closed these, by performing gastropexy.

If physicians, the world over, could have their eyes opened to the right diagnosis and treatment of these symptoms, an extraordinarily large number of suffering, disabled persons might regain health and strength by a bandage-treatment or by gastropexy, and the physicians would be relieved of the most ungrateful and wearisome patients.

THE RÔLE OF THE MOVABLE KIDNEY IN INTESTINAL AND VASCULAR STASIS *

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Speculation is still rife as to the causes of the falling of the viscera from their respective positions in the abdominal space. It is generally admitted that there is a constitutional type in which there is a symmetrical descent of all the organs, and many observers are agreed that many of the extreme types encountered are due to congenital anomalies or defects. According to Rosengart's theory, congenital splanchnoptosis implies the persistence of the embryonic positions of all or part of the abdominal viscera, while the acquired forms imply the gradual reversion from normal to fetal positions. Arrest of any abdominal organ at certain stages of fetal development establishes the conditions that determine ptosis, and in order that the right kidney and the ascending colon shall attain their normal positions it is necessary for the colon to pass in front of and across the right kidney, and if this rotatory movement fail and the colon remain in its fetal position, both organs remain displaced, occupying positions characteristic of splanchnoptosis. In like manner, the loose attachment of the peritoneum covering the right kidney and its imperfect extension over the colon without proper grasp of the latter offer the conditions necessary for abnormal mobility of the right kidney.

In one or other of the groups referred to one would include many of the cases classified as Glenard's disease, many of which doubtless are acquired according to the rules laid down by Glenard, who taught that the organs made their descent in orderly sequence, beginning with the fall of the transverse colon. Later observations have established variable and varying sequences of descent. Attention is called to the frequency with which ptosis of the right kidney takes place as a result of trauma, and also ptosis of the colon as the result of loading of the bowel in habitual constipation. Ptosis of individual organs is far from being uncommon, the solid viscera, because of their relative weight, furnishing the most frequent examples.

The uterus is a most striking example of a solid organ subject to ptosis because of intrinsic conditions which effect alterations in its dimensions, positions and weight. The hollow viscera, because of their light weight and air contents, naturally float high in the abdomen, subject always to variations because of the unnatural burdens they are often forced to carry. To what extent the abdominal organs are maintained in their respective places by the force of abdominal pressure is uncertain. According to the views of Weisker, the only demonstrable force exerted when the abdominal muscles are quiescent is the hydrostatic pressure of one organ on the other in mutual contact, faceted and held together in the same space. It is difficult to believe that this force can do much toward giving them poise and fixity in their respective positions.

Of paramount importance in the study of acquired forms of splanchnoptosis is the determination of the organ of primary displacement. That there are several

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* Because of lack of space this article is slightly abbreviated in THE JOURNAL. It appears in full in the Transactions of the Section and in the author's reprints.

organs which may be refractory there can be no doubt, nor can there be any doubt that the process may begin below or above. For example, extreme ptosis of the uterus with displacement, by direct traction on the bladder, will cause ptosis of that organ, and by traction on the ureters may cause the beginning of ptosis of the kidneys. In like manner, from above, ptosis of the colon may determine, by traction on the mesocolon, ptosis of the group of organs related to it. From above it is obvious that the liver, when displaced from any cause, will force down by its weight all the organs immediately under it.

It is plain, therefore, that acquired ptosis does not begin in a classic way with the descent of some particular organ, but rather that it is a bizarre process which permits different organs to be refractory. It would be impossible in a limited study to work out the process of ptosis from the various points of departure, and this study, therefore, is limited by its title to the study of the relation of the kidney to ptosis and stasis, the latter considered from the vascular as well as the intestinal side.

The anatomic relationship of the kidney and colon establishes in almost all cases that ptosis of one implies at least a degree of ptosis of the other. I cherish the belief that the kidney is more frequently the organ of primary displacement than is generally supposed, and by implication that splanchnoptosis in its worst forms is an acquired state, the development of which can be definitely traced, and not infrequently, to the initial descent of the right kidney.

In character it must be considered as a solid organ, more or less wedge-shaped, placed behind the peritoneum, possessing at all times a considerable degree of mobility and having great density and unusual weight for its size, in contradistinction to the hollow, air-containing viscera, like the colon, which are more commonly regarded as the causes of ptosis.

For a better appreciation of this study, the various factors that contribute to the development of the gravid kidney should receive consideration.

To begin with, attention is called to what is believed to be a clinical fact, i. e., an early and minor state of hydronephrosis, which is the outcome of the voluntary retention of urine, a fault common in both sexes, especially the female, the effect of which is to cause delay in the transmission of the urine from the kidney and its retention in the kidney pelvis and calices, which enlarges their capacity and augments the weight of the organ.

The state of hydronephrosis, when once it develops directly as the result of pressure on the ureter by the kidney, or its angulation by the loss, in a state of ptosis, of its alignment with the kidney pelvis, of course, greatly increases the dimensions and weight of the kidney. At this stage another element appears, i. e., the effect of pressure on the intrinsic blood-supply and the secretory apparatus, which causes stasis of both and adds further to the size and weight of the kidney, and doubtless contributes important elements to the symptom-complex of the disorder.

The next factor that operates in the same direction is the progressive drag of the kidney, in a state of ptosis, on its own vascular supply. The renal artery and vein are normally placed at right angles, or at a slight obliquity from above, downward and inward, to the aorta and vena cava, so that the sweep of the circulation is very direct and easy. The range of the movement of the kidney in extreme ptosis is determined by its pedicle, and the position that it takes is one of rotation, swing-

ing, as it were, in the arc of a circle by gravity, and when palpated in the abdomen in the usual way, while occupying the zone of its limit of descent, the dorsum will be found directed obliquely downward and inward, its lower pole often in touch with the median line of the body. The position of the vessels is now illustrated by Figure 1, exhibiting two very important conditions, namely, the display of an abnormal obliquity, distortion and lengthening of the renal vessels, with extreme tension and narrowing of both, and also a deformation and deviation of the vena cava and aorta. This marks a new condition which more than any other single factor, because of the introduction of new elements such as passive congestion, edema and connective tissue proliferation, increases its weight.

Thus is developed what one may well term the "gravid kidney," the play of which hereafter is of the greatest moment in causing not only progressive ptosis of the

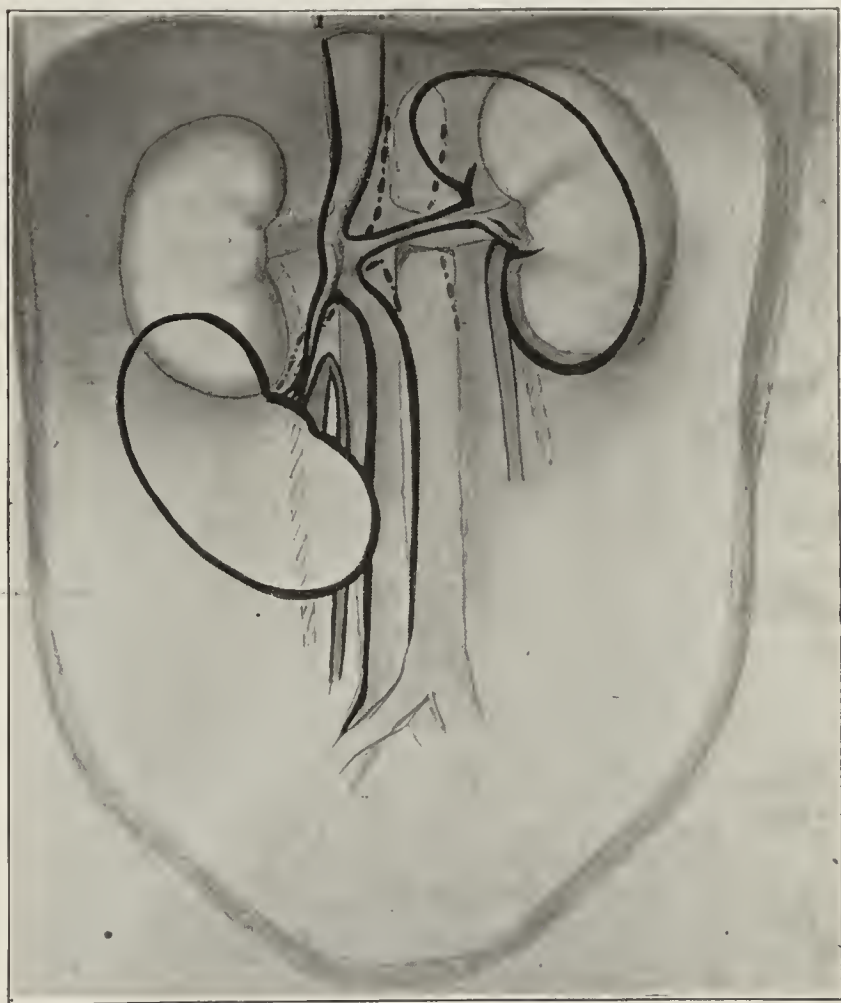


Fig. 1.—Semidiagrammatic illustration, drawn from the cadaver, of extreme distortion of the vena cava and aorta and displacement of the left kidney incident to marked displacement of the right kidney, resulting in vascular stasis.

viscera, but the multiform disorders associated with splanchnoptosis and intestinal stasis.

In relation to the action exerted by the kidney, once it has become freely movable and gravid, its range of movement progressively increases, and inasmuch as it is placed behind the peritoneum, the force that it exerts is that of a hammer or pile-driver, which intermittently strikes with blows of varying strength against the lines of cleavage between the peritoneum and the structures on which it rests. The tendency of this force, which increases *pari passu* with the ever-enlarging kidney, is to part the peritoneum from its attachments, which yield more and more until it becomes stretched and unfolded to a degree that permits it to slide downward and forward, with the organs attached to it, to lower levels in the abdominal space. It is contended that this process may take place even under conditions in which the

kidney is not closely connected by peritoneal investment with the ascending colon through similar action of the gravid kidney. Observations made in the post-mortem room on the altered position and deviation of the blood-vessels in these relations show very striking results.

After the kidney has been stripped from its connections with its fat envelope, and detached from Gerota's capsule and placed in the position peculiar to extreme ptosis, it is observed that the vessels are stretched, especially the renal vein, its greater elasticity allowing it to become unduly lengthened and its caliber reduced to one-half or even less, a slight rotation of the kidney at this time on its long axis tending to obliterate its lumen entirely. The inferior vena cava is found at the same time dragged from its bed to the right, its caliber also reduced, the vessel having a sigmoid curvature, the center of which is at the point where the downward trac-

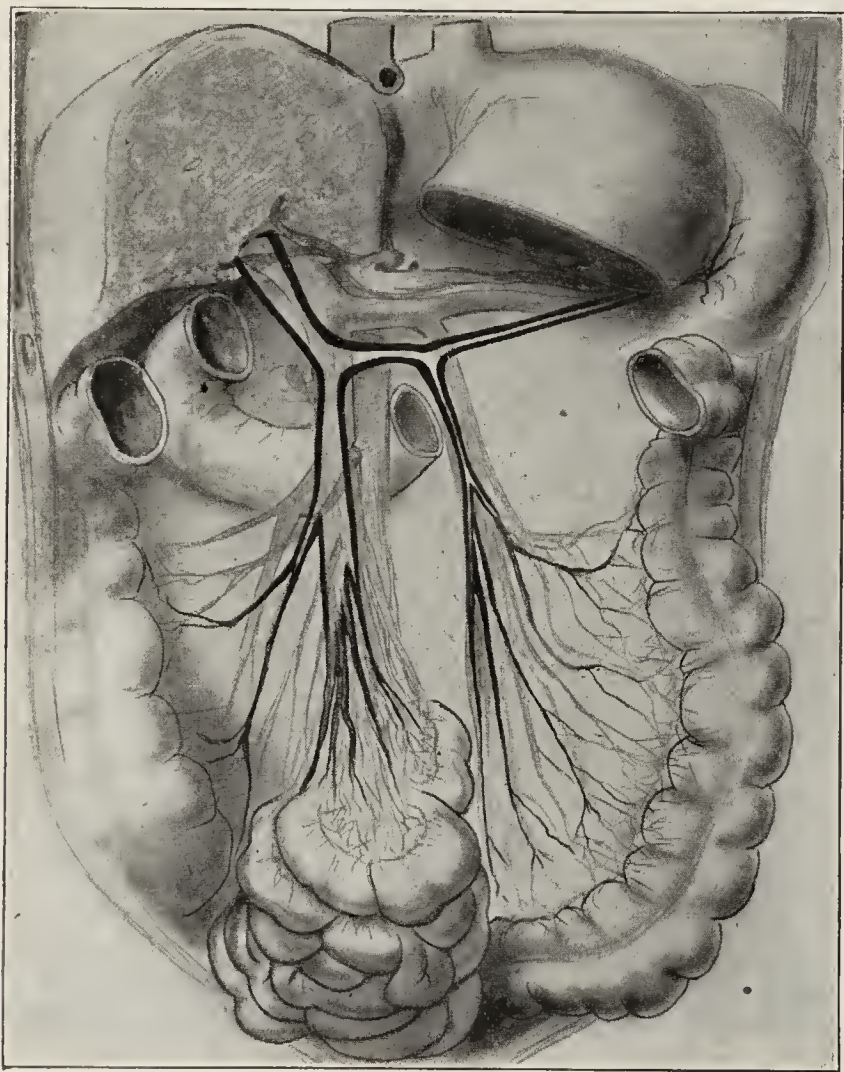


Fig. 2.—Semidiagrammatic illustration of the drag of the superior mesenteric vein on the portal vein and the inferior mesenteric vein on the splenic vein resulting in enteroptosis.

tion is exerted through the renal vein by the gravid kidney. When increasing traction is exerted on the kidney, these effects are accentuated until a point is reached when the lumen of the venous trunk is readily obliterated (Fig. 1).

It will be observed at the same time that the left kidney is being displaced in the same direction by the same force. I have observed two cases of exaggerated ptosis of the right kidney in which groups of very definite symptoms were referred almost exclusively to the left side and explained by the presence of a movable left kidney and relieved by operation on the right kidney, leaving very little room for doubt that the descent of the left kidney may be initiated in this way.

It is evident, therefore, that the vascular disturbances associated with ptosis of the kidney are fraught with great importance, not only because of the intrinsic dis-

orders already referred to, but because of the *impasse* placed directly on the systemic circulation below the renal vessels.

It would be impossible, in a study limited by time and space, to take into account all the vascular disorders associated with ptosis in respect to each viscus involved, but attention is briefly called to the colossal disturbances that one would expect to result when complete prolapse of the large and the small intestine takes place. Writers and operators not infrequently refer to the apparent redundancy of both, and one distinguished author expresses the opinion that ptosis of the intestine will not infrequently be found to be the expression of its abnormal congenital length. Observations on the alterations that take place in the large and the small intestines as the result of ptosis are limited mainly, as a rule, to passing comment. The opinion is ventured that advanced ptosis brings about their elongation and increase in weight, thereby intensifying the various associated disorders.

It is believed that the elongation of the intestines which naturally tends to their displacement and descent is due to continuous traction on their ligaments and mesenteries, causing the gradual unfolding of the intestinal loops, and their increased weight in great part to a muscular hypertrophy engendered by the necessity of overcoming greater barriers than the normal; that passive congestion and edema may also contribute to their increased weight admits of little doubt.

Incidentally, in this connection, attention is called, when ptosis of the intestines is complete, to the disturbances in the chylipoietic system that one would expect to result from the traction exerted by the prolapsed intestines, on the one hand, through the drag of the superior mesenteric vein on the portal vein, and, on the other, through the drag of the inferior mesenteric vein on the splenic, causing stasis throughout these great areas, which must exert far-reaching effects on the functions of all the great organs involved (Fig. 2).

There are authors who contend that intestinal stasis is a constant accompaniment of splanchnoptosis. It is believed that a careful analysis of a large number of cases would demonstrate that the incidence of intestinal stasis is relatively small in this disorder.

The term "intestinal stasis" is used not infrequently without regard to its definition, which predicates a retardation of the fecal current throughout the intestinal canal. The conditions commonly described as constipation and obstipation having a different origin would naturally fall under a different definition. Observers are agreed that even in advanced types of splanchnoptosis, in which there has been extreme descent of the intestines, the peristaltic wave is active and strong, and in point of fact the motility of the intestines is not seriously impaired, and that the tendencies of the intestines are against stasis; furthermore, that in many types of ptosis, catarrhal conditions are present which indicate an abnormal peristaltic activity.

It is held doubtful, therefore, that ptosis is a direct cause of stasis. That intestinal stasis, however, may take place in association with ptosis is admitted, but in such instances, generally speaking, it will be found that the lumen of the intestines is altered either by angulations, torsions or other deformations which are the result directly of the extreme dislocation of an elongated and overgrown intestine. It is believed, however, that such cases are very rare. It will be seen also that when stagnation of the fecal current of the intestines takes place, as it may at times at the seat of normal or abnor-

mal flexures of the intestine or elsewhere, mucous or peritoneal lesions have developed and brought about such organic changes as to lead to stenosis of the intestinal lumen, thus causing intestinal stasis, a strictly secondary process. Included in the variety of obstructing or stenosing lesions that may develop in this way, one must include a peritoneal disorder, described and referred to by a number of distinguished writers of late, and known as "membranous pericolicitis."

It is believed, therefore, that as long as the intestinal lumen is preserved in its integrity, splanchnoptosis, even when far advanced, will not cause stasis, and that normal and even abnormal flexures of the intestine under like conditions, its lumen being intact, will not tend to the delay of the fecal current and cause stasis.

Provided that the lumen of the intestine is whole, therefore, it is believed that despite well-advanced splanchnoptosis and the apparent barriers that follow in its wake, including exaggerated, normal and abnormal curvatures and flexures, intestinal stasis will not be the rule, but rather the exception, and further, that even if barriers were present of any kind which impaired the intestinal lumen to degrees in which only one-half and even as low as one-fourth of it remained, so great is the power of accommodation of the intestinal muscularis that its functional activity might be equivalent to par.

In view of these, and many other parallel observations, it is difficult to believe that minor degrees of angulation, such as are caused by peritoneal ligaments which are congenital — of which the so-called ileal kink might be mentioned as a type — will contribute at all toward causing intestinal stasis. To repeat, therefore, there is very little doubt but that the compensating mechanism of the intestine is capable of overcoming all such barriers, and that even organic and stenosing barriers in which the lumen of the bowel is seriously impaired are readily overcome by the same mechanism.

That intestinal stasis does take place in splanchnoptosis under conditions in which the lumen of the intestine is intact is open to very little doubt; and this brings one now to the consideration of the causes of intestinal stasis in such cases.

The relation of vascular to intestinal stasis is considered in the most casual way by most writers on the subject. It is evident, on inspection of the viscera in operations performed on those suffering from splanchnoptosis, that their vascular supply is excessive, that they are turgid with blood, that venous blood is greatly in excess and that a state of venous hyperemia exists. If one could extend the examination to the interior of the hollow viscera, it is more than likely that congestion and edema of the mucosa would be present, which general state would explain in a more logical and rational way the occurrence of intestinal stasis.

Of great moment, in this connection, is the loaded state of the intestine with blood deprived of oxygen, which would naturally react on structure and function, to the grave impairment of both. The reaction alone of such vitiated blood-supply on the elaborate nervous mechanism of all the parts involved would go far toward explaining the multitudinous functional disorders which are everywhere in evidence.

It is held, therefore, that vascular stasis is the potential agency which ultimately brings about intestinal stasis, rather than the intrinsic intestinal disorders which are commonly regarded as the causative factors and which are too frequently accepted as the basis and warrant for surgical treatment.

Time does not permit the study of the associated disorders of the nervous system which may have even a more intimate bearing than those of vascular origin. One must observe, however, that there must exist in states of extreme ptosis serious disorders of the great splanchnic and the celiac systems which must bear their part of the drag, tension and intoxication which are now universal, and which find their extreme expression in the neurasthenic and psychoneurotic states which give to the whole picture its most dismal aspect.

The achievements of surgery in this field are not to the credit of the craft. An attempt has been made to show that only in a very minor degree are the indications for treatment positively surgical and without doubt these have been shunned rather than courted. On the other hand, a vast amount of energy has been expended in devising operative measures for the relief of splanchnoptosis and its derivative disorders, which in point of fact have done less for the exploitation of ways and means of permanently relieving the host of people afflicted with these disorders than for the fame of mal-adroit operating surgeons. A few of these operations may properly be singled out for criticism.

1. *Operations designed for the relief of gastropnoptosis.*—When this state exists alone in the presence of, and associated with, disordered states of digestion or diseases of the digestive organs which cause delay in the transmission of the stomach contents and other disorders, intervention may be justified, provided that it relieves the condition and does not leave in its wake a state that is worse than the original. The x-ray has demonstrated that the stomach in a state of ptosis possesses, commonly, remarkable motility and mobility which are indispensable for its function. If any operation be performed for its uplift and fixation which alters its position during digestion (which then approaches the vertical) and at the same time deprives it in any degree of its normal power of movement, such operation should be condemned, and no condemnation can be strong enough when directed against operations designed for the replacement and fixation of a stomach or other solitary organ which occupies its equivalent position in relation to splanchnoptosis. What does it avail the sufferer to have his stomach hooked up in an attic while all his other organs are left trailing downward to the basement?

2. *Operations designed for the relief of intestinal stasis, associated or not with splanchnoptosis having a definite symptom-complex, but without manifest obstructing or stenosing lesion whereby extensive areas of the large intestine are excluded from function, either by resection or anastomotic procedure.*—The study of design in Nature finds no more perfect example than that of the primitive intestine in its three parts, all for one and one for all. It is not a long step in the same individual from the primitive intestine to its derivatives, but during that relatively short period things have happened that are evidently not yet known or understood, which cause the derivatives of part of the primitive intestine to fail in the discharge of their duties; and because they have faltered or failed, forsooth, it is decreed that they must be led to the guillotine, the decree being that the derivatives of the hind-gut must be cut out and banished forever, and the derivatives of the fore-gut and mid-gut must jointly thereafter bridge the gap. The parallel is only slightly overdrawn, but at this point surgery has departed from its standards.

The resection of the colon will always have its place in surgery, and to a limited degree, perhaps, in relation

to these disorders, notably the giant colon. But because, in its general application, it is too radical and dangerous, does not strike at the causes of intestinal stasis and is not a rational and orderly step in the evolution of the measures that are necessary for the permanent relief of these disorders, it is believed that it should be condemned and placed under the ban of surgery.

Whereas surgery has run riot in this field, conservative legitimate surgery has very largely kept aloof and withheld its benefits from very important groups of cases whose needs are clearly surgical. Many of the most distinguished operators decry any and all operations devised for the relief of ptosis of the viscera.

It is generally admitted and this study recognizes that a large group of cases of splanchnoptosis are acquired and can be traced not infrequently to the initial displacement of some particular viscus, in one case, perhaps, a kidney, in another, a colon. It is therefore fair to assume that in many cases of splanchnoptosis a timely surgical operation consisting of the replacement at the proper time of a single viscus or single group would not only relieve the existing symptoms, but prevent the extension of the process to other organs and avert in many cases the development of splanchnoptosis with its attendant evils.

Observations with the aid of the *x*-ray have recently been made, which in two cases have definitely shown advanced ptosis of the right kidney without ptosis of any part of the colon or the other viscera; the attempt was made unsuccessfully in one of these cases to determine simultaneously the position of the ascending and transverse colon and the right kidney by the previous administration of a bismuth meal and the instillation of collargol (colloidal silver) into the kidney pelvis at the proper time.

Although the *x*-ray failed in this solitary instance, it is thought that it might be useful in many cases whether used simultaneously or in stages, and for its proper execution, it is suggested that the test be made in both the upright and the recumbent positions. It is thought that observations based on such lines of study might enable one to trace the process from its beginning to its end.

Opinions vary as to the order in which the phenomena of splanchnoptosis develop. The general observation of a very considerable number of acquired cases would seem to warrant the conclusion that in this morbid state ptosis of the organs, singly or severally, is the primary state, which leads progressively, because of perverted anatomic states of the viscera due largely to vascular stasis, to disturbed function of all the organs involved; so that circulation, digestion, assimilation, nutrition, metabolism, blood-formation, innervation, secretion and excretion, etc., become more or less, in the order stated, involved and reduced to states of confusion and perversion which mark time to the progress of the disorder, always faithfully reflecting it.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. ROVSING AND MACKENZIE

DR. JOEL GOLDTHWAIT, Boston: It is evident that ptosis or downward displacement of the viscera is very common. A large number of human beings have such ptosis, but with very many it causes little inconvenience. It is only when the malposition of the viscera interferes with their function that the individual complains of symptoms which are sufficiently annoying to demand intervention. We must then investigate the case carefully, so that we may be in position to decide what is the element of chief importance, and relieve it so far as lies

in our power. Since a large number of persons have this condition, and since very few of them manifest any symptoms early in life, I think we may fairly conclude that the condition which causes the symptoms is acquired, this being added to the congenital formation. Therefore, we should not be led astray by seeing only one organ, but should try to view the patient as an individual made up of many organs, realizing that health does not depend on anatomic position of these organs, because very few of us have what is supposed to be a normal anatomy, but that it consists in a reasonable adjustment of these organs. It is interesting to note that while a large number of individuals have this ptosis, there are many different types of ptosis and that these types are perfectly recognizable many times even without the aid of the Roentgen ray. The position in an acquired ptosis is very characteristic. The ribs and diaphragm are forced down; the stomach consequently must be forced down. If there is a normal attachment on the right side, the colon and liver are pushed down. In the examination we should not be content to have the patient lie on the table, because then all the organs are in their best position. It is only when the patient is standing erect that the ptosis is observed to the full extent. There is a second type of ptosis, the congenital type. There may be fewer symptoms in this type than in the acquired. It is a type seen at different ages in the child, no matter how young it is, and in the adult, no matter how old he is. These patients rarely have any retroperitoneal fat, and when the patient bends forward there is a decided depression, a hole, in the back between the spine and the lower ribs, because of absence of fat in the lumbar region. This absence of retroperitoneal fat is a very important point to bear in mind in treatment. If it is necessary to do any surgical work in these cases we must not stop until the adjustment of all the organs is the best possible and until the retroperitoneal fat has reformed.

DR. JACEZ N. JACKSON, Kansas City, Mo.: Conditions about the ileocecal junction have no connection with and play no part in the general condition of visceroptosis. Our conception of the condition which we have described as membranous pericolicitis has been set back very largely by Lane's idea. It is Lane's conception that we are dealing primarily with a visceroptosis due to the upright position of man, and the pericolic membrane he describes simply as adhesions which are formed in a physiologic effort to antagonize the downward displacement of the colon. It is evident to the surgeon who has studied these conditions that there is not the slightest tendency to prolapse of any part of the intestinal canal, with the exception of the cecum and in some instances of the transverse colon. As a matter of fact, the hepatic flexure is held up more closely than usual beneath the costal margin, so much so that in some instances there exists a hepatic mesentery. We do have ptosis or dilatation of the cecum. Wilms, of Heidelberg, describes a similar ptosis or dilatation of the cecum which he claims to exist independent of any membrane or adhesion and to which he has applied the term "cecum mobile." Other German observers, on account of the attenuation and dilatation have preferred the designation "typhloaton" or "typhloectasia." Dreyer, of Breslau, however, has found the cecum movable in 67 per cent. of all subjects examined in the dead house. I have personally operated on thirty-five cases of membranous pericolicitis with its associated large cecum but have had only one case in which the symptoms were present with a dilated cecum but without any membrane or adhesions. We are inclined, therefore, to consider the mobile cecum as a rare clinical entity, but instead, it is rather an associated sequence of the constriction from the membrane. There is room for considerable discussion as to the etiology of this membrane found around the outside of the colon. In a general sense, it may be said that several theories can be adduced to account for the presence of this membrane. One theory attributes the membrane to faulty development, a second theory is that the membrane is a physiologic response to mechanical demands; and a third class of theories presumes an inflammatory origin of the membrane.

DR. T. ROVSING, Copenhagen, Denmark: I believe that the common cause for these adhesions is a coloptosis. If there is a

ptosis and constipation the heavy fecal material in the bowel keeps the transverse colon down in the pelvis; adhesions take place between the ascending colon and the transverse colon. I think the adhesions form in the same manner as I have seen in connection with the hour-glass-stomach. There is formed a fixation of the bend which causes a stricture and hinders the passage of fecal material. I cannot see why the adhesions should always be on the right side and involve the right flexure, if it were not the ptosis which is the reason for it. Of course, when these adhesions are there, we cannot wait to cure the constipation by gastropexy, and in these cases I quite agree that here is the indication for anastomosis between the ascending and the transverse colon, or between the ascending and descending colon, as has been mentioned. I have tried in two cases to do an ileosigmoidostomy according to Lane's method, and have had very good results. In a third case I had a very bad result. I thought the patient was quite cured, but when she had been at home about three months she suddenly developed an ileus. At Lane's clinic in London I saw quite a few cases in which ileus developed after operation. I think the indications for that operation must be confined to very narrow limits. I would certainly very much prefer to do a colo-anastomosis instead of extirpation of the colon, because I believe the results would be much better. Where you find constipation and coloptosis without adhesions, there only may be indication for a gastropexy.

DR. W. J. MAYO, Rochester, Minn.: I want to correct a false impression which seems to prevail in this country concerning the work of Mr. Lane. He is one of the world's foremost surgeons. During the past ten years he has distinctly advanced the surgery of the bones, of the cleft palate and of the large bowel. He is also a great teacher. In order to drive home his point or convey his idea, he may occasionally overstate things, but if one observes his work on the bones and the large bowel, one does not get the impression that he is a poor surgeon or that half of England is going about without a colon. He is doing that particular operation only rarely, but he is doing an ileosigmoidostomy. While I am by no means convinced that Mr. Lane's position as regards surgery of the large bowel is even approximately correct, it is certain that the operation of ileosigmoidostomy is being done with increased frequency by a large number of surgeons.

PARAKERATOSIS OSTRACEA (SCUTULARIS)*

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The encasement of our body, the skin, which serves as a protecting envelope to the deeper structures, is continually shedding its most superficial layer. The normal desquamation of dried horny cells is a physiologic occurrence which takes place almost unobserved and imperceptibly. This uppermost stratum of the epidermis, made up of ever-detaching horny cells, is called the horny layer. It is this layer which gives the surface of our body its armor plate, as it were. On the good condition of this surface protection depends the intactness of our skin and its ability to resist microbic and mechanical influences.

A normal and healthy cornification which the constantly renewing deeper layers undergo as they emerge to the surface from the state of succulency below to that of desiccation and cornification above keeps the skin intact in its continuity. The existence of fat in the cells of the stratum lucidum and from the glandular secretion impart an impermeable coating to it.

Normal cornification is caused by a fatty, wax-like substance, keratin. According to Unna¹ the protoplasm of the succulent epidermis cells is transformed into keratin. Phenol, sulphuric acid and sulphur from the body-fluids are taken up by the peripheral portion of the cells which is then reduced into a highly resistant substance called keratin. The prickle-cells in the course of their gradual upward displacement persist and also change into keratin. Their remains can still be recognized by the granular appearance of some of the cornified epidermis cells. As to eleidin found in the lowest part of the horny layer and keratohyalin observed in the stratum granulosum, while they do not seem essential in the formation of keratin, yet they are thought to be essential in the process of cornification. They are held to be separation products of the cell protoplasm, different physical states of the one substance.

While hyperkeratosis as seen in ichthyosis, pityriasis rubra pilaris, keratosis pilaris, etc., consists in an increase of the horny layer caused by excessive production of keratin, parakeratosis represents a type of imperfect cornification. At first glance this would seem to be



Fig. 1.—Posterior view, showing variously shaped, raised and laminated oyster-shell-like masses.

a contradiction, inasmuch as in these affections excessive production of horny cells is observed, as in psoriasis. But when we examine the scaly heaps more closely, we will find a lack of cohesion in their component parts. They form friable, greasy masses, as in pityriasis of the scalp, eczema seborrhoicum, etc. There is an abnormal moisture of the transitional layers present; i. e., between the prickle and epidermic cells, which in their upward move become only imperfectly cornified. This intensified moisture (edema of the granular layer) causes a disappearance of the keratohyalin granules. Through their absence a persistence of the nuclei results instead of their normal degeneration, as seen in normal cornification. If we add to these findings the incomplete formation of keratin, which causes the cells forming the scales to be only very loosely united to each other, allowing air, serum and leukocytes to collect between them, we have a well-defined pathologic entity before us when we speak of "parakeratosis" or imperfect cornification of the epidermis.

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Bloch, Iwan: Die Praxis der Hautkrankheiten, Berlin, 1906, p. 30.

As a prototype of parakeratosis, psoriasis serves best as a well-known example. It may be defined most concisely in the words of Macleod:² "Psoriasis is a slight edema of the epidermis with imperfect cornification." Another example of imperfect cornification is the seborrheic eczema of Unna; here the edema of the prickle-cells, however, is far more pronounced, and the scales are less abundant and thinner.

Besides these well-known representatives of imperfect cornification, two more rare affections have been described by Unna under the name of "parakeratosis scutularis" and "parakeratosis variegata." Of the latter affection, although of rare occurrence, several cases have been described, with an already voluminous mass of literature existing. Of the former one, however, very little is known up to the present time. The only mention in the literature that I can find is by Besnier, Brocq and Jaques,³ and by Tomasoli.⁴

The case which makes the topic of this paper is similar to the one which Unna⁵ published in 1890 under the title "Parakeratosis Scutularis." In searching the literature I have failed to find another case which clinically and histologically would correspond with it. Barring an oversight—in which event I would gladly accept correction—I think I may call my case the second one of this rare skin disease. Unlike Unna's case, in which the pathology could be studied only by



Fig. 2.—Oyster-shell-like formations around and above areolæ of nipples; some detached from left side.

the secondary by-products of the disease, i. e., from the scales and horny cones, in my case a biopsy had been made, which throws further light on the histology of this hitherto only partly described dermatosis.

History.—A. M., a Russian girl, aged 18, a waist-maker, appeared at my class in the German Poliklinik with a skin affection which at a glancing examination conveyed the impression of a psoriasis. On closer search, however, this diagnosis was abandoned. Patient had this affection since childhood and never as yet had gotten rid of it entirely. Different medicines and blood-purifiers were of no use. All the body functions were normal, also the urine. The scalp, forearms and legs were clear. Patient had a dry skin, and exhibited on the extensor surfaces the condition of keratosis pilaris and spinulosus. The oyster-shell-like formations to be described did not itch much and seemingly gave rise to no complaint.

Examination.—At that time we found scattered over the surface discrete, larger and smaller, variously shaped, whitish and yellowish, laminated and raised masses. The majority of the lesions were situated on the back, the sacral region and the lateral aspect of the upper portion of the thigh and upper arm (Fig. 1). There were also two large lesions around the areolæ of both nipples (Fig. 2). The lesions were dry and

there was no surrounding inflammatory zone. On removing one of these masses it was found that its architecture showed an oyster-shell-like appearance with a convexity, one-third to one-half of an inch in diameter and in height and about one inch in length. There were also smaller ones present (Fig. 3). The peripheral margins of these hollow shells were tapering and fastened to the surrounding skin in a cupping-cup-like manner. To detach them, the skin had to be pressed down at some point of their border in order to release their hold, as one would detach an adherent cupping-cup from the skin; or their edges would have to be raised with the flat end of a probe. The shells exhibited a laminated structure somewhat greasy to the touch and friable as to their density. There was a veritable vacuum created under these shells. The suction exerted through their airtight adherence was so strong that, after they had been separated, the underlying congested and denuded skin was seen to have been drawn into them like a nipple, or protruding like a miniature crater. The circumference of these lesions showed a deep groove corresponding to the place where the borders of these shells were fastened to the skin. The under surface of this peculiar formation was hollow and curved. Through slightly projecting septa some of the shells were divided into two or three shallow compartments. The innermost layer of the hollow cup consisted of a yet partly succulent egg-membrane-like formation as



Fig. 3.—Shells picked off and mounted to show upper surface. Convexity over one-third of an inch in height and about one inch in length. Also smaller ones.

the roof, which evidently had not undergone cornification. In pulling off the shell, this latest product of papillary edema and imperfectly cornified horny cells would in some places yet be found adherent to the skin forming a pellicle. This membrane could easily be detached, exposing a turgescient hyperemic surface, showing an oozing of a lymph-like, viscous secretion. The thorn-like, horny cones mentioned by Unna as protruding into the hair-follicles from the under surface of the shell-like mass were not so numerous as in his case. Where present it shows that they are the results of sebaceous and epithelial plugs protruding from the patulous glandular ducts (Fig. 4). As they rise upward they become fused to the preexisting hollow shells already mentioned. Through continued pressure from the newly formed sebaceous material within the follicles, or probably through acanthosis, they are forced against the innermost layer of the cup or horny shell, to which they adhere with a broader base. In detaching the hollow shell from the skin these plugs become separated from their follicular openings and appear as thorn-like projections, as if produced from the under surface of the hollow shell. In my case I could not observe, as Unna states, that each horny cone as a rule contains several hairs which project one above the other. Here the hairs were curled up in the shell (Fig. 6). I am also of the opinion that it is not the wax-like horny plates which mat the hairs together, but contrarily,

2. Macleod, J. M. H.: Practical Handbook of the Pathology of the Skin, London, 1903, p. 97.

3. Besnier, Brocq and Jaques: La pratique dermatologique, Paris, 1900-1901.

4. Tomasoli: Giorn. ital. d. mal. ven., 1891, p. 277.

5. Unna: International Atlas of Rare Skin Diseases, 1890, plate viii.

the hairs hold the shell together, the same as hairs do in mortar.

The bacteriologic examination was negative. The only growth obtained was the *Staphylococcus albus*. No fungi were found.

The histologic examination of portions of the skin removed showed the following: the horny layer of the skin missing, and the plugs pulled out of the hair-follicles; small round-celled infiltration into the papillae thickening of epithelium of the hair-follicles and showing distinctly inflammatory products; infiltration into the papillae and subpapillary zone surrounding the hair-shaft (Fig. 5); moderately dense infiltration of areas from which these plugs had been removed; no apparent change in the deeper tissues. There were also found, as will be seen by the photomicrographs, dilated lymph-



Fig. 4.—Section of shell, showing plugs that fit into hair-follicles; also curled-up hairs. Note laminated structure of shell. The thorn-like horny cones fit into the follicular openings of Figure 5.



Fig. 5.—Shows horny layer missing and plugs pulled out of hair-follicles. Infiltration into the papillae and subpapillary zone extending down to hairshaft.

channels in the subpapillary layer. Some of the rete cells retained their nuclei, indicating imperfect keratinization. The marked excrecences after removal of the shells are shown to contain lengthened, narrowed or widened papillae, while in other places they were almost wanting.

Differential Diagnosis and Remarks.—The hollow horn-shields are so unlike anything else as to rivet the attention of the observer at once. The difficulty of diagnosis lies in the unusually rare occurrence of the affection. As mentioned before, a glancing observation would put psoriasis to the fore. The presence of differently sized scales would suggest it to a very casual observer. But the dermatologist with his accustomed inductive observation will at once entertain doubt as to its correctness. Psoriasis does form accumu-

lated scale-heaps but rarely, if ever, hollow shells of rupia or oyster-shell-like formation. In scratching the psoriatic papule the lesion will show minute bleeding points due to damage to the dilated papillary vessels, but never any moisture or oozing; and when this is exceptionally present, it would indicate a seborrheic complication, a seborrheic psoriasis, which is already a border-line affection. The under surface of the scales, often imbricated, never forms the thorn-like projections of the disease in question and does not contain sebaceous material or coiled-up hairs. As to pityriasis rubra pilaris, Devergie, which is an affection of the pilosebaceous follicles, we find a hyperkeratosis supervening, appearing as small reddish acuminate papules and small horny spines pierced by a hair. The affection is a grave one and usually involves the entire surface. Neither is there confusion possible with keratosis pilaris or lichen spinulosus, a trivial affection, producing small epidermic elevations without crusts or shell formation.

In resuming, my conclusions are similar to those of Unna, who says: "We have here to do with an anomaly of cornification 'parakeratosis' which attacks the body in groups and is combined with slight superficial inflam-



Fig. 6.—Curled hair in the shell.

matory phenomena which extend deeply down into the attacked follicles and produce peculiarly formed cones. . . . The disease has no marked influence on the general health, takes a chronic course and is resistant to treatment. It belongs, like all parakeratoses, probably to skin affections due to some unknown microorganism."

But in some points my conclusions are somewhat at variance. The pathologic picture of my case, while corroborating the findings of Unna as to imperfect parakeratosis and follicle involvement, differs from his in so far as I have found infiltration in the papillary and subpapillary region accompanying the hair-shaft. In other words, instead of having a plain parakeratosis with only slight superficial inflammation, we have quite a marked subacute and low-grade inflammation of those deeper and subadjacent malpighian papillary layers. This picture eliminates the contention of Unna—who has so classically described his case—that this affection is of microbic origin, but proves rather a deficient keratinization of a hitherto unknown origin.

Although not of great consequence, I should suggest the adjective "ostracea" instead of "scutularis," which

I think would describe the appearance of the hollow shells far more concisely.

Before closing, I take great pleasure in extending my sincerest thanks to Dr. Henry Kreuder of New York, for his help in preparing the microphotographs and histologic examinations.

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ABSTRACT OF DISCUSSION

DR. JOSEPH ZEISLER, Chicago: As having a possible relationship to the case described by Dr. Weiss, I would refer to the frontispiece of McCall Anderson's book on skin diseases, which illustrates a case of psoriasis with oyster-shell-like formation of the scales.

DR. WILLIAM S. GOTTHEIL, New York: I saw the case reported by Dr. Weiss and gave it some little study. It was unusual, and perhaps deserves the separate classification that Unna has given it, but by doing so we may lay ourselves open to the criticism of hyperrefinement of diagnosis based on objective conditions and without any knowledge of the underlying changes. When we recall how a case of psoriasis may change its characteristics during the course of different attacks, we should be less inclined to lay too much stress on small objective differences. We have the lupoid type of psoriasis, and we have seen examples of the oyster-shell-like type referred to by Dr. Zeisler in connection with the picture in Anderson's book. The microscopic changes in psoriatic lesions are not very marked, and while we may call a case of the kind described by Dr. Weiss parakeratosis scutularis, it may after all belong to the great class of psoriasis-like affections, simply differing a little in its external appearances.

DR. W. B. TRIMBLE, New York: I have never seen psoriasis with cup-shaped crusts coming on in this way and showing this oyster-shell formation. This desquamation *en masse*, with the crusts markedly concave on one side and convex on the other, is a very peculiar feature. In these and other respects the case seems distinct from psoriasis.

DR. A. RAVOGLI, Cincinnati: I can recall two cases which in many respects were similar to the one described by Dr. Weiss, but which I regarded as cases of giant or rupiform psoriasis. In these cases there were thick crusts, not unlike oyster-shells, and under the microscope a piece of the affected skin gave the characteristic picture of psoriasis. The picture given by Dr. Weiss consists also in a hypertrophic condition of the papillæ, with infiltration of the papillary layer and corium, with the hair follicles showing a great proliferation of the epithelial cells; the whole picture is not very different from that seen in psoriasis.

DR. L. DUNCAN BULKLEY, New York: I have seen cases similar to the one reported by Dr. Weiss, and I recall the illustration in Anderson's book. By careful study of cases like this we may in time prove that we have to deal with a distinct disease, just as eczema seborrhoicum was found to be distinct from ordinary eczema and psoriasis. I think the time has come when we should cut off from psoriasis some of its supposed belongings, and I quite agree with Dr. Weiss that the case he has described is in many respects different from what we have hitherto recognized as psoriasis.

DR. LUDWIG WEISS, New York: In studying this case, I was well aware of the fact that in many respects it was very similar to psoriasis, and while I do not feel inclined to augment the nomenclature of dermatology, I am by no means convinced that the case described in my paper should be classed among the psoriatic affections. I have seen the rupoid form of psoriasis which is illustrated in the frontispiece of Anderson's book, but in those cases we do not find the hairy plugs that were present in my case. In this case, too, the oyster-shell formation of the horny epithelium, the involvement of the hair follicles, and the absence of moisture when the crusts were removed served to differentiate it very sharply from psoriasis, eczema or eczema seborrhoicum, nor could it be mistaken for the impetiginous forms of eruption in which the crusts covered pus and effete material, and until further studies elucidate the nature of the lesions, I shall be inclined to regard this case as different from psoriasis, and call it parakeratosis scutularis.

FURTHER EXPERIMENTAL AND CLINICAL WORK BEARING ON THE VALUE OF LANE BONE-PLATES *

WILLARD BARTLETT, A.M., M.D.

ST. LOUIS

There are still many finer details regarding the results of treatment of fractures by means of the Lane plate which we have overlooked. There are still many questions, and questions of great significance, which are as yet unanswered. Ever since Mr. Lane first demonstrated to us that here, at last, was a means of treating a fracture more accurately than external splint or cast could ever do, ever since he first showed us results which had existed previously mainly in the ideal, we have been so engaged in skepticism, or in trying to grasp the larger more important points of treatment and result, that we have left unsolved those less easily discernible. There are questions pertaining to the infection of these wounds which we have not answered. The riddle of the after-treatment nags at us constantly. There are many interesting histologic factors in the process of healing which the microscope, as yet, has not revealed.

Up to the present time, I have had seventy-two opportunities to treat the human being by means of the Lane bone-plate. Of these thirteen were on the tibia, fifteen were on the femur, fifteen were on the humerus, six were on the clavicle, three were on the fibula, nine involved both the tibia and fibula (of which one was on the fibula, seven on the tibia and in one instance the plate was applied to both the tibia and fibula), two were on the olecranon, four were on the ulna, one was on the radius, and three involved both the ulna and the radius (in one instance the plate was applied to the ulna; in another instance to the radius and in the third to both ulna and radius). Moreover fifteen of these seventy-two cases were compound fractures, and in four of the open fractures the plate was implanted in a suppurating wound. I do not go more fully into my clinical results here, since this is a purely experimental article, and since the clinical data can be found, at least in part, in two papers.¹

In the paper which I read before the meeting of the American Medical Association in Los Angeles last year, I gave my conclusions on a series of experiments performed to determine the force needed to dislodge thirty-four screws, half of them infected, from the long pipe-bones of dogs, at intervals varying from one hour to seventy-one days. My conclusions were that it requires but 41 $\frac{7}{9}$ pounds to dislodge an infected No. 3 screw from a dog bone, with a cortex of 2 mm. On the other hand a pull of more than 95 pounds was required to draw the average clean screw of No. 3 gauge from bones of about 2 mm. cortex. The corresponding human bones have a much thicker cortex; moreover, No. 5 and No. 7 screws are used, which are much larger in every dimension, to say nothing of the fact that as many as ten of them are embedded at one time. It does not

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Surgical Laboratory of Washington University.

* Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

1. Bartlett and Hewitt: Experimental and Clinical Work to Determine the Value of Lane's Bone Plating, THE JOURNAL A. M. A., Oct. 21, 1911, p. 1347; A Discussion of the Operative Treatment of Fractures Based on the Operation of Eighty Patients, Am. Jour. Surg., January, 1912.

require much mental effort to picture the great amount of force needed to tear such a plate out of an aseptic wound when freshly applied, provided only it has been correctly applied, that is, by means of a drill the size of the screw-barrel with the screw threaded to its head. Moreover, it was pointed out that, while there is a constant absorption of bone cortex around infected screws and a thickening around this area, on the other hand a clean screw and the bone in which it is embedded present no macroscopic reaction, whether viewed when inserted or seventy-one

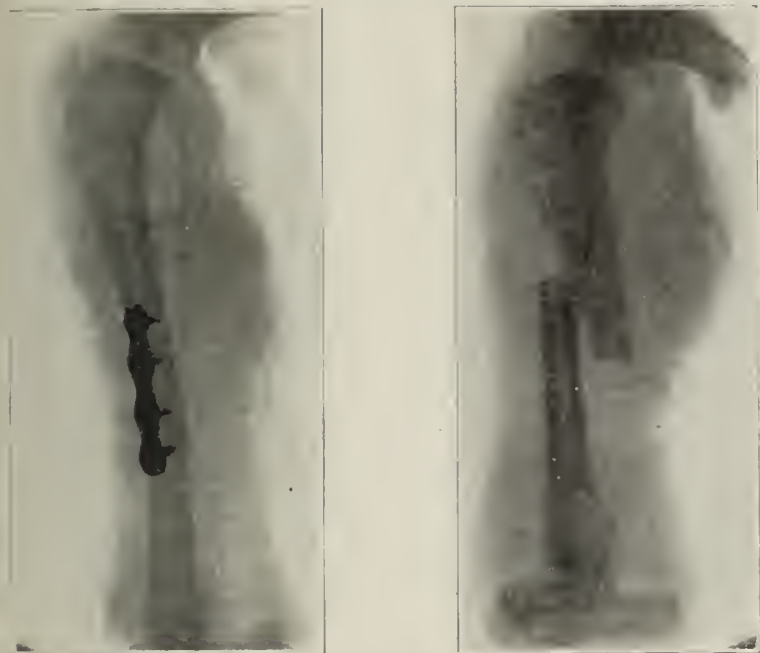


Fig. 1.—Experiment 4. Union of left tibia. Nine days after operation.

Fig. 2.—Experiment 4.—Nine days after operation. Right tibia left unsupported as a control.



Figs. 3 and 4.—Experiment 7. Seventeen days after operation. Left femur. No attempt at union.

days later, unless infection takes place. In the experiments here described the screws were not observed under actual working conditions, since there was no pull or other external force acting on them during the healing process, as is the case when the Lane plate is used in the human being.

The primary object of this paper is to determine what happens when plates are screwed to fractured dog bones and the animals are allowed full freedom, without splint or bandage. The secondary object is to make a microscopic study of the process of healing under such circumstances.

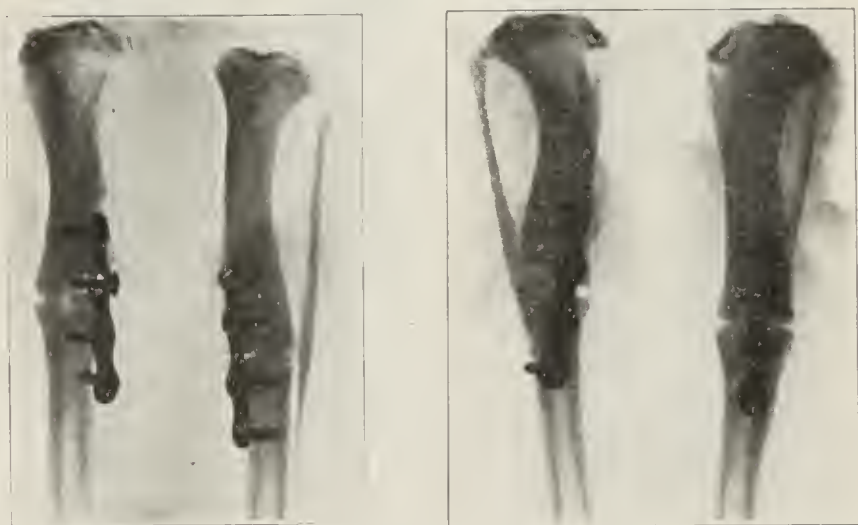
The librarian of the St. Louis Medical Library worked for half a day hunting for some account of animal exper-

iments with the Lane plate. His efforts were practically futile. Dr. Edward Martin,² however, gives a hint that some experiments have been performed. It is possible, of course, that experimental articles along this line may have been overlooked owing to their having been published under an unusual caption. No doubt, there are surgeons who are performing animal experiments with a determination to solve the same questions that I am trying to solve. My point is that I do not know of them.

The plate used in these experiments was a four-screw Lane plate, made of Jessup tool steel. It is 4.1 mm. long, 0.8 mm. wide at its widest part, narrowing down to 0.3 mm. between the middle screw-holes. The distance between the middle screw-holes is greater than between the middle screw-hole and its corresponding end screw-hole. It is 0.1 mm. thick. The screws used are No. 3 ($\frac{3}{8}$ inch) wood screws. These plates are cut



Fig. 5.—Experiment 8. Twenty-seven days after operation. Malunion of the femur.



Figs. 6 and 7.—Experiment 9. Thirty-two days after operation. Union in case in which both tibiae were plated.

with file and emery wheel, and the holes are drilled and reamed. As a matter of course, full morphin and ether anesthesia was used in every instance.

No dressing was used on any of these wounds, and in no instance was a splint of any kind used to support the legs. It was, as already stated, the primary object of these experiments to observe what happens when the leg is left unsupported without splint or bandage. Great care was exercised when using the tibia that the fibula might remain intact to operate in very much the same manner as does the external splint when the Lane plate is used in the human body. In four of the animals, the

2. Martin: The Open Treatment of Transverse Fracture of the Femoral Shaft. Tr. Am. Surg. Assn., 1911, xxix, 62.

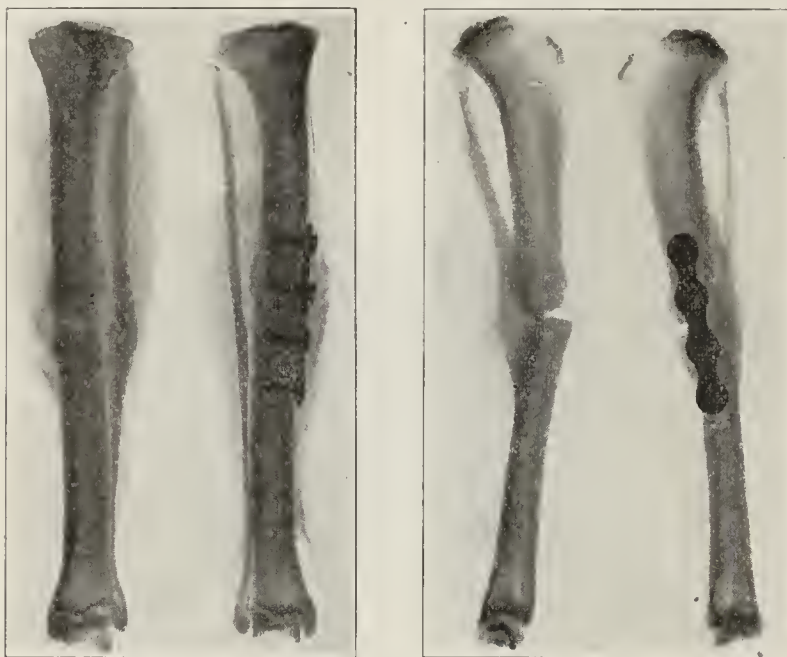
tibia of the opposite leg was broken in exactly the same manner, but left untreated with a plate for the sake of comparison; while in a third series, in four dogs, the femur was fractured and plated in order to ascertain the absolute value of screws and plates when no support of any kind is at hand.

In each instance the leg was amputated at the joint above the site of operation, extreme care being observed in the handling in order that no artificial dislodgment of screws might take place. The extremity was then placed in 4 per cent. dilution of liquor formaldehydi

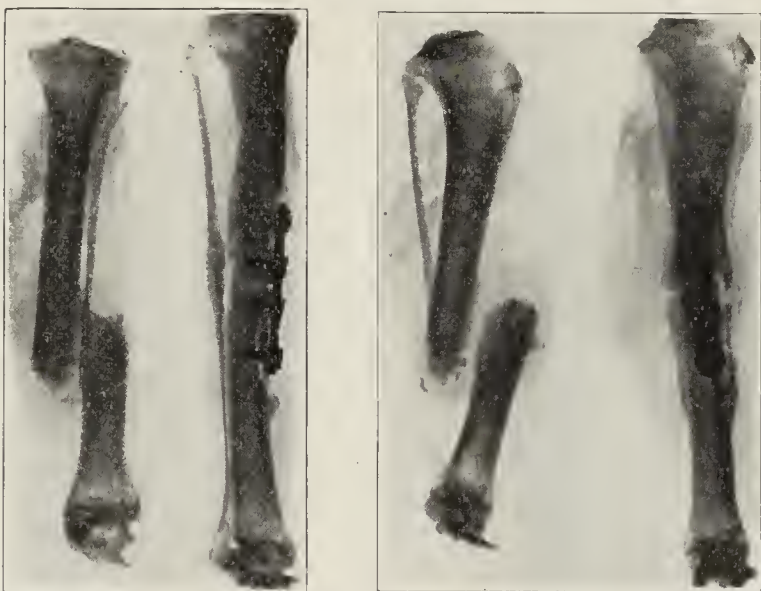
SUMMARY

Fifteen dogs were operated on. One died of ether. From a second no specimen was saved on account of failure to plate it satisfactorily. A third animal was lost, after five weeks observation.

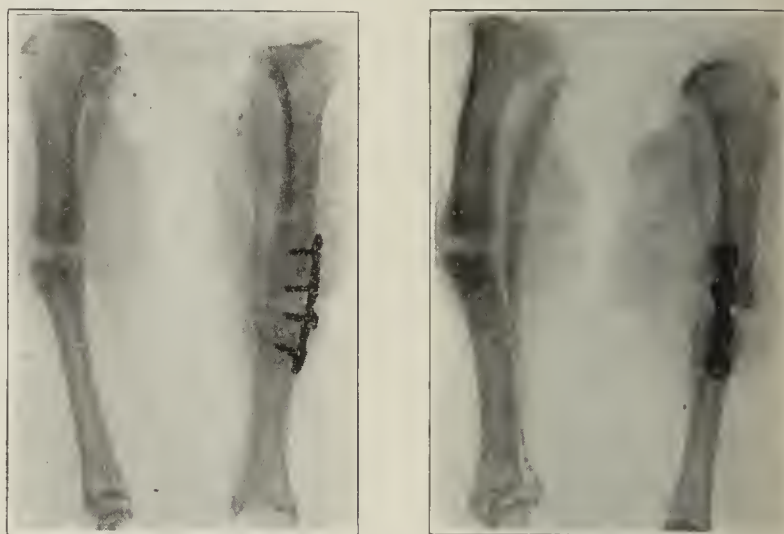
Proceeding now to a more detailed study of final results of these operations, there is a record of thirteen plates to follow, even though there were only twelve dogs, for in one dog a plate was screwed to both tibias. The plate remained fastened to both fragments in twelve cases, in spite of infection and in spite of the fact that



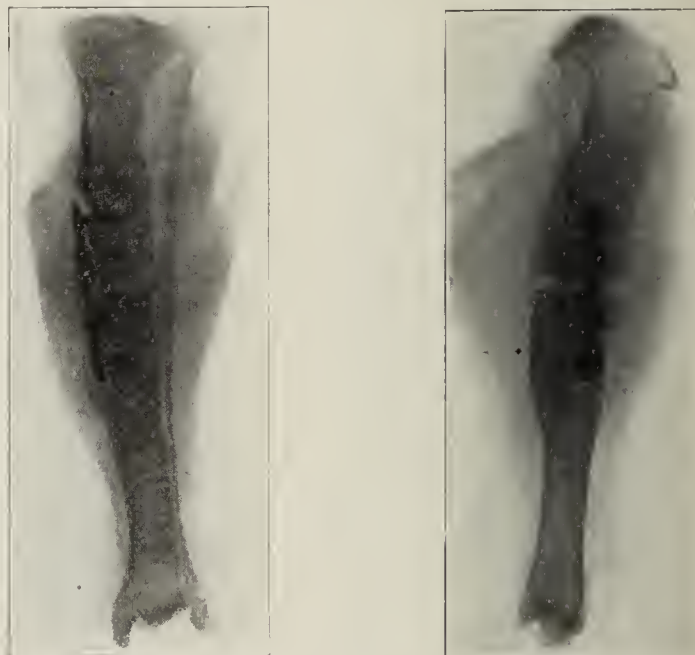
Figs. 8 and 9.—Experiment 10. Thirty-four days after operation. Left tibia plated. Right unplated.



Figs. 10 and 11.—Experiment 12. Thirty-nine days after operation. Left tibia plated, showing necrosis of the shell of the bone. Right unplated.



Figs. 12 and 13.—Experiment 13. Sixty-five days after operation. Left tibia plated, and right tibia unsupported. Fibula, in both cases, intact.



Figs. 14 and 15.—Experiment 14. Seventy-six days after operation. Union of left tibia.

and x-rayed before being dissected, as a further guarantee against displacement of the fragments. After removal of the soft parts, the segment of bone covered by the plate was excised and the screws carefully unscrewed. The specimen was next decalcified and prepared for histologic examination in the ordinary way, the sections being made in the longitudinal direction.

The most extreme asepsis was used in these experiments. In most of the instances the skin was shaved and treated with soap, alcohol and mercury bichlorid, and was carefully protected with towels clamped to the edge of the incision. Perfect hemostasis was employed, and the wounds were sewed up in two layers, one being in the muscle sheath and the other in the skin.

the animal was allowed to go without splint or bandage. Seven of the plates which were found screwed to both fragments were firmly embedded. Five plates were found to have one or more screws loose (one having all four screws loose, three having two screws loose and one having two screws loose and one screw missing). All, however, with the exception of one screw had to be unscrewed in order to get them out. It is of more than passing interest to note that in no case did the plate come out of the wound of its own accord.

Now as regards union of the fragments, I shall consider the femur and tibia separately, in order to get more accurately at results. In four out of thirteen operations I put a plate on the femur. One of these resulted in

mal-union, which, however, when the animal died twenty-seven days later, was firm. In another one of these when, after seventeen days, the dog died there was a soft union, and in the remaining two, after a period of three and seventeen days, respectively, no union had resulted. The remaining nine plates were put on the tibia. In five of these the union was solid; in two there was no union and in two the union was not quite firm. It is significant, however, that three of these tibias which did not show union were in dogs in which the opposite tibia had been broken and then left unsupported, and the other was a case in which the dog died of sepsis after nine days, and, consequently, union had not had time to take place. In other words, in every case in which time enough was given and in which the opposite tibia was intact, so that the animal could walk on it, union of the plated tibia had taken place.

Marked mal-union occurred in only one instance (a femur). In another instance, in which a plated tibia had its opposite tibia broken as a control, both legs were in slight genu valgum.

In four experiments on the tibia, the opposite tibia was broken and then left unsupported as a control. In the first instance, the dog died of sepsis nine days later. Both wounds were open and infected; the plated leg was as perfect as could be expected in so short a time, and the control was fairly movable at the point of fracture. In the second instance, after thirty-four days, the union in the control as well as in the plated leg was solid and both wounds were nicely healed. In the third instance after thirty-nine days, crepitus could be elicited from the plated leg, which also showed signs of pus and little or no callus. The control had a flail joint and the operative wound was healed with no callus to speak of. In the fourth instance, both the plated and unplated leg were in mild genu valgum, sixty-five days after the operation. The position of both, however, was fair. In the plated tibia the union was not quite firm, while the control had healed firmly. There was a large callus on both. These four comparisons admit of no obvious conclusions.

The technic used in Experiment 9 is, to my mind, the most nearly ideal. It will be remembered that, after the holes were drilled, the bone was sawed partly across. In this operation, however, after the first hole was drilled, I drove in one screw to hold the plate as a pattern for the other screw-holes, and later removed the plate to saw the bone. One who is accustomed to handling the instruments in a Lane-plate operation can take this step without any great loss of time, and when, later, one sees how beautifully the plate rests on the bone and how truly the screws are sent home, one feels that this extra precaution has been worth while.

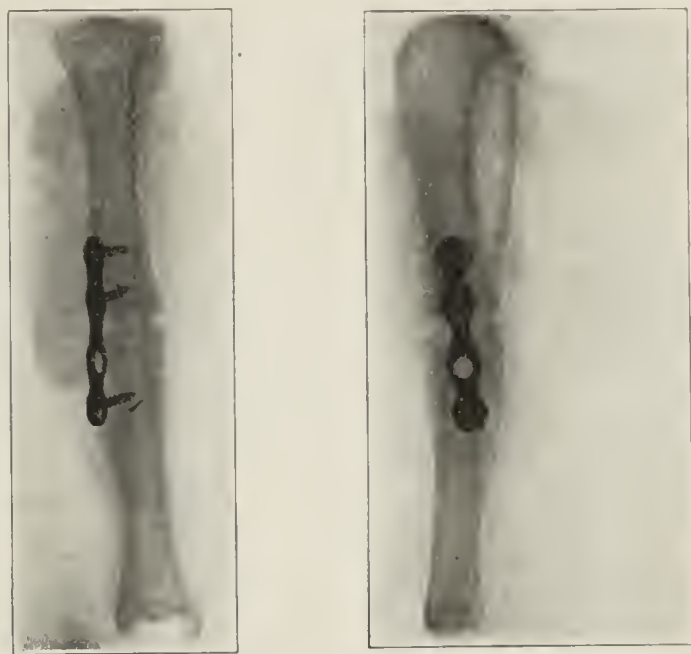
In making a histologic examination of the process of healing, under the conditions to which the bones in these experiments were subjected, it is seen that in most instances union took place by indirect bone formation rather than direct; that is, cartilage was formed in the first stages of healing, which in turn changed to bone. Furthermore, it was observed that in its efforts to accomplish the repair, an internal callus had formed about the point of fracture, until it had completely filled the medulla, to say nothing of an external callus as extensive as one ever sees in the absence of the internal splint.

In no instance was a screw or plate found directly in contact with the bone, there being always much intervening granulation-tissue or fibrous connective tissue around the screws and plate. Hence, one cannot properly say that a screw does or does not hold in a bony socket. In the course of time bone in contact with metal

disappears. In spite of this, as shown by my earlier experiments, screws do hold remarkably well, even in infected wounds in many instances.

In all, fifteen dogs were operated on, and of these one died of ether before the wound was sutured. Three of the remaining fourteen were found perfectly healed when the animals were killed and eleven are known to have become infected as a result of the operation. Then of the last eleven one was lost, having been last seen five weeks after the operation, and another died after six days of post-operative hemorrhage. Five more of the dogs, which are known to have been infected, died of sepsis within twenty-seven days. Nearly all of my experimental wounds are thus seen to have been infected; possibly all of them have been. I did not see the dogs every day, and hence judge this point largely by terminal results.

In my earlier work, I found that infected wounds do heal completely in many instances; hence it is not possible to say that the three healed wounds containing plate and screws have not been infected and healed up completely, in spite of this.



Figs. 16 and 17.—Experiment 15. Union of left tibia, 147 days after operation.

The experiences gained from these experiments naturally apply most directly to infected fractures on the human being. It is of interest, therefore, in this connection to relate that I have put a Lane plate in a suppurating wound on a human being four times. This was done, in each instance, in the treatment of displacement of a compound fracture.

The first patient had the tibia involved; the operation was done a year ago, and he now walks without support of any kind, the plate having been removed a few months since.

The second patient was operated on a little more than three months ago. The humerus was the bone involved and the patient now has a perfectly solid union, with the plate still in place, and is at work as a teamster, in spite of a small granulating wound.

The third patient was operated on three months ago, the ulna being treated. The plate is still in; there is solid union and a fistula persists, which will, no doubt, lead to the removal of the plate. The radius, which was broken at the same time but not plated, is still ununited.

The fourth patient was operated on almost three months ago. Here the fracture was so low down on the tibia that I could not, on account of thin cortex, find

anchorage for the lower screws, and had to give up the attempt.

It speaks well for the future of such cases that I have had three successful results in my only three favorable cases. These patients developed no serious reaction after the operation, which I believe is due, in part, to the fact that the wounds were flooded with tincture of iodine as soon as the very conservative dissection was completed, and packed with gauze after the plate had been applied.

If any clinical conclusions can be drawn from my dog experiments, and from my results on the human subject, I should say that the bugaboo of infection, however undesirable in connection with the use of the Lane plate, would seem to a certain extent to be ill founded. This factor *alone* does not greatly influence the outcome, so far as bony union in a desired position is concerned, granted only that proper wound toilet be employed to prevent a general systematic infection, and that the plate be used with the somewhat trivial proviso that it may have to be removed later.

Metropolitan Building.

THE OPERATIVE TREATMENT OF FRACTURES AND DISLOCATIONS *

WILLIAM DARRACH, A.M., M.D.

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NEW YORK

Three years ago, Mr. Lane told us that practically all fractures should be treated by the open method, and that if we did not accept this point of view the courts would drive us to it. At the same session I reported on 200 fractures treated at the Roosevelt Hospital by open operation, the majority of them being handled by the late Dr. Carlton P. Flint. The statement was then made that most fractures were best treated by the closed method, but that there were certain others in which much better results could be obtained by an open operation; and that in order to decide best in any special instance a vast amount of clinical data would be required. We are now in a better position to meet this problem, for the amount of operative fracture work that has been done in this country and abroad, during the last five years especially, has been enormous; and we can now better see our limitations — what we can accomplish by this means and what we cannot and also who should attempt it.

In the last two years 2,100 fracture patients have applied to the Roosevelt Hospital Emergency Ward and of these 104 have been operated on. This, I believe, indicates fairly well the proportion of suitable cases, that is, about 5 per cent.

The question of operation, however, is not limited to whether or not it is wise to cut down on a fracture and put on a plate, but covers a larger field, and operations of this class can be divided into four groups:

1. Open reduction of recent cases.
2. Open reduction of old cases.
3. Operations in which we do not attempt a reduction, but by some other means try to prevent or overcome the deformity or impaired function resulting from fracture or dislocation.

4. A fourth group should be mentioned to include the forms of treatment in which appliances are inserted into the bone at a distance from the site of fracture and allowed to project through the skin — such as the nail extension of Codavilla, Steinemann and Lambret, the clamps of Parkhill, Freeman and others. I have never tried these and shall not refer to them again.

I. OPEN REDUCTION IN RECENT CASES

Of the 107 operations performed by me, fifty-seven came under the group of recent cases. The indication for operating may be stated thus: If a satisfactory reduction cannot be both obtained and maintained by the closed method, the fracture or dislocation should be operated on, there being no further contra-indication.

A "satisfactory reduction" does not necessarily mean a perfect anatomic alignment. A transverse fracture of the femur or humerus, where merely the edges have engaged, if the alignment is good, we know will give a strong, straight, useful arm or thigh without shortening and often will be smoothed out in time, especially in young patients. Why operate? And yet a slight projection forward of the upper fragment in a supracondylar fracture of the humerus will impinge against the coronoid and limit flexion and should be remedied. A rotary deformity in a fracture of the radius above the pronator teres may look straight and true in the x-ray, yet when in our closed attempts by supination the lower fragment merely pursues the upper we should cut down and properly adjust them. Lack of good crepitus always suggests interposition of soft parts and bids us investigate. A satisfactory reduction may be defined then as one in which the increase in the range of motion and the decrease of deformity to be gained by open method do not warrant the risk of operation.

My routine has been never to operate except in self-evident cases, such as patellas and olecranon, until two conscientious attempts have been made to obtain a closed reduction under ether. But some day I hope to be skilful enough to tell in advance by a gentle examination and a good x-ray, whether it is worth while attempting this. For too often we see at operation the ravages in the soft parts our heroic attempts at reduction have made, with the destruction of the precious notching and dentation of the fractured ends.

When is the best time to operate? After the body has had a chance to catch its breath following the original injury, after the bleeding has stopped, the cofferdamming commenced and a good healthy reparative reaction begun; but before the muscles have become set, the exudate around the broken ends begun to harden and our clean cut margins rounded off. Avoid too early operations and spare the body a second trauma too soon. Avoid too late attempts in order to prevent a more difficult operation and bad end-results. Somewhere between the fifth and eighteenth days seems the best time, preferably before the tenth.

The details of the operation have been so frequently and so well described as to need no repetition, but two points must be emphasized. First, unless a man is able and willing to develop by laboratory practice and to follow out the extreme and exaggerated technic of Mr. Lane, he has no right to operate on fractures, and this applies to assistants as well as to operator. It is the only way to guard patients from the calamities which seem to hover nearer bone work than any other field of surgery. Second, after obtaining reduction as simple and as little foreign material should be left in the wound as need be — no appliance if possible, chromic catgut if

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space this article is abbreviated in THE JOURNAL by the omission of the tables of cases. They appear in full in the Transactions of the Section and in the author's reprints.

necessary, and plates and wire only when they are really required.

Of the fifty-seven recent fractures I have reduced by the open method, no appliance was used in twenty-one, simple suture in seventeen, wire in two, and plates in sixteen with one aluminum dowel.

The after-splinting must be as carefully done as if it were a closed reduction. My experience has been that firm union comes a little more slowly in fractures that have been opened. The splint should be applied with the limb in such a position that there is no strain on the plate, for it is the slight continual pull that loosens the screws.

II. OPEN REDUCTION IN LATE CASES

The open reduction in late cases is the most difficult part of the work. The greater trauma necessary to obtain a good reduction, the more frequent need of internal fixation and the less satisfactory results, all point to the need of educating medical men to send the bad cases early to some one who is specializing in this work. This is the strongest argument against the advice that we try the closed method and see what end-result is obtained and if that fails try the open. The decision should be made before the end of the second week if possible.

Thirty of my cases come under this second class. I have classed as *perfect* the end-results in which there is complete return of motion and no deformity; as *good*, those in which there is less than one-fourth impairment of the range of motion (measured in degrees) or only slight deformity; as *fair*, those in which there is considerable limitation of motion or deformity but still a distinct improvement; as *bad*, those in which there is only slight improvement, and as *failure* those in which the patient is no better or even worse.

Of the recent cases, 71 per cent. of the results were either perfect or good (40 per cent. being perfect), and 92 per cent. either perfect, good or fair. Of the old cases 30 per cent. were either perfect or good and 77 per cent. either perfect, good or fair. That is to say, the end-results were much better in the recent cases than in the late ones.

III. CASES IN WHICH REDUCTION IS NOT ATTEMPTED

The third class — cases in which we do not attempt a reduction, but by other means try to prevent or overcome the deformity or impairment of function following fracture or dislocation — seems to have had little attention called to it.

An old case frequently had better be placed in this class. In a supracondylar fracture of the humerus with the upper fragment a little anterior, limiting flexion, it is much better to chip off the projecting lip than to break up the old fracture and try to reduce it. The same holds true in the ankle injuries when the astragalus remains too far posterior. It is far easier to cut away the anterior lip of the tibia and give the patient the added 10° of flexion so that his toe will clear the ground. In the same class belong many of the fractured heads of the radius with displacement of loose fragments; the capitellum fractures; cuneiform osteotomies to correct a faulty alignment of a tibial break, and the removal of the humeral head with dislocation and fracture of the anatomic neck. In early cases, however, an attempt to save loose fragments often will prove successful and early reduction when possible is better than removal. I have recently reduced by open operation two dislocated semilunars with associated scaphoid fracture. In one case the end-result is excellent and the second only fair

though better than in two cases in which the fragments were removed. In an old unreduced anterior dislocation of the head of the ulna the lower inch of the ulna was cut away. The bone regenerated and after two months the man had a painless wrist with complete functional return. This was done because in a previous case, similar to this one, an open reduction had resulted in almost no pronation or supination. They were both old cases. Twenty of the present series belong to this class.

In the 107 cases there were three infections. The first was both superficial and deep in a compound fracture already infected at time of operation. The second was a superficial infection occurring in my fifth patient after the third operation on the same case, a very stubborn malunion following a fracture of the lower end of the tibia by eversion and abduction; it healed in three weeks, but the man still has a painful ankle. The third was a superficial infection in a dislocated shoulder asso-

TABLE 4.—ALL CLASSES OF CASES

	Recent	Late	Non-Reducing	Total
Men	47	23	17	87
Women	10	7	3	20
Simple	48	29	19	96
Compound	9	1	1	11
Fractures	49	25	16	90
Dislocations	8	5	4	17
Total.....	57	30	20	107
Open reduction—				
Without appliance	21	12	..	32
With suture	17	2	..	19
With wire	2	4	..	6
With steel plate	1	..	..	1
With aluminum plate	13	7	..	20
With vanadium steel plate	2	..	..	2
With aluminum dowel	1	..	..	1
With staple .....	..	1	..	1
Arthroplasty .....	..	1	..	1
Removal of loose fragments..	..	..	6	6
Cuneiform osteotomy .....	..	..	2	2
Partial osteotomy .....	..	..	12	12
Infections, superficial	{ 1 }	2	0	3*
Infections, deep		0	0	..
Deaths	0	0	0	0
Plate removed	2	1	0	3
Plate bent	2	0	0	2
Staple removed	0	1	0	1
Chrome gut came out.....	2	1	0	3
Wire removed	1	1	0	2
Perfect results	21	0	3	24
Good results	16	8	8	32
Fair results	11	12	4	27
Bad results	1	2	2	5
Failure results	3	4	1	8†
Too recent	3	0	1	4
Lost track of	2	4	1	7

* Two in clean cases. † All but one had later operations.

ciated with fracture of both tuberosities, in which second operation and insertion of the gloved finger in the wound were necessary. It healed in thirty-six days and remained healed. In neither of the latter two cases was there a rise of temperature above 101 F., nor any involvement of the bone, nor were any of the three in danger at any time.

There were no deaths. There were ninety-six simple fractures or dislocations and eleven compound. In three cases the diagnosis was faulty, the operation proving unnecessary and merely an open inspection being made.

Three plates were removed, one from the infected compound fracture put in at a second operation — my first plating. The second was removed because it did not hold and the bone was replated. The third was removed as I feared infection after twelve weeks, but found none. Two plates bent and one broke. All were aluminum but the first, which was steel. Two of the six wires were removed, one as the deformity recurred and

a staple then used, the second as it threatened the skin; a third is lost track of and so uncertain. Chromic catgut was extruded at a late date in three cases. The one staple used was removed during a subsequent appendectomy and found to be firmly imbedded in dense fibrous tissue containing much iron pigment and many giant cells.

Sheet aluminum has been used for all but three plates. This was preferred as it gives almost the right elasticity and they can be readily made in the laboratory to fit each case. My first plate was a Lane steel plate and the last two have been of the vanadium steel type suggested by Dr. Sherman. These seem almost ideal.

My preference is for the ordinary machine screw with preliminary tapping of the drill-hole before inserting the screw. This method is preferred to Sherman's self-tapping screw.

SUMMARY

1. Most fractures are best treated by the closed method.

2. Where a satisfactory reduction cannot be obtained and maintained by the closed method the fracture or dislocation should be treated by the open method, there being no other contra-indications.

3. If an open reduction is done, as simple and as little foreign material should be left in as possible.

4. The decision to operate should be made before the eighteenth day and earlier if possible.

5. In old cases it is often better to do a non-reducing operation.

6. The technic cannot be too exaggerated.

7. An open reduction is a serious operation. It should only be undertaken with clear indications and with the most favorable operating facilities and surroundings.

8. We must not forget also that the open method is not always successful.

47 West Fiftieth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. BARTLETT, COTTON, DARRACH AND ELY *

DR. J. B. MURPHY, Chicago: There is no place in surgery where the physician is in greater danger than when dealing with a fracture near a joint, where defects of the slightest degree are of such great importance. We all know that from 85 to 92 per cent. of the deformities following an attempt to reduce a Colles' fracture are the result of faulty reduction. A Colles' fracture once reduced keeps itself in position, and until we have succeeded in placing the bones in such apposition that there is absolutely no deformity when the arm is held out straight, we may rest assured that the reduction has not been effected. We must first increase the deformity, at the same time making extension on the arm, so as to unlock the fragments. When this is done correctly, the hand is extended and the bones just naturally slide into place without deformity or tendency to recurrence.

The same thing is true, in a measure, of Pott's fracture, in which there also is a deformity, usually an eversion of the foot with a forward displacement of the tibia on the astragalus, the result of the tearing of the interosseous membrane and a stretching or tearing of the anterior ligament of the ankle-joint. Unless this deformity is corrected, the result following the treatment of Pott's fracture is a most unsatisfactory one. I have had several cases of Pott's fracture in which it has become necessary to refracture and then to hold the fragments in place by means of wire nails. In refracturing these bones I always go from within outward, so that the ends may better be held in place after the nailing. The reposition of the tibia on the astragalus is

equally important, and after that the application of a plaster cast for from four to six weeks will insure perfect healing.

I have had a rather large and unusual experience in the treatment of old ununited fractures in and near joints, and the result in every case has been an excellent one. For instance, a boy, aged 16, sustained an intracapsular fracture of the head of the femur. I saw him about seven weeks after the accident. On opening into the hip-joint I found that the fragment had been rotated, twisting the ligamentum teres, thus shutting off its blood-supply and consequently it was dead. Inasmuch as it was aseptic, however, I felt that it could still be made to serve a useful purpose. I freshened the surfaces of the fracture and nailed this dead but aseptic head on to the femur. What I expected happened. A new head was formed and to-day, about four years after the operation, this young man has perfect function in his hip. He has complete abduction and adduction, with full rotation and a shortening of not more than half an inch. It is almost impossible for us to tell which is the hip that was involved.

DR. JOHN B. WALKER, New York: All of us who were here three years ago cannot fail to appreciate that a vast improvement has been made in the treatment of fracture. Fifteen years ago we had entirely different functional results than we have to-day. We are better satisfied now than we were then. A few days ago a surgeon in a neighboring state received a letter from a railroad corporation for whom he is doing some work, expressing dissatisfaction with his treatment of their fracture cases. The complaint was that he was keeping the patients confined too long. In the fractures of the femur at the end of a year, less than 50 per cent. of the patients are able to return to their work. The papers by Drs. Darrach and Cotton seem to show that operations are easily done and always well done, and it would be a great mistake if this Section were to feel that the technic of the operations has been so simplified and modified that everyone could do fracture work.

A few days ago a physician visiting my clinic asked me where he could get a certain drill, and the bone plates I was using. I asked him whether he had done any of this work. He replied that he had not, but that there was a great deal of it to be done in his community and he thought that he might as well be the pioneer in this line of work. That is wrong. Only the expert should undertake this work. As men become more skilful and improve their technic, more of these operations will be done. Dr. Darrach spoke of 350 operations done in one year, probably as many as had been done in the preceding ten years. The fact that sepsis occurs in a certain number of cases does not modify the fact that in selected cases these operations are necessary. As men become more skilful in diagnosis they will be better able to select those cases in which an operation should and may be done, and the results will be correspondingly improved. It has been found that if extension does not reduce a fracture of the humerus or femur in ten days, it will not accomplish much after that. The muscles will contract then. I have had twenty-one cases of fracture of the femur, none operated on under ten days. Most of them were old cases in which there was considerable shortening with angulation and overriding. In every one of these cases it was necessary to remove the Lane plate. I was somewhat alarmed when the wound became superficially infected, but when I cut down on it it was not infected. It was very difficult to remove the screws.

DR. J. E. MOORE, Minneapolis: We must not lose sight of the fact that the knife is the greatest conservative agent at our command. It is only its abuse that becomes anything but conservative. Conservatism should be the keynote in all surgery, but it is particularly necessary here. It looks so easy to the tyro when the expert places a Lane plate on a fracture. He is apt to be carried off his feet and try to do likewise. That is dangerous. We are called in consultation by younger men quite frequently, and usually the first question asked is, whether the case is one for operation. It seems to me that we owe it to the patient and to the profession as well as to ourselves to ask who is to do the

* The papers of Drs. Cotton and Ely appeared in THE JOURNAL July 20.

operation. The general practitioner calls us in for the purpose of finding out whether an operation is advisable. If we think it is, it is our duty to find out who is to do the operation. If he is not competent to do the operation, but intends to do it, our advice should be against operation. If, on the other hand, he wishes to have a surgeon of repute operate, then we can decide safely on the merits of the case. We all know that the steel plate must sometimes be removed, but I consider it the best mechanical device at our command. I have removed it a number of times, sometimes after my own operation, and sometimes after others, but in every instance I have found firm bony union, so that the plate had done its work. The mere fact that it had to be removed did not militate against its work. I always inform my patients beforehand that it may be necessary to remove the plate, particularly when the bone is near the surface, like the tibia. We must caution our patients and other surgeons that even after operation the results are not always good. I would sound a note of warning to the younger surgeons who are just beginning this work. That is with reference to compound fracture, in which we need a steel plate worse than anywhere else. Infection is only a relative term. But a wound may be said to be infected when the number of bacteria present is so great that the resisting powers of the tissues cannot overcome them. We never have an aseptic wound; there are always bacteria present, but Nature may be able to control their virulence; sometimes it cannot do so. Therefore, when we insert a plate and infection occurs, it is not the fault of the plate, but of the tissues. When you introduce a plate, you are introducing a foreign element which lowers the vitality of the tissue. In a compound fracture in which the tissue resistance is already lowered considerably, the insertion of a plate will not help matters, and in these cases we more often see an infected wound than in a simple fracture when a plate is inserted or a compound fracture with no plate inserted.

DR. A. J. OCHSNER, Chicago: Dr. Darrach has demonstrated that the aluminum plate is worthless. It does no more than the steel plate; in fact, it is not as good, and the two cases of broken plate which he reported should condemn that plate or any other plate that has ever been used, except the steel plate. Eleven years ago Dr. Ruth reported before this Section the method devised by Dr. Maxwell for the treatment of fractures of the hip. Since then I have used this method in all of my cases. I have anesthetized the patient in order to determine the fact that there was contact of the fragments; then made the downward extension and inward rotation with the pulley and extension described by Dr. Ruth, and union was invariably the result. What does that mean? It means that that is the method that should be employed in these cases; and why? Simply because it gives you confidence that there is contact of the surfaces. You must obtain that in order to get good union. If I had had cases like Dr. Murphy showed us, I would not have had union, but in 100 cases in which I had contact I did have union, and if Dr. Cotton will follow that he will have union in his cases.

Dr. Bartlett's experiments are absolutely worthless, because he did not establish the very things that must be established if we would make a test of Lane's plates; that is, a test that amounts to something. If you want to use Lane's plates, you must get an absolute apposition, and you must then fix the extremity precisely as you would fix it if you had not used the plate. That, in a measure, was accomplished where he used the fibula, but not to a satisfactory extent. Then you must do not only an aseptic operation, but you must maintain aseptic conditions afterward. Then, too, in order to make these experiments valuable, these bones should have been skiagraphed from week to week to determine what was going on all the time. Of course, these experiments did determine one very valuable point. They demonstrated that if one does not use Lane's plates properly, things go wrong.

DR. FRED H. ALBEE, New York: About four years ago I published an article containing reports of some cases in which there was a rolling up anteriorly of the head of the bone (*Post-Graduate*, June, 1908). Why does the head roll up anteriorly? Because the epiphysis of the shoulder is

different from that of any other bone in the body. It has muscular attachments, several of them, and on account of its being a sphere in a slippery joint-cavity its position is absolutely controlled by their pull, which is upward and forward. This is also true, but not to so marked a degree, in high surgical neck fractures. Splints and traction have no effect on this fracture, because none of the muscles attached to the epiphysis come down the arm. The mechanical conditions and indications of treatment here are absolutely analogous to those of abduction and flexion used in the case of subtrochanteric fractures of the femur. About thirty years ago Dr. E. M. Moore described how he was able to reduce these fractures efficiently by elevation of the arm, but he stopped there and attempted to fix them always with the arm to the side. He described several cases in which he had to excise the head of the humerus because he was unable to retain the reduction. The above position of elevation anteriorly, relaxes the displacing muscles and therefore the proper alignment of the fragments is easily maintained. As to pseudo-arthritis, from much experience and observation I feel that we cannot trust the Lane plate in these cases, especially those of intra-uterine origin. I saw a case recently, which had been operated on four times. The fragments had been wired, the Lane plate had been used, and still there was failure of union. The method I have used has been to inlay a piece of bone taken from the patient's tibia. The fragments are freshened, as in any other operation, and then the bone is inlaid or mortised into the fragments just through the cortex on one or two sides, as necessary. Why is it that these pseudo-arthroses do not unite? Because the bone-forming cells are buried in an overdeposit of calcium salts in the ends of the fragments. The histologic process is similar to that occurring in an old hypertrophic joint (osteoarthritis) and union is slow or never takes place. The piece of bone removed from the tibia is inlaid and acts as an osteogenetic bridge placed into the fragments and extending beyond the ebonated area in each and at the same time furnishes a reliable means of fixation of the fragments. The conditions for immediate bony union are most ideal, because the periosteum, compact bone, endosteum and marrow of the bone graft all, respectively, come into close apposition with the same structures of the recipient bone fragments.

DR. A. McGLANNAN, Baltimore: We have come to believe that fracture of the shaft of the femur in young adults should be treated by open operation, because this gives a restoration of function in a much shorter time than any other method of treatment. The operation must be performed as Lane described it, following all of the details of his technique, if one is to obtain good results. The difficult portion of the operation is in securing proper traction, and here I think I have added one valuable point to the technique, namely, making traction by the use of direct extension. I pass a long drill through the lower end of the femur just above the condyle, and traction is made by means of a roll of gauze wound around the ends of the drill, the pull being made from in front. If made from behind, there is danger of injury to the vessels. By this means I can pull down the fragment with less force, and more effectively, than by any other means. The final point in this method of treatment of fractures is the dressing after the plating. All I do for a closed fracture must be done for an open fracture. Fractures of the hip I have not opened. I have now thirty-eight cases, twenty-six of which were treated and twelve were not treated because of the physical condition of the patients. Whitman's method in wide abduction was used, carrying the plaster cast to the middle of the thigh on the sound leg, and from the toes to the nipple line on the fractured leg. These patients are very comfortable, more so than with other methods of treatment. The results have been very successful. Non-union from interposition of the soft parts has not occurred in any case.

DR. THOMAS W. HUNTINGTON, San Francisco: It is to be understood that the operative treatment of fractures is only to be adopted after persistent efforts at conservative treatment have been proved to be without avail. Those wedded to conservatism in fracture treatment manifested slight inter-

est in the more radical method until a few men began to express dissatisfaction with the general run of results, as shown in earlier times. My dependence is on the *x*-ray findings rather than on the so-called clinical methods of diagnosis. With regard to technic it is to be insisted that what one man can do uniformly well, another man cannot do at all, and the latter does not need very wide experience to prove that he cannot do this work well. I am not insistent on the value of one or another material or appliance with which to secure fixation. I emphatically do not concur in the statement that the Lane plate is the *sine qua non* in the operative treatment of fractures. If I use a Lane plate, I select the smallest one possible and I employ the staple more frequently than the plate. It is to be insisted on that neither the plate nor any other fixation appliance is, in any sense, a splint. Axial relation is not to be maintained by fixation material. The function of fixation material is closely analogous to the stitch in the garment. The main thing to be accomplished by the staple or plate or wire or nail is temporary fixation. Subsequent alignment is to be maintained by a properly adjusted plaster-of-Paris dressing. In fractures of the thigh, after the introduction of a plate or staple, the limb is to be immobilized by a plaster spica extending from the short ribs to the foot. As soon as the plaster is hardened, I find it advisable to remove the entire roof of the plaster dressing from the toes to the waist, allowing the patient to lie in the trough which is made up of the posterior segment of the original splint. This gives splendid opportunity for maintenance of nutrition of the limb and immediate access to the seat of fracture. The advantages flowing therefrom are perfectly obvious. I am going to make a prophecy, that, within the next twelve, eighteen or twenty-four months, we are going to hear less said about placing foreign bodies in infected fractures. You might as well try to drive bedbugs out of a log cabin as to attempt to sterilize an infected wound at one or several sittings. Suppose you have an infected wound and you have adjusted the fracture accurately, and have used every possible effort to disinfect the wound, there is one place where we cannot be sure of having secured asepsis, and that is, between the fragments, the most important point. You have shut up the infected material in a closed cavity and produced a condition which is productive of disastrous results. In the future, we will sacrifice axial relation rather than attempt to complicate the case by the introduction of a splint in a permanently infected bone cavity.

DR. WILLARD BARTLETT, St. Louis: I never fail to profit by Dr. Ochsner's criticism, and after hearing him say what he did I am forced to the conclusion that there must have been something wrong with the reading of my paper, because he thoroughly misunderstood me, and he sat only 30 feet away.

DR. F. J. COTTON, Boston: It seems to me that we cannot fairly condemn the use of all plates in bone fractures. There are after all many cases in which it seems worth while to run the risk of foreign-body sepsis in order to effect and maintain reduction. I do not use the Lane plate in the majority of my cases, because no matter how good a rigid plate is, it necessarily exposes the patient to the danger of pulling out the screws. I have seen that happen and have also seen the Lane plate itself fracture. It seems to me that much is to be said in favor of a slightly flexible elastic plate, one which can be fitted to the case in hand, and which allows of the use of a smaller plate, if necessary, especially in fractures of the femur. Whether this plate is made of aluminum or phosphor-bronze or silver or wrought iron does not make any difference, but I think that a slightly elastic plate should be used. I have been disappointed that no one took up what I said about the presence of synovial fluid in intracapsular fracture. It has been said that we must always secure contact of the fragments, but no one referred to the exclusion of the synovial fluid, and that, in my opinion, is most necessary to secure clot and callus between the bones. Reasonable contact without such exclusion may often be insufficient.

DR. WILLIAM DARRACH, New York: I agree with Dr. Cotton that a slightly flexible plate is better than an absolutely

stiff one. I think that the vanadium steel plate is the ideal one. Most plates kept in stock do not fit, and therefore one should also have at hand some material which can be molded to fit. We ought to have more detailed reports of cases because it is only in that way that one can learn the end-results in these cases, say after six months or, better, two years. Then we can compare the newer methods with the older ones, the open treatment with the closed treatment. I hope that my paper did not convey the idea that these operations are easy, because they are not.

DR. LEONARD W. ELY, Denver: Clinical observation is the final court of appeal! This final court of appeal has been handing down its infallible decisions for thousands of years. They are received without question, until some obscure pathologist in the privacy of his laboratory examines them under the microscope, and they are laughed out of court. Clinical observation teaches millions of people in this country that they can cure all disease by dilutions of powdered sugar, millions more that they can cure all disease by tinkering with the spine, and millions more that they can cure all disease by denying its existence. It teaches one thing to-day and another to-morrow. Clinical observation is not the final court of appeal. It is an advocate before the bar, and when the advocate usurps the functions of the judge, and hands down decisions contrary to the evidence of sound pathology, we have a remedy—the recall.

CONSTIPATION AND HEADACHE IN WOMEN

A STUDY IN ETIOLOGY AND DIAGNOSIS.*

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The frequent occurrence of constipation and headaches in women is a matter of daily observation by every practitioner. The almost constant occurrence of these two symptoms in connection with painful menstruation, tender ovaries and uteri that are more or less displaced has led to the general conclusion that these conditions are the actual causes of the constipation and headaches. We have heard much in times past of "reflex headaches" and of "constipation due to the pressure of a displaced uterus on the rectum." We have likewise seen many of these cases in which the constipation and the headaches have gone on even with increasing severity, after the conditions within the pelvis had been corrected.

I am now seeing a certain important number of cases in which the pelvic symptoms, with the constipation and headaches, disappear after the cure of the conditions of the stomach and intestines, on which the constipation and headaches depend. It would seem, therefore, as if, in these certain cases, the original proposition would have to be reversed and that we are henceforth to look on the displacements and functional disturbances of the uterus and ovaries as being caused by, rather than being the cause of, conditions of the stomach and intestines to which I am about to allude.

The theory is not new. It was in 1885 that the researches by Glenard¹ established the following facts, viz.: 1. Downward displacement of the stomach and intestines, both large and small, is of frequent occurrence. 2. Such displacements give rise to mechanical obstruction of (a) the fecal current, (b) the mesenteric and other visceral circulation of the blood, and (c) the chyle and lymph currents. 3. The mechanical obstruc-

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Glenard, Franz: Les Ptoses Viscérales, Paris, 1899. This embraces the communication by the same author published originally in the Lyon Médical, March, April, 1885.

tion, of various degrees, in the intestinal tract not only causes serious disturbances of digestion in both the stomach and intestines, but causes likewise the phenomena of constipation with resulting hyperabsorption of toxins that are physiologically elaborated in the *prima via*. 4. The absorption of such toxins causes headaches, nervousness, mental depressions and numerous other phenomena often grouped in the clinical picture of neurasthenia. 5. The downward displacement of the intestines implies that their weight and the weight of their contents rest on the underlying uterus, ovaries, fallopian tubes and other pelvic organs. 6. Such superimposed weight and pressure, and the circulatory disturbances to which I have alluded cause mechanical congestion and more or less marked displacement, with resulting pain, tenderness and functional disturbance of the uterus and ovaries.

That intestinal displacements, considered as causes, not only of constipation and headaches in both sexes, but of pelvic disturbances in women, are often overlooked is established by the histories of many cases now and latterly occurring in my practice, many—practically all—of which have been under treatment previously for conditions of the uterus and ovaries. Displacements of the uterus have generally been corrected by necessary operative interference, without which recovery under any circumstances would have been impossible. Gross organic changes—such as growths and degenerations of either the uterus or ovaries, or both—may have been removed, and adhesions, the traces of previous inflammatory disturbance, may have been broken up. Lacerations of the cervix or perineum, or both, may have been repaired. In short, all strictly gynecologic indications may have been met, without amelioration of either the constipation or the headaches that existed before operation. Then, whatever may have been the treatment preceding surgical interference, the patient is started on another round of experiences. First, from sheer necessity she is given cathartics, with or without high injections, as the necessary means of temporary relief. Those who can afford it start on a tour of the watering places, where, in addition to laxatives, they employ baths and massage, which seem to help while they are kept up.

Those who cannot afford to travel, but must earn their living, stay home and take pills, salts and injections. These, too, help or seem to help for a time, each dose, however, increasing the necessity for still other doses. At about this stage, full symptomatology becomes developed.

SYMPTOMS

When treatment of this character is interrupted, there is generally a prompt relapse. Not only do the constipation and headaches, but the uterine and ovarian symptoms, if they have been relieved at all, resume their original severity. In addition, there is pain in the back, especially high up in the loins, and occurring with more frequency on the left side. There is liable to be a distinct complaint of pain at the lower end of the spine, radiating thence down one or both thighs. In front, on the right side, there are two distinct locations, to one or both of which pain is frequently almost constantly referred. One of these is the right lower quadrant in the neighborhood of the appendix vermiformis; the other is in the right upper quadrant near the lower margin of the liver. Pain in these localities may, or may not, be constant; it may be of a dull, aching character, or, as frequently happens, it may become severely colicky. These colicky pains in the neighborhood of

the appendix are often so sudden in onset, so intense in severity, so definite in location, and are associated with such rigid, local, muscular resistance as to simulate appendicitis. So often has this occurred in my practice, that, in the absence of temperature disturbance, I have come to designate the condition as "pseudo-appendicitis." So marked is the resemblance to true appendicitis that the diagnosis cannot be established without surgical interference, which, in such cases, ought to be done to give the patient the benefit of the doubt.

On the left side, in front, pain of the same character is often in the upper quadrant at a point corresponding to the point of greatest persistence of pain in the back. There is more or less of discomfort in the lower zone of the abdomen, which may be tympanitic, especially in the left side. The bladder may be irritated, as shown by frequent desire to urinate. Digital examination with the patient standing will always show either a displacement of the uterus, or the presence of a superimposed weight, tending to force it into a state of displacement. At the same time, the complexion is generally bad, there is a tendency to sleeplessness and nervous irritability, there is liable to be some irregularity of the heart, digestion is upset, there is often loss of flesh, and almost constantly there is a loss of energy, associated with mental depression.

DIAGNOSIS

These symptoms are sufficient to establish a presumptive diagnosis of displacement of the stomach, or of the colon, or of both. But, fortunately, it is not necessary that the diagnosis of these necessarily remote and elusive organs should be merely "presumptive." It can be placed absolutely in the positive class, either by the *x-ray*, or by an exploratory operation. If the *x-ray* is employed, an excellent instrument and a skilled operator are necessary to secure reliable results. When they are employed, in the cases indicated, some of the recognized departures from the normal standard of position will be found in the stomach, the colon, the sigmoid, or the small intestines, or all of them. The stomach is very likely to be shown as occupying a very decided vertical position in the left side of the abdominal cavity with more or less pronounced angulation of the pylorus, which lies well down in the left iliac fossa. It should be remembered, however, that a stomach occupying this position, when normally laden, may have the power of emptying itself with physiologic promptness and of regaining its normal position when thus emptied. The peristaltic waves may sometimes be demonstrated. It follows, therefore, that the so-called tubular stomach, one demonstrated to be occupying the position that I have indicated, should not be considered pathologic unless gastric symptoms, clearly explainable by and traceable to the displacement, comprise a feature of the case.

The position of the small intestines can sometimes be approximately determined by shadowy flocculi a few hours after the bismuth has been given, and after it has had time to make the descent. The perfection of the Roentgen technic will doubtless shortly enable us to determine this phase of these cases with more precision than is now possible. In the matter of the colon, however, present revelations are most striking, accurate and detailed. It is important, however, for the proper interpretation of the plates thus made to understand what comprises the normal and what an abnormal condition of the colon, and especially the transverse segment of the colon. No hard and fast locus can be defined as explicitly normal. Ample *x-ray* pictures show, however,

that the normally laden colon extends directly upward from the cecum along the right side to the so-called hepatic flexure, thence along the right costal margins obliquely upward and across to the splenic flexure on the opposite side, and thence vertically downward to the sigmoid. Plates given in the conventional anatomies showing a horizontally transverse colon are erroneous and misleading.

Departures from this approximately normal standard are numerous and of varying degree. The usual displacement, however, consists of a general descent by which the cecum finds its way low into the pelvis. There is a corresponding lowering of the hepatic flexure often below the level of the anterior, superior spinous process, then a sharp dropping of the transverse colon producing obstructive angulation at the hepatic flexure. The transverse colon may be redundant and folded on itself, thus producing one or more additional angles of resistance. It then sweeps up to the splenic flexure, which point of fixation is but rarely disturbed, but at which, in these cases, another acute angle of resistance is formed. There may, or may not be similar redundancies and folding of the sigmoid, thus giving rise to other points of retardation.

In certain cases, it is easy to read in the *x*-ray plate that, in addition to the displacements already indicated, there exists a constriction of the ascending colon, due to a long-standing pericolicitis with consequent formation of Jackson's membrane. It is frequently possible, by the same means, to tell whether or not there are adhesions between the proximal surfaces of the intestines, or between the intestinal and other peritoneal surfaces.

A study of the diagnostic points shows that they may be, and histories given by my patients show that they are, frequently misinterpreted. Gastric ulcer, gastritis, duodenal ulcers and pyloric cicatrices are the conditions most generally confused with gastropnoia. Appendicitis, gall-stones, renal colic, infections of the fallopian tubes and trophic or inflammatory disturbances of the ovaries are the conditions most generally confused with displacement of the colon. A careful study of the symptoms of gastropnoia as given, remembering that they comprise a rather definite complexity, will enable the examiner to arrive at a presumptive diagnosis by exclusion. The question is, of course, promptly settled by the *x*-ray.

I wish to be emphatic in the statement that not all departures from what I have indicated as the approximate normal standard are attended with or followed by symptoms of disease. On the contrary, certain deviations, some of them associated with apparent angulation, seem to be compatible with a fair degree of health. It is only in those cases in which, with displacements demonstrated with the *x*-ray, there exists such associated and logically sequent conditions as habitual constipation, painful peristalsis, headaches, nervousness, mental hebetude, lessened efficiency and other evidences of toxemia, or in which several of these conditions are found to coexist with constipation—I say it is only in such cases that we are justified in looking on the case as one calling for surgical interference.

Now that I have made this point clear, let me resume the thread of my observations by stating that the displacements of the intestines such as I have indicated, when pathologic in degree and effect, are always associated with distinct retardation of the fecal recurrent, and with the consequent inevitable hyperabsorption of toxins. This retardation as shown by repeated *x*-ray

pictures occurs first in the cecum, next at the hepatic flexure, next at any point of acute angulation that may exist in the redundant and angulated transverse colon, next at the splenic flexure and finally in the sigmoid. My observations, based on nearly two hundred diagnosed cases, show that the transit through the colon may be retarded all the way from a few hours to five days. I have no doubt that cases have been observed by other practitioners in which an even longer period of transit has been demonstrated. The fact, as shown, that this retardation occurs at the successive point of angulation is conclusive evidence that the angulation is responsible for the retardation. The frequency with which the diagnostic importance of these symptoms has been, and is being, confirmed by surgical exploration at my hands and at the hands of others impresses me that they comprise a more or less definite syndrome. The uniformity with which the conditions thus revealed are overcome either by actual correction or by compensatory operation, and the almost equal uniformity with which such treatment is followed by cure, both local and constitutional, convinces me that intestinal displacements are at least frequent causes of pelvic mischief and general disturbances of health in women, and that the cure of such intrapelvic conditions must logically depend on the cure of the underlying causative conditions in the stomach and intestines.

Groton Building.

ABSTRACT OF DISCUSSION

DR. RICHARD R. SMITH, Grand Rapids: In a general way I quite agree with Dr. Reed's conclusions as to the relationship of the pelvic disorders to intestinal displacement. I think we can hardly trace any particular connection between the two. We would naturally think that pelvic displacements would be associated with displacements in the abdomen and vice versa. As a matter of fact, we have hard work to find any particular relationship. Prolapse of the uterus is to-day properly regarded as a hernia and has about the same relation to intestinal displacement as any other abdominal hernia, and that is practically none. With retroversion, on the other hand, we might suppose that the change in axis of the pelvic cavity so often found associated with visceral prolapse would have some influence in displacing the fundus backward. If we investigate the matter, we do not find that this occurs with sufficient regularity to justify any such supposition; so we may say that, anatomically at least, there is no apparent relationship between the pelvic and the abdominal displacements. The group of symptoms so frequently spoken of—backache, pain in the side, a feeling of weight and bearing down, with disturbance of the functions of menstruation, digestion and urination and a long list of psychic disturbances—we may find when we have displacements of the abdominal organs, or of the pelvic organs, or both. I am not willing to accept Dr. Reed's rather wide-spread conclusions as to the relationship between the prolapse that we find and the symptoms which we find associated with it. Certainly women with the most marked prolapse often have practically no symptoms. On careful study we shall find, I believe, that in the majority of cases the symptoms are due to another cause, usually a fatigue neurosis. This would not cover all the cases but the great majority, and I think we must be most careful in separating from this general group the cases in which the displacement itself actually causes symptoms; otherwise, we shall be inclined to treat surgically many patients who will not be benefited but perhaps made worse.

DR. J. H. CARSTENS, Detroit: What is back of all this trouble? These poor women are born wrong with the relaxed conditions of all the organs. Not only that, but to a great extent they are made so by their mode of living. A girl who is slim and thin studies, goes to school and thumps the piano three or four hours a day; perhaps she is poor; perhaps her

ancestors were seventeen generations of the man with the hoe. She has a poor brain, but one attribute of the mind—ambition. She wants to be a school teacher, or a stenographer, but she has not the mental ability to grasp thoughts quickly. As a result she studies hard, sits on her chair all day and does not exercise. That is the great trouble at the bottom of the whole thing. Take the girls of that type when they are 10 or 12 years old and make tom-boys out of them and they will not suffer like that. It is not a question of doing this or that operation, but a question of wrong physiology. We do not take hold of those girls early and make them take physical exercise so that they develop their muscles and nerves and get strong abdominal organs that will stay in place. That is what we have to do for the treatment. Some of these people have colons hanging away down with angulations. A woman came to see me the other day with auto-intoxication—absorption. Why? Because she does not live a physiologically correct life. I have figured that she drinks one pint of liquid in a day. How in the name of common sense do you expect the liver to carry on metabolism? How do you suppose the bowels will move if there is no more liquid to carry on the work? Let the woman drink four pints of liquid a day. Then there will be metabolism and no auto-intoxication. Let us have a little more physiology!

DR. JABEZ N. JACKSON, Kansas City, Mo.: It is rather evident to me that Dr. Smith and Dr. Carstens have failed entirely to grasp the fundamental facts as presented by Dr. Reed. In the first place, I take it that Dr. Reed has made no reference whatsoever to the displacements of the pelvic organs of women, but rather to pelvic conditions dependent on displacement of the intestinal structures. Dr. Carstens has talked a good deal about the necessity of preserving more of the physiologic function of the woman. Any one who has observed the displacements covered by Dr. Reed's paper realizes that they are caused by enlarged cecum, described by the Germans as "mobile cecum," and are fixed mechanical conditions. When occurring in woman, with an abdomen filled with the colon, many a one has lost her ovaries under a diagnosis of ovarian disease when the trouble was not in the ovary at all but in the prolapsed viscera of the intestinal tract.

DR. F. H. ALBEE, New York: Two years ago I read before this Section a paper on the sacro-iliac joint in its relation to the pelvic organs. My attitude then held has been confirmed. I believe that intestinal displacement is caused often by faulty posture. Our x-ray examinations with bismuth show us faulty position of the intestines and this produces faulty position of the pelvic organs. This faulty posture leads to relaxation of the sacro-iliac joint. The sacro-iliac joint is sometimes so close to the pelvic organs that it is difficult to differentiate between pain due to displacement and that of the joint. Last year I was especially struck with the fact that two patients came to me who had been operated on four times, and who were entirely relieved by treatment of the sacro-iliac joint. One woman stated that much to the surprise of the man who operated on her she was worse after the operation than before. The sacro-iliac joint had been still further displaced by the operation. I want to emphasize the fact that every one should look for the relaxation or strain of this joint in the examination of the pelvis. The strain may occur from a very simple labor or from the slightest cause. In illustration—a man helping to set a large plate glass pane leaned over holding the glass in a certain position for a few minutes and acquired this relaxation from that cause.

DR. ROBERT T. MORRIS, New York: I agree with Dr. Carstens. You have to go back of all these superficial questions to the point where you are dealing with fundamental defects. Unless you realize that you are dealing with defective organs you will not grasp the subject in its entirety. You hang up the loose colon, but how do you hang up that patient's brain? You hang up the uterus, but how do you hang up the adrenals. As Dr. Carstens says, you have to train your patient as best you can with the best organs you can bring into play. Treating one organ after

another is a mistake. These ptosis patients are extremely amenable to suggestion as a class. We should go back to the fundamental fact of decadence in a rapidly developing race, when considering the cases.

DR. JOHN B. DEEVER, Philadelphia: I endorse what Dr. Carstens and Dr. Morris have said. I believe this question is largely one of education. If we brought up our boys and girls to ride horseback, play golf, tennis, etc., fed them well and slept them well we would have fewer cases of ptosis. Too much attention is paid to the training of the mind and too little to that of the body. We know that from the various boarding-schools children will come back with curvatures of the spine, with stooped shoulders; and as a matter of course, you cannot expect to find normal abdominal viscera. I see a fair percentage of these cases among shop-girls; I believe large companies should have a gymnasium in connection with their stores and that an hour or a portion of an hour each day should be devoted to looking after the interests of the body. I believe that a good percentage of these cases is due to faulty parents—faulty because they know nothing about Nature or Nature's laws.

DR. A. E. BENJAMIN, Minneapolis: I think we are all agreed on the etiology of the condition. If the transverse colon is fastened down to the cecum by adhesions or with adhesions around the sigmoid flexure, operation is necessary, and after operation it is essential to follow these cases for months and perhaps years. Some patients who have gone out into the country following operation have written me that they have had the same symptom return. I think if we put such patients after operation in certain positions and prescribe regular forms of exercises and of diet, direct them to assume the knee-chest position frequently and sleep with the foot of the bed elevated 10 or 14 inches we shall get good results. I have been able to produce permanent cures in the greater portion of these patients. Furthermore, I have been able to correct displacements of the uterus without operation in early cases by the same procedure. The ptosis, the retrodisplacement and enlargement with metrorrhagia will disappear. I have established this to my own satisfaction in enough cases to know that the method is of value.

DR. C. O. THIENHAUS, Milwaukee, Wis.: It seems to me that the previous speakers are somewhat drifting away from the subject of the paper. People may have neurasthenia and hysteria without displacements of the abdominal organs, and vice versa, many women have displacements without neurasthenia and hysteria. Naturally, if we find that displacements of the abdominal organs are, as Charcot has expressed it, the *agent provocateur* of hysteria and neurasthenia, they ought to be operated on. But Dr. Reed's paper does not dwell on this subject; as far as I could understand it, he wants to point out that in many women the genital organs have been operated on and fixed in which diseases of the intestines, such as Lane's kink, Jackson's band, movable cecum, angulations of the transverse colon in the region of the spleen or liver, diseases of the sigmoid flexure, etc., were the *fons et origo* of the complaint. Of course, if these latter conditions produce disturbances they must be corrected; whether the patient is suffering from neurasthenia or hysteria at the same time does not cut any figure.

DR. CHARLES A. L. REED, Cincinnati: Every paper that presents an innovation in treatment or a new point of view is a psychologic experiment. When it comes to the discussion you can generally tell the individual who has given that subject previous thought. I am gratified to feel that as a psychologic experiment this paper is a success. I think I can make the classification without much difficulty. A number of those who have spoken antagonistically to the paper have gone wide of the mark; none has discussed it that I have heard. The point was very correctly made by Dr. Jackson that I have not been discussing the question of the etiology of ptosis of the stomach or of the colon, or any other ptosis. That question was entirely outside of my paper. I was speaking of the relationship of these ptoses to certain conditions in the pelvis of women; and so far as the answers have been offered, only one has been made, and that by Dr. Smith,

who has rather oracularly swept the whole subject off the face of the earth. According to him, this relationship does not exist. It may not exist with regard to the women of Grand Rapids, but a little farther south, in Cincinnati, we see a demonstrable connection between these two conditions. I have a suspicion that Dr. Smith generally operates with his patient in the Trendelenburg position, under which circumstances, of course, he never sees ptosis of the colon or of the intestine. I suspect, furthermore, that he never has an *x-ray* picture made in his gynecologic cases. If so, he is the only one of my acquaintance who does. Without an *x-ray* picture of the position of the stomach and colon, and without a demonstration of that position at the time of the operation, Dr. Smith is really in no position to say that these conditions do not exist or do not exist with a remarkable degree of frequency. In other words, Dr. Smith has attempted to prove a negative—always a difficult task, but especially so when the evidence is lacking.

Dr. Morris is wedded to the degeneration view of humanity. He speaks of these cases as cases of degeneracy, but we often find strong women who have followed a very correct hygienic life going on to 18, 20 and 23 with perfectly normal functions, suddenly having some trauma, when all at once there is interference with metabolism concerning which Dr. Carstens seems to entertain some rather unusual and erratic views. You cannot under these circumstances speak of this distinctly acquired and manifestly traumatic condition as one of original degeneration. I do not know where he gets his data, but I do know that his philosophy will not fit the facts as they occur in the clinical field.

DR. RICHARD R. SMITH, Grand Rapids, Mich.: The trouble with a discussion of this kind is that the matter is so many-sided and complicated, and the point of view so varied that the statements we make are very apt to be misapplied. This is evidently what has happened in the present instance. Dr. Reed quite misunderstood what I said in regard to the relationship of pelvic and abdominal displacements. That they frequently coexist is unquestionable, but that they have any particular relationship is very doubtful. I have had made a very considerable number of *x-ray* examinations of patients presenting themselves with pelvic and abdominal symptoms and am quite aware of the frequency of visceral displacements. I would not wish to "sweep the thing off the face of the earth" as Dr. Reed has said, but I cannot too strenuously urge the necessity of caution in the case of a woman with visceral displacements and with symptoms. We should not conclude that the two stand in the relationship of cause and effect. In the vast majority of instances at least the patient is suffering, not because her organs are out of place, but because she has been under some strain and is fatigued or is neurotic from other causes.

quent applications will destroy the mucous membrane of the mouth. To obviate this, I prepared the following and called it iodoglycerole:

Water	2 parts
Zinc iodid.....	3 parts
Iodin (crystals).....	5 parts
Glycerin	10 parts

As compared with the ordinary tincture of iodine, its astringent properties are greatly increased; the glycerin causes rapid absorption and the irritating effects are reduced to a minimum. The penetrating effect is remarkable. The glycerin thickens the preparation and prevents it from mixing with the saliva and running over the mouth as the ordinary tincture will do. This preparation may be used on the gums every day, if necessary, without injuring the parts. The teeth as well as the soft parts of the mouth should be treated in like manner since all germs are destroyed. I have been able to reduce decay of the teeth in my patients in the past ten years from 30 to 40 per cent. All patients receive this treatment before or after each sitting.

Patients present themselves with fetor of the breath, pus about the teeth, inflamed gums, diseased alveolar processes, acid mucus and saliva, the latter being alsoropy and stringy, plaques on the teeth and decay, with all the forms of bacteria from the most harmless to the more dangerous pathogenic microorganisms such as the pneumococcus, diphtheria bacillus, tubercle bacillus and the germs of children's diseases. Miller has demonstrated more than fifty varieties of microorganisms in the mouth. Pus germs are often present in and about the necks of the teeth, and easily infect wounds and inflamed tissue. These germs are also taken into the stomach at every swallow; some pass through into the intestines and have been found in the feces. While most of the better class of patients possess fairly cleanly mouths, yet from 12 to 20 per cent. of all patients have pus germs in the oral cavity.

Tooth decay is due to lactic-acid ferment and nearly every person has it to a greater or less extent. Clinic and dispensary patients and especially the poorer classes, who never use brushes, washes or powders in the mouth, possess regular cesspools of filth.

To prevent contagions and infections among public school children, their teeth, gums and mucous membrane should be treated with iodoglycerole as often as once a week during the school term.

What I wish particularly to call attention to is the wonderful effect this preparation has on bone disease, such as caries, necrosis, osteomyelitis and all pus surfaces such as ulcers, carbuncles, boils, etc. When applied to the bone tissue, it does not corrode and coagulate, but penetrates into the tissue, reaching the remote recesses of the cavity, and destroys the pus and other germs with which it comes in contact.

Caries of the alveolar process due to abscessed teeth yields readily after the root or roots have been amputated, often without curettement of the bone. The soothing effect of the glycerin, the astringent and stimulating properties of the zinc iodid, and the germicide and antiseptic qualities of the iodine all help to restore bone tissue quickly to health.

In all operations on abscessed cavities, it should be used before as well as after operations; in extracting teeth, with or without abscess formation, it should be used before as well as after; in inflamed and diseased tonsils in which germs are always present, the preparation may be used with splendid results.

IODOGLYCEROLE IN THE TREATMENT OF MOUTH INFECTIONS *

EUGENE S. TALBOT, M.D.

CHICAGO

No one drug has come into general use as a germicide with such universal satisfaction as iodine. Its virtues are so well known in surgery as to require no comment.

I began the use of this drug in 1878 when I commenced my researches in interstitial gingivitis. As a mouth antiseptic and germicide it acts more quickly and more satisfactorily than any other drug. The objection to the use of the official preparation, which contains 7 per cent. iodine dissolved in alcohol to which is added 5 per cent. potassium iodid, is due to the fact that fre-

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

Care should be taken in compounding this formula to see that the druggist uses the pure zinc iodid.

31 North State Street

ABSTRACT OF DISCUSSION

DR. M. H. FLETCHER, Cincinnati: I have had good results from this preparation. I have attributed its value to the iodine it contains, but I can see from the explanation where the by-products are of value.

DR. M. I. SCHAMBERG, New York: I have used iodine in the mouth for a number of years, and recently I desired stronger solutions than those provided, but without the destructive influence of the pharmaceutical preparation on the mucous membrane. I was finally able to get a scientific chemist to make for me a 15 per cent. solution in some oil. This preparation has worked beautifully in the putrefactive conditions about the mouth and in pyorrheal pockets. Surgeons generally are adopting the use of iodine more freely than ever before, so they frequently bathe wounds with iodine preparations instead of with mercuric chlorid solution.

DR. VINA A. LATHAM, Chicago: In the operating room, as you all know, they have a standard preparation, and the nurse hands you the bottle for use, whether it is for a laparotomy or a tuberculous incision in the neck. What is the result? I had a most disagreeable case to handle not long ago, a boy with tuberculous glands to be removed. I had more trouble from the burning and sloughing of the skin and epidermis due to the solution than I had from the operation. Why? Because the alcohol tincture in the heat of the operating-room becomes concentrated, and as a consequence there is danger of burning the skin.

DR. S. L. McCURDY, Pittsburgh: In the first edition of my work on oral surgery, published in 1902, I recommended the use of iodine. I had been using it a good many years before that time in general surgery, and before the American Orthopedic Association, seven or eight years ago, I read a paper on the use of iodine in long-bone infections in which I reported a series of cases of osteomyelitis of long bones in which iodine was used and in which it was generally satisfactory.

I have never had a symptom of poisoning when injecting it into old tuberculous sinuses, as Dr. Beck recommends his paste. In injecting it into these cavities I have a needle, specially made for this work, 6 inches in length, so that the bottom of the cavity may be reached.

I think the glycerin adds very much to the efficiency of the preparation. The muds made of a combination of kalolin and glycerin have a hygroscopic power which is in the glycerin and not in the mud. I have become so convinced of the value of glycerin in this connection that I now use in all bone diseases and in inflammatory conditions about the glands of the neck iodine, 1 part, and glycerin, 7 parts, applied on cotton.

DR. EUGENE S. TALBOT, Chicago: Some German a few years ago found that it was necessary to use only about 10 or 12 per cent. of the ordinary tincture of iodine to destroy these germs after surgical operations.

It is absurd for us as practitioners of stomatology to place our hands in filthy mouths without first sterilizing them. If you go into any dental college you will find clinics given by students who never undertake to use an antiseptic at all, but operate with pus oozing from around the gums, and in filthy mouths in which no attempt has been made to sterilize. I frequently send patients home after making an application of iodine, and have them come back once or twice for additional applications until I find the mouth in a normal condition, before I undertake to treat them at all. And every patient that comes to me gets an application of that preparation either before or after operation. A little cotton wound on the end of an applicator can be carried in the mouth and around the necks of the teeth. You need not be so particular as to how much of the iodine goes over the teeth and gums, if it is the first application in a filthy mouth. I apply it quickly before it is absorbed and before it gets all over the tongue, cheek and lips. In those other patients I am more particular about carrying it around the margins, to hold the lips apart until it dries out.

A STUDY OF THE CUBIC CAPACITY AND SUPERFICIAL AREA OF THE MAXILLARY SINUS *

VIRGIL LOEB, A.B., M.D., D.D.S.

ST. LOUIS

The maxillary sinus (antrum of Highmore), on account of the close relationship which it bears to rhinology and stomatology, perhaps has been more closely studied than any other of the accessory sinuses of the nose. It has been known for a long time that this sinus is pyramidal in shape; that the base is directed toward the nasal fossa and the apex is directed toward the malar bone; that the apices of the roots of the upper second bicuspid and first and second molar teeth often lie very close to the floor and sometimes perforate it; that the sinuses vary in shape and size in different persons and even on different sides of the same person.

Clinical observation has shown that the maxillary sinus is subject to diseases which have their origin, not only in the nasal cavity, but also in some of the other accessory sinuses and in the teeth.

This cavity has been studied *in situ*, from an anatomic standpoint, by many men, but few have attempted accurately to reproduce the sinus in some concrete form and make observations of it in this manner. Some have determined the cubical capacity of several pairs of these sinuses and were forced to destroy the heads in making the observations, but, so far, no report has been made in the literature of the superficial area of the sinus.

The report here presented is the result of a study made on the maxillary sinuses in which I have determined the cubic capacity and superficial areas of twenty-one pairs without destroying the original heads. This work is based on the method used by H. W. Loeb¹ in studies of the sphenoid sinus, presented before the Third International Laryngo-Rhinological Congress at Berlin, August, 1911.

FORMER METHODS OF OBTAINING CUBIC CONTENTS

Brühl² describes the method first used by Siebenmann on the maxillary sinus. It is the same as that which Hyrtl used on the labyrinth and is known as the corrosion method. He used a metal which solidifies after being injected into the sinus. The surrounding parts are then destroyed by maceration, the cast of the sinus in the substance used remaining intact. Quicksilver was also injected into the sinuses and x-ray pictures were taken to show the size and shape of the cavity.

Brühl used the method which Katz employed on the labyrinth. He filled the sinus with Wood's metal, which melts at 65 C. (149 F.) and which consists of:

Lead	8 parts
Zinc	4 parts
Bismuth	15 parts
Cadmium	3 parts

He then by some process, not described, rendered the bone transparent. In this way a clear view of the sinuses could be obtained, *in situ*. He then removed the casts and obtained the volume by noting their displace-

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Departments of Anatomy and of Ear, Nose and Throat Diseases in St. Louis University.

1. Loeb, H. W.: Ann. Otol., Rhinol. and Laryngol., March, 1912.

2. Brühl, Gustav: Zur Anatomie der Nebenhöhlen der Nase, Berl. klin. Wchnschr., 1900, No. 41.

ment in water. His results from observation on twelve heads were as follows:

Head	Cubic Capacity in c.c.	Head	Cubic Capacity in c.c.	Head	Cubic Capacity in c.c.
1	16.6	5	14.1	9	2.9
2	14.1	6	8.1	10	4.5
3	11.7	7	10.5	11	9.4
4	8.3	8	11.2	12	9.8

The general average was 10.1 c.c.

These observations are very important, but naturally lose much because of the necessity of destroying the specimens in order to remove the casts.

Braune and Clasen³ report measurements of four pairs of maxillary sinuses, the casts of which were made by the corrosion method. Their results are as follows:

Head	R. L. in c.c.	Average in c.c.
1	12.5, 11.6	12.05
2	11.2, 13.3	12.2
3	11.5, 11.7	11.6
4	17.3, 18.2	17.7

General average 13.38 c.c.

MATERIAL

The heads used in the study here presented were preserved by injecting a 50 per cent. dilution of liquor formaldehydi through the carotid; they were decalcified by soaking in a 3 per cent. solution of hydrochloric acid for from three to five months. They were then cut horizontally in sections about 1 inch thick by means of a very sharp knife. These heads are from the Anatomical Department of the St. Louis University. All were heads of adults, and in no instance has it been possible to ascertain any history of the individual.

METHODS OF MAKING PLASTER CASTS AND THEIR GROSS APPEARANCE

The portion of the sinus lying within the adjacent sections was filled with soft plaster-of-Paris which when hardened was removed and the adjacent portions united with a thin layer of very soft plaster. This finally resulted in a complete cast of each sinus.

The plaster casts, forty-two in number, representing twenty-one heads, give a clear idea of the size, form and irregular contour of the sinnses. These casts are mounted in pairs and show the relation of the right and left sides.

The right and left of each pair of sinuses are more or less symmetrical, but vary in size. They are roughly triangular in shape with the apex posterior, and with all the walls practically triangular except the internal, which is more or less quadrilateral. While the two sinuses of one head usually are similar, they differ materially from those of any other head.

CUBIC CAPACITY

The measurement of the displacement of water resulting from the immersion of a body in water gives the volume or cubic capacity.

Since these casts are made of a porous material, they were first allowed to remain for several minutes in melted paraffin so that the interspaces might be made impervious to water. After this the cubic capacity was ascertained volumetrically as follows:

Head	Right in c.c.	Left in c.c.
3	8.0	7.5
4	24.8	24.5
5	24.5	19.2
6	16.8	13.0
7	13.9	14.5
8	7.0	4.9
10	10.2	10.0
11	14.5	15.2
12	10.0	7.2
14	13.0	14.8
15	13.0	9.6
16	4.5	4.8
17	12.0	8.0
18	11.5	4.8
19	12.5	18.5
20	14.9	15.2
22	14.7	8.5
28	11.0	9.0
29	8.5	7.5
30	18.3	15.0
31	9.5	6.2
Average	13.62	12.85

The general average was 12.94 c.c.

These results show the extremes to be head 16 right, 4.5 c.c., and head 4 right, 24.8 c.c. The average, however, of the right side is very near that of the left.

SUPERFICIAL AREA

Adhesive plaster as used by H. W. Loeb, in connection with the superficial area of the sphenoid sinuses, was employed in determining the superficial area of the maxillary sinuses. A strip equaling 25 sq. cm. (5×5) was placed with the adhesive part down, on a small plate of glass, without stretching. With a sharp knife pieces were cut and fitted on each cast until it was entirely covered, care being taken that the pieces did not overlap.

It is safe to say that this method is not subject to an error of 2 per cent.; in fact, it is more than likely that there is not more than 0.5 per cent. of error.

The results in square centimeters are as follows:

Head	Right	Left
3	25.9	25.2
4	52.3	48.4
5	51.3	45.8
6	43.1	37.0
7	34.2	37.7
8	27.7	21.2
10	29.0	29.7
11	35.1	39.9
12	28.3	22.4
14	35.2	35.0
15	33.1	28.6
16	12.1	16.3
17	30.0	25.0
18	34.2	16.5
19	31.0	40.0
20	33.1	33.1
22	36.9	27.3
28	29.1	26.3
29	25.9	25.9
30	41.4	38.1
31	27.4	21.0
Average	32.91	30.43

The general average of all the sinnses is 31.68 sq.cm., showing a marked uniformity in the two sides. The extremes are head 16 right, 12.1 sq.cm. and head 4 right, 52.3 sq.cm.

537 North Grand Avenue.

3. Braune and Clasen: Die Nebenhöhlen der menschlichen Nase in ihrer Bedeutung für den Mechanismus des Riechens, Ztschr. f. Anat., 1877

ABSTRACT OF DISCUSSION

DR. G. V. I. BROWN, Milwaukee, Wis.: We often do not trouble to remember that the nasal accessory sinuses are receptacles which may harbor microorganisms and thus make it possible for infection to take place at any future time. We should appreciate the great need of association with those who treat the nose in order that no factor may be overlooked which otherwise might lead to the detection of nasal accessory sinus disease. It is important for us to endeavor to learn why such great differences in the size and form of these sinuses occurred; to discover, if possible, any factor that may have been at work which might have been controlled at an earlier stage.

DR. EUGENE S. TALBOT, Chicago: Twenty-five years ago I did a good deal of work along this line. More than half the antra had septa in them, some one, two and three, which extended nearly to the roof of the upper part of the cavity. None of them were completely bridged across, there being always an opening between these partitions from one to the other. It was interesting to see that the two sides were unlike and that the size differed. This work was done by sawing into the antra and making measurements and by visual examinations. The antra extend often away beyond the last molar tooth, which is an important point in the treatment of this disease.

DR. G. V. I. BROWN, Milwaukee, Wis.: I have demonstrated, by preventing the growth of the maxillae in dogs, that I could produce an enlarged maxillary sinus, which is unusual in dogs. Similar conditions in human beings undoubtedly produce the same result, and are doubtless in a measure responsible for some of the unusually large maxillary sinuses shown in Dr. Loeb's collection.

DR. VIRGIL LOEB, St. Louis: Regarding the form of the nasal cavity in relation to the arch, I wish to say that these specimens are from heads selected at random from the anatomic department of St. Louis University, and for this reason, of course, nothing was known of the history of the cases. As it happened, there were no particular pathologic conditions around the mouth or nose, with the exception of a deflected septum here and there, and enlarged turbinates. There was nothing particularly unusual in them, and I should say that they vary in size and shape as the antra of those present in this room would probably vary. I think these illustrations prove that the size of the head and mouth does not have a great deal to do with the size of this particular cavity.

So far as the treatment is concerned, my ideas have not changed materially on seeing how enormous these cavities can be. I have always thought that the treatment of empyema of the antrum should be largely through an opening into the nasal cavity, with an additional opening through the mouth if necessary, but essentially the opening into the nasal cavity. If an opening has to be made, I prefer the nose to the mouth. I should say that we see 10 or 15 per cent. more cases of infection of the antrum from the nose and by way of the other necessary sinuses than from the teeth.

DR. I. HEAD, Philadelphia: As to the size of the skull, while it is interesting, I think we all know that the mouth has little to do with it, owing to the fact that the size of the intermaxillary bone varies according to the proper relation of the teeth during the formative period.

Essentials of Practical Eugenics.—For practical eugenics it is essential that the romantic, the affectional, basis of marriage should be preserved, but the sentimental and emotional elements should be supported and guided by intelligent appreciation of all the factors necessary for parenthood that will protect the biologic values. When human beings rationally subordinate their own interests as perfectly to the welfare of future generations as do animals under control of instinct, the world will have a more enduring type of family life, a more perfect type of parentcraft than exists at present. This can be accomplished only by the development of controlling ideals that are supported not only by reason and intelligence but by ethical impulse and religious motive.—T. D. Wood, *Penn. Med. Jour.*

INFECTED AREAS AROUND THE ENDS OF
ROOTS OF TEETH*

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The spongy character of the alveoli in which the ends of the roots of the teeth are embedded leaves them especially vulnerable to purulent invasion. This portion of the alveolus is frequently referred to as the apical space, because so often the osseous structure around the apices of the roots is lost to a greater or less extent on account of an abscess forming in this region. The majority of these infections are alveolar abscesses arising from the death of the pulps of the teeth. There are also pericemental abscesses, existing coincident with living pulps which have not been infected. This latter class may be variously subdivided.

The course of the ordinary alveolar abscess is generally marked by a crisis, at which time the pus escapes into the mouth, either through the plate of the alveolus, or between the periosteum and the root at the gingival border. Unless a radical cure of the abscess is effected a permanent fistulous opening remains, through which afterward a more or less constant flow of pus is discharged into the oral cavity, mixed with the normal fluid and swallowed. This form of abscess is readily diagnosed by reason of the apparent clinical factors, and whatever consequent pathologic lesions result are due to neglect in permitting such an infection to remain *in situ*.

There is, however, another form known as a blind abscess, in which a granulomatous defense seems to arise, causing a fibrous encystment of the abscessed area. In this case there is no fistula affording an outlet into the mouth. The only symptom is an occasional tenderness over the region of the diseased area, and only too often even this symptom is lacking in bringing attention to the point of infection. Generally this area increases in size and often causes discomfort for the first time after five or ten years of steady encroachment on the contiguous surfaces. This form of abscess is much more dangerous to the individual, because its presence is not suspected although pathogenic conditions may be taking place in various parts of the body as a result of the absorption of these toxins. Although there remains a great amount of work for the bacteriologist in this disease, it is evident that the various forms of streptococci play the predominating rôle in the same manner that they do in cryptic infections of the tonsils.

The toxemia resulting from these blind abscesses is of such a slow and insidious nature that generally great harm has been done before their presence is suspected. They are a result of a traumatism, some disease of the pulp, or imperfect pulp removal by a dentist. In the last few years the radiograph has demonstrated how few mouths are free from blind abscesses. Gilmer, of Chicago, estimates that 25 per cent. of the people have infected areas around the ends of the roots of their teeth.

The absorption of pus in this manner produces the same results that pus absorption can produce in any other part of the body. Our literature teems with clinical notes of these cases. I could add many such data dealing with all such conditions, but it is not

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intended in this presentation to do more than give a synopsis of the factors involved.

In dermatology, the various acnes, eczemas, herpes, erythemas, urticaria, edema, alopecia, seborrhea, psoriasis, erysipelas, etc., can have such an etiologic factor, or their conditions can be complicated by the presence of such septic foci; affections of the upper respiratory tracts, the eye and the ear have all been traced to the same source.

Endocarditis and all the allied joint affections frequently owe their inception to a blind abscess. Pernicious anemia has been traced to this source by many authorities. Diseases of the nervous system, even to the production of insanity, have too frequently been cured by the removal of these septic foci to leave any doubt as to the possibility of their having such dental origin. In like manner clinical data as to nephritis, diabetes, cirrhosis of the liver, and many other diseases caused by infections could be cited to demonstrate the fact that in a correct diagnosis of such conditions the possibility of any dental infections should always be considered.

At the present day the radiograph gives us a clear picture of this field and makes a diagnosis comparatively easy, whereas formerly it was not only questionable, but also attended by innumerable obstacles. Superficial mouth examinations by physicians or by incompetent dentists have for many years been the main reason why so many etiologic facts of this nature have not been observed. The true physician cannot continue to salve his conscience by the farce of this kind of oral examination.

The failure of the medical curriculum to give proper stomatologic instruction to the student is primarily the reason why so many forms of malnutrition proceed to an incurable stage before they are even diagnosed. Is it not about time for the American Medical Association to use its power in urging the introduction of such a course in the college curriculum? Only after this shall have been accomplished on a broad and intelligent basis, will this barrier to a more correct diagnosis be destroyed.

If it is true that 25 per cent. of the people have such abscessed areas at the ends of the roots of the teeth, the fact certainly deserves some consideration. A careful investigation of the subject will show that this is not caused by negligence on the part of the people in caring for their teeth, but in most cases is directly traceable to imperfect dental work. If the tooth is to be conserved in a healthy state, after disease and death of the dental pulp, every portion of the organic material in the root canals must be removed and these canals sealed with an impervious homogeneous filling. This operation must be conducted with thorough aseptic precautions so that when it is completed all possibility of future infection shall have been dissipated. The irregularity of many roots and the tortuous nature of some canals make this frequently a very difficult operation and in a small percentage of cases an impossibility. In such cases the infected portion of the root must either be removed or the tooth itself extracted. The imperfect education of dentists is the cause of some of these conditions, but not of the greater majority of them.

The proper removal of such pulp material and the subsequent aseptic sealing of the canal generally entails hours of the most painstaking labor. The average dental practitioner finds it impossible to obtain a living fee for the expenditure of the amount of time necessary in a given case. This has resulted in the practice of a hasty and partial removal of the pulp, and dependence

on the insertion in the canals of disinfecting agents to guard against future infection. That such medication has but a temporary value is generally understood; but there is no one to criticize such work.

If any other specialist should leave a portion of necrotic tissue in the body, it would at once bring forth the strongest protest from the patient's regular physician. Nevertheless, dentists are daily performing such surgical operations and leaving portions of necrotic tissue buried in the alveoli to become the foci for future infections. The patient's physician, not only interposes no objection, but likewise submits his own mouth to the same unsurgical procedure. This is no new statement of facts, but it seems that simple words are unavailing in arousing the profession to this continued unnecessary sacrifice of human life. Surely by this time, some little impression should have been made on our confrères. The time must be near at hand when the profession will give this the attention it merits.

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ABSTRACT OF DISCUSSION

DR. M. H. FLETCHER, Cincinnati: I have satisfactorily followed for twenty-five years the practice of putting a very small portion of arsenic, say 0.01 of a grain, as near the apex of these inaccessible roots as possible. It is inserted by winding a few shreds of cotton on the end of a broach and dipping it into the arsenious acid, and then putting it in a root filling. Most persons say this plan is dangerous, but they do not fully comprehend the technique. The whole object of filling the root canal is to keep it aseptic, but if it cannot be obliterated it can be kept aseptic for a life-time with a little arsenic, because arsenic is so slowly soluble. What little arsenic could get through the apex will easily be taken up by the blood-vessels without injury to the tissues in the apical space. If these spaces are sore from infection they will get progressively worse. Should they become sore from the use of arsenic (which they very rarely do) they will get progressively better. Infection continually increases. Arsenic prevents infection and is continually eliminated. Perfect obliteration of the root canal is the ideal way, but my inability to accomplish this in some cases leads me to endeavor to keep these spaces sterile.

DR. C. J. GRIEVES, Baltimore: For the past three years in Baltimore I have been associated with Dr. W. S. Baer of Johns Hopkins University in the study of these conditions, and we have accumulated over a hundred odd cases of this type of infection, apical infection, as the primary portal of entry for infectious arthritis, and in a few cases we have been able to isolate absolutely the infecting microorganisms; that microorganism being staphylococcus, contrary to Dr. Rhein's statement—I mean in the type of cases in which we had blind apical abscesses. In almost every instance there had been some bad apical dentistry done—some portion of necrotic tissue left or some effort made to fill the root-canal. The dentist had evidently done all that could be done under the circumstances; he was trying to do an impossible thing in the filling of a tortuous canal and to remove all the contents. Nevertheless, the result was a quiet abscess of which the patient took little or no cognizance, but which had run along for years.

Out of the hundred odd cases there were a few that were clearly straight infections from a tooth-root; general infections were the rule. There would be associated crypts in the tonsils, chronic appendicitis, etc., or some other condition that tended to render this condition possible. These cases were of long standing, with abnormal temperature that ran for months. Some simulated tuberculosis, but most of them were arthritides. The method of diagnosis has been almost entirely that of digital pressure high over the alveolar process. After the area was found a series of small radiographs was taken of not more than the roots of three teeth in any one picture. The only thing we could do to relieve the condition in many cases

pus extraction. In many fistula cases associated with arthritis (not blind abscesses), when the fistula healed, the temperature of the patient would go up, showing pressure absorption from retention of pus, and when the fistula was opened and drained, the temperature would become normal again. In these cases extraction almost invariably did the work when it was a clear case of the teeth as the primary point of infection. The medical men with whom I have been associated regularly from the clinical observations condemn a tooth that has a crown on it, so thoroughly do they associate these pus conditions with the crowned tooth. Of course, we know as dentists that that is an injustice. They have, however, seen so many of these cases in which poor canal work has been done and the teeth crowned and which have later resulted in necrotic conditions in these areas that I regard them as justified in asking for radiographs of the tissues round the apical ends of the crowned teeth.

DR. M. I. SCHAMBERG, New York: While it may be true that Dr. Fletcher and other members of this Section are active in the instruction of students in medical schools, this practice is far from being general. There is no reason why the student should be ignorant of this subject any more than any other branch of the healing art, and, moreover, the men should be compelled to pass their examinations on this subject, just as they would on the eye, the ear, the nose, the throat and other parts of the body. I do not believe that it is necessary for our section to enter into a matter which can be so readily discussed elsewhere. I believe that this Section should be active in trying to do something rather than trying to solve something.

DR. THOMAS L. GILMER, Chicago: The importance of good hygiene of the mouth cannot be overestimated. Oral pathology should be better taught in medical schools. In general pathology physicians are usually well informed, but deficient in oral pathology. I think it would be most damaging to let Dr. Fletcher's statement go unchallenged that it is good practice to put arsenic on cotton in the roots of teeth and depend on it as a permanent antiseptic.

Arsenic has no place in the teeth at all. It will not remain at the end of the roots indefinitely, as an antiseptic. If a medicament is soluble it will not permanently remain in the root; if it is insoluble it is not an antiseptic. The idea of utilizing antiseptics as permanent root filling is impracticable. The apical ends of some pulpless roots become encysted even if they are not well filled, and such roots will do no harm. Radiographs, on the other hand, show that in some instances well-filled roots have blind abscesses at their apices.

I believe that we extract too few teeth; we used to extract too many. We can, however, in some instances cure chronic alveolar abscesses, which are incurable by medication through root canals, by resection of the offending part of the root and wetting the walls of the abscess.

DR. S. L. MCCURDY, Pittsburgh: The word "infection" has been, I think, used very loosely in this connection. A cyst on the end of the root may become an open cyst, may become infected and become an abscess. When we talk about bacteria on the end of the root of the tooth, the question arises, How did the infection get there?

DR. E. S. TALBOT, Chicago: I do not believe that the profession to-day is aware of the number of peridental abscesses that there are in the mouth. These abscesses lie dormant for years. I had a tooth extracted two weeks ago with a blind abscess on it which I believe to have been in my mouth for fifty-two years. When a boy, 10 or 12 years old, I had a toothache, and a country doctor tried to remove that tooth with the old-fashioned turn-key. He failed to remove the tooth, but he topped the pain, and from that time to this I have never had any pain in that tooth. This tooth was afterward crowned, and it has been of service to me ever since until I was obliged to have it removed.

I honestly believe that these abscesses are doing a great deal of damage. I believe that arthritis is the result, but at present we have no direct proof. We know that pus is distributed directly into the blood from these abscesses; we know also that pus is swallowed every time we take food into the mouth. Do pus germs pass through the stomach when hydrochloric acid is present? Of course, hydrochloric acid is pres-

ent only with digestion of foods. It is possible that these germs can pass through when hydrochloric acid is not there. This has not been really demonstrated. No one has found pus germs in the stomach at the present time. One man has found pus germs in the feces in some ten or twelve examinations.

DR. M. L. RHEIN, New York: I agree with Dr. Gilmer's criticism of Dr. Fletcher's technique in treatment of root canals, the end of which it is impossible to reach. The theory needs to be supplemented by scientific facts; not clinical data, but proofs that infection is impossible. The fact that Dr. Fletcher has had splendid results from sealing an infinitesimal amount of arsenic in the end of the canal is, to my mind, no proof that subsequent infection will not take place. If Dr. Fletcher will have a large number of such teeth on which he has operated in years past radiographed it will give us an opportunity to make a reasonable scientific deduction as to the results.

I do not agree with Dr. McCurdy that it is a complicated point as to the source of infection in this area. There are only two methods by which infection of these areas can be obtained: either through the mouth arising from the defects in the technical work of sealing the root canals and absorption of bacteria, or through the circulation at the end of the root. I am convinced that such infections as we have commonly looked on as the worst, in which there was an open fistula from the abscess with the patient swallowing pus in large quantities, was not nearly so detrimental to the patient as the little blind abscess at the end of the root. There is no question but that certain secretions in the intestinal tract destroy a portion of the swallowed pus. A root canal may be imperfectly filled and go for many years without any infection. I question the statement Dr. Talbot made in reference to the tooth in his own mouth, that this blind abscess had been attached to that root for fifty-two years. It may be that this abscess only appeared within the past few years. I have examined root canals that I have filled years before we had the radiograph, in which I thought at the time that I had reached the ends of the roots, and have found that the filling did not go to the very end of the canal. The space we speak of as the apical space was, however, in an absolutely physiologic condition. When Dr. Gilmer speaks of improper dental work resulting in the death of many people, he has not exaggerated one iota. If pulp canal work is done it is essential that the aseptic filling material should go to the very end of the canal if we want to have absolute assurance that secondary infection through the circulation cannot take place.

FIVE YEARS' EXPERIENCE WITH THE HIGH-CALORY DIET IN TYPHOID*

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Three years ago I called attention to a new principle in the dietetic treatment of typhoid, namely, the principle of supplying the patient with sufficient food to diminish materially, and in some cases to prevent, loss of nitrogen and weight.

The amount of food recommended exceeded that furnished by any diet hitherto employed in the treatment of the disease by 1,500 to 2,000 and more calories a day. Though the number of cases in which the diet had been used was not large, something less than fifty, the results had been so striking that it seemed desirable to advocate the principle publicly.

In the discussion which followed the reading of the paper, criticisms were made of the diet which, had they been justified, would have rendered culpable any further attempt to employ it.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

In the three years which have elapsed since the paper was presented, the study of the effects of the diet has been steadily pursued. The purpose of the present review is to report briefly the results which have been accomplished: The number and variety of foods employed have been increased; the absorption of the food has been studied by my assistant, Dr. Eugene F. DuBois; certain phases of the metabolism of patients while on the diet have been investigated with the aid of the "small" Benedict respiration apparatus, and clinical material has been accumulated. I shall consider, also, the most important criticisms which have been made.

The number of foods originally employed was limited. With added experience the number has been increased until now the diet furnishes considerable variety. The following foods have been given thorough trial and are recommended for appropriate cases.

TABLE 1.—FOODS AND THEIR CALORY VALUE †

Name.	Amount.	Calories.
Apple sauce.....	1 ounce	30
Bread	Average slice (33 grams).....	80
Butter	1 pat ($\frac{1}{2}$ ounce).....	80
Cereal (cooked).....	1 heaping tablespoonful ($1\frac{1}{2}$ ounces) ..	50
Crackers	1 ounce	114
Cream (20 per cent.)..	1 ounce	60
Egg	1 (2 ounces).....	80
Egg, white.....	1	30
Egg, yolk	1	50
Lactose ‡.....	1 tablespoonful (9 grams).....	36
Milk (whole).....	(1 pint 350) 1 ounce.....	20
Potato (whole).....	1 medium	90
Potato (mashed).....	1 tablespoonful	70
Rice (boiled).....	1 tablespoonful	60
Sugar, cane.....	1 lump	16
Sugar, milk.....	1 tablespoonful	36
Toast	Average slice.....	80

† Published in Am. Jour. Med. Sc., January, 1912.

‡ For practical purposes, the milk-sugar may be measured in a medicine glass. Each measured ounce weighs 18 gm. If milk-sugar is added to water in the proportion of 24 grams to 30 c.c. and the water brought to the boiling point, the milk-sugar is completely dissolved. Such a solution, made daily or just before use, will be found convenient in administering the diet.

The calory values given in Table 1 are approximate, for the most part, but are sufficiently accurate for practical purposes. The values stated are based on the tables of Atwater and Bryant, Schall and Heisler, Arnold's diet charts, and on weights taken in the hospital.

Other articles of food will probably be added from time to time as the effects of their administration can be observed. At present, the foods which I believe most likely to prove harmful are meat and its preparations (except small quantities of meat broth, given for the purpose of stimulating the appetite and for sake of variety), vegetable foods containing much cellulose, and fruits containing much cellulose and small seeds, such as berries.

The three most important objections which have been brought against the diet are: (I) that patients cannot digest and absorb the amount of food recommended; (II) that the amount of fat would inevitably cause alimentary disorders and acidosis, and (III) that, granting its absorption, patients do not require the amount of food which is advocated.

These objections arose in our own minds during the course of our investigations; one of them (the development of acidosis) had been answered by the careful studies of Dr. Shaffer; all of them appeared, on the basis of clinical observation, to be unfounded.

I. DIGESTION AND ABSORPTION IN TYPHOID PATIENTS

The objection that patients cannot digest and absorb the amount of food recommended is based on the preva-

lent notion that typhoid causes serious impairment of the digestive powers. This belief appears to be without foundation. While there can be no doubt that food may cause disorders of digestion in typhoid, their occurrence depends, in my experience, not so much on the quantity as on the method of giving it. Unsuitable foods will, of course, prove harmful.

Through the investigations of Pavlov we know that the digestive glands adapt their secretions to the kinds of foods which they are required to digest, and that changes in diet are followed by alterations in the characters of the digestive juices. These alterations take place gradually and sudden changes in diet, especially from a sparse to a rich diet, are likely to cause digestive disorders. Furthermore, individual peculiarities of digestion must be taken into consideration. These can be discovered only by testing the capacity of each patient for the foods allowed. But if proper attention is paid to these details, I believe it will be found that the great majority of patients may be given the amount of food they require not only without causing disorders of any kind, but with the disappearance of disturbances which previously existed. The studies of Kendall,¹ on the influence of diet on the intestinal flora, apparently furnish the explanation of the beneficial action of large amounts of carbohydrate on the condition of the intestine in typhoid. According to Kendall, the presence of available carbohydrate protects protein from the putrefactive activities of intestinal bacteria and prevents the disturbances which would result therefrom.

Intimately related to the ability of the patient to digest large quantities of food is his capacity to absorb them. Von Hoesslin investigated this problem thirty years ago and found that the digestive powers of the typhoid patient were only from 10 to 15 per cent. below normal, but the differences in the characters of the diets employed by von Hoesslin and by ourselves made it desirable that the subject be reinvestigated. As already stated, this has been done by DuBois, who will shortly publish his results. Briefly, they prove that the capacity of the typhoid patient to absorb large amounts of food is remarkable. The absorption of carbohydrate was practically complete, less than 0.5 per cent. being lost. The average loss of protein was 7.1 per cent. The average loss of fat in the active period of the disease, when the patients were taking from 147 to 200 gm., was 7.2 per cent.; in the steep-curve period and in convalescence, when the patients were taking from 150 to 258 gm., it was 4.5 per cent. The normal loss for similar diets is about 3 per cent., but, according to Rubner, the loss of fat may reach 7.1 per cent. in health.

II. AMOUNT OF FAT

The objection that the amount of fat recommended would inevitably cause alimentary disorders and acidosis has likewise been proved to be without foundation. The majority of patients treated have taken from 100 to 250 and more gm. of fat a day without disturbances of any kind. It is well known that fat inhibits the secretion of hydrochloric acid and delays the passage of chyme from the stomach, but neither of these actions has caused inconvenience to the patients. Moderate diarrhea has occurred in a few cases, but has ceased on withdrawing the cream. Duodenal regurgitation has not been observed.

Instead of interfering with digestion, there is reason to believe that fat aids the digestion of carbohydrate. Mixtures of fat and protein are known to be difficult to

1. Kendall: Jour. Med. Research, 1911, xxiv, 411

digest, but, according to Pavlov, the addition of butter (fat) to bread (carbohydrate) facilitates its digestion. The fat delays the passage of the carbohydrate from the stomach while the pancreas is elaborating the ferments for the digestion of both.

I cannot discuss at this time the general question whether large quantities of fat are capable of causing acidosis. The point at issue is whether fat, in the amounts given, causes acidosis in typhoid fever. By way of answer, it may be stated that no patient has presented any clinical evidence of the condition, the acetone bodies have not appeared in the urine and the ammonia nitrogen of the urine in some thirty cases has never exceeded 2 gm. and has usually been below 1 gm.

III. REQUIREMENT OF FOOD

It will be necessary to consider from the clinical as well as from the metabolic standpoint the objection that, granting its absorption, patients do not require the amount of food which is advocated. The effect of the diet on the patient has dominated the investigation from its inception. In general, the more food a patient takes, the better his physical condition. Patients lose weight when an apparent excess of food is not given. The largest amounts which have been administered have been reached in the attempt to satisfy the patients' hunger. Though this is clinical evidence, it possesses considerable value, the ultimate test of any method of treatment being the effect it produces on patients.

The study of the protein metabolism in typhoid has demonstrated that large amounts of food are required to keep a patient in, or nearly in, nitrogen balance. The maintenance of nitrogen equilibrium in fever probably signifies the optimum state of nutrition.

The total metabolism in typhoid has been studied previously chiefly on patients in the fasting state. Last fall, with Dr. DuBois, I undertook to investigate, with the aid of the "small" Benedict respiration apparatus, the total metabolism of patients on a full diet. Owing to the vastness of the field and the technical difficulties to be overcome, the investigation was confined, temporarily, to the study of the general effects of the diet on metabolism. Interesting results, however, were obtained. The greatest amount of heat produced by any patient was 48 calories per kilogram per day. The majority of patients produced around 35 calories per kilogram. Since the patients were at *absolute rest* during the period of observation (fifteen minutes), at least 10 per cent. must be added to cover the muscular work incident to moving about the bed. Only one of Grafe's fasting patients produced as much as 40 calories per kilogram; the smallest amount of heat produced by any of his patients during the febrile period was 28.5 calories per kilogram.² Rolly's figures are essentially similar.

Calculated on the basis of these figures, the high-calory diet furnishes from 1,000 to 2,000 more calories than are expended by the patient in twenty-four hours. So far, it has been found impossible to explain this discrepancy in the early stages of the disease, yet I am convinced from the clinical evidence that patients require the excess—they lose both nitrogen and weight if they

do not receive it. In the later stages of the disease, the excess is utilized for the storing of fat, as is shown by the height of the respiratory quotient. In one instance the actual transformation of carbohydrate into fat was observed while the patient had a temperature of 102 F.

STATISTICS OF CASES

In Bellevue Hospital to Jan. 1, 1912, 183³ cases were treated, of which forty-four were mild, fifty-seven severe and thirty-seven very severe. Twelve patients died, giving a mortality rate for the series of 8.69 per cent.

TABLE 2.—COMPARATIVE STATISTICS OF TYPHOID CASES WITH REGARD TO HIGH-CALORY DIET

Year.	B. H. & A. H. Total Cases. Total Deaths.		Diet Cases. Total. Deaths.	
1907	...	...	9	0
1908	315	55	28	1
1909	258	37	39	3
1910	302	45	35	7
1911	229	32	27	1
	1,104	169	129	12 = 9.3%
	129	12		
	975	157 = 16%		

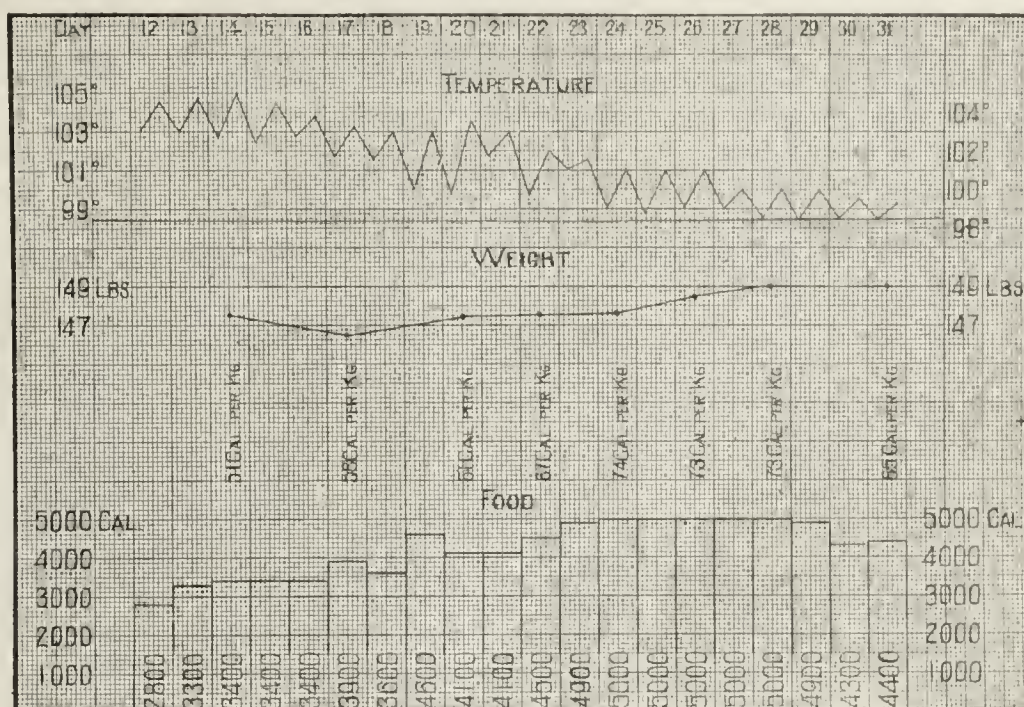


Chart showing temperature, weight and food-curves in a severe case of typhoid.

The comparative statistics of the cases of this series and of the department of Bellevue and Allied Hospitals permit the following conclusions:

Both mortality rates are abnormally high. As probably occurs in other large hospitals, not only the worst types of disease are admitted to the hospitals of the department, but many patients are brought in, apparently only to die, when treatment at home has proved unsatisfactory. All of these cases are included in the figures from which the conclusions are drawn.

Relapses occurred in 20 per cent. of the cases of the series.

Hemorrhages occurred in 13 per cent. of the cases. Perforation occurred in one case.

The influence of the diet on the weight of patients is shown in the figure.

Reports from Convalescents: During the past year, patients have been requested to report at the hospital at intervals after their discharge. A number of them complied with the request and the records of their condition

3. Though a limited number of patients in other services of the department during 1910 and 1911 have been given more or less liberal diets, this series includes only patients who have been under my personal charge.

2. Grafe: Deutsch. Arch. f. klin. Med., 1910, ci, 209.

justify the statement that convalescence is materially shortened.

Since the foregoing communication is in part a review of work already published and in part a report of progress on investigations which are under way, I shall not attempt to draw conclusions from the new matter which it contains.

58 West Fifty-Fifth Street.

ABSTRACT OF DISCUSSION

DR. HAVEN EMERSON, New York: I have made an analysis of the 544 typhoid cases treated on the first, third and fourth medical divisions of Bellevue Hospital for the five years 1907-1911 as to the diets given and the death-rate, the incidents of complications and the occurrence of relapses. These were all the cases of typhoid fever in Bellevue Hospital during this time, except the cases in the second division, concerning which Dr. Coleman has made a detailed report. The cases I have analyzed were admitted in turn to the different divisions as were those on the second division. They represent, as nearly as clinical material can, cases similar in source, severity and duration before admission, to those observed by Dr. Coleman. Of the 544, 275 were fed exclusively on milk during the entire febrile period, a diet of from 1,000 to 2,000 calories in twenty-four hours; 156 were fed on a diet other than milk during the febrile period, or including milk, but containing at times broth, cereals, eggs, cocoa, or bread, of a caloric value of from 1,500 to 2,000 in twenty-four hours; 113 were fed on a diet similar to, or identical with, the diet advised by Dr. Coleman, with milk, cream, sugar, butter, etc., during the febrile period, of a caloric value of 2,000 to 3,000, and in many instances of 4,000 or 5,000.

	Deaths, Per Cent.	Complications, Per Cent.	Relapses, Per Cent.
Cases on milk exclusively..... 275	15.6	25.4	4.3 A
Cases on a low caloric diet not exclusively milk..... 156	14.7	25.6	4.4 B
Cases on a high caloric diet... 113	8.8	24.7	6.1 C
Cases on milk or other low caloric diets 431	15.3	25.5	4.4 A + B

There is a marked saving in the cost to the hospital of a case of typhoid when the duration of the convalescence is abbreviated. From an observation of fifty of the cases reported, fed on a high-calorie diet, on the first and fourth divisions, I am impressed with the excellent condition of the patients at the end of the febrile period, and the rapidity with which they pass through a convalescence and are able to resume their work.

DR. S. SOLIS COHEN, Philadelphia: One may admit the correctness of Dr. Coleman's principle without subscribing to all the details of application. The statistical showing would be more conclusive if we were told at the same time whether the different services cited were comparable in all respects or whether there were other differences besides the special feeding; that is to say, whether hydrotherapy was used in one and neglected in the other; whether intestinal antisepsis was employed or not, and so on. So many factors influence the outcome that all ought to be taken into account, difficult though it may be.

DR. M. HOWARD FUSSELL, Philadelphia: During the past winter a main broke which resulted in the delivery of raw Schuylkill water instead of filtered water, and, as a result there occurred a large number of cases of typhoid fever. At the time I had charge of the wards of St. Timothy's Hospital and had under my care thirty-five cases during this time. Dr. Coleman's paper on high caloric feeding had already appeared in the *Journal of the Medical Sciences* and I decided to place these patients on this diet which had been so carefully worked out. The main thing that struck me was the feeling of well-being expressed by these individuals contrasted with the patients who were treated at other times with a different diet. Their general appearance was in such a marked contrast with the other cases that it could not help but be noted. Their convalescence was shortened. Of course, I realize that any con-

sideration of the complications and the mortality have but little bearing in the consideration of so small a number of cases.

DR. J. I. JOHNSTON, Pittsburgh: While I have not been able to give such forced feeding as Dr. Coleman has, I have, during the past two or three years, been able to maintain what he holds as the minimum, that is, 3,000 calories for a person weighing 150 pounds. I have used largely milk, cream, sugar of milk, junket, custard and gelatin. Sixty patients and more treated along this line have given results so favorable that because of the small number in this group, one hesitates to report such good results to this society. From a large experience with typhoid, this plan has given the greatest satisfaction. In every case pains were taken to maintain the weight. Among these sixty cases the average loss of weight represented one-tenth of the previous body-weight. This is a different picture from that seen a few years ago. With regard to the use of the carbohydrates there is one striking feature that Dr. Coleman has referred to; namely, its relation to toxemia. Many of these patients that are brought into the hospital often require restraint, the majority being mill workers and very strong physically. It was very striking that after forty-eight hours of carbohydrate feeding, the toxemia disappeared and the patients were then easily managed. I then pushed the diet up to 3,000 or 4,000 calories and their nutrition was maintained. As I said, I hesitate to report on sixty cases, but I have had among these one perforation, two cases of hemorrhage and only three deaths.

DR. G. A. WARREN, Black Rock, Ark.: Dr. Coleman, in referring to the high-calorie diet employed, said, and very aptly, that a great deal more of caution should be given in the preparation of the diet than in what we give. I think that great care should be taken to have the food prepared by someone who understands the proper preparation. No vegetables with their large amount of cellulose should be allowed, and whatever is sent to the patient should be carefully scrutinized by the nurses. Regarding the use of this diet in patients who have absolute anorexia: does Dr. Coleman give this diet uniformly to such patients? It seems to me that going to them so often with a cup or spoon must be an annoyance, especially when they do not want anything. I think that he has hedged somewhat when he spoke regarding the liberal diet; he spoke of excluding vegetables with the high percentage of cellulose, meats, and so forth. I have seen a patient given meat during convalescence; perforation and death followed. I have seen a patient who was convalescing given apples and another who was given poor jelly; each died within twenty-four hours. I have seen a patient given potatoes and another that was given cabbage during convalescence; each died within twelve hours. All these patients were well advanced in convalescence and had shown few signs of serious involvement of the intestines. I should give the diet mentioned by Dr. Coleman with a "good deal of salt."

DR. M. L. GRAVES, Galveston, Texas: It was my privilege three or four years ago to see a number of cases of typhoid fever in Bellevue Hospital that were under this system of treatment and I was pleased with the appearance of these patients, with the absence of the more serious manifestations of the disease such as delirium, insomnia, restlessness, and I was gratified at the results they were obtaining. We have had many cases of typhoid in Galveston. My method of treatment, however, is somewhat different from Dr. Coleman's. I have been experimenting with low caloric food values. In comparing the results one must consider the possibility of variation in severity of the infection. My cases run a temperature about like his and we have few complications affecting the heart, peritonitis, pleuritis, and so forth, but with less degree of frequency than was seen on the Atlantic seaboard. Dr. Coleman fails to admit that it is not necessary to give food containing such high caloric values; that is one objection to his treatment. He is feeding his patient at times from 3,000 to 5,000 calories a day.

According to Atwater and Sherman and others, those undergoing severe exercises need only from 4,000 to 6,000 calories a day to maintain their equilibrium; and Atwater estimates

that an ordinary day worker only requires 2,500 calories. Dr. Hittenden says that he maintained the body weight under 1,600 calories a day while working in his laboratory though I believe he lost from 10 to 12 pounds at the beginning. If all this be true it seems to me that Dr. Coleman has not established the fact that patients require such a large caloric diet as has been presented to us. I do not know whether he has the bowels moved—how often the contents are ejected from the body and how much caloric value is lost—a point which I think is of value in a study of this kind. I have treated many cases on a low caloric value, often below 1,000 heat units per day.

During the past fiscal year I have had no deaths among fifty-one cases. I went on the principle enunciated by Munk that milk, eggs, and meat products, such as soups and broths, are 97 to 99 per cent. absorbable. This left only 3 per cent or 1 per cent. of non-absorbable residue which had to pass through the bowels. If any patient can be placed on a diet and can absorb 98 per cent. of it, you can get a sufficient caloric value and you need not move the bowels every day. These patients should not be purged every day in your efforts to keep down distention. Distention is often due to paresis of the bowel rather than fermentation. With such a large absorption of food, and with such a small residue there should be no occasion for purgation.

DR. WARREN COLEMAN, New York: I believe that the method of treating typhoid fever in Bellevue Hospital is essentially the same for all divisions, except in the matter of baths and feeding. Some of the visiting physicians employ the tub-bath; some believe spongings sufficient. I believe that if we give enough food, hydrotherapy becomes unnecessary in the majority of cases. The majority of the visiting physicians give more food than formerly, though I believe that the second division is the only one in which the high caloric principle is fully carried out. The disappearance of the toxemia is one of the most interesting results of giving sufficient food. We have observed it in many cases. Food which contains an indigestible residue should be excluded from the diet. I have used other foods than those on the chart but am not ready yet to recommend them. As to the care of the bowels, I order a simple saline or soapsuds enema every morning. Usually this is all that is required. As stated in the paper, Dr. DuBois has studied the absorption of the high caloric diet during the last two years and has found that the food is almost completely absorbed. Very few studies have been made on metabolism in typhoid. Krauss published interesting observations in 1890. Later work, until 1909, when Grafe's studies appeared, was apparently vitiated by errors of technique. Our own results have not been published. We have records of about 100 respiratory quotients, from which we have calculated the amount of heat produced by the patients in twenty-four hours. An amount of food just sufficient to cover the heat production will not protect a patient against nitrogen and weight loss. In other words, he will be partially starved. I should like to ask Dr. Graves why a typhoid patient should be starved. Why should he not be given the food he requires? Dr. DuBois' studies show that the patient digests it. I do not believe that a patient suffering from any acute infective disease, except perhaps one affecting the alimentary tract locally, is benefited by starvation.

Simplest Method of Obtaining Blood-Serum.—Y. Sakaguchi places a sterilized stick or a piece of fine wire, with the bent end down, in the reagent glass or centrifuge glass holding the blood. The stick or wire must be perfectly dry. The solid part of the blood as it coagulates will cling to the stick or wire and can be lifted out with it, thus leaving the serum alone behind. He states that in applying the Wassermann test over five thousand times, he has found this simple and easy method effectual and reliable; the only point to be borne in mind is to wait until the clot has entirely formed as otherwise the serum is left turbid and tests with it are liable to be misleading. He calls attention to this method in the last *Dermatologische Wochenschrift*, 1912, iv, 875.

THE ACTION OF SUBDURAL INJECTIONS OF EPINEPHRIN IN EXPERIMENTAL POLIOMYELITIS *

PAUL F. CLARK, PH.D.
NEW YORK

In 1903 Meltzer¹ showed that a subcutaneous injection of epinephrin caused a marked change in a local inflammation such as is produced by inoculating cultures of *Staphylococcus aureus* or a drop of turpentine into the soft tissues of the rabbit's ear. The effect consists in a contraction of the actively hyperemic vessels at the periphery of the inflammatory area, while the more severely injured vessels within the inflamed focus remain unaffected. The contraction diminishes the transudation of fluid, the so-called lymph, from the hyperemic vessels, and thus reduces the local edema.

The lesions of poliomyelitis are associated with profound alterations of the blood-vessels, and are attended by transudation of fluid and emigration of white corpuscles from the altered vessels. The degree of vascular and interstitial changes varies in intensity in different cases and at different levels of the spinal cord. The vessels immediately within the focus of main injury are severely, while those at the margin of injury are often slightly affected. It is characteristic of lesions of certain cases of poliomyelitis in man and also in the monkey, although to a less extent, to be progressive, while in still other cases the lesions become quickly localized. This progressive tendency is most serious and alarming when the paralysis is of the ascending type and threatens the origin of the nerves controlling respiration and in especial those that supply the diaphragm. There is reason to believe that in the course of the ascent of the lesions slighter hyperemic states of the vessels attended with exudation precede the severer alterations of the vessels in which the perivascular cellular infiltration is extreme and the hemorrhagic eruptions large.

In view of the pathology of poliomyelitis as briefly outlined, the hyperemic vessels at the periphery of the lesions should be subject to the influence of the contracting effects of epinephrin. This response of the vessels should bring about a cessation of the exudation through which the dangers arising from the presence of an inflammatory edema on adjacent nerve-cells, which themselves are not the seat of direct injury, may be averted. Such an action might come to be very important and even life-saving in cases in which the nerve-cells that preside over the function of the phrenic nerves are involved. This temporary benefit could conceivably be converted into a permanent one by the cessation of the ascending lesion through the ordinary processes of limitation that are constantly encountered in cases of human poliomyelitis.

Moreover, the peculiar action of epinephrin on the vessels in the actively hyperemic area in contradistinction to the center of inflammation will suffice to indicate the nature of the pathologic process responsible for the ascent of the lesions. If the ascent arises from a continuous involvement of nerve-cells, epinephrin will be without any effect; but if it is produced by consecutive vascular involvement, then it may bring about a definite ameliorative action.

That epinephrin can be injected into the subdural space without danger to life has been shown through its

* From the Laboratories of the Rockefeller Institute for Medical Research, New York.

1. Meltzer, S. J., and Meltzer, Clara: Jour. Med. Research, 1903-1904, x, 135.

employment in combination with cocain in the production of spinal anesthesia. Auer and Meltzer² have recently shown that the subdural injection of suitable quantities of epinephrin in the monkey does no harm and produces a characteristic action on the blood-pressure. This action consists in a slow but considerable rise and a gradual fall of the pressure. The duration of the rise is longer than after an intravenous injection, in some instances more than half an hour. The fall of blood-pressure occurs so slowly at times that the original level is not reached during a period considerably over an hour. Incidentally it may be mentioned that Meltzer³ has found that epinephrin is destroyed by the cerebrospinal fluid taken from patients with poliomyelitis.

At Dr. Meltzer's suggestion I have studied the action of subdural injections of epinephrin⁴ on monkeys paralyzed after intracerebral inoculations of the virus of poliomyelitis. The virus employed is one that invariably causes a fatal ascending paralysis or a rapidly fatal paralysis of respiratory centers in the medulla. In the former instance death results from the inclusion in the ascending process of the nerve-cells from which the phrenic nerves arise. The animals selected were such as were already extensively paralyzed or were moribund and would have survived only a short time longer. They were limp, lay without movement except for superficial respiratory movements of the chest, and they were usually in a semiconscious or even unconscious state. The life of none of these monkeys was actually saved, but it was often greatly prolonged,⁵ while the effects of the epinephrin on the general condition of the dying animals were often remarkable. I shall now give in brief form a few illustrative protocols.

Protocol A.—Macacus rhesus. Nov. 9, 1911: Animal completely prostrate, moribund; breathing is feeble, slow, almost entirely diaphragmatic; only slight response to mechanical stimulation; eye reflexes slight. At 1:30 p. m., 1.5 c.c. of 1:1,000 solution epinephrin injected subdurally. At 3 p. m.: Breathing more rapid and deep; good response to mechanical stimulation; eye reflexes stronger. The animal appears bright. At 4 p. m.: In response to mechanical stimulation the left arm is moved inward and to some extent in the upward direction. The animal is bright and entirely conscious. The improvement in the paralysis can be followed from above downward. Animal turned on left side, the less paralyzed side. At 5 p. m.: No heart beat; pupils dilated; animal dying from asphyxia.

Protocol B.—Macacus rhesus. Feb. 19, 1912: Back, right arm, and leg paralyzed; prostrate; tremor of head; excitable.

February 20: Animal moribund; breathing feeble and shallow; little tonus in arms or legs; semiconscious. At 10 a. m.: 1.5 c.c. of 1:1,000 epinephrin injected subdurally. No immediate effect. At 10:30 a. m.: Consciousness has returned and respirations are accelerated. The animal eats part of a banana offered. At 10:45 a. m.: Respirations deeper. At 11 a. m.: Marked increase in the tonus of arms and legs; some voluntary motion. At 12 m.: Animal appears bright, raises the head, and uses all of the limbs somewhat; respirations rapid but fairly deep. At 1 p. m.: Voluntary movements greater. At 3 p. m.: Marked improvement; respiration about normal. The animal takes food eagerly. At 4 p. m.: The tonus in the arms is diminishing; animal still bright. At 4:30 p. m.: 4 c.c. of 1:2,000 epinephrin injected.

February 21: At 9 a. m.: The animal is still bright and eats, but the muscles of the legs have lost in tonus. Uses

right arm somewhat and left to a less degree. The condition persisted unchanged throughout the day.

February 22: Animal remains bright; has eaten a whole banana. The extremities still show tonus.

February 23: Animal is growing weaker and appears less bright. At 12 m.: 1 c.c. of 1:1,000 epinephrin injected. No marked improvement.

February 24: Monkey developed a severe diarrhea during the night. Weaker and less tonus in arms and neck. At 12:30 p. m.: 2 c.c. of 1:2,000 epinephrin injected subdurally. At 7 p. m.: Animal weaker. Diarrhea continues.

February 25: The animal gradually failed and died in the morning.

Protocol C.—Macacus rhesus. Feb. 24, 1912: Animal prostrate; little tonus in either legs or arms. The left leg and both arms respond slightly to mechanical stimulation; paralysis of the muscles of the neck; respirations feeble. At 1 p. m.: 1.5 c.c. of 1:1,000 epinephrin injected subdurally. At the end of half an hour there is no noticeable change. Improvement sets in a little later, and at 7 p. m. the animal appears bright, the neck muscles stronger, and the respiration improved.

February 25: The paralysis of the limbs has increased; the respirations have become somewhat more shallow but are better than before the injection. A second injection of 1 c.c. of epinephrin was given, but without producing pronounced change.

February 26: The animal was found dead in the morning.

Protocol D.—Macacus rhesus. March 4, 1912: Arms and back weak but not completely paralyzed; the left arm and leg weaker than the right. At 10 a. m.: 1 c.c. of epinephrin injected subdurally. At 6 p. m.: No evident improvement following the injection; the paralysis has progressed somewhat.

March 5: The animal is prostrate; back, neck, and four limbs all paralyzed, but not completely. At 10:15 a. m.: Epinephrin 1.5 c.c. injected. At 12 m.: The animal is brighter, eats; the muscles show increased tonus; respiration strong.

March 6: This morning the respiration is somewhat irregular, fifty-four to the minute; monkey cannot move arms or legs. The respiration is still fairly strong and both the intercostal muscles and the diaphragm are in use. At 11:30 a. m.: 1.5 c.c. of epinephrin injected, and at 5 p. m., 1 c.c. of epinephrin injected, without producing any change in the extent of the paralysis of the extremities.

March 7: The respiration has become more feeble. At 12 m.: 1.5 c.c. of epinephrin injected. At 4 p. m.: The respiration is almost wholly diaphragmatic and is feeble and shallow; 1.5 c.c. of 1:1,000 epinephrin injected subdurally.

At 5 p. m.: Respiration shallow, expiration forced.

March 8: During the night the animal has improved; the respiration is not forced. At 11:30 a. m.: 1.5 c.c. of epinephrin injected; no obvious response to this injection. The animal is gradually becoming more feeble.

March 9: Respirations shallow and labored; expiration forced. At 10:30 a. m.: 1.5 c.c. of epinephrin injected. At 10:45 a. m.: Respirations become deeper and more rapid, but forced expiration still continues. At 5 p. m.: The animal died.

The illustrative protocols given indicate that a subdural injection of epinephrin is capable of producing a marked change in the character of the paralytic phenomena in experimental poliomyelitis, although the effects are not equally striking in all cases. The general result was an improvement in the muscular tonus of the paralyzed muscles and in the respiratory movements. In some animals (Protocols A, B and D) the effects were striking, and a state of extreme flaccidity and unconsciousness with almost complete disappearance of reflexes was succeeded by one of tonus, of strengthened reflexes and of return of consciousness. Life was undoubtedly prolonged in these cases. In the other case (Protocol C) there is no definite proof that life was prolonged, and the symptoms were only moderately ameliorated. An examination of the two classes of cases would seem to show that the employment of the epinephrin relatively

2. Auer, J., and Meltzer, S. J.: Proc. Soc. Exper. Biol. and Med., 1912, ix, 79.

3. Meltzer, S. J.: Proc. Soc. Exper. Biol. and Med., 1911, ix, 27.

4. The brand of epinephrin used in the studies was the adrenalin chlorid of Parke, Davis & Co.

5. See Flexner and Lewis (Jour. Exper. Med., 1910, xii, 227) for the clinical history of cases of experimental poliomyelitis in the monkey.

early in the course of paralysis does not in the monkey inoculated intracerebrally with a highly active virus bring about an arrest of the progress of the disease. The life-saving action of the epinephrin is shown in the case of the moribund animals, in which life was prolonged either for several hours or for several days by the restoration of the failing respiratory function.

Finally, the effects of epinephrin in the experimental poliomyelitis support the view that a state of hyperemia of the blood-vessels attended by an exudation of plasma and probably of cells also precedes the severer state of destruction of nerve-cells and interstitial tissue of the spinal cord. They indicate further that subdural injections of epinephrin in proper doses may be found capable of averting in human beings, the subjects of ascending forms of poliomyelitis, a fatal issue through the involvement, in the extending hyperemia and inflammatory edema, of the nerve-cells from which the phrenic nerves take their origin. Should this temporary interruption of the active pathologic process coincide with the natural limitation of the disease, even life may be spared. The experiments do not indicate that epinephrin itself contributes in any way to the promotion of the limitation of the lesions. Epinephrin is not a curative drug in the sense that it acts on and neutralizes the poliomyelitic virus. Any favorable effect that it may produce results from its action on the blood-vessels and the consequent control of exudation.

A RARE FINDING IN A SUSPECTED CASE OF PULMONARY TUBERCULOSIS

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During the month of November, 1911, a case was brought to the female medical ward of the Metropolitan Hospital. The patient was a colored woman, aged 57; her family history was negative. The patient's personal history was practically negative, with the exception of having had variola fourteen years ago. Physical examination showed the very ear-marks of pulmonary tuberculosis; hence the patient was transferred to the service of Dr. W. S. Mills of the tubercular division. All laboratory manipulations failed to reveal the tubercle bacillus. Repeated examination of the sputa, etc., proved negative for tubercle bacilli. Râles, distant bronchial breathing and, on percussion, cavity formation, or what appeared to be such, could be plainly mapped out.

The patient was treated in the regular routine manner as are all patients of a similar malady in this hospital and she appeared to be improving, while her dyspnea, at times, would show signs of disappearing.

The patient died Jan. 14, 1912. A post-mortem examination, performed, with my assistance, by Prof. John H. Larkin of Columbia University, revealed remarkable pathologic findings. Dr. Larkin, pathologist to the City Hospital for a number of years, believes this to be the second case of its kind from over 10,000 post-mortems that he has performed. In this instance, not even the ordinary and usual calcified and healed tuberculous areas that are so common in the average post-mortem examinations were found. The primary condition was endothelioma of the pleura with metastasis to most, if not all, of the viscera of the body.

Autopsy.—Heart: Musculature in the left ventricle showed a metastatic nodular growth measuring about 2 mm. Lungs: Both apices were transformed into hard nodular masses; certain areas showed disintegration and that of the lower right lobe posteriorly showed nodular growth invading the pleura. No tuberculous areas were found in either lung. Liver showed a number of nodular metastatic growths in the active stage of disintegration. Kidneys showed several metastatic growths, the pelves of both being involved; other viscera, etc., gave negative findings.

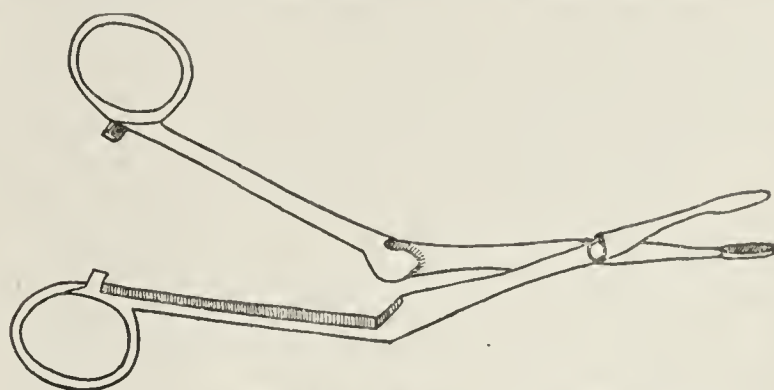
Anatomic Diagnosis.—Primary endothelioma of the pleura with invasion of the upper lobe of the right lung, tumors showing active disintegration. Metastatic endothelioma of the liver and kidneys and metastatic growth in the septum of the left ventricle of the heart.

A NEW TONSIL FORCEPS

OSCAR WILKINSON, A.M., M.D., WASHINGTON, D. C.

When one considers how many instruments have been devised for the removal of tonsils it requires some temerity to offer a new one, but I have found the forceps illustrated below so very useful that I venture to offer it to the profession.

This forceps is angular, which enables the operator to grasp the tonsil in such a manner that his hand does not obscure the view of the field of operation. It is constructed so that the end does not bite a piece out of the tonsil but holds it firmly between the jaws, which enables the operator to make sufficient traction to pull the tonsil out of its bed, so that its out-



New tonsil forceps, as made by McKee & Co., Washington, D. C.

line can be readily determined. I had it made with a catch in the handle, so that when the tonsil is once grasped there is no chance of the grip on it being loosened.

When operating I use two of these instruments, and I find them of especial value in doing the tonsillectomy. By first grasping the tonsil near its upper portion the outline of its upper part can be brought into view, and by grasping the uppermost edge of the capsule with a second forceps it is an easy matter, with a dull dissector, to get in behind the tonsil, which everyone knows is the most difficult step in doing enucleation of the tonsil in its capsule.

1408 L Street N.-W.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

ARTICLES ACCEPTED FOR N. N. R. APPENDIX

H. K. Mulford Co., Philadelphia.

Syrup of Quinine with Chocolate.—Each 100 C.c. is said to contain in suspension, quinine sulphate 2.156 Gm. (10 grains in a fluid-ounce), chloroform as a preservative 0.431 Cc. (2 minims in a fluid-ounce), yerba santa (eriodictyon) a trace, in a syrup flavored with chocolate and vanillin.

Ointment Cargentos and Ichthyol.—An ointment said to consist of cargentos (colloidal silver oxide) 5 per cent. and ichthyol 5 per cent. in a base consisting of petrolatum, with a small amount of yellow wax, 90 per cent.

Put up in collapsible tubes.

Therapeutics

SENILITY

Senility is a relative term. A person may be old and not senile, or he may be middle-aged and senile. If a man grows old normally he develops cardiovascular-renal disease and dies of arteriosclerosis, angina pectoris, chronic cardiac insufficiency, sudden cardiac failure, apoplexy or chronic interstitial nephritis. The initial symptoms are at first increased; then follow increasing blood-pressure, dyspnea on exertion, palpitation on exertion, slight cardiac pains, more or less indigestion, more or less intestinal fermentation, more or less insomnia, increased frequency of urination, and often an increased amount of urine passed in twenty-four hours, slight edema of the feet and ankles toward night, perhaps occasional attacks of dizziness, and perhaps recurrent attacks of acute indigestion. The majority of individuals put on weight after 40, but many patients lose weight as old age advances.

The findings on physical examination vary with the stage of the sclerotic and degenerative process. The blood-pressure may be very high, and if above 200 mm. there is generally an insufficiency of the kidneys. The pulse may be regular, or irregular and intermittent. The heart-action is sturdy in the first stages of the process, because of some hypertrophy. Later the heart-action becomes weaker. The face may flush readily, and the skin may have its circulation so disturbed as to have various eruptions, more especially eczemas. The skin may be dry; perspiration may be diminished. The urine is likely to be large in amount, of low specific gravity, and to contain irregular, intermittent traces of albumin, and many times hyaline or granular casts. As above stated, various kinds of indigestion may be present. If the patient is gouty or rheumatic, various joint symptoms are added to the above. More or less headaches, often occipital, are likely to occur.

Any or all of these signs and symptoms may occur at almost any age, depending on when the degenerative process begins. Serious illness, especially infections such as typhoid fever or septic processes or repeated more simple illnesses, repeated anesthetics, syphilis and sometimes severe early athletic work may cause the symptoms, which are termed in later years "senile," to develop any time from the age of 35 upward.

INDICATIONS FOR TREATMENT

The presence of the senile process is an indication for certain lines of management and treatment, whatever the age may be. The indications for treatment may be summarized as:

1. To stop the ingestion of foods, drinks and drugs that would cause irritants to circulate in the blood and thus raise the blood-pressure, promote endarteritis, and irritate the kidneys.

2. To lower the blood-pressure and thus relieve the heart of extra work and relieve the force of the blood-stream in the cerebral arteries which are so susceptible to degeneration and subsequent rupture.

3. So to regulate the diet as to keep up nutrition and proper muscular strength.

4. To prevent, if possible, fermentative and putrefactive changes in the intestinal canal.

5. To prevent insomnia, one of the greatest and most potent causes of nervous irritability, and promote the greatest of all methods of conserving all of the wonderful processes of the human body, namely, sleep.

6. To stimulate to normal activity the emunctories of the body; in other words, to regulate the excretions of the bowels, kidneys and skin.

LINES OF TREATMENT

1. The best diet for a patient with the premonitory symptoms of cardiovascular-renal disease cannot be rigidly outlined. Each patient must be individually studied. As a scheme the following is of value: Such patients should ordinarily be restricted to meat once a day; to such vegetables as do not cause the patient to have flatulence; such milk and cream as he is able to digest without gastro-intestinal disturbance; such fruits as agree with him best; restriction of tea and coffee often even to the point of interdicting their use altogether, on account of the caffeine element; almost invariably total abstinence from alcohol; the tobacco used must be reduced in amount and sometimes absolutely withdrawn. Sometimes it is wise and necessary to stop the ingestion of all meat and fish. A patient under rigid diet must, however, be carefully watched to note that the weight is not reduced when reduction is not desired, that more indigestion is not caused, and that the patient's strength is normal.

Drugs that are likely to cause an increased blood-pressure or increased nervous irritability and tension, or are excitants should not be used unless the indication for them is positive. Such drugs are most of the cardiac tonics and stimulants, strychnin, quinin and salicylates.

2. The blood-pressure will be reduced by the above diet. Iodids in small doses, as 0.10 or 0.20 gm. (about 2 or 3 grains) three times a day seem to act for good in this high blood-pressure condition. While not actual vasodilators, iodids stimulate the thyroid gland, and they seem to be the best drugs to prevent the advancement of sclerosis. If the patient is overweight, the pulse is slow, the skin is dry and there is tendency to puffing without edemas, thyroid is generally indicated. The dose should be a physiologic one, such as one 2- or 3-grain tablet of the dried gland, given once a day. Contra-indications for this treatment or for the iodid treatment would be an increased nervous irritability. This in such patients would be rare.

Nitrites in some form, depending on the individual choice of the physician, are always valuable. While nitroglycerin acts quickly in causing vasodilatation and its action is quickly over, given regularly, three or four times in twenty-four hours for a considerable period, it most certainly does tend to lower blood-pressure. This is attested by the testimony of many clinicians from careful observation. Dizziness and a feeling of fullness in the head due to high blood-pressure are almost invariably improved by the administration of nitroglycerin in small doses, given after meals for gradual and slow absorption. If a tablet is dissolved on the tongue or given on an empty stomach, the sensations from nitroglycerin (if the preparation is a good one) are unpleasant and undesirable. The full-headedness, flushing of the face and headache are undesirable and unnecessary. The proper dose of nitroglycerin for a patient in the above condition, i. e., with high blood-pressure, will be found by investigation. He may require a 1/100-grain tablet three times a day, after meals, or 1/200, or even 1/400 may be sufficient and may act for good, as small as such a dose seems to be. Needless to say, the preparation of nitroglycerin must be active. Nitrite of sodium may be used in 0.05 gm. (or 1 grain) doses, but it sometimes causes gastric irritation.

The blood-pressure may be lowered and the patient's whole general condition improved by body-baking properly carried out, by repeated applications of high-frequency currents, "autocondensation," as it is termed, and by Turkish baths, if the patient's heart and arteries are in good condition, and the heat does not cause unpleasant head symptoms; by physical exercise, not too severe, typically by golf-playing or by walking, horse-back-riding or other exercise that is not strenuous. Anything that promotes perspiration or the circulation in the skin or muscles, even massage, will lower blood-pressure and benefit these patients.

3. This indication must be considered in conjunction with the first, but it is an important indication. While the patient is under a restricted diet and increased eliminative treatment, the weight should be watched, the heart strength and muscular strength noted, and the general well-being of the patient taken into consideration. A too restricted diet, or a diet that causes more intestinal indigestion, or a diet that leaves the patient breathless, or a diet or drug that causes a blood-pressure too low for the comfort of the individual, causing faintness or lack of strength on the least exertion, calls for a change. Therefore such a patient should be watched while under management (which is the phrase that should be used) as carefully as is a convalescent tuberculous patient. In other words, he cannot manage himself. At such a time as he does become or is greatly improved, the proper diet and exercise for his welfare, and the proper regulation of his life can be outlined, and the physician need not then see him for months at a time. It is always well, however, for patients who have shown these positive premonitory symptoms of coming cardiovascular-renal disease to have, at least once in two months, the blood-pressure taken, the heart-action noted and the renal sufficiency determined.

4. There is no question that most of these patients have intestinal indigestion and colon putrefaction more or less in evidence. The withdrawal of meat, or at least its ingestion in small amount will alone diminish this condition. Proper movements of the bowels, whether found best by daily salines if the patient is strong and sturdy, by vegetable cathartics, or by more exercise, abdominal massage or abdominal gymnastics, will also prevent putrefactive changes in the intestines. Various lactic acid preparations, soured milk, yeast, etc., are all of value and may be utilized in some cases for longer or shorter periods. Some patients whose blood-pressure is not too high and whose nutrition is not sufficient are improved by the ingestion of skimmed milk. Considerable nutriment is thus acquired, and the digestion of it is much easier than that of ordinary milk. On the other hand, large amounts of liquid of any kind should not be given when the blood-pressure is high if there is arteriosclerosis, a weakening of the heart or insufficiency of the kidneys. Such method of increasing elimination under these conditions is not good treatment. The so-called bowel antiseptics may be used for a short space of time, but are rarely advisable for any length of time. Phenol derivatives are not advisable in high blood-pressure or when the kidneys are at all disturbed. If the stomach digestion is not good, although there is no gastritis, as evidenced by gastric flatulence, more or less pyrosis and a coated tongue, dilute hydrochloric acid in a dose of 5 drops in a wineglass of water, three times a day, after meals, is good and efficient treatment, and one of the best antiseptics that can be offered. It not only increases and makes more rapid the digestion in the stomach, but also is a stimulant to all the intestinal digestive fluids.

The mouth and teeth must be studied. If the teeth are bad they should be either removed or filled. If there is pyorrhea alveolaris, mouth-washes and antiseptics should be used daily.

5. The sleeplessness of these patients is generally due to two things: (1) the absorption of the products of intestinal indigestion; (2) high blood-pressure. Sleeplessness may be due to a vasomotor ataxia—in other words, an irregular blood-pressure, especially when the heart is slightly weakened. These patients are sleepy when they are sitting up in the evening perhaps trying to read, and are wakeful the moment they lie down. Patients who cannot sleep at night should not take tea and coffee after the noon meal, should not receive strychnin, quinin or any cardiac stimulant later than the noon meal, if such is needed at all. Such patients sleep on a 1/200 or 1/100 grain tablet of nitroglycerin, taken just before bedtime. This slight lowering of the blood-pressure seems to be just sufficient to allow sleep. Hypnotics may be needed. If they are, they had better be of the bromid or chloral type, but such should not be long administered. In very old people a physiologic dose of alcohol at bedtime, sufficient to dilate the peripheral blood-vessels, is a proper use of this substance.

In patients who have had high blood-pressure and cardiac insufficiency has developed, small doses of digitalis may be the best sleep-producer that can be offered. Such doses should be given after the evening meal. Of course the use of digitalis in arteriosclerosis or in a heart that has become insufficient from high blood-pressure, or in a heart that is hypertrophied and that is insufficient from kidney insufficiency, or if the kidneys are markedly insufficient, is a subject for individual decision with the individual patient.

6. This indication has been met by much of the advice above given. Catharsis should not be overdone or the patient may become weakened. Exercise should not be overdone to promote the elimination of the skin, if exhaustion is caused or if the heart has not the strength for such exercise. The amount of liquid ingested should depend on the blood-pressure and the amount of output from the kidneys. It is not advisable to push water medication or so-called medicinal waters when the amount of urine passed is already sufficiently large; neither is it advisable to give a patient large amounts of water before bedtime and make him arise two or three times in the night to urinate.

ACUTE DISEASE OCCURRING IN ELDERLY PATIENTS

As is noted by all clinicians, but perhaps sometimes forgotten by all of us, elderly patients do not present the same set of symptoms in the typical way as do younger patients when attacked by acute disease. A pneumonia, for instance, starts insidiously, often as a central pneumonia, may have the physical signs almost absent, and there may be low temperature. Typhoid fever may occur in an elderly patient and may give so few symptoms as to make a diagnosis difficult for a week or more. Whatever acute disease these patients may have, the ordinary management must be modified by the fact that the patient is senile. They are often more or less anemic, there will be more sleeplessness, they are more likely to have weak, irregular heart-action, and they are more likely to have the kidneys suddenly cease to act. Prostrating catharsis should not be caused. Severe, strenuous applications of cold and cold bathing should never be allowed; and yet with proper management a senile patient may go through serious illness or a serious operation with perfect success.

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[For other information see second page following reading matter]

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SOME FEATURES OF ANAPHYLAXIS

The phenomena of anaphylaxis have given evidence of a power of adjustment or response of the organism to certain specific conditions little short of marvelous. The final explanation of what takes place within the tissues involved when an animal becomes sensitized by the injection of a millionth of a gram of egg-albumin still remains to be determined. It has been most baffling, to say the least, to find it possible to induce conditions of profound shock and physiologic unbalance by supposedly inert proteins in quantities far smaller than those which characterize the dosage of our most potent drugs and familiar poisons.

Friedberger¹ has ventured an explanation of the mechanism of these responses which has received widespread notice. According to this the injected protein or sensitizing antigen induces the formation of an antibody which has the properties of an enzyme. When a reinjection of the protein is undertaken after a suitable intervening period it becomes digested by the proteolytic antibody; and the digestive reaction is assumed to give rise in these cases to intermediary chemical products which are the real toxic agents in the initiation of the anaphylactic seizures.

The peculiar behavior of foreign protein when it is introduced into the body with avoidance of the alimentary tract — that is, parenterally — is well appreciated. Heilner² has observed that whereas serum protein, for example, is speedily metabolized when fed by mouth, so that its nitrogen reappears in the urine within a few hours, it behaves quite differently when introduced subcutaneously into the body. In the latter case the evidence of its metabolism may be delayed several days. This observation has led Heilner to assume that the organism gradually responds to the introduction of such foreign proteins into the blood-stream by the production of enzymes which are not ordinarily present therein but which are adapted to disintegrate the new protein. The development of proteolytic enzymes under these circum-

stances has been stoutly maintained by Abderhalden also.³

In his more recent studies Heilner has observed that if a second parenteral injection of protein is made within the preanaphylactic period — that is, the latent period during which the shock phenomena cannot be induced by the reinjection of the specific protein — it is utilized to better advantage than at the first introduction.

Before the hypersensitiveness manifests itself, then, the organism has apparently been rendered capable by the first injection of providing the proteolytic agent essential for the catabolism of the foreign protein either more speedily or in more potent form. Accordingly the destruction of a second dose of the subcutaneously administered protein used for sensitizing the animal is now more promptly exhibited. If, however, a liberal second injection of the foreign protein is administered later during the actual anaphylactic stage, protein metabolism is markedly depressed. There is no special reason for assuming that the specifically formed proteolytic ferment is missing or less effective at this stage; for it is equally plausible that the inhibition concerns the intracellular mechanism by which the primary proteolytic cleavage products are further and finally utilized.

These contrasted observations on the speedy metabolism of parenterally introduced foreign protein in sensitized animals during the preanaphylactic stage and the depressed catabolism at the period of characteristic hypersensitiveness in a comparable individual in no wise disprove the elaboration of suitable special enzymes in either case to take care of the strange protein. Instead of assuming, however, as is currently done, that the proteolytic products formed after a definite latent period by this parenteral digestion are highly toxic, it is quite as illuminating to adopt Heilner's view. From this point of view it is not the character of the digestion products, but rather their failure to be further transformed, that leads to the phenomena of anaphylaxis in these cases. This would, indeed, not be the first instance in which the pathologic feature of a nutritive process lies in the inability of the organism to transform completely compounds that are metabolized under usual circumstances with the greatest of ease. The study of the interesting phenomena of anaphylaxis is advancing to a stage where the chemical factors involved must be more critically dealt with, and there is promise of interesting developments in the near future.

SEWAGE-DISPOSAL IN THE UNITED STATES

A wrong method of sewage-disposal is so often followed by unfortunate consequences that public attention is more readily directed to sanitary misdemeanors in this particular than in some other municipal responsibilities. The creation of offensive odors in the vicinity of

1. Friedberger, E.: *Ztschr. f. Immunitätsforsch. u. exper. Therap.*, li, iii, iv.

2. Heilner, E.: *Ueber die Wirkung artfremden Blutserums im Tierkörper nach Zufuhr per os u. subkutan*, *Ztschr. f. Biol.*, 1907, l, 26; 1912, lviii, 332.

3. Abderhalden, E., and Pincussohn, L.: *Ueber den Gehalt des Hundeserums an peptolytischen Fermenten unter verschiedenen Bedingungen*, *Ztschr. f. physiol. Chem.*, 1909, lxi, 426.

dwellings and the pollution of public water-supplies alike are justly visited by severe condemnation. It is a commonplace that in many quarters reform is urgently needed.

Outside of professional students of the sewage problem, however, few persons yet realize the great strides that have been made in this country in the past few years in dealing with the whole question of sewage-disposal. Not only have American sanitary engineers taken a prominent part in establishing the physical and biologic principles that must underlie all suitable systems of sewage-disposal, but in many instances also local authorities have been quick to apply the most recent information and the most modern methods to the solution of their own local problems. A vast amount of carefully conceived and well-executed experimental work has been carried out by American states and cities, with the result that each individual sewage problem can now be approached with a rather full knowledge of possibilities and a very good prospect of definite success. In a word, while the "best method" of sewage-disposal available in any given case depends on the local conditions, the skilled expert is now more likely than at any previous period to reach a generally satisfactory conclusion. We are now in a transition period. Sewage-farming and treatment by chemical precipitation have had their day and are in little favor in professional quarters. Even disposal by simple dilution, useful as it may be under certain conditions, has its distinct limitations and needs a long look ahead before it is adopted as a deliberate policy by a growing community.

Any one interested in the present status of sewage-disposal in the United States will find in a recent book by Fuller¹ what is probably the most comprehensive critical survey of existing conditions that has yet appeared. The author, who has himself been actively engaged in practical sanitary engineering for over twenty years, has drawn largely on the wealth of his professional experience in preparing a treatise that is at once clear, authoritative and readable. American sewage problems, which differ in many respects from European problems, are dealt with broadly and with first-hand knowledge of conditions. Methods such as chemical precipitation, intermittent sand-filters, contact beds, sprinkling filters, settling tanks, septicization of sludge, hypochlorite treatment for sterilization, and fine screening are discussed in all their essential details. Health officers and physicians wishing to obtain information about the methods of sewage-disposal projected or in use in Worcester, Providence, Columbus, Baltimore and many other American cities will be able to obtain from Fuller's book the most recent data together with a critical judgment by a distinguished expert.

One point of special interest is briefly touched on in the preface to Fuller's book. "At a time when medical authorities have a tendency to favor complete sewage

purification regardless of the need or cost of such a project, it is hoped that the results of practical accomplishments as described in this book may be of aid." It is a fact that opinions are frequently at variance as to the degree of purification necessary or advisable under particular circumstances and that many sanitary engineers, like Fuller, feel that the two sole objects of sewage-treatment, avoidance of a nuisance and avoidance of danger to public health, are not always kept sufficiently in the foreground. Whether the illustrations and arguments of this author in support of his position are convincing or not, they are worth careful consideration as representing the standards of an authority of the widest experience.

No one can read a book like the one mentioned without a feeling that in spite of many of the surface indications of American life just now, there is a strong undercurrent of soberness and efficiency. The large amount of careful planning and of laborious, honest experimentation under municipal auspices and by municipal employees which is made evident in the work cited is not a thing to be taken for granted or to be ignored in passing judgment on democracy. The achievements of American experimenters and constructors in the field of sewage-disposal bear comparison very well with those reached anywhere. No amount of tumult and shouting should blind us to the fact that urgent municipal problems are being dealt with to-day more honestly and effectively than ever before.

WHY DOES THE TUBERCULIN REACTION DISAPPEAR IN ACUTE INFECTIOUS DISEASES?

There are various conditions under which the cutaneous tuberculin reaction may disappear for a longer or shorter time, while the tuberculous process in the body, on the presence of which it depends, continues unchanged or even progresses. Von Pirquet, who devised the cutaneous test with which most of the observations have been and are being made, observed that the reaction would disappear in conditions of marked cachexia and also in miliary tuberculosis. Then Preisich noted its disappearance in tuberculous children during an attack of measles, and it has now become established by von Pirquet and others that the cutaneous tuberculin reaction fails to develop during the eruptive period of measles in tuberculous persons. As the eruption fades away the reaction again gradually establishes itself. At first this peculiar suppression of the power to react to the inoculation of tuberculin was regarded as quite characteristic of measles, but it has been found that the same change occurs also in other infectious diseases although not nearly so constantly. The disappearance of the reaction has been noted in diphtheria, scarlet fever, typhoid fever, lobar pneumonia, erysipelas, etc. Moltchanoff¹ found the reaction to disappear in

1. Fuller, George W : *Sewage-Disposal*, McGraw-Hill Book Company, New York, 1912. Price \$6.

1. Moltchanoff : *Jahrb. f. Kinderh.*, 1912, lxxv, 435.

100 per cent. of the cases of measles with tuberculosis, in 85 per cent. of the cases of scarlet fever in tuberculous individuals and in 12.5 per cent. of the cases of diphtheria in the tuberculous which he studied. In 50 per cent. of the diphtheria cases with tuberculosis there was a distinct depression in the intensity of the reaction. He also observed that the reaction was less marked than ordinarily in serum disease, especially in cases in which the skin manifestations were pronounced.

How are we to explain this failure to react to tuberculin under the conditions? Several suggestions have been made. Thus von Pirquet thought it might be due to a failure of the body when attacked by a new infection, like measles for instance, to produce in sufficient quantity the specific antibodies necessary to cause the reaction, another indication of this failure being the often rapid progress of the tuberculous process after an attack of measles. In the other acute infectious diseases just mentioned there does not seem to be so much tendency to the development of active tuberculosis as in the case of measles, but then, as we have seen, the loss of reactivity to tuberculin is not so pronounced. Others bring the disappearance of the reaction into relation with the leukopenia in measles. In scarlet fever, however, and also in diphtheria the reaction may be absent even when there is no marked leukocytosis. Still others hold that the failure of the reaction is dependent on changes in the skin itself, which on that account does not react in the usual way. This explanation might seem applicable to measles and scarlet fever and possibly also to serum disease, in which there are marked alterations in the skin. In diphtheria, pneumonia and typhoid fever, however, there are no such manifest changes in the skin, and yet the reaction may disappear for a time.

Finally, it may be pointed out that in all these diseases the body passes into an allergic or anaphylactic state due to the introduction of foreign proteins of various kinds, which are being split up by specific antibodies, and that many of the symptoms no doubt are caused by poisonous substances thus produced. We know from experiments on guinea-pigs and other animals that, as recovery from acute anaphylactic intoxication takes place, a condition of insusceptibility to further intoxication of this kind develops. The exact nature of this refractory state, also known as anti-anaphylaxis, is not understood, but it is a well-recognized phenomenon. May it not be that the failure in acute infectious diseases and in serum disease of the tuberculin reaction, which we regard as of allergic nature, is the result of a temporary refractory or anti-anaphylactic condition? Further investigations no doubt will clear up the question before us. In the meantime, it would be of interest to determine whether other specific allergic reactions also fail to manifest themselves in suitable individuals during the course of acute infections. As the refractory state referred to is non-specific and general, we would expect that other reactions would fail also if the explanation of the failure of the tuber-

culin reaction that has just been suggested holds good. In this connection it is of interest to note that Hamburger has found that in measles there may be a complete insusceptibility to vaccination, the cutaneous phenomena of which are regarded as of a strictly allergic nature.

THE PLAGUE SITUATION

Since the present pandemic began in 1894, plague has circled the globe. Escaping from south-central China, where it has probably been endemic for centuries, it first invaded the Chinese ports of Canton, Hongkong, Amoy and Macao. It then extended to India, Japan and Asiatic Turkey; then to Russia, Austria and Portugal in Europe, and to a number of localities in Africa; then in 1899 to Hawaii, New Caledonia and to various countries in South America; in 1900 to Australia, New Zealand, the Philippines, Germany, Great Britain and California. By 1901 plague was known to have invaded the countries that had the most extensive maritime commerce. Since then the disease has continued to spread, involving new localities one after another. In the western hemisphere by 1907 plague had been reported in Argentina, Brazil, Chile, Mexico, Panama, Paraguay, Peru, Trinidad and Uruguay and in the United States in the states of California and Washington. The cases recently reported in Porto Rico and Cuba are the first known to have occurred in either place during the present pandemic. The occurrence of these cases means that the disease has come one step nearer the Atlantic and Gulf coasts.

In some of the localities invaded by plague during the last eighteen years the disease has persisted to the present time; in others it seems to have disappeared, or at least not to have affected man for some time; in others outbreaks have recurred at intervals. Because of the number of species of rodents susceptible to plague and the persistence of the infection among them when a focus has once been established, it may properly be suspected that many of the invaded localities in which human cases have not been recognized for some time still harbor the infection among rodents. Plague is primarily a disease of rodents and may exist among them for a long time without affecting man. This is well illustrated by the conditions in California, where the disease has been present among the ground-squirrels in the rural districts, and yet in the last four years only eleven known cases have occurred in man.

In Havana but three cases have been reported to the present time. In Porto Rico the presence of plague was first recognized June 14 in a patient who had become ill June 12. There were two earlier cases which were probably plague and were admitted to hospital about the first of June with diagnoses of "non-venereal bubo." Up to July 23 there had been in all forty-three human cases in Porto Rico, of which twenty-nine occurred in San Juan; nine in Santurce, a suburb of San Juan; two in

Carolina, a town thirteen miles distant; one at Loiza, a town three miles from Carolina; one at Dorado, a town thirteen miles from San Juan; and one on a vessel at Arroya, on the southern shore of the island. The work of eradicating the disease is being carried on by the Public Health and Marine-Hospital Service in cooperation with the Department of Sanitation of Porto Rico, and by the local and United States authorities in Havana.

As to when or how plague reached Porto Rico, it is impossible to say, for ships carry rats and rats carry plague. If the infection is recent it may be presumed that the reason the disease did not reach there before is that the maritime quarantine maintained by the Public Health and Marine-Hospital Service has served to keep it out. But maritime quarantine is not, and cannot be, a wall impervious to disease; it is but a net or sieve which removes from commerce most of the dangerous elements of disease and its carriers, and greatly lessens the chances of infection being imported. As an adjunct to maritime quarantine, special attention should be given to the sanitation of ports entered by foreign shipping, and in view of the present plague pandemic, consideration should be given particularly to the water-fronts and the erection of rat-proof wharves and warehouses.

It is impossible to know just how widely prevalent plague infection is throughout the world, or what foreign ports harbor the disease in rodents. For that matter it is not impossible that some of our larger ports may be harboring the disease all unknown, in rats. Indeed, a plague-infected rat was reported to have been found in New Orleans July 27, after several hundred rats had been examined with negative results. It will thus be seen that the danger of its gaining a foothold in the eastern and southern portions of the United States is imminent, and it is only by increased vigilance and persistence in the efforts of the sanitary authorities of the coast ports, already so well begun, that the infection may be prevented from gaining entrance, or at least attaining the proportions of an epidemic of any considerable size. A conference of state and port health officers of the gulf coast states was held at New Orleans, July 29, at which the situation was gone over and a comprehensive line of preventive procedure adopted.¹ The experience on the Pacific coast has demonstrated the exact measures necessary to combat or prevent it.

LEAD-POISONING IN BATTLE-SHIPS

Perhaps no other feature of the science of preventing disease merits more completely the present interest and attention it arouses than does the prevention of diseases and accidents due to modern industrial and social conditions. It is strange that a great battle-ship should deal death and injury not alone to the enemy in time of war, but to friends and citizens in time of peace as

well. The lead which kills in time of peace is not in the form of bullets but of paint.

In an article in the *Survey* based on a report to the New York state factory commission, E. E. Pratt¹ describes an aggravated case of lead-poisoning with paralysis and loss of earning power in an employee of the Brooklyn navy-yard. Since Sept. 1, 1911, New York has had a law requiring physicians to report industrial diseases, such as caisson disease, anthrax and poisoning by lead, mercury and arsenic. Under this law a case of lead-poisoning was reported with the bare statement that the man was an employee of the Brooklyn navy-yard. Investigation showed that this man, along with a number of others, was employed as a laborer in "scaling" lead paint in the double bottoms of battle-ships. Twenty men were found at the navy-yard who had suffered from lead-poisoning caused by work in double bottoms. Almost half the men employed on this work had been affected at one time or another by the lead; many of them had lost much time from their work on this account, and two had died.

A battle-ship has a space from 2½ to 3½ feet in depth between the inner and outer shells of the bottom. This space is cut up into small compartments usually not more than 4 or 5 feet square. The paint lining these steel compartments is sometimes a quarter of an inch in thickness, and consists of almost pure red oxid of lead. The "scaler" crouches on his knees, and by the aid of an electric light on a cord, operates a compressed air chisel which strips off the paint. Often several men are at work in a single compartment. The dust sometimes becomes so thick that the light can scarcely be seen 2 feet away. In summer fresh air is forced into the compartments, but, while this is refreshing, it makes the dust worse, and lead-poisoning ensues.

The inspection also disclosed that the men had not been instructed in the precautions necessary to prevent lead-poisoning. The workmen eat their lunch without changing their clothes or washing. Their hands are red with oxid of lead. In fact, no conveniences of any kind are furnished the men for cleanliness. After this inspection a conference was held at the navy-yard and the facts were brought to the attention of the commandant. Similar conditions undoubtedly prevail in all the government yards, and men are constantly employed at this dangerous work aboard ship. The situation is the more unfortunate in the government yards on account of the fact that chronic lead-poisoning is not considered an "injury" due to occupation and the men are not compensated for their loss of time and health on account of this preventable trouble. Congress has finally passed a law which will eliminate the danger of phosphorus-poisoning in match-factories and it would seem that perfectly well-known measures should be adopted to eliminate this easily preventable condition as well as other occupational diseases among government employees.

1. See General News, this issue.

1 Pratt, E. E.: Not Bullets But Paint, *Survey*, July 6, 1912.

Certain recommendations are made by Pratt which if honestly carried out would prevent serious sequelæ from lead-poisoning in this work or in any other in which lead is used:

1. Monthly examination of workmen and removal of any showing signs of poisoning.
2. An effective and localized method of dust removal.
3. Provision of washing facilities, including *hot* water, soap and shower baths and the enforcement of their use.
4. Personal instruction and posted notices regarding the dangers and how to avoid them.
5. Provision of respirators and enforcement of their use.
6. Shifting of men from this to less dangerous work.

CONSCIENCE AND CLEAN MILK

In Chicago recently the city council failed to pass an ordinance providing for a clean and safe milk-supply, which had been prepared by the health committee of the council and the city health department after much study and consultation with all parties interested. The failure of this ordinance to pass, together with the enactment of a law by the Illinois legislature preventing cities from demanding a tuberculin test of cows furnishing the city milk-supply leaves the city almost helpless as regards the safety of the milk for its babies. The chief source of opposition seems to be the small dealer, who evidently opposes it because he does not wish to curtail his profits by the added expense necessary to cleanliness.

In Erie, Pa., after repeated failures of the city health department to induce a large number of milk-dealers to comply with the milk regulations to the extent of straining the cow-manure and other dirt out of their milk, the authorities were compelled to seize much of the supply and pour it into the gutter. In San Diego, on account of a weak and defective ordinance which gives the courts room for a technical interpretation, making convictions for violations almost impossible, the health board has urged that the ordinance be amended so as to make violations punishable by imprisonment. The present San Diego ordinance provides for a small fine, and only on a fourth violation is the milkman's license revoked. These are only a few instances in which it is found that human considerations involving the health and lives of helpless infants make no appeal to men financially interested.

If you said to one of these milk-dealers or opposing councilmen, "You have killed a baby," he would probably call you a liar, prosecute you for slander, or fight; the trouble is merely that he can see no iniquity (since it is against his interest to see it) in jeopardizing the lives of human innocents by furnishing dirty—which may mean poisonous—milk. No consideration must be allowed to weigh against friends and their interests, says politics. No considerations must be allowed to weigh against business, says the milkman. And so the small dealer, the

ward politician and the small-souled, self-serving councilman, all with minute or vanishing consciences, fail to pass, or deliberately and repeatedly violate, ordinances which under the plainest dictates of ethics, decency or humanity should never encounter the least opposition. What is really needed is a development of conscience and an extension of human feeling. Then an unseemly fight would not be required to insure a clean and healthful milk-supply. As is usual, the physicians, who profit most, perhaps, from the grievous results of an unclean milk-supply, are found on the right side of this question and of the Chicago council the only physician member of it, Dr. W. O. Nance, is fighting tooth and nail for clean milk.

Current Comment

HOT-AIR TREATMENT FOR DIPHTHERIA

Recent investigations by Rendu¹ indicate that inhalation of hot air may become a valuable ally in the treatment of diphtheria. The bacillus of diphtheria is more susceptible to heat than are most pathogenic organisms. According to Rendu's results exposure to a temperature of 176 F. (80 C.) for one minute, of 140 F. (60 C.) for ten minutes, or of 122 F. (50 C.) for fifteen minutes is sufficient to kill the diphtheria organisms. This, together with the fact that the bacilli grow in rather an exposed location on the surface of the membranes of the mouth and pharynx, led to the experiments in the use of heated air. Rendu found by experiments on himself that a temperature of 212 F. (100 C.) for a period of two minutes could be supported without inconvenience, and that a temperature of 140 F. could easily be endured for more than half an hour. Following this experiment diphtheria patients were exposed to a temperature of 176 F. for five minutes with satisfactory results, and Rendu became convinced that this measure markedly inhibits the growth of the bacteria and shortens the course of the disease. He does not suggest the hot-air treatment as a substitute for antitoxin, but as a supplementary measure. His suggestion seems rational, for if both heat and antitoxin inhibit the development of diphtheria bacilli a judicious combination of the two may be expected to accomplish more than either one singly.

A RADICAL TREATMENT OF TETANUS

Tetanus is caused by toxin absorbed from the place of lodgment of the bacilli, which almost always is a wound of some external part of the body. The indications are to remove as thoroughly as possible the sources of the toxin and to neutralize that which has gained entrance into the body. The best and probably the only means at hand for the latter purpose is tetanus antitoxin, but it is unfortunate indeed that the antitoxin which is of great value as a preventive should be of limited effect only when it is given after the active symptoms of tetanus have developed. How to combat

1. Rendu: Bibliothèque univ. et rev. suisse, May, 1912.

tetanus with success when the case comes under treatment after symptoms have developed is the question. A case described by Kras¹ merits notice as an example of radical efforts in a case of severe tetanus. A man 25 years old presented typical symptoms—opisthotonos, trismus, high fever, etc.—the infection being in a cut made on the back of the hand by a piece of tin. The wound was excised and cauterized, and swollen lymph-nodes at the elbow were removed; then 500 c.c. of blood were removed and the same quantity of salt solution infused. Now lumbar puncture was made, the cerebrospinal fluid allowed to escape completely, drop by drop, the canal washed out with salt solution containing 0.3 per cent. sugar, and finally some of this fluid was left in the canal. Severe dyspnea and convulsions developed at the end of this procedure but in a few minutes the patient fell into sleep lasting six hours. Pronounced symptoms having developed anew, 300 c.c. of blood were withdrawn on the next day, and lumbar puncture again made as before. On the third day there was marked improvement and 200 c.c. of blood were removed. On the fourth day the spinal canal was washed out once more. On the sixth day traces of trismus returned and bleeding and spinal puncture were repeated. There were no further symptoms and the patient recovered. In view of the bad outlook in cases like this, the measures used by Kras for the purpose of removing toxin from the blood and cerebrospinal fluid may merit further trial even though they are not without danger. They seem rational and were seemingly successful in this case. In addition antitoxin in large quantities should be injected either into the circulation or intramuscularly in order to insure prompt absorption and quick distribution. By these means an occasional life may be saved. In hydrophobia also the trial of similar radical methods merits consideration.

THE CAUSE OF THE ONSET OF LABOR

Stimulated by an editorial in these columns² commenting on the work of Heide in causing the onset of labor by injection of fetal serum, Rongy³ has repeated the work of Heide and in a report of nineteen cases adds to the interest and information in regard to this subject. In six patients injected with small quantities of fetal serum, prepared after the method suggested by Heide, ten to eighteen days before term, expulsion of the child followed promptly. In all cases, uterine contractions were observed by Rongy soon after the injection of the serum, although no pains were felt by the patient. It was determined that pains were felt only when there was direct stimulation of the cervix by the pressure of the bag of waters and the oncoming head. In two cases it was found that whereas injection of a large dose produced reaction promptly, injection of 5 to 7 c.c. followed by a large injection of 20-25 c.c. four or five hours later gave a more severe reaction. In two cases of inertia uteri, the serum was very effectual and injection was followed by active labor pains within a short time after injection. Finally in a case of threatened eclampsia,

injection of serum induced labor and all urinary symptoms cleared up immediately after the first injection. In seven cases negative results were obtained, in four of these there were precordial pain and oppression, in practically all some nausea and vomiting, and in two slight pains which may or may not have been induced by the serum. These results appear distinctly encouraging. The work of Heide has been corroborated and we have reason to believe that fetal serum does contain substances that may cause the onset of labor. An interesting field has been opened for further investigation. The exact nature of these substances, their mode of action and their rôle in causing the natural onset of labor are some of the problems to be solved.

QUARANTINING AGAINST THE HOOKWORM

A new and rather interesting phase of the hookworm problem has come to the front in San Francisco. After the discovery of the wide prevalence of hookworm in the South, California, too, was found badly afflicted with the pernicious parasite. It was known to exist in the mines of that state, but recently has been found prevalent among Porto Rican and oriental laborers who are mostly engaged in agricultural pursuits. Probably one-third to, perhaps, one-half of the immigrants coming from the Orient are infected with hookworm; an investigation during which 2,255 were examined revealed that 1,077 harbored the intestinal parasite. In San Francisco it has recently been discovered that a number of laborers, chiefly from the West Indies, engaged in market-gardening on a tract of land within the city limits, are afflicted with hookworm and, on account of the danger of transmitting the parasite by uncooked vegetables, the laborers have been quarantined and placed under treatment, and the vegetables from these gardens will not be allowed to be sold in the markets until all evidence and danger of hookworm infection are eliminated. The usual route of the infection is through the skin of the feet, but it is believed that uncooked vegetables carrying the hookworm eggs or larvæ might also be a source of infection. This phase of the question and the method of solving it are rather novel. Doubtless similar conditions obtain elsewhere, and the San Francisco plan will afford a precedent in meeting them.

Medical News

ILLINOIS

Dunning Needs New Dormitory.—The State Board of Administration, on July 25, directed that no more patients be sent to the Chicago State Hospital, Dunning, until the new dormitory is completed. The present number of inmates at the hospital exceeds 3,200.

County Society Incorporates.—The Adams County Branch of the Illinois State Medical Association, Quincy, has been incorporated by Drs. L. H. A. Niekerson, J. H. Rice, O. F. Sullivan, J. E. Miller and C. A. Webb, the objects stated being "to promote public health and for social and scientific purposes."

Hospital News.—It is proposed to convert the old Clifton House, Freeport, into a municipal hospital, one portion of the building being used as a private sanatorium.—An emergency hospital has been completed by Deere & Company, Moline, at a cost of more than \$1,000. First aid quarters have also been installed in the plants of the Moline Wagon Company,

1. Kras: Wlen. klin. Wehnschr., 1912, xxv, 88.
2. THE JOURNAL A. M. A., 1911, lvii, 1290.
3. Rongy: Am. Jour. Obst., 1912, lxxvi, 1.

the Deere and Mansur Company, the Union Malleable Iron Company and the Deere Harvester Factory.

Personal.—Dr. E. J. Doering, Chicago, has gone abroad.—Dr. Albert J. Ochisner returned from Europe, July 21.—Dr. Clara E. Hayes has been appointed a member of the medical staff of the Bartonville State Hospital.—Dr. L. A. Burhans, Peoria, was injured in an automobile accident, July 20.—Dr. J. G. McKinney, Barry, fractured his arm while eranking his automobile, July 15.—Dr. W. S. Blue, Ottawa, is a patient in Ryburn Memorial Hospital, Ottawa, suffering from injuries received in a runaway accident, July 4.

Chicago

Meeting on Milk Question.—A meeting was called for July 31 at the Council chamber by Dr. Willis O. Nance, chairman of the Committee of Health of the City Council, to consider the question of pure milk supply and to recommend a means of bettering present conditions. Among the speakers were Drs. Frank Billings, Isaac Abt and Paul G. Heinemann, Miss Jane Addams and Miss Julia Lathrop.

INDIANA

Hospital Nearly Ready.—St. Vincent's Hospital, Indianapolis, is nearly ready for occupancy. The building has a frontage of 300 feet, is 245 feet deep, and is fireproof. It will contain 152 rooms for patients and will have cost, when finished, \$800,000.

Personal.—Dr. Carl C. Eberly has been appointed city sanitarian and secretary of the Board of Health of Indianapolis, vice Dr. Charles S. Woods, resigned.—Dr. George D. Kahlo, house physician at French Lick Springs Hospital, has resigned and will reengage in the practice of his profession in Indianapolis.—Dr. John J. Kyle, clinical professor in otology, rhinology and laryngology in the Indianapolis University of Medicine has resigned and has moved to Los Angeles.—Dr. D. B. Domb, Indianapolis, has sailed for Europe.—Dr. A. F. Gugsell, Jasper, has been elected vice-president of the recently organized Dubois County Antituberculosis Society and Drs. P. L. Coble, Celestine, O. A. Bigham, St. Anthony, and L. C. Lukemeyer, Patoka, have been elected township vice-presidents.

IOWA

New Officers.—Iowa Union Medical Society, semi-annual meeting at Cedar Rapids, July 16: president, Dr. J. B. Kessler, Iowa City; secretary, Dr. F. G. Murray, Cedar Rapids.

State Board Elections.—At the annual meeting of the State Board of Health and State Board of Medical Examiners, held in Des Moines, Dr. Albert De Bey, Orange City, was elected president of the State Board of Health; Dr. T. U. McManus, Waterloo, president of the State Board of Medical Examiners, and Dr. G. H. Sumner, Des Moines, was reelected secretary of both boards.

Personal.—Dr. F. T. Stevens has resigned as assistant superintendent of the Mount Pleasant State Hospital.—Dr. A. G. Field, Des Moines, is reported to be seriously ill, following a severe hemorrhage of the stomach.—Dr. George W. Beach, assistant superintendent of the Iowa Sanatorium has been appointed superintendent of the Minnesota State Sanatorium for Consumptives, Walker.—Dr. A. T. Miller, Clinton, sailed for Europe, July 2.

New Hospital Dedicated.—The new Washington County Hospital, located in William Perry Wells Park, Washington, was formally dedicated, July 15. In the morning the building was opened for the inspection of the medical fraternity exclusively, and during the afternoon and evening for the public. The Washington County Medical Society held dedicatory exercises in the morning and in the afternoon a public program was given. This hospital was established under the provisions of the act passed by the legislature in 1910. The building is of reinforced concrete construction, is fireproof, three stories and a basement in height and is situated on a tract of land more than eleven acres in area, within half a mile of the business center. The rooms in the hospital have been fitted up by charitable societies, lodges, clubs and individuals. It is the first county hospital to be established in Iowa, and is not only attractive and comfortable, but also is as nearly sanitary and hygienic as it is possible to make it.

KENTUCKY

Addition to Paducah Sanatorium.—An additional ward has been donated to the Jackson Hill Sanatorium, Paducah, which will double the accommodation of the institution.

Tuberculosis Commission Organized.—The Tuberculosis Commission was organized by electing the governor as chairman

and Dr. Everett Morris, Sulphur, as secretary. Drs. H. S. Keller, Louisville; U. V. Williams, Frankfort, and Bernard Flexner, Louisville, were appointed a committee to draw up laws for the government of the commission.

The Public Drinking Cup.—The attorney general, in construing the public drinking cup law, has decided that the state hospitals for the insane and the public schools do not come within its provisions. The superintendent of public instruction has issued an order affecting the rural schools in which he states that the full provisions of the act will be made to apply to all rural schools despite the attorney general's ruling.

Personal.—Dr. Vernon Robins, city chemist of Louisville, is reported to be seriously ill.—Dr. Arthur T. McCormack, Bowling Green, health officer of Warren County, has resigned and has been succeeded by Dr. J. W. Lewis, Oakland.—Dr. J. M. Morris, Louisville, is ill at his home with septicemia.—Dr. Archibald Dixon has resigned from the board of health of Henderson and has been succeeded by Dr. W. A. Quinn.—Dr. J. M. O'Maley has succeeded J. T. Wallingford as health officer of Covington.—Drs. S. P. Garrison, Bellevue, and Claude Youtsey, Newport, have been appointed local surgeons of the Chesapeake and Ohio Railway.—Dr. C. A. Fish, Frankfort, has been appointed a member of the State Board of Health, to succeed Dr. H. S. Keller, Frankfort, resigned, to accept appointment as a member of the State Tuberculosis Commission.

MARYLAND

Personal.—Dr. and Mrs. E. L. Jones, Cumberland, sail on a trip to Panama, August 3.—Dr. E. N. Brush, superintendent of the Shepherd and Enoch Pratt Hospital, Towson, has gone to Europe for the summer.—Dr. Thomas B. Owings, Ellicott City, is reported ill with arteriosclerosis.—Dr. Charles A. Hollingsworth has been appointed postmaster at Bel Air.—The managers of the State Insane Hospital, Sykesville, have decided to erect a new house for the superintendent, Dr. J. Clement Clark, to replace the one recently destroyed by fire.

Baltimore

Personal.—Dr. Ernest Zueblin, formerly of Pittsburgh, has been elected professor of medicine in the University of Maryland to succeed Dr. Charles M. Mitchell who has been transferred to the chair of pediatrics.—Dr. James Bosley, health commissioner, has sailed for Bermuda.—Dr. John Howland, professor of pediatrics in Washington University, St. Louis, has been appointed director of the Harriett Lane Home for Invalid Children, to be opened October 1, professor of pediatrics in Johns Hopkins University and physician in charge of the pediatric department of Johns Hopkins Hospital.

Cancer Hospital Staff Announced.—The president of the board of directors of the Skin and Cancer Hospital of Maryland has announced the following appointments: surgeon-in-chief, Dr. G. Hauer Everhart; surgeons, Drs. Henry H. Stansbury; Robert Bay, George E. Houck, Waitman T. Willey, E. H. Kroman and H. C. Davis; medicine, Drs. Lewis R. Palmer, H. G. Jones, M. W. Shorb and M. Shamer; electro-therapist, Dr. G. G. E. Corss; pathologist, Dr. Barrett C. Catlan; chemist, J. M. Codd; superintendent, Dr. Guy S. Peppers; consultants, Drs. Charles Leslie Runsey, Eldridge C. Price, M. Bowman Hood, R. W. Miffin, Dulaney Thomas, Wilbur Skillman, John A. Evans, Ward Wisner, John M. Hood, George William De Hoff, William Pannebaker, P. B. Towler, Clarence K. Jump, H. C. Dulaney, Shepherd Drain, E. O. Murray, George L. Ewalt and L. Blessing.

MASSACHUSETTS

Floating Hospital in Service.—The opening cruise of the Boston Floating Hospital was made June 29. Dr. Henry C. Marble is resident physician. About fifty babies and their mothers were taken down the harbor on the first trip of the boat.

Hospital Opened.—Hampden Hospital, Springfield, was formally opened recently. The institution occupies a remodeled residence and contains forty-two rooms. Dr. Walter R. Weiser is chief of staff of the hospital and treasurer of the organization.

Health Officers Hold Meeting.—The Massachusetts Association of Boards of Health held its quarterly meeting at Gallup's Island, Boston Harbor, July 25. The address of the meeting was delivered by Dr. Mark W. Richardson, Boston, secretary of the State Board of Health, who discussed important bills relative to the public health considered by the legislature of 1912.

Personal.—Dr. and Mrs. Albert Ehrenfried, Boston, have sailed for Europe.—Dr. James G. Mumford, Boston, has been

elected superintendent of the Clifton Springs (N. Y.) Sanitarium.—Dr. J. E. Frothingham, Boston, sustained slight injuries in the wreck on the Delaware, Lackawanna and Western Railway near Corning, N. Y., in which forty-seven persons were killed.—Dr. William J. Brickley has been appointed surgeon in chief of the Relief Hospital, Haymarket Square, Boston, vice Dr. Loring D. Packard.—Dr. and Mrs. H. A. Downey, Mittineague, have sailed for Europe.—Dr. Samuel A. Green, Boston, is reported to be improving at a private hospital in Groton.

NEVADA

Personal.—Dr. Martin A. Robison, Reno, who was operated on July 17, in New York City for appendicitis, has made a good recovery, and passed through Chicago recently on his return home.—Dr. Henry Ostroff, Reno, has resumed practice after spending several months in study in Chicago, Rochester (Minn.), and the east.

NEW YORK

Leper Found in Buffalo.—A Russian immigrant who was under observation in New York and thence was traced to Cleveland, Bay City, Mich., and Ann Arbor, was found in Buffalo, July 21 and has been isolated. Bacteriologic tests are said to have confirmed the diagnosis of leprosy.

Labor Unions to Aid Health Work.—The State Department of Health is enlisting the cooperation of labor unions in its efforts to diminish the prevalence and mortality of disease. Dr. Eugene H. Porter, New York City, State Health Commissioner, has appointed Michael J. O'Brien of Rochester as a special representative to visit labor organizations throughout the state to explain the object of the state authorities and also to arrange for meetings to be addressed by special lecturers.

Personal.—Dr. James P. Barr, Buffalo, sustained a broken rib and severe contusions in a collision between his automobile and a Broadway car, July 20.—Dr. F. F. Hoyer, one of the oldest practitioners of the state, is reported to be critically ill at Tonawanda.—Dr. A. E. Collins, Buffalo, was seriously injured when his automobile overturned near the Grand River Ferry, July 11.—Dr. James H. Donnelly has succeeded Dr. J. S. Otto as head of the Tuberculosis Bureau of the Buffalo Health Department.

Campaign of Education.—The State Health Commission has appointed the following women physicians of the state as special lecturers to carry on a state-wide campaign of education among women and girls on the subjects of hygiene and the prevention of disease. The lecturers' names are Drs. Adelaide Dutcher, Syracuse; Rosalie S. Morton, New York City; E. Hamilton Minnie, Brooklyn; Lucia E. Heaton, Canton; O. M. Grover, Dunkirk; Mary H. Potts, Elmira; Agnes E. Page, Albany; Cora B. Lattin, Ithaca; M. May Allen, Rochester; Ina V. Burt, Phelps; Mary G. Day, Kingston, and Angeline Martine, Utica.

New York City

Dispensary Opened.—The Herriman Dispensary of the Brooklyn Hospital was opened, July 17. The dispensary is to be open daily. It is a two and one-half story brick and marble structure and was given by Mr. William H. Herriman in memory of his wife. Mr. Herriman donated \$100,000 for this work, \$25,000 of which is to be used as an endowment fund.

Epidemic of Infantile Paralysis Feared.—The discovery of nine cases of infantile paralysis in a small area between Forty-Eighth and Forty-Ninth Streets in the neighborhood of First Avenue has awakened the Health Department to the necessity of fighting against a possible epidemic. The authorities have ordered the isolation of patients and physicians are instructed to be on the lookout for the early symptoms of the disease. Every suspicious case will be taken to the hospital at once.

Seagoers.—Dr. Eugene Fuller, Dr. and Mrs. J. E. L. Davis, Dr. and Mrs. H. L. Purdy, Dr. William C. Braislin, Dr. George McNaughton, Dr. Gordon R. Hall, Dr. John A. McCorkle, Brooklyn, Dr. and Mrs. H. G. Keith, Dr. George A. Taylor, Dr. G. L. Gibson, Dr. and Mrs. John A. Fordyce, Dr. and Mrs. Ludwig Weiss, Dr. and Mrs. E. L. Meierhof, Dr. and Mrs. John Herbert Claiborne and Dr. Francis P. Kinnicutt have sailed for Europe.—Dr. and Mrs. C. H. Peek have returned from abroad.

Teach Children to Avoid Accidents.—The American Museum of Safety in West Thirty-Ninth Street is undertaking to teach children to avoid accidents. The children are invited to the museum and are taught, by means of toy trolley cars and dolls, the dangers of the street and how to avoid them. They

are taught how to get on and off cars and are presented with a text book containing a number of cautions. Those interested in the work are endeavoring to have the city railways carry the children to and from the museum free of charge.

Work of Sanitarium for Hebrew Children.—The annual report of the Sanitarium for Hebrew Children at Rockaway Park gives an account of the work that has been done for the past thirty-five years among the poor of the east side of New York. During the past year 20,000 women and children received medical attention and the benefits of the institution. The sanitarium has made it a part of its work to inculcate cleanliness and hygiene, and in this way, to ameliorate conditions in the homes of those coming under its influence.

Homes to Be Provided for Inebriates and the Tuberculous.—At a special meeting of the Board of Estimate an appropriation of \$75,000 was approved for the purchase of a farm of 840 acres in Orange County, for the establishment of a sanitarium for inebriates. The board also adopted the report of its special committee accepting the proposition of the Association for Improving the Condition of the Poor to build a hospital for the sea-air treatment of non-pulmonary tuberculosis at a cost of \$250,000, on condition that the city give the site at Rockaway, and conduct and maintain the hospital.

Personal.—Dr. William H. Woglom, Brooklyn, was appointed to the post of first assistant in New York at the meeting of the Cancer Research Fund in London. The New York post is maintained under the Crocker Fund for the Investigation of Cancer.—Dr. W. Ostwald, of Leipzig University, has accepted an invitation to address the American Society of Medical Research next fall.—Dr. Louis Livingston Seaman has been appointed one of a committee of three by the City Club to make arrangements for a suitable monument to mark the resting place of Thomas Willett, the first mayor of New York.—Dr. H. M. Cullinan, Brooklyn, is reported to be critically ill with pneumonia, following an attack of septicemia.—Dr. Richard Ellis has been given an annuity of \$3,000 a year by the estate of John Hyler.

Hospital and Dispensary Notes.—The New York State Dispensary, which has been twice dispossessed by the state within four years, has purchased a site at 34 and 36 Spring Street, in a densely populated tenement district, which is to be improved with a two-story building, exclusively for dispensary purposes.—The Brooklyn Hospital and Dispensary, a building erected at a cost of \$75,000 on Raymond Street near DeKalb, by William H. Merriman in memory of his wife, Elizabeth Wyckoff Merriman, was officially opened July 1. In addition to supplying the structure, Mr. Merriman gave the institution an endowment fund of \$25,000.—The president of the Hospital for Deformities and Joint Diseases has announced that \$36,500 has already been raised in the new dispensary building.—At a meeting of the trustees of the Home of St. Giles the Cripple, it was unanimously decided to rebuild in Brooklyn, using the present building at Garden City as the annex, or home for convalescents.

Work of the Health Department.—The monthly bulletin of the Department of Health of New York City for June reviews the work of the department for the past two years. This period has witnessed the establishment of two successive low records in the annual death rate of the city, namely, 15.98 per thousand of the population for the year 1910 and 15.13 for 1911. In 1866, the year in which the department was organized, the death rate was 36.31 per thousand. For the first ten years thereafter it averaged 26.61 per thousand. The figures continued to fall until in the decade 1899 to 1908 it reached an average of 18.84 per thousand. A comparison of the present rate with that of the first decennium under the organization shows a decrease of about 40 per cent. The diseases in which decrease is noted are mostly infectious, while the greatest increase has been in pneumonia, and here a large part of the increase is only apparent as deaths formerly ascribed to bronchitis are now designated as due to pneumonia.

OREGON

New Officers.—Eastern Oregon Medical Association, eleventh annual meeting at Ontario: president, Dr. G. A. Pogue, Ontario; treasurer, Dr. Fred Lienallen, Pilot Rock.—Northern Oregon Medical Association, twenty-first annual meeting in Roseburg: president, Dr. R. W. Stearns; secretary-treasurer, Dr. J. J. Emmens, both of Medford.—Minneapolis University Alumni Association of Portland, in Portland, June 1: president, Dr. J. Elliott King, Portland; secretary-treasurer, Dr. H. R. Dewart.—Portland City and County Medical Society: president, Dr. W. T. Williamson; secretary, Dr. George S. Whiteside.

PENNSYLVANIA

New Officers.—Fifth Censorial District Medical Society at Mount Holly Springs, near Carlisle, July 23: president, Dr. H. A. Spangler, Carlisle; secretary-treasurer, Dr. C. W. Eisenhower, York. The next meeting will be held in Gettysburg. —Lehigh Valley Medical Association, thirty-second annual meeting, at Delaware Water Gap, July 18: president Dr. G. W. Guthrie, Wilkes-Barre; secretary, Dr. J. W. Luther, Palmerston.

Personal.—Dr. Thomas F. Neil, Sligo, has been appointed a member of the staff of the Watertown (Ill.) State Hospital. —Dr. John A. Hawkins, Pittsburgh, has brought suit against the Bell Telephone Company for omitting his name from the telephone directory. He asks \$25,000 damages. —Dr. Charles F. Palmer, Chambersburg, is in the Chambersburg Hospital with an infected hand. —Dr. James Bauer, Pottsville, has been appointed superintendent of the Schuylkill County Hospital. —Dr. Hyman Wiener, Waynesboro, was operated on for appendicitis, July 17, in the Harrisburg Hospital, in which he is an intern. —Dr. John Alden Lichty, Pittsburgh, has been chosen as a trustee of the Clifton Springs (N. Y.) Sanatorium.

Philadelphia

Steamships Held Up.—The steamship *Merion*, which arrived from Liverpool, July 21, was detained at the federal quarantine station, Reedy Island. —The 485 passengers detained at Lewes on the steamship *Haverford* were released from quarantine and brought to Philadelphia, July 23. —The Hamburg American steamship *Prince Adalbert* from Hamburg, was detained at the Reedy Island Quarantine, July 18, on account of the death at sea of a child from small-pox.

Work on the Piers.—Fifty-seven babies can now be taken care of at the Race Street Pier and Dr. Henry Sykes, the physician in charge and his assistants, Drs. Fish, Parke and Darwarth make daily visits. There is now a corps of ten nurses. At the Chestnut Street Pier, the head of which is Dr. Joseph S. Neff, director of public health and charities, a day nursery for infants is maintained. Dr. S. W. Newmayer is the resident physician, and four nurses give mothers' lessons each day on the feeding of children.

Personal.—Provost Edgar F. Smith, who represented the University of Pennsylvania at the two hundred and fiftieth anniversary of the Medical School of the University of Dublin, Ireland, had conferred on him the degree of doctor of science "for his work in analytical and electro-chemistry, especially with composition of minerals." —Dr. George E. de Schweinitz has returned from Europe. —Drs. W. G. Elmer, E. P. Davis, G. Oram Ring, S. S. Woody, Jay F. Schamberg, Louis J. I. Burns and Alexis D. Smith have sailed for Europe. —Dr. William E. Hughes sailed for South America, July 21. —Dr. H. Lowenburg has been elected assistant professor of infantile dietetics in the Medico-Chirurgical College of Philadelphia, and also pediatricist to Mount Sinai Hospital, succeeding the late Dr. Edwin Rosenthal. —Dr. Theodore F. Watkins, Germantown, while delirious, leaped from a third-story window of his house, July 10, but fortunately suffered only slight injuries. —Dr. Marion Mackenzie, professor of biology at the American College for Girls, Constantinople, Turkey, has resigned and returned to her home in Philadelphia.

New Milk Rule.—Properly to protect the health of the community and to further the campaign to save babies, the Bureau of Health announced the following rules governing the sale of milk, July 26, to go into effect August 1: "No milk shall be transferred from any can or other vessel to any bottle or other container in the streets or public places." "The sale, exchange or delivery of milk by the process of 'dipping' or removing small quantities for a consumer from time to time from a containing vessel is forbidden." This rule is in a measure the outcome of the report of the milk commission, which was issued last February. In connection with the "dipping," the report says, "Some of the milk shops of the so-called dairy class have recently abandoned the sale of loose or dipped milk, dispensing all of their milk in jars. The majority continue the sale of loose milk. Many of these latter are kept neat and clean, but they follow the insanitary procedure of holding the vessels which are brought to be filled immediately over the milk can during the process of filling. The milk which overflows, drains over the hands and vessels and falls back into the milk can. The milk shops in certain portions of the city, chiefly in the districts supplying milk to the poor, constitute a very serious menace to the public health. We have seen milk sold in living rooms of homes, in filthy basement rooms, from cans in the street, as well as from shops which were distinguished by their lack of sanitary equipment."

TENNESSEE

Laboratory Building for University.—The trustees of the University of Tennessee, Memphis, are having erected a laboratory building for the use of the medical department. It will be a four-story brick and concrete structure, and the contract calls for its completion before September 15.

Typhoid Vaccination Popular in Memphis.—In response to the bulletins sent out by the Health Department of Memphis offering free inoculation against typhoid fever, Dr. M. Goltman, the health commissioner, announces that about 25,000 of the citizens of Memphis have already responded to this invitation and have been given the prophylactic inoculation.

WISCONSIN

Appropriation for Child Welfare.—The City Council of Milwaukee has appropriated \$1,000 as a preliminary allowance for the child welfare work and has informed the health commissioner that additional appropriations will be made when needed.

Hospital Notes.—A free dispensary for tuberculosis has been established in West Allis, Milwaukee. —A tuberculosis sanatorium for Racine County is to be erected on a site west of Racine and will be known as Sunny Rest. —Twelve new shacks have been completed at the Social Workers Sanatorium for Tuberculosis, Milwaukee, which at present can accommodate twenty-four patients. —Outagamie County has appropriated \$4,000 for a county tuberculosis sanatorium. The sanatorium fund now amounts to \$9,000. A five-acre tract of land has been purchased between Little Chute and Kaukauna and the institution is to be known as the Riverview Sanatorium. —Dr. C. U. Senn has remodeled his home in Ripon and has transformed it into a hospital.

GENERAL AND FOREIGN

Plague Found in Trieste.—Press dispatches report the finding of two cases of bubonic plague by the port authorities at Trieste on board the steamer *Amphitrite* which arrived, July 27, from Beirut.

Dinner to Professor Pick.—Prof. Ludwig Pick, of Berlin, will deliver the Cartwright and other lectures in New York this fall. His American students will tender Professor Pick a complimentary dinner Saturday evening, November 16. Those who desire particulars should communicate with Dr. Charles Goodman, 969 Madison Avenue, New York City.

Death of a Pioneer in Biochemistry.—The death is reported of Prof. Ernst Schulze of Zurich, aged 72. Medicine is under obligation to him for the discovery of a number of new chemical substances such as glutamin, phenylalanin, arginin, etc., and the better realization of the close connection between the animal and vegetable bodies, that animal albumin, for instance, is constructed of the same "building stones" as vegetable albumin.

Plague Situation in the Islands.—Up to July 23 forty-three cases of plague had been reported from Porto Rico, with twenty-three deaths. Of these twenty-nine occurred in the old city of San Juan; nine cases in Santurce, a residential suburb of San Juan; two at Carolina, a town thirteen miles from San Juan; one at Loiza, a short distance from Carolina; one at Arroyo and one at Dorado. No new cases have been reported from Havana.

Third International Medical Congress on Industrial Accidents.—The following subjects have been selected for discussion at this meeting which convenes at Düsseldorf this week: Legislation in various countries on industrial accidents; importance of early functional treatment; vascular affections or deforming arthritis and industrial accidents; influence of accidents on formation and aggravation of tumors, and technique for examination of the injured.

Conference on Pellagra.—The preliminary program of the Pellagra Conference which is to be held in Columbia, S. C., October 3-4, includes an address to be given by Surgeon-General Rupert Blue, U. S. P. H. & M.-H. Service; a preliminary report by the Thompson-McFadden Commission on Epidemiology of Pellagra, and other papers dealing with the prevalence, geographic distribution, artificial production and other subjects of general interest in regard to this wide-spread disease.

Personal.—Col. William C. Gorgas, M. C., U. S. Army, has declined the invitation to become chairman of the Boston Board of Health. The government of Ecuador is said to have requested the United States to lend that country the services of Colonel Gorgas in order to improve the sanitation of Guaya-

quil.—Dr. J. A. Nydegger, U. S. P. H. & M.-H. Service, received the degree of Master of Science from St. John's College, Annapolis, Md., recently, and at the same time had conferred on him the honorary degree of Doctor of Science.

Medical Department of United Fruit Company.—Dr. R. E. Swigart, New Orleans, general superintendent of the medical department of the United Fruit Company, has installed a branch office in New York for the administration of medical service to the company's fleet of steamers, and has placed Dr. J. D. Hadley in charge, with jurisdiction over the ports of New York, Boston, Philadelphia and Baltimore. Dr. P. Francis Murphy holds a similar position in New Orleans. The medical organization is a part of the general plan to promote the safety and comfort of passengers, officers and crew. It is the intention of the company to provide for its ships medical officers qualified to treat tropical diseases as well as those prevalent in the temperate zone.

Otologic Congress.—The Ninth International Otologic Congress is to be held at Harvard Medical School, Boston, August 12-17, under the presidency of Dr. Clarence J. Blake, Boston. The program includes an exhibition of microscopic and macroscopic specimens, collection of otologic books, reprints, photographs and drawings by American authors, an exhibit of radiograms of the mastoid process, a demonstration of the methods employed and the apparatus used in the education of and the amelioration of the condition of the deaf, together with exhibits showing the evolution of the telephone and dictograph. The entertainment committee has provided numerous luncheons, dinners, smokers, etc., for the members and guests. The prizes have already been mentioned in *THE JOURNAL*.

New Officers.—Norfolk & Western Railway Surgeons' Association, at Cedar Point, near Sandusky, O., June 18 and 19: president, Dr. Joseph A. Hall, Cincinnati; secretary-treasurer, Dr. T. D. Armistead, Roanoke.—Northern Tri-State Medical Association, thirty-ninth annual meeting, in Detroit, July 2-3: president, Dr. Victor C. Vaughan, Ann Arbor, Mich.; secretary, Dr. G. W. Spohn, Elkhart, Ind., reelected.—Sioux Valley Medical Association, in Fort Dodge, Ia., July 24: president, Dr. J. N. Warren; secretary, Dr. K. G. S. Browning, both of Sioux City, Ia.—Iowa and Illinois Central District Medical Association, in Davenport, Ia., July 11: president, Dr. W. W. Adams, Atkinson, Ill.; secretary, Dr. L. W. Littig, Davenport, reelected.—Austin Flint-Cedar Valley Medical Society, in Waterloo, Ia., July 10: president, Dr. E. E. Dunkelberg, Waterloo; secretary, Dr. C. F. Starr, Mason City, Ia., reelected. Next meeting-place Ackley.—Association of Surgeons of the Buffalo, Rochester & Pittsburg Railway Company, held on Lake Ontario, en route to Coburg, Ont., July 10: president, Dr. F. D. Pringle, Punxsutawney, Pa.; secretary, Dr. James G. Flynn, Ridgway, Pa.

Bequests and Donations.—The following bequests and donations are announced:

Eye, Ear, Nose and Throat Hospital, New Orleans, \$100,000, by the late Isaac Delgado.

Babies' Hospital, Cleveland, \$100,000, from H. M. Hanna, to be used toward the building and endowment fund.

Polio Clinic Hospital, Philadelphia, \$5,000, for the endowment of a free bed in the name of the late Mrs. Caleb C. Roberts, with the stipulation that the bed is to be used by the patients of her son, Dr. John B. Roberts.

New York Post-Graduate Medical College and Hospital, one-seventh interests in certain trusts; New York Orthopedic Hospital, \$5,000, and the Children's Aid Society, \$10,000, by the will of the late Carolyn F. Butterfield.

Ald Association of the Philadelphia County Medical Society, \$1,000, by the will of the late Mrs. Helen B. Roberts.

University of Pennsylvania, \$35,000; Germantown Hospital, \$5,000; Children's Hospital, \$1,500, by the will of the late Elizabeth Wharton McKeen.

Presbyterian Hospital, Philadelphia, \$5,000, by the will of the late Miriam Mullen, for the establishment and maintenance of a free bed in memory of the decedent's father.

Seymour Library Association, Auburn, N. Y., medical and surgical library, Auburn City Hospital, \$1,000, to maintain a free bed for three years, and Dr. William S. Dodd, Caesarea, Turkey, surgical instruments and \$500 by the will of the late Dr. William S. Cheesman, Auburn.

Jewish Hospital, Jewish Maternity Home and Mt. Sinai Hospital, Philadelphia, each \$2,500, to establish free beds to be named for Rosalie Abraham and Benjamin Bauer, by the will of the late Benjamin Bauer, and the residue of the estate to the Associated Jewish Charities for the establishment of the "Benjamin Bauer Helping Fund," the interest of which is to be distributed by the society.

Massachusetts General Hospital, Boston, \$60,000 by the will of the late Mrs. Sarah E. Cazanove for free treatment of the insane.

Plague Conference at New Orleans.—On the invitation of Dr. Oscar Dowling, state health officer, and Dr. W. T. O'Reilly, city health officer of New Orleans, a conference of health officials from Alabama, Georgia, Florida, Mississippi and Texas was held in New Orleans, Monday, July 29, for the purpose of considering plans for preventing the introduction into the Gulf ports of bubonic plague, and also the question

of quarantine regulations in the event that plague infection should be discovered in a southern port. The states named were represented by one or more health officials, and three representatives of the Public Health and Marine-Hospital Service stationed at New Orleans, at the head of which service is Dr. J. H. White, also joined in the conference. Drs. Dowling, O'Reilly and White demonstrated the work being done incident to the thorough rat survey in New Orleans which has been in progress for the past three weeks since the outbreak of plague in Porto Rico and Havana. Drs. Duval and Seaman explained in detail the technic of the examination of the 333 rats already subjected to examination, among which one was found infected. The members of the conference were thoroughly impressed with the idea that every possible scientific precaution was being adopted at New Orleans, and while one or two ports had undertaken a rat survey, none had adopted the comprehensive plan effective in New Orleans. The visiting health officers, after having resolved themselves into the Southern Health Conference, with plans for a meeting at Mobile, agreed to make operative at once in their respective cities the following line of procedure: A rat survey to be limited to the water fronts; division of cities into districts, with segregation of rats of each area for examination; the examination of rats to include a rat autopsy, search for fleas, microscopic examination and recognition of infected rat localities. Regulations in regard to ships to include 36-inch rat shields on hawsers, rat guards along each gangway while the ship is being loaded or unloaded; fending the ship off of the wharf by four floating timbers joined together and inspection of crated cargoes; extra vigilance to be observed on the part of steamship companies before fruit is unloaded from vessels. In the event of infection being discovered in any city, an area of eight blocks is to be considered the area of suspicion. Further suggestions or regulations are to be adopted whenever infection is discovered.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, June 29, 1912.

The Parliamentary Committee on Nostrums

Dr. Cox, medical secretary of the British Medical Association, continuing his evidence (reported in a previous letter to *THE JOURNAL*) submitted a memorandum on the sale and advertisement of proprietary medicines. Both direct and indirect harm arose from their use. As to the former, evidence was scanty, either because of the relative inactivity of the ingredients, or because some disease was usually present which rendered it difficult to say that the medicine was the sole cause of death or injury. In some cases drug or alcohol habits were established. Indirect injury arose from the proprietary medicine being substituted for proper medical treatment. In cancer and tuberculosis valuable time was thus lost. The various forms of hernia were treated by internal and external administration of useless drugs. The claim to avoid operation and to go without a truss exposed the patients to the danger of death from strangulation. The advertisements connected with sexual matters were morally injurious. Dr. Cox was examined at considerable length as to the advertisement of proprietary medicines in the *British Medical Journal*, as follows: "The *British Medical Journal* publishes a large number of such advertisements?—Yes, of a kind. Some of them are secret?—Not in the sense that we do not know what is in them. We insist on knowing their composition. No advertisements are inserted in which, as far as those responsible for the journal know, exaggerated claims are made, and advertisements of preparations for which exaggerated claims are made elsewhere were declined. The advertiser is asked to state the active ingredients but not necessarily the details of the method of making the preparation." Questioned as to the number of proprietary medicines ordered by medical men, Dr. Cox said it was mainly indolence which led to ordering these things with a name rather than writing out a prescription. No puff articles in the ordinary sense were published in the journal; the notices of proprietary medicines therein were written in sober language and there was no connection between the publication of such notice and advertisement of the goods in the journal. There were some proprietary medicines which, owing to the method of their preparation, he preferred to similar compounds contained in the *British Pharmacopoeia*. In some cases proprietary medicines were analyzed on behalf of the association before advertisements of them were inserted in the journal. Dr. Cox was confronted with a paragraph in an article recently published by *THE JOURNAL* of the American Medical Association stat-

ing: "American and European frauds of the ethical proprietary type are still largely used by the English physicians, as is evidenced from the fact that high-class British medical journals carry the advertisements of such humbugs. With the official organ of the British Medical Association carrying advertisements of such nostrums . . . the British profession will find difficulty in answering the question: Wherein is it worse for the public to buy medicinal preparations about which it knows nothing than it is for the medical men to prescribe preparations of whose composition they are and must be ignorant?" The copy of the number of THE JOURNAL containing this article was handed to Dr. Cox and after inspecting it he said: "To show how difficult it is to exercise efficient censorship, I may say there are advertisements to be found in this American journal which we would not allow to appear in the *British Medical Journal*." His attention was also called to certain advertisements in the *British Medical Journal*. He admitted that greater censorship should have been exercised and promised that attention would be given to them.

The Motor Peril

The public is becoming alarmed at the appalling and increasing list of tragedies due to mechanically driven vehicles. No fewer than 873 persons were killed and 20,226 injured by such vehicles in the United Kingdom last year. Nearly half of these accidents occurred in London, in which 410 people were killed and 14,445 injured. There are places in London which are nothing less than death-traps, especially for the aged, infirm and children. On the Fulham Road from Walham Green to Putney Bridge, a distance of about a mile, more accidents have occurred than anywhere else. In the past six months these amounted to fourteen, of which seven were fatal, and of these, three were cases of cyclists being run down. Even those in the full possession of their senses and in the prime of life are not safe. An American pastor, the Rev. E. O. Weld, aged 33, of Brooklyn, while on his honeymoon, was killed near the Strand by a motor bus. At the inquest his widow stated that his sight and hearing were unimpaired. In trying to avoid a taxicab he got in front of the motor bus and one of the front wheels went over him. To cyclists in particular the motor peril is a serious one. The National Cyclists Union is preparing to take serious steps in the matter.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, July 12, 1912.

A New Sign of Hepatic Insufficiency

At the last session of the Société médicale des hôpitaux de Paris, Dr. Roch, head of the clinics in the cantonal hospital of Geneva, read a paper on a method of establishing liver insufficiency, based on the fact that, while in the normal state the liver is capable of retaining a dose of 2 mg. of methylene-blue, in patients whose liver is affected, however, this dose of 2 mg. gives distinctly green urine. Dr. Roch's procedure is to have the patient take 2 mg. methylene-blue at 8 a. m., and to collect the urine until 8 p. m. in three glasses, each containing the renal secretion of a four-hour period. If the urine of the second glass, secreted from noon until 4 p. m., is colored green, the liver has not been able to hold the methylene-blue, but if this urine is colored yellow or yellowish that means, barring a pathologic condition of the kidney, that the hepatic filter is functioning normally. This test has given results in all cases agreeing with those furnished by the test of alimentary glycosuria. It is no surer but it is more simple and more readily accepted by patients.

Legal Age of Obligatory Revaccination

There has recently been an epidemic of small-pox in two suburbs of Paris. According to the report of the department of vaccination service, a large proportion of children, aged from 6 to 10—that is to say, not required by law to submit to revaccination—are liable to contract small-pox in spite of the first vaccination, given ordinarily in the first few months of life. Dr. Henri Dubief believes that the first revaccination ought to be at 7 years when the child enters primary school, the second at 13, and the third at 20.

Medical Experts in Cases of Industrial Accidents

M. Briand, minister of justice, has just sent out to the courts of appeal a circular on this subject mentioning that, according to the law, an expert cannot be a physician who has cared for the injured man or a physician connected with his employers' establishment or the insurance society with which

the head of the establishment is connected. While the law does not expressly forbid the employment as expert of a physician connected with another insurance company, the minister advises against such employment, especially in cases of industrial accidents.

Death of Professor Chatin

Dr. Johannès Chatin, professor of histology at the Faculté des sciences of Paris, has just died, aged 65. He was the son of the celebrated botanist, Gaspard-Adolphe Chatin, and was known especially by his works on zoology, comparative anatomy, helminthology and teratology. He was appointed professor of the Faculté des sciences and in 1888 was chosen a member of the Académie de médecine and in 1900, a member of the Académie des sciences.

Disinfection of the Hands by Tincture of Iodin and Decoloration by Sodium Bisulphite

The employment of tincture of iodine to disinfect the surgeon's hands has not become general because of the difficulty of getting rid of the discoloration of the skin. The method of removing the discoloration by a solution of sodium bisulphite has been proposed by Dr. Taphanel of the Académie des Sciences. The method has the advantage of adding antiseptic action of the bisulphite to that of the iodine; moreover, the perspiration, which ordinarily necessitates washing during the operation, is suspended from an hour to an hour and a half.

The Disadvantages of Pyramidon in Typhoid

Dr. Hirtz has reported before the Société médicale des hôpitaux cases of several patients with typhoid fever in whom the administration of small doses of pyramidon (0.2 and 0.15 gm.) and caffeine provoked an abrupt fall of temperature, with, in one case, copious greenish vomiting and abdominal muscular contraction making one think of intestinal perforation. Similar symptoms are said to have been observed after the administration of moderate doses of salicylic acid and even of antipyrin. All these drugs seem then to be contra-indicated in typhoid.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, July 11, 1912.

Personal

A few days ago, Moritz Seidel, formerly professor of pharmacology at Jena, died at the age of 76.

Prof. von Krehl of Heidelberg has received a call as director of the first medical clinic at Munich, to succeed Prof. von Bauer. He is as little likely to accept this appointment as the call to Berlin after the death of von Leyden.

Professor Binz, the noted pharmacologist, formerly director of the Pharmacologic Institute at Bonn, celebrated his 80th birthday, July 1.

Professor Gad, formerly director of the Physiologic Institute at Graz, a pupil of Du Bois-Reymond, celebrated his 70th birthday, June 30.

The Fritz Schaudinn Medal for Notable Research in Microbiology

The international jury to which Ehrlich, Gaffky, Golgi and Grassi belong, has awarded the Schaudinn medal to Dr. Chagas, of the Institut Oswaldo Cruz, at Rio de Janeiro. [His discovery of the trypanosome responsible for epidemic thyroiditis in Brazil—Chagas' disease—was mentioned editorially in THE JOURNAL, 1910, IV, 603.]

Home for Psychopathic Children

A curative-educational institution for psychopathic children will be opened in Berlin, like the one in Göttingen, an account of which I gave you some time ago. The institution is established by the German Central Bureau for Juvenile Hygiene (*Jugendfürsorge*). The institution is intended, according to the conditions of the foundation, to furnish the possibility of appropriate institutional treatment to the poor for such children as do not get along well in the school on account of their insufficient intellectual ability, or who give no promise from attempts at education in the parents' home of future self-support. The home is intended only for boys of the ages from 8 to 15. The expense for care amounts to \$15 (60 M.) a month. If the means are sufficient, free places will be provided. The admission to the institution is given on the basis of a medical examination to take place in Berlin by the same psychiatrist who supervises the children in the institution.

Schiller's Skull

A few weeks ago, von Froriep professor of anatomy at Tübingen, announced that by excavations at Weimar he had found the genuine skull of Schiller. The coffin in the princely mausoleum at Weimar, which stands by the side of Goethe's and is well-known to many Americans, and bears the inscription "Schiller," does not contain the remains of Schiller. In a recent article in the *Deutsche medizinische Wochenschrift*, Waldeyer calls attention to the fact that Schiller's corpse was deposited at Weimar in 1805 in the so-called Landschaftskassengewölbe. In 1826 the mayor of Weimar obtained from the above mentioned vault twenty-three skulls and selected one of them which he considered to be the skull of Schiller. Three physicians, among them the grandfather of the Tübingen anatomist, A. v. Froriep, gave it as their opinion that the selected skull was in fact the skull of Schiller. This reputed skull of Schiller, in addition to some parts of the skeleton which were selected from the mass of bones as probably belonging to it, was at the order of the Grand Duke deposited in a sarcophagus in the princely vault which served as a burial place for the grand duke's family. Before this burial in the princely vault, a plaster cast was taken of the skull, and similarly, in 1805, just before the burial of the body of Schiller, a death mask was taken. H. Weleker, professor of anatomy at Halle, had an opportunity to compare the plaster cast of the skull with the death mask, and he recognized that the cast of the skull could not belong to the death mask, as he showed more particularly in his pamphlet, "The Skull and Death Mask of Schiller," Braunschweig, 1883. This proof, which must be recognized as correct, aroused the desire to establish definitely the skeleton of Schiller and to give a place to it in the princely vault instead of the at least doubtful one now in the sarcophagus and labeled "Schiller." The systematic search of von Froriep began in March, 1911, with archeologic studies at Weimar to secure definite data by which the skeleton of Schiller might be identified. His investigations show that since 1826, the year in which the mayor had the reputed remains of Schiller removed, there had been no bone of any sort taken from the official vault in which Schiller's body was buried and fifty-three skulls were found there. They were so well preserved that they could be employed for determination of identity. Of these fifty-three skulls only one agreed with the death mask of Schiller, and also a jaw was found in the neighborhood of this skull, which fitted the skull. The finding of the upper and lower jaws agreed with the information which has been handed down in regard to the teeth of Schiller. Von Froriep also investigated the negative evidence given by Weleker, and confirmed it by comparison of the plaster cast of the reputed skull of Schiller with the death mask. The anatomists assembled at Munich had an opportunity personally to examine the skull which is regarded by von Froriep as the genuine skull of Schiller, the cast of the reputed skull of Schiller, which rests in the Schiller sarcophagus in the princely vault at Weimar, and the death mask of Schiller. Waldeyer compared these three objects and assures us that he regards the skull which is pronounced by von Froriep to be genuine, as the skull of Friedrich von Schiller.

As was to be expected, opinions opposed to the findings of von Froriep have already been expressed. At the last session of the Berlin Anthropologic Society, the well-known scientist, Professor Nenhaus (a physician), declared that the skull produced by von Froriep is too small for the plaster cast, and he also showed other inconsistencies. He was of the opinion—in which Prof. H. Virchow and von Luschan agreed—that a satisfactory solution of the problem is only possible if the skull which has previously been recognized as belonging to Schiller and the one now exhumed by von Froriep be investigated by a committee of prominent anatomists and anthropologists and be compared with the death mask.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, July 9, 1912.

Free Choice of Doctors for Members of the Sick Club

After long and tedious negotiations, an interesting experiment has been started in this city as regards the medical service of one of the Krankenkassen or sick club. The members of the club will be entitled to choose from among the staff of the doctors of the club any medical man they wish as their regular attendant and will be at liberty to change their doctor as often as they like. Any doctor may enter the staff of the club if he submits to the conditions of fees,

which are 20 cents per visit in the surgery, 40 cents for a visit to the patient's home, 60 cents for a night visit; operations, specialist advice and midwifery at half the usual rates (of the district) for private patients. As the physicians appointed by other clubs are paid fees which work out in some instances not more than one-fourth of the figures mentioned above, it is evident that the advantage to the physician is great. On the other hand, the patients are at liberty to select the man they have confidence in, the moral ethics of which are easily conceivable.

Reform of the Penal Code of Austria: Its Medical Aspects

The government of this country has, after protracted studies, laid before parliament a series of amendments to the existing penal code, some clauses of which are important to the medical man. Thus the question of responsibility and youthful age has been remodeled according to the suggestions of renowned psychiatrists and makes irresponsible such individuals as must be regarded as "incapable to understand the wrong or injustice of a deed or to act accordingly to this understanding." The amendment says that the wrong-doer is punishable only for consequences of his deed which can be expected by a normally thinking person, if he uses due caution. Women and children are protected more extensively than formerly. The protection against sexual attacks has been only to the sixteenth year of age; now it is extended to the twentieth year. Maltreatment of children under 12 years of age is punishable by two years' imprisonment. Child labor, as well as that of young girls, is also strictly prohibited. Several medical suggestions have been complied with in the bill. Quackery conducted for money is strictly prohibited. The refusal of medical aid or obstetric help will be punishable only if the case is urgent; previously a medical man could not refuse to comply with a call for help. The clause which ordered the physician or midwife to report to the police a suspicious death or illness has been struck out, because it necessarily interfered with the confidence between patient and physician.

Marriages

WILLIAM SYLVESTER STREKER, M.D., Providence, R. I., to Miss Helen Sarah Callahan of Elmira, N. Y., in New York City, July 17.

EMMETTE TRIBLE GATEWOOD, M.D., Toano, Va., to Miss Belle Winfree Moss of Booker, Va., in Washington, D. C., July 1.

HOWARD H. JOHNSON, M.C., U. S. Army, to Mrs. E. M. Jones of San Francisco, in Washington, D. C., July 3.

LYMAN RAY CRITCHFIELD, M.D., Galesburg, N. Dak., to Miss Irene Pauline Siverson of St. Cloud, Minn., recently.

FRANK LEON WALDORF, M.D., Rochester, N. Y., to Miss Frances Amelia Marshall of Jackson, Ont., July 16.

THOMAS W. LEWIS, M.D., Chicago, to Miss Mamie Fauntleroy of Avoka, Va., at Lynchburg, Va., July 10.

HAROLD GUEGNON FABIEN EDWARDS, M.D., Abbeville, La., to Miss Inez M. Perrault of Opelousas, La., July 17.

GILBERT FRANKLIN DOUGLAS, M.D., Meridian, Miss., to Miss Mary Rachael Griffin of Chunky, Miss., June 26.

EARLE FRANCIS RISTINE, M.D., Cedar Falls, Wash., to Miss Lucy Hazel Wilson of Victoria, B. C., June 29.

LOUIE ELSWORTH LANGLEY, M.D., Williamsport, Pa., to Miss Mona L. Burke, at Centerville, Md., June 29.

WILLIAM ALFRED ROLFE, M.D., to Miss Ellen Y. Martinollick, both of Boston, in New York City, July 9.

CORYDON G. SNOW, M.C., U. S. Army, to Miss Anna M. Watkins, at Muskegon, Mich., June 22.

LEE JOHNSON, M.D., East Flat Rock, N. C., to Miss Mary Lucy Brown of Decatur, Ga., July 10.

WILLIAM P. MELODY, M.D., to Miss Marie Louise Burns, both of Detroit, Mich., July 11.

JOHN TYLER ENSMINGER, M.D., to Miss Helen M. Shearer, both of Harrisburg, Pa., July 17.

HARRY ARANOW, M.D., New York City, to Miss Dora Bittman of Brooklyn, June 30.

BERT O. OWENS, M.D., to Miss Charlotte O'Connor, both of St. Louis, Mo., recently.

SIMON H. SOBOROFF, M.D., to Miss Rebecca Soboroff, both of Chicago, June 25.

Deaths

Nathan Mayer, M.D. Cincinnati College of Medicine and Surgery, 1859; a member of the American Medical Association; for twenty-seven years president of the Board of U. S. Pension Examining Surgeons of Hartford, Conn.; died in the Hartford Hospital, July 10, from heart disease, aged 73. He was visiting physician to St. Francis Hospital; served as a surgeon during the war between France and Italy; and also was assistant surgeon of the Eleventh Connecticut Volunteer Infantry and later surgeon of the Sixteenth Connecticut Volunteer Infantry and a medical purveyor during the Civil War. He was appointed surgeon general of Connecticut in 1872-1873. He was once president of the Hartford Medical Society, which on January 1, honored him as its oldest member by presenting him with a silver loving-cup.

Heneage Gibbes, M.D. University of Aberdeen, Scotland, 1879; for three years curator of the Anatomical Museum of Kings College, London; in 1884 a member of the Royal Commission to investigate the cause of cholera in India, and three years later made professor in pathology in the University of Michigan, holding this position until 1895; health officer of Detroit from 1898 to 1901; prominent as a pathologist and one of the earliest workers against tuberculosis; died at his home in Oklahoma City, July 18, from senile debility, aged 80.

Joseph Cooper Hutchinson, M.D. Baltimore (Md.) Medical College, 1888; of Denver; a member of the Colorado State Medical Society; a member of the staff of Mercy and Denver County hospitals and head physician for the Fraternal Union of America; aged 49; professor of obstetrics in the University of Colorado School of Medicine, Boulder; was instantly killed in Elk Creek Canon, July 9, when his automobile plunged through a bridge into the creek.

Robert Fulton Boyd, M.D. Meharry Medical College, Nashville, Tenn., 1882; a prominent colored physician of Nashville; professor of gynecology and abdominal surgery in his alma mater; founder of the Boyd Infirmary and Mercy Hospital, and president of the People's Savings Bank; died at his home in Nashville, July 20, aged 54.

Archibald Cuolahan, M.D. Rush Medical College, 1887; a member of the American Medical Association; formerly a practitioner of Fayette and Merrill, Wis.; but for the last seven years a practitioner of DeWitt, Mich.; died in the City Hospital, Lansing, July 13, nearly four months after a surgical operation, aged 52.

Henry C. Largeman, M.D. Medico-Chirurgical College of Pennsylvania, Philadelphia, 1899; a member of the Medical Society of the State of Pennsylvania and of the staff of the Medico-Chirurgical, St. Mary's and Polyclinic hospitals, Philadelphia; died at his home, July 16, from spinal paralysis.

Henry M. Field, M.D. College of Physicians and Surgeons, New York City, 1862; formerly professor and emeritus professor of therapeutics in Dartmouth Medical School; for several years a practitioner of Pasadena, Cal.; died at the home of his son in Los Angeles, July 11, aged 73.

William Henry Dickerson, M.D. University of Nashville, Tenn., 1860; a member of the Kentucky State Medical Association; major and surgeon in the Confederate service throughout the Civil War; died at his home in Bowling Green, Ky., July 16, from cerebral hemorrhage, aged 78.

Rington Davis, M.D. Medical College of Ohio, Cincinnati, 1884; formerly of New York City and Talbot County, Md., but for the last two years a resident of England; died in a hotel in Brighton, July 9, from the effects of a gunshot wound believed to have been self-inflicted, aged 56.

Sprague Winchester, M.D. Tulane University, New Orleans, 1882; of Natchez, Miss.; died at his home, July 20, from the effects of a gunshot wound of the head, believed to have been self-inflicted, with suicidal intent, while despondent on account of ill health, aged 54.

John Addison Moorman, M.D. University of Maryland, Baltimore, 1868; Bellevue Hospital Medical College, 1873; a member of the Medical Society of Virginia; formerly of Haleford, Va.; died at his home in Hendrick's Store, Va., July 16, from nephritis, aged 68.

Edward Joseph Shanahan, M.D. College of Physicians and Surgeons, Baltimore, 1896; a member of the American Medical Association; at one time city physician of Taunton, Mass.; died at his home in that city, June 27, from facial erysipelas, aged about 50.

Joseph E. V. Mathieu, M.D. Victoria University, Coburg, Ont., 1879; state senator from Central Falls, R. I., and for eight years coroner of the city; president of the Pawtucket Medical Society; died at his home, July 12, from heart disease, aged 49.

Sewell Mizwell, M.D. Vanderbilt University, Nashville, Tenn., 1905; of Brownsville, Tex.; died at his home, July 18, from the effect of gunshot wounds, self-inflicted, it is believed, with suicidal intent, while despondent on account of ill health, aged 30.

R. L. Dudley, M.D. Chattanooga, Tenn. Medical College, 1892; a member of the State Medical Association of Texas; aged 44; died at his home in Marysville, June 3, from the effects of an accident in which he was thrown from his buggy.

George W. Shidler, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1875; a member of the American Medical Association and Medical Society of the Missouri Valley; died about July 11, at his home in York, Neb., aged 63.

Naomi Garton, M.D. Drake University, Des Moines, Ia., 1892; since 1881 a missionary and medical missionary in Burmah, under the American Baptist Missionary Union; died at the home of her sister in Des Moines, July 8, aged 66.

Horace M. Bellows, M.D. University of Pennsylvania, Philadelphia, 1861; acting assistant surgeon, U. S. Army during the Civil War; for thirty-six years a practitioner of Huntingdon Valley, Pa.; died in Philadelphia, July 12, aged 73.

Robert Willis Hoyt, M.D. Rush Medical College, 1875; of New Lisbon; a member of the State Medical Society of Wisconsin; died in St. Francis Hospital, La Crosse, July 16, after an operation for the removal of gall-stones, aged 60.

William Seymour Johnson, M.D. Hahnemann Medical College, Chicago, 1868; one of the oldest homeopathic practitioners of that city; a veteran of the Civil War; died at his home, July 27, from cerebral hemorrhage, aged 82.

William S. Stoakley, M.D. Jefferson Medical College, 1851; a member of the Medical Society of Virginia; surgeon in the Confederate Service during the Civil War; died at his home in Cheriton, July 11, from senile debility, aged 79.

John Solomon Kreiter, M.D. Bellevue Hospital Medical College, 1882; a member of the Medical Society of the State of Pennsylvania, and of the School Board of Akron; died at his home in that city, July 18, aged 59.

Dyer Morgan Marshall, M.D. Eclectic Medical College of the City of New York, 1891; for several years a practitioner of Toledo, Ohio; died at his home in Forestport, N. Y., July 14, from organic heart disease, aged 54.

Albert Paul Maschger, M.D. University of Minnesota, Minneapolis, 1905; of St. Paul; died in the Raddison Hotel, Minneapolis, July 17, from the effects of an overdose of morphin, self administered, aged 30.

Russell Caffery, M.D. Tulane University, New Orleans, 1891; a member of the American Medical Association and a leading practitioner of San Antonio, Tex.; died suddenly at his home, July 11, from uremia, aged 44.

John William Righeimer, M.D. College of Physicians and Surgeons, Chicago, 1910; head intern of the St. Anthony De Padua Hospital, Chicago; died in Garrett, Ind., July 12, from ptomain poisoning, aged 24.

William L. Michael, M.D. Kansas City (Mo.) Medical College, 1888; a member of the State Medical Association of Texas; died suddenly at his home in Sherman, July 19, from rheumatism, aged 50.

Galloway Truax, M.D. Castleton (Vt.) Medical College, 1849; for many years a practitioner of Maquoketa, Ia.; died at the home of his son in Chicago, July 27, from pleurisy, aged 86.

Alfred M. Haight, M.D. New York Homeopathic Medical College, New York City, 1879; of White Plains, N. Y.; died suddenly at Ocean Grove, N. J., July 14, from heart disease, aged 56.

Jesse Burdette Hyland, M.D. Harvard Medical School, 1884; formerly a member of the American Medical Association; died suddenly at his home in Keene, N. H., July 11, aged 50.

L. J. Kynett, M.D. Jefferson Medical College, 1876; a pioneer practitioner of southwestern Iowa; died at his home in Hamburg, July 17, from cerebral hemorrhage, aged 70.

Luther E. Jones, M.D. University of Tennessee, Nashville, 1903; a member of the Kentucky State Medical Association; died at his home in Benton, Ky., July 3, aged 35.

Henry M. Pusey, M.D. University of Louisville Ky., 1880; one of the old-school, family physicians of Louisville; died at his home, July 22, from nephritis, aged 54.

Carolyn I. Keife, M.D. George Washington University, Washington, D. C., 1894; formerly of Westfield, Mass.; died at White Plains, N. Y., July 3, aged 40.

Isaac M. Houston, M.D. St. Louis College of Physicians and Surgeons, 1889; died at his office in Falls City, Neb., July 16, from acute gastritis, aged 51.

George Louis Rudolph Schwegler, M.D. Indiana University School of Medicine, Indianapolis, 1911; died at his home in Salem, Ore., July 8, aged 28.

Charles W. Ammerman, M.D. Western Reserve University, Cleveland, O., 1873; died at his home in Greenwood, Del., April 11, aged 68.

Stephen Sanford Prosser, M.D. Jefferson Medical College, 1896; died at his home in San Jose, Cal., July 14, from tuberculosis, aged 45.

Edward Leo Gaus, M.D. Albany (N. Y.) Medical College, 1897; died June 29, at his home in Albany, aged 44.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

GOVERNMENT METHODS IN DEALING WITH NOSTRUMS IN GERMANY

A good illustration of the way in which the question of nostrums is handled in Germany, is given in a recent article in the *Berliner Morgen-Zeitung*. The nostrum exploited in this country under the name of "Nature's Health Restorer" by the M. A. Winter Company, of Washington, D. C.—formerly operating under the name of the Western Medical Institute—is also advertised in Germany under claims very similar to those made in this country. The Winter Company came to the attention of the Berlin police. How the police dealt with the matter is shown by two warning notices which we translate from the *Morgen-Zeitung*:

"WARNING"

"For a number of years, numerous agents have been solicited by the M. A. Winter Co., of Washington, D. C., to increase in the territory of the kingdom the use of the medicine sold by them under the name 'Nature's Health Restorer.' According to the information obtained, this medicine, which the firm styles a 'universal cure,' consists simply of a laxative harmless in favorable cases; it can by no means perform what the firm promises, but is sold for a high price. The undertaking amounts simply to an exploitation of the German public. The remedy, according to the resolution of the Bundesrat of June 27, 1907, is included in list B of secret remedies and consequently may be dispensed only on the order of a physician. Agents other than pharmacists who deal in this remedy, which is restricted in its sale to pharmacies, render themselves liable to punishment. "President of the Police."

Winter attempted to evade this restriction by changing the name of his stuff to "Nalthers Tablets." He was not sharp enough, however, for the German police, who promptly issued the following warning:

"WARNING"

"The remedy introduced into the trade by the M. A. Winter Co., of Washington, as 'Nature's Health Restorer' (Natürlicher Gesundheitshersteller), has recently been sold by this firm under the name of 'Nalthers Tablets.' The medicine was included, according to the resolution of the Bundesrat of June 27, 1907, in list B of secret remedies. As the composition of the tablets has remained the same, they are allowed to be sold, even under the new name, according to police ordinance of Nov. 14, 1907, only by apothecaries on the prescription of a physician, and may not be publicly advertised. Against the purchase of this article, which in a favorable case amounts only to a simple laxative sold for a high price, and one which can in no way perform what the firm promises, I have already given a public warning. "President of the Police."

It should be explained that in Germany two classes of tradesmen deal in drugs: (1) the so-called druggists are

allowed to sell simple remedies without a physician's prescription, but cannot sell poisons or put up prescriptions; (2) the apothecaries or pharmacists are professional men who put up physicians' prescriptions. It should be understood that in dealing with these matters, the police are carrying out a law enacted by the imperial and not by the local—Prussian or Berlin—government. The difference from the method pursued in this country is due not so much to the fact that the police are the agents, as to the wider extension of the functions of the imperial government.

Correspondence

Avoidance of Swimmers' Cramp

To the Editor:—Swimmers' cramp (the discussion of which began in THE JOURNAL, July 6, p. 53), is a condition well worthy of consideration. As it is the irony of fate to be thus attacked when immediate assistance cannot be obtained, preparedness is our most valuable asset. During the past few years I have had the pleasure of swimming in both the Atlantic and Pacific oceans quite frequently. A few hours' ride across the isthmus will permit one to enjoy both on the same day. My longest swim has been from Corozal to Balboa, a trifle over 2 miles. On several occasions in my earlier experience I have been embarrassed by the occurrence of severe "cramps" affecting the flexor group of muscles of one or both lower extremities. This usually developed after a strenuous effort continued for some time against a strong current or a heavy sea, the water being moderately warm.

I have found that the safest and most comfortable way to enjoy oneself in the water is to acquire the confidence which is given by the ability to float, and the knowledge that when, ever exhausted one can slip over on the back and rest, or in case of "cramp" permit the circulation to return to normal and the tonic spasm of the muscles to subside, which usually occurs within a few minutes. Then, until confidence is fully restored, one may swim leisurely along on the back. This is far superior to the "tub" position, which does not permit the complete relaxation of all the limbs. Because of greater specific gravity, salt water is much more buoyant than fresh water.

Symmetrical swimming, if I may coin the term, whether it be the Australian crawl or one of the other overhand or under-water strokes, has much to recommend it, as it distributes the exercise equally and avoids overuse of any one extremity. By this term I mean the alternate use of one arm and one leg, which produces a rhythm somewhat similar to that of the pacer, but of slower cadence. This is not necessarily a rapid method of water locomotion, but in my opinion it borders closely on the natural movement of the arms and legs when the pedestrian is swinging along at his natural gait, and under favorable conditions might be continued for long distances in water without causing excessive fatigue.

Mouth-breathing I find obviates to a great extent the tendency to water-choke, or reflex spasm of the larynx. For instance, during inspiration through the mouth, should an especially vicious whitecap strike the posterior pharyngeal wall, a forced expiratory blast relieves the situation and by rapidly turning the head aside the inspiration can be completed, whereas water inadvertently drawn through the anterior and posterior nares cannot be so readily disposed of and is more frequently aspirated into the larynx. Digestion should be well advanced after a full meal before one enters the water, say an hour or two, so that the blood from the splanchnic area may be spared for surface warmth of the body. E. B. Gleason of Philadelphia is of the opinion that many cases of drowning probably follow a severe aural vertigo from suddenly increased interlabrynthine pressure caused by severe buffeting in the surf. He recommends that patients with ear diseases tampon the external auditory canal during bathing, with petrolatum-covered cotton.

CHARLES M. STROTZ, M.D., Paraiso, C. Z.

American Blue Book of Biography

To the Editor:—I wish to call the attention of your readers to a request for biographic information which many of them may receive from the so-called American Blue Book of Biography. The form of the request, which contains a small attached proof to correct, is so similar to that to which physicians are accustomed from medical directories that one is quite likely to comply mechanically, and return the sheet with necessary corrections. The promoters of the enterprise seem to have counted on this, for the request above the bit of proof, which will probably be overlooked, reads as follows:

"Dear Sir:—Please correct and return biography below for publication in . . . the American Blue Book of Biography, the only obligation on your part being the acceptance of one copy containing your biography, payable on delivery if satisfactory."

As the price of the book is \$5, no one should thus become an unwitting subscriber to it by returning data about himself, unless he really wishes to pay the price. The scheme is a clever one and I have therefore thought it worth while to call the attention of medical men to it.

THEODORE C. JANEWAY, New York.

The Mongoos as Plague-Carrier in Porto Rico

To the Editor:—Having lived in Porto Rico and being familiar with conditions there, I should like to call attention to the mongoos as a possible factor in spreading the plague, as this animal does not seem to have been mentioned in this connection.

The mongoos is about the size and shape of our timber or large gray squirrel and is said to have been introduced into Porto Rico for the purpose of exterminating rats. While it has not done this, it has well-nigh exterminated the birds by robbing their nests. The mongoos is so nearly like the rat and the squirrel in size, habits and haunts that it would seem to be quite as likely to contract plague as our squirrels, which are known to be susceptible and therefore dangerous carriers.

Our plague experts in Porto Rico would do well to examine all these animals that can be captured, and they should be killed as well as rats. Even if it should be proved that mongooses are not susceptible to plague, their destruction would still be of considerable economic value to Porto Rico.

C. E. RUTH, Des Moines, Iowa.

An Antiseptic Thermometer Case

To the Editor:—I have been interested in the references of one or two of your correspondents to the clinical thermometer (THE JOURNAL, Oct. 21, 1911, p. 1357; June 8, 1912, p. 1756, and July 6, 1912, p. 52). It is a small instrument, but how very important! I believe it is a pardonable offense if a physician appears overfastidious in the presence of his patient in regard to the cleaning of his thermometer. We revolt at using a spoon or knife and fork that is not absolutely clean; how much more so when it comes to taking into our mouths a thermometer which we know has been the rounds of people suffering from various diseases! A thermometer case, which suspended by its chain, is always upright, is very convenient, I have found. Into it I pour once a week a few drops of a dilute formaldehyd solution. This together with washing the thermometer before and after using renders it, I think, doubly safe.

J. H. DEMPSTER, Detroit.

Detecting Tubercle Bacilli—A Possible Source of Error

To the Editor:—With reference to a communication of Dr. Fine in THE JOURNAL (July 20, p. 213), on "A Simple Method for Detecting Tubercle Bacilli in Sputum," I wish to call attention to a possible source of error.

There are several acid-fast bacilli which require special management in differentiation. This statement does not make it clear that these extraneous factors were taken into consideration. From Dr. Fine's method I believe that differentiation must chiefly be made from the hay bacillus.

F. E. BOUZA, M.D., Gretna, Neb.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TECHNIC OF WASSERMANN REACTION

To the Editor:—Please describe the technic of the Wassermann reaction.
E. A. WATSON, M.D., Kearney, Neb.

ANSWER.—The technic of the Wassermann reaction is described in recent text-books on clinical diagnosis. The following is a brief description of the technic:

In order to make a Wassermann test it is necessary first to put together (a) a syphilitic antigen, (b) a serum suspected of containing syphilitic antibodies, and (c) a small amount of guinea-pig serum to furnish the complement. This mixture is incubated for a certain period (forty-five minutes) at 37 C. At the end of this time if there are syphilitic antibodies in the suspected serum they will have combined with the antigen and with the complement so that there will no longer be any free complement in the serum. If this serum is now added to a mixture of sheep's blood-corpuscles and inactivated hemolytic (heated or immune) serum, no laking or hemolysis will take place because complement has been removed. On the other hand, if the suspected serum contained no syphilitic antibodies no combination with the antigen will have occurred and complement will remain free, so that when sheep's corpuscles and hemolytic serum are added, the free complement will cause hemolysis.

A positive Wassermann reaction causes no change in the mixture of blood-corpuscles and inactivated hemolytic serum, but in case of a negative reaction hemolysis occurs and the mixture of blood-corpuscles and inactivated hemolytic serum becomes transparent and red from the liberated hemoglobin.

For the performance of the reaction the following are needed:

1. Syphilitic antigen, best obtained from syphilitic liver. It has been found that extract obtained from the heart of the guinea-pig answers the purpose. These can be obtained ready prepared from certain laboratories. If made by the physician, the organ should be ground with sand and warmed in a water-bath at 60 C. for an hour with 9 c.c. of 95 per cent. alcohol for each gram and filtered. This filtrate should be kept at room temperature but in the dark. The degree of the dilution in which these extracts can be used should be ascertained by testing both against normal and syphilitic serums. It is convenient to make dilutions of 1:5, 1:10 and 1:20. If with the 1:5 dilution, in the presence of normal serum, the hemolysis is not complete at the end of two hours, in the incubator, after the addition of the hemolytic serum, while in 1:10 it is complete, the latter dilution can be used in testing a suspected serum.

2. Guinea-pig serum to serve as a source of complement. The blood should be obtained a few hours before use; if practicable, the evening before. The blood is allowed to clot in a suitable container and then kept over night on ice. The following morning the serum is pipetted off. Before use the serum is diluted 1 to 10 with 0.85 per cent. solution of sodium chlorid.

3. Inject 30 c.c. of a 50 per cent. mixture of washed sheep's blood-corpuscles into a rabbit every week or ten days (best intraperitoneally for three or four times). A week or ten days after the last injection the blood may be removed from the heart, the serum collected, inactivated by heating at 56 C. for half an hour, and kept on ice ready for use. This is also known as an amboceptor. It contains amboceptor (lytic antibody) for sheep corpuscles but no complement. Care should be taken to secure asepsis in these operations.

4. Sheep's blood obtained from the jugular vein of a sheep in a sterile flask and defibrinated by glass pearls. It is washed with salt solution two or three times and then mixed with salt solution either in the proportion of 5 per cent. or 50 per cent., according as one adheres to the cubic centimeter plan or drop method for measuring quantities.

The blood-serum of the patient to be tested is obtained as follows: Collect blood from the vein or finger, allow it to clot; remove the separated serum; centrifugate to clearness; pipet off into test-tube and heat at 56 C. for one-half hour.

Before making the reaction it is necessary: (1) to standardize the amboceptor; (2) to see that extract alone does not bind complement or lake (hemolyze) sheep's corpuscles; (3) to see that the blood-corpuscles have not become laked (hemolyzed); (4) to see that the complement is active.

The test is made as follows: For each serum two small test-tubes are required and several tubes for controls of the materials as above, these being repetitions of the tests of material made before beginning the test. Add 10 drops of salt solution to each tube. Add a drop of serum to each of the two tubes used for a given serum. Then add two drops of organ extract to one of them. To one of the control tubes add two drops of organ extract. To each add a drop of complement. Shake tubes and place in incubator for one hour. Remove and add to each a drop of standardized amboceptor and one drop of 50 per cent. suspension of sheep corpuscles. Incubate for an hour and a half and then read the result. All controls with serums alone, with normal serums and with organ extract alone should be hemolyzed. If hemolysis has occurred in tubes containing suspected serums and organ extract, the result is regarded as negative. If hemolysis has not occurred at all, or only incompletely, in these tubes, the result indicates that the patient furnishing the serum is affected with syphilis.

Some workers use uniformly 0.5 c.c. of both the solutions instead of drops as recommended.

The best way and the surest to learn to make the test is by visiting a good laboratory.

ACID SODIUM PHOSPHATE

To the Editor:—1. Please describe acid sodium phosphate, referred to in THE JOURNAL (July 6, 1912, p. 38), in the editorial on "The Conditions for the Effective Action of Urinary Antiseptics." 2. What is the dose? 3. What is the mode of administration in connection with hexamethylenamin? 4. How can it be obtained?

FRANK E. BROWN, M.D., Baltimore.

ANSWER.—1. Sodium acid phosphate (NaH_2PO_4), is formed from ordinary disodium hydrogen phosphate (Na_2HPO_4), by treating the latter salt with phosphoric acid. It is supposed to be formed to some extent whenever sodium phosphate is dissolved in an acid. It is present in acid urine and is the salt to which the greater part of the acidity of the urine is due. Sodium acid phosphate is a crystalline substance which dissolves readily in water, forming an acid solution. It is converted into the ordinary or disodium hydrogen phosphate by the action of alkalis so that in the intestines and in the blood it would exist chiefly in the form of the neutral or disodium hydrogen salt.

2. The dose would depend on the reaction of the urine. If it were neutral, a quantity sufficient to restore the ordinary degree of acidity would be an appropriate dose. If we calculate the average acidity of urine at 617 c.c. of tenth-normal acid for twenty-four hours, the equivalent amount of dihydrogen sodium phosphate (Mol. W. 121) would be approximately 8 gm. for twenty-four hours, which could be administered in 1-gram doses once in three hours. Doses of 1 to 1.5 gm. (15 to 20 grains) should be given at frequent intervals until the urine becomes acid. Larger doses would not be likely to do harm.

3. The necessary dose can be administered in solution suitably diluted and sweetened like lemonade. A solution of the acid phosphate could be made extemporaneously at any time by dissolving the equivalent quantity of ordinary sodium phosphate in water and adding the necessary amount of diluted phosphoric acid to convert the sodium phosphate into the acid salt. Thus:

R.	gm.	
Sodii phosphat.	80.00	3iij
Acidi phosphorici dil.	200.00	3vi
Aque ad	300.00	3xiij

M. Sig. Take a tablespoonful in plenty of water once in three hours.

4. Acid sodium phosphate is sold by some dealers in chemicals, but as indicated, there seems to be no need to purchase it for therapeutic purposes.

PREPARATIONS OF BULGARIAN BACILLUS

To the Editor:—May I ask through you Dr. Ralph Oakley Clock of New York, author of "Intestinal Implantation of the *Bacillus Lactis Bulgaricus* in Certain Intestinal Conditions of Infants, with Report of Cases" (THE JOURNAL, June 29, 1912, p. 2017), where he has obtained the tablets of the *Bacillus lactis bulgaricus*? Does any concern manufacture them? Does the dose differ according to age and severity of the disease?

S. G. PAVLO, M.D., Malden, Mass.

ANSWER.—This letter is one of many received to the same effect. Some correspondents ask about an article by Dr. J. G. Clark, having seen the account quoted in a newspaper which printed Dr. Clock's name wrongly. The inquiry printed above was referred to Dr. Clock, who writes that the preparation

used in his reported cases was "Bulgara Tablets," a product of the laboratory of Hynson, Westcott & Co., of Baltimore. This product is fully described in New and Nonofficial Remedies, 1912, p. 127.

The action of the *Bacillus lactis bulgaricus* is supposed to depend on the production of lactic acid from the carbohydrate in the intestinal canal. As the bacillus multiplies in the intestine under favorable conditions, and is in itself not injurious, there is no special reason to vary the dose according to age. If the desired effect is not obtained, it would be advisable to give larger doses of the culture of the bacillus, but it must be remembered that the quantity of acid formed depends as much on the amount of carbohydrate food present as on the number of bacilli.

TECHNIC OF PERUTZ REACTION

To the Editor:—Please give the technic of the Perutz reaction for the serodiagnosis of syphilis.
H. F. C., Baltimore.

ANSWER.—Details of the technic of the Perutz reaction are given by Jensen and Feilberg in the article abstracted in THE JOURNAL, July 13, 1912, p. 152. While the Wassermann reaction requires several days of preparation, the Hermann-Perutz reaction requires only two solutions:

1. Sodium glycocholate 2.0
Cholesterin 0.40
Alcohol 95 per cent. 100.00
2. A 2 per cent. water solution of sodium glycocholate.

The necessary material can be kept ready and the solutions made in a short time before the test is made. Solution 2 must be prepared fresh every time. After the serum has been inactivated for a half hour at 55 C. (131 F.), as in the Wassermann reaction, 0.4 c.c. of the serum is drawn off with a pipette and 0.2 c.c. of each solution added to it, but Solution 1 must first be diluted with water in proportion of 1:20. After vigorous shaking, the mixture is set away at room-temperature, and the positive reaction occurs in the form of fine, characteristic flakes which appear in the preparation. According to the size of the flakes and the greater or smaller amount of the sediment, the strength of the reaction is designated with +, ++ or +++.

The authors have modified the method by setting the mixture away in a thermostat with constant temperature of 21 C. (69.8 F.) and, instead of first measuring off Solution 1 and then Solution 2, they have drawn off from a larger mixture of the two solutions 0.4 c.c., thus saving one operation and reaching a greater degree of exactness.

No other serum or corpuscles than that of the patient are needed.

CRYING OF THE FETUS IN UTERO

To the Editor:—Are there any cases on record in which the infant has uttered cries while in utero?
A. W. B.

ANSWER.—The possibility of the mature fetus crying in utero is indisputable: "vagitus uterinus," as it is called, is, however, exceedingly rarely heard. It is not uncommon for a child in utero to have more or less violent movements due to an intra-uterine asphyxia; during such convulsive efforts there is generally a participation of the respiratory muscles of the chest and diaphragm. If the membranes have been ruptured, and air reaches the nostrils and mouth, a cry may be produced of sufficient intensity to be heard by those present. In addition to the asphyxia some writers maintain that some stimulus to the fetal skin must be given—as, for instance, the operator's hand in the act of performing a version. At any rate, it is in the production of an internal version that the introduction of air is most likely to occur and, therefore, crying to be elicited. The citation of cases of vagitus in which the membranes are intact is purely apocryphal.

SODIUM CARBONATE TREATMENT OF ALBUMINURIA

To the Editor:—Please give reference to an article by Fischer on albumin, and the sodium carbonate treatment.

E. A. WATSON, M.D., Kearney, Neb.

ANSWER.—Fischer has published his views in a book entitled "Nephritis: An Experimental and Critical Study of Its Nature, Cause and the Principles of Its Relief," J. Wiley & Sons, 1912, New York; price \$2.50. The following may also be referred to: "The Nature and the Cause of Edema," THE JOURNAL, Sept. 5, 1908, p. 830; "Practical Points in Treatment of Nephritis," Ohio State Med. Jour., Columbus, Aug. 15, 1911. An article by Dr. A. R. Moore, Berkeley, Cal., will appear in THE JOURNAL soon, probably August 10.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

THE RIGHT OF CHILDREN TO PROPER SCIENTIFIC TREATMENT

Among the many excellent editorials on public health which have recently appeared, the leading editorial in the *Chicago American* for July 23 is easily one of the strongest, sanest and most logical. Discussing the right of parents to decide what treatment shall be given their children, the *American* says:

This newspaper has advocated and does advocate the establishment of a public department of health under the management of the national government.

The government and the people of the United States, spending millions to tell farmers how to care for young pigs, horses, chickens and geese, should spend some money telling mothers and fathers how to care for their children—and, if necessary, compelling proper care of those that need care.

This wise measure has been opposed by many that do not understand it, and by many others that have good reasons for fearing science and intelligent action.

Some of those that hate the idea of a department of health are well-meaning dreamers who amuse themselves by saying that there is no disease—until disease comes. Then they die or send for a doctor.

Others make money by exploiting the diseases, terrors and sorrows of humanity and fear the spread of knowledge.

Among those that oppose the public health department is one who writes as follows:

"You speak of the great good that the government does through the departments that give to the farmers information regarding the care of their various animals, all of which is perfectly true and a great work, and then of the lack of interest displayed by the same government in caring for the health of the children. But it does not seem to me that the cases are parallel, because in the case of the animals they, being dumb brutes, must take whatever kind of care is given to them without any choice in the matter, but when it comes to a human being he, or she, is absolutely entitled to the right to choose for himself, or herself, what method of treatment he, or she, desires. Or in the case of children, the parents have the right to make this choice, as we certainly are entitled to the inalienable right when it comes to the selection of our medical school as we are in selecting our religion. And should this department of health be established it would without doubt be run absolutely by physicians of the allopathic school, and they would have, of course, the medical laws so framed as to make it impossible for you to employ a method of treatment that did not correspond to their views."

In reply to this we beg to say, first, that the public would not for a moment tolerate a law telling the people to adopt and submit themselves to treatment by any medical school, allopathic or otherwise.

The government does not compel the farmer to treat his hog or his cow or his sheep if the farmer does not want to. The farmer is allowed to let the animal die. But he is not allowed to let his animals endanger the lives of the animals of his neighbors. He isn't allowed to let his own conceit or foolish notions endanger the prosperity or health of others.

Similarly, a department of health devoted to the interest of human beings would not compel the adult man or woman to adopt any school of treatment. But that department would do in a national way what the city and state departments of health do now. It would not permit the crack-brained theorist denying the existence of disease, or the careless, indifferent idiot, to endanger the lives of others.

The health department would say to the citizen: "If it is your pleasure to die of consumption you may do so. If you wish to die of small-pox you may do so; that is your business. But you shall not spread consumption among others if we can prevent it, and you shall not spread the small-pox." A department of health would give advice, it would prevent the spreading of disease, and no sane person could object.

In regard to children, we deny the statement of our correspondent that the parent has the right to treat the children medically as he sees fit, and that the choice of medical treatment is the same as the choice of religious doctrine.

A man has the right to teach his children what religion he pleases—that right is guaranteed to him by the Constitution. Later on the child can change if it wishes. Meanwhile the fact that the child is a Mohammedan, an agnostic, an atheist, a Christian Scientist, a Catholic, a Protestant, a Zoroastrian, a Confucian, a Buddhist or what not makes no difference to the general welfare.

Religions, unlike diseases, are not catching. And if a parent chooses to inculcate religious doctrines, truthful or false, that doesn't do any harm to the community.

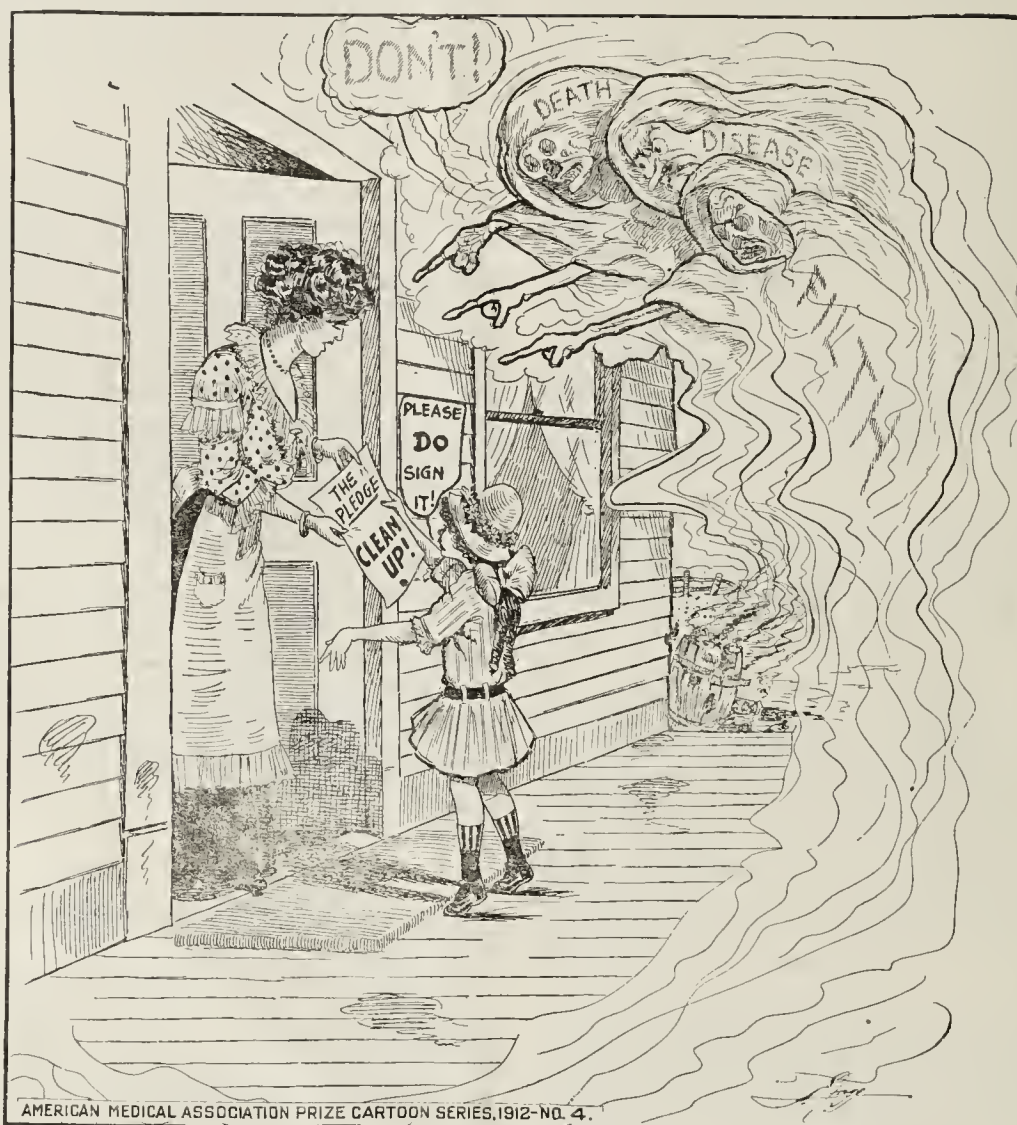
With disease and with the practice of medicine it is different. The child is entitled to the protection which is offered to it by the

progress of science. Our correspondent knows that in China, for instance, the ignorant natives refuse to be treated when they have the plague. They die in heaps, and their children die because they won't let them be treated. Does our correspondent think it wise to permit human beings and children to die in this way?

Our correspondent is aware of the fact that the Indians, when they see a child dying, send for the medicine-man. This medicine-man waves his body back and forth in front of the child, or holds up some ridiculous charm, and sits there placidly while the child dies or gets well. Does our correspondent think that the government would be wise to allow children to die in this fashion if they had diphtheria, small-pox or other diseases that everybody knows require sane, scientific treatment?

Grown people may die if they choose; they may refuse to eat or wear clothing if they want to. But they cannot refuse to give their children the treatment which the most advanced science prescribes.

Many parents have contested in the courts the theory that it is illegal to allow a child to die without care, and such parents have learned to their cost that medicine and religion are two different things.



AMERICAN MEDICAL ASSOCIATION PRIZE CARTOON SERIES, 1912-NO. 4.

Who Says "DON'T"?

A national bureau of health would be chiefly advisory, answering questions, spreading information, preventing the spread of contagious diseases. And once established, not even the most crack-brained dreamer or the most selfish exploiter of disease would really advocate discontinuing it.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: San Francisco, August 6-9. Sec., Dr. Charles L. Tisdale, 929 Butler Building.
NEBRASKA: Capitol, Lincoln, August 14-15. Sec., Dr. C. P. Fall, Beatrice.

Louisiana Reciprocates with Mississippi

Dr. A. B. Brown, secretary of the Louisiana State Board of Medical Examiners, writes that reciprocal relations have been arranged between Louisiana and Mississippi on the following basis: (1) preliminary requirements of applicants being satisfactory to either board; (2) all applicants for reciprocity must hold diplomas from medical colleges rated in Class A; (3) applicants must have passed examinations before state boards in the states from which they desire to reciprocate, and (4) all applicants must possess certificates of good moral character, also certificates of their connection with state and county medical societies.

Illinois April Report

Dr. James A. Egan, Secretary of the Illinois State Board of Health, reports the written examination held at Chicago, April 30-May 1-4, 1912. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 228, of whom 183 passed, 44 failed, and 1 withdrew. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Examined.
Bennett Med. College...	(1910, 1) (1911, 2) (1912, 17)		20
Chicago College of Med. and Surg.	(1911, 2) (1912, 29)		31
College of Med. and Surg., Physio-Med., Chicago...	(1911)		1
Chicago Homeopathic Medical College...	(1888)		1
Jenner Medical College...	(1905, 1) (1912, 2)		3
Northwestern University Medical School...			
.....(1905, 1) (1910, 1) (1911, 3) (1912, 8)			13
College of Physicians and Surgeons, Chicago...			
.....(1906, 1) (1910, 2) (1911, 3) (1912, 46)			52
Rush Medical College...	(1897, 1) (1911, 5) (1912, 37)		43
Reliance Medical College...	(1910)		1
College of Physicians and Surgeons, Keokuk...	(1893)		1
Sioux City College of Medicine...	(1906)		1
Kentucky University...	(1905)		1
Flint Medical College...	(1909)		1
Johns Hopkins University...	(1905)		1
College of Physicians and Surgeons, Boston...	(1909)		1
University of Michigan, Dept. of Med. and Surg.	(1890)		1
American Medical College, St. Louis...	(1911)		1
Washington University, St. Louis...	(1912)		1
Syracuse University, College of Medicine...	(1884)		1
Columbia University, College of Phys. and Surg.	(1908)		1
Cornell University Medical College...	(1909)		1
Medical College of Ohio...	(1880)		1
Miami Medical College, Cincinnati...	(1893)		1
Hahnemann Med. Coll. and Hosp., Philadelphia...	(1899)		1
Trinity University, Toronto, Ontario...	(1897)		1
Royal College of Phys. and Surg., Ireland...	(1911)		1
National University, Ireland...	(1911)		1
FAILED			
Bennett Medical College...	(1911, 3) (1912, 2)		5
Chicago College of Medicine and Surgery...			
.....(1910, 1) (1911, 6) (1912, 8)			15
Hahnemann Medical College and Hospital, Chicago...	(1893, 1) (1910, 1) (1911, 1) (1912, 1)		4
Illinois Medical College...	(1910)		1
Jenner Medical College...	(1911)		1
National Medical University, Chicago...	(1909)		1
Northwestern University Medical School...	(1911)		1
College of Physicians and Surgeons, Chicago...			
.....(1910, 1) (1911, 4) (1912, 3)			8
Reliance Medical College...	(1911)		2
Hospital College of Med., Louisville (1904, 1) (1908, 1)			1
St. Louis College of Physicians and Surgeons...	(1908)		1
Tufts College Medical School...	(1903)		1
Moharry Medical College...	(1907)		1
University of Modena, Italy...	(1903)		1

Book Notices

SEX HYGIENE FOR THE MALE AND WHAT TO SAY TO THE BOY. By G. Frank Lydston, M.D., Professor of the Surgical Diseases of the Genito-Urinary Organs and Syphilology, Medical Department, State University of Illinois. Cloth. Price, \$2.25. Pp. 304, with 24 illustrations. Chicago: Riverton Press, 1912.

This book is intended to acquaint the teacher, parent, boy in high school and youth in college with sex hygiene, (1) by showing the close relation between general hygiene and sex hygiene; (2) by outlining a system of physical training, and muscle-control and building; (3) by a description of the various diseases, venereal and non-venereal, to which the sex organs of the male are subject. In the final chapter entitled, "A Word to Teachers and Parents, and What to Say to the Boy," are given forty-five short paragraphs, which really summarize the entire contents of the book. This chapter has been reprinted in pamphlet form and is available for general distribution.

As is to be expected, this treatise contains nothing medical that is new to medical men, but states in clear and non-scientific terms the enormous danger that awaits any boy or man who abuses or misuses his sexual organs. The time-honored "wild oats" story, in a very forceful chapter, is shown as absolutely false which ends with the following sentence, "The crop is garnered with the sickle of regret and threshed with the flail of disease and pain."

The advice and suggestions given as regards ordinary hygiene and sex hygiene are rational and sound. The descriptions of anatomy, physiology and pathology of disease are scientifically correct, and the seriousness of the venereal diseases and their complications and sequelae are all pointed out and emphasized. The fact that the only sure preventive of venereal disease is sexual continence is brought out and emphasized; it is also shown that practically all prostitutes are infected with venereal disease and that liquor increases the susceptibility to infection. The physician who examines prostitutes and certifies to their cleanliness and freedom from disease comes in for some characteristic sarcasm. Dr. Lydston condemns the reporting of venereal disease to the health department.

Some of the hygienic reforms advocated in the book are: (1) routine circumcision; (2) a medical examination as a necessary preliminary to marriage; (3) the giving of lectures in the public schools by medical men and women on the subject of sex hygiene and venereal diseases; and (4) the giving of special clinics for laymen, in which actual cases of venereal diseases can be shown. The dangers of intimacies between boys and the teaching of bad habits to children by servants are warned against. The dance-hall evil is explained and the intimate relation between it, alcoholism and sexual disease is thoroughly discussed. Another strong point in the book is the plea for universal instruction in swimming, boxing, fencing and wrestling, as these exercises tend to develop the eye, the judgment of distance and muscle, besides using up the energy that might otherwise be expended in a perverse sexual way.

From an educational point of view the work is excellent. There is neither hypocrisy on the one hand nor coarseness, vulgarity or suggestiveness on the other, in the statements of facts and the description of conditions. This work may be read by an adolescent or adult with no shock to the sensibilities, but to the great mental and physical betterment in most instances.

PELLAGRA. An American Problem. By George M. Niles, M.D., Professor of Gastro-Enterology and Therapeutics, Atlanta School of Medicine. Cloth. Price, \$3 net. Pp. 253, with illustrations. Philadelphia: W. B. Saunders Company, 1912.

The discovery of the wide prevalence of pellagra in the United States, particularly in the South, has in the past few years greatly augmented the literature on this subject. The disease has been subjected to an intensive clinical study and much research has been undertaken with reference to the etiology. It cannot be said, however, that the latter feature has been greatly advanced. Up to the present the many

etiologies remain merely theories. The symptomatology is better understood and at present most cases, perhaps, are diagnosed, although cases in different localities present a widely varying symptomatology. Except for the skin manifestations the pathology presents no very definite picture. In the treatment considerable progress has been made and when the cases come under medical management early the prognosis is often good. All of these points are brought out in the work of Niles in a clear and entertaining manner. Much of the history of pellagra is given in the book; its connection in Europe with the introduction of maize and the various other theories as to its etiology are given impartial discussion. Without stating a decided opinion, the author leans toward the corn theory of Lombroso. The symptomatology of the varying types or cases of the disease is described carefully. In the treatment Niles offers a definite line of procedure which in his hands has had a measurable degree of success. Some research work in the way of producing the disease experimentally in animals by means of corn products is detailed. Nothing definite, however, was arrived at by these experiments. The book, while hardly in the nature of a textbook on pellagra, is an interesting and valuable monograph on the subject.

A PRELIMINARY STUDY OF KENTUCKY LOCALITIES IN WHICH PELLAGRA IS PREVALENT. Having Reference to the Condition of the Corn Crop and to the Possible Presence of an Insect or Other Agent by which the Disease Spreads. Bulletin 159. Kentucky Agricultural Experiment Station of the State University. Paper. Pp. 72, with 65 illustrations.

The Sambon theory of the transmission of pellagra has aroused a considerable interest in entomologic conditions in the localities where the disease is prevalent. While the *Simulium reptans*, the species of sand-fly incriminated by Sambon, has not been found in this country except in Greenland, it has been thought possible that related species may be the conveyors of the disease in this country. As a contribution to our knowledge of these insects, Bulletin No. 159 is written giving the results of the author's individual researches. No attempt is made to draw final conclusions. Indeed, the absence of any knowledge of a microbe or protozoic cause of the disease permits us at present only to surmise that a simulum may be the conveyor of the unknown germ. The work of Dr. Garman, while so technical as to be of little immediate practical value to medical men, must be hailed as an essential preliminary to the final solution of an important question in etiology. The thorough and competent work of such investigators, supported by the state and national authorities, goes far to compensate for the lack of a special medical department. The survey resulted in the discovery of a specimen of the yellow-fever mosquito *Stegomyia fasciata*, in addition to three varieties of simulum for which Garman was looking especially. The author describes two more, *S. reptans* and the turkey guat, which, he thinks, will probably be found there. Altogether over forty species of insects were collected by him. He also notes some mollusks, fishes and amphibia. The pamphlet is well illustrated by a large number of drawings and photographs.

THE CAUSATION AND PREVENTION OF TYPHOID FEVER. With Special Reference to Conditions Observed in Yakima County, Washington. By L. L. Lumsden. Paper. Pp. 53, with illustrations. Public Health and Marine-Hospital Service: Public-Health Bulletin No. 51. 1912.

This pamphlet consists of two parts: a general discussion of the cause and prevention of typhoid fever, which is given in such an elementary way as to be of value to the layman as well as to the physician, and a study of an epidemic of typhoid fever in Yakima County, Washington, with recommendations for the prevention of such epidemics. The author concludes that the endemic prevalence of typhoid in North Yakima from 1908 to 1910 was due to the local dissemination of human excreta and to the occasional introduction of exogenous infection. The special outbreak in 1911 was caused by the infection of the city watermains, the water being pumped in from a mill-pond. A reduction of the prevalence (by 90 per cent.) was secured by the carrying out of reasonable measures directed especially to the correction of insanitary local conditions. The author concludes, therefore, that

the high prevalence of typhoid in Yakima County is amenable to very marked reduction through the application of measures for the correction of insanitary local conditions. There are two appendixes added, one dealing with the construction of a sanitary privy, and the other with measures to prevent infection from the bedside of typhoid fever patients. The pamphlet is well illustrated by drawings and photographs of sanitary and insanitary privies and by a number of maps and charts.

This bulletin, which is one of a series of public health bulletins, is of great interest, not only to those living in the region where the epidemic, which gave rise to the investigation occurred, but to sanitarians and physicians in general who are confronted with the typhoid problem in rural districts.

WHO'S WHO IN SCIENCE (INTERNATIONAL). Edited by H. H. Stephenson. Cloth. Price, \$2. Pp. 335. New York: Macmillan Company, 1912.

This volume contains data with regard to living scientists all over the world. The editor says that those branches of knowledge which lie on the border-line between science and the humanities, between the objective and the subjective, have not been included. The sciences here represented are agriculture and forestry, anatomy, anthropology, astronomy and meteorology, botany, chemistry, engineering, geology, mineralogy, mathematics, medicine, surgery, etc., pathology and bacteriology, physics, physiology and zoology. The book contains a list of the world's universities with sites, dates of foundation and names of heads, registrars and senior professors; condensed biographies arranged alphabetically, giving, for each man, positions held, residence, date of birth, education and principal publication and achievements; and, at the end, a classified index of names arranged under the sciences and subdivided by countries.

Some omissions noted on a hasty glance through the volume seem to indicate that distinguished men of science who hold no positions in institutions of learning have failed to be recorded, in many instances at least. Among medical men in particular, the selection of names has not been guided by broad judgment, as is shown by an examination of the list of American physicians and surgeons. Inventors also seem to have been neglected. Apparently, if the book had been prepared in the days of George Stephenson or Robert Fulton or James Hargreaves, none of them would have been included; they held no academic positions. Morse, the inventor of the telegraph, might have slipped in; he was professor of fine arts in the University of the City of New York! The plan of the work seems a good one except that, as noted, it includes chiefly (or solely?) men in academic positions.

TEXT-BOOK OF OPHTHALMOLOGY. In the form of Clinical Lectures. By Dr. Paul Roemer, Professor of Ophthalmology at Greifswald. Translated by Dr. Matthias Lanckton Foster. Volume 1. Cloth. Price, \$2.50. Pp. 275, with 186 illustrations. New York: Rebman Company, 1912.

THE JOURNAL (Sept. 16, 1911, p. 1004) contained a review of the German edition of this admirable text-book and we are glad to read the first instalment (about one-third) of its translation into the English language. On the whole what was said of the original work holds true of the American edition; indeed, in some respects there is a distinct improvement noticeable in Dr. Foster's adaptation of the German text, especially in his avoidance of a number of errors that seem to have eluded the eye of the author. Although the illustrations are of the same inferior order of the original edition, the subject-matter is so excellent that one may easily overlook minor defects, especially as the binding, print and paper are excellent.

THE INTERNATIONAL MEDICAL ANNUAL. A Year-Book of Treatment and Practitioner's Index. Thirtieth Year. Cloth. Price, \$3.50. Pp. 654, with illustrations. New York: E. B. Treat & Co., 1912.

The thirtieth edition of the International Medical Annual is a substantial book of 654 pages dealing with the literature of the past year. The arrangement, as is well known, is practically alphabetical, which facilitates reference although it necessitates a separation of closely related topics. The limited space given to each topic necessitates a very consid-

erable amount of condensation, yet the reader will find in it the essential advances in medicine during the year 1911. It is illustrated by a number of excellent plates, several of them colored. To a large extent the articles appear to be reviews and not a mere collection of abstracts. This factor especially will recommend itself to the practicing physician who desires not only a bibliography, but a clear estimate of the treatments proposed.

Medicolegal

United States Supreme Court on Constitutionality of Medical Practice Act—States May Regulate Practice of Healing Art—Medical Schools—Single Transactions—Established Business—Osteopaths

(*Ira W. Collins vs. State of Texas* (U. S.), 32 S. C. Rep. 286)

The Supreme Court of the United States affirms a judgment of the Court of Criminal Appeals of Texas affirming a judgment of a county court refusing relief by habeas corpus to a person in custody on the charge of practicing osteopathy without a license, who is now called the plaintiff in error. The Supreme Court says that he was held on an information charging him with practicing medicine for money by treating a named patient for hay fever by osteopathy, without having registered his authority, as required by the Texas statute of 1907, chapter 123. He denied the constitutionality of the act.

The statute establishes a board of medical examiners, and requires "all legal practitioners of medicine in this state, who, practicing under the provisions of previous laws, or under diplomas of a reputable and legal college of medicine, have not already received license," to prove their diplomas, etc., and applicants not licensed must pass an examination, conditioned, among other things, on their being graduates of "bona fide reputable medical schools," "whose entrance requirements and courses of instruction are as high as those adopted by the better class of medical schools of the United States, whose course of instruction shall embrace not less than four terms of five months each." Section 13 of the statute declares that "any person shall be regarded as practicing medicine within the meaning of this act . . . who shall treat or offer to treat any disease or disorder, mental or physical, or any physical deformity or injury, by any system or method, or to effect cures thereof, and charge therefor, directly or indirectly, money or other compensation." By another section, nothing in the act is to be construed to discriminate against any particular system, and it is not to apply to nurses, masseurs, etc.

The facts charged against the plaintiff in error were admitted. It also was admitted that before the passage of the statute he had spent \$5,000 in fitting up his place, and was deriving from his calling a net income of at least the same sum. He held a diploma from the chartered American School of Osteopathy, Kirksville, Mo., after a full two years' course of study there, but it did not appear that he presented this diploma to the board of medical examiners, or attempted to secure either a verification license or license in any form. The board, in passing on qualifications, does not examine in therapeutics or materia medica, which are not mentioned in the statute. On these facts the Supreme Court is of opinion that the plaintiff in error failed to show that the statute inflicts any wrong on him, contrary to the Fourteenth Amendment of the Constitution of the United States. If he has not suffered, the court is not called on to speculate on other cases, or to decide whether the followers of Christian Science or other people might, in some event, have cause to complain.

The court is far from agreeing with the plaintiff in error that the definition of practicing medicine in Section 13 is arbitrary or irrational, but it would be immaterial if it were, as its only object is to explain who fall within the purview of the act. That it does, and, of course, this court follows the Texas court in its decision that the plaintiff in error is included. It is true that he does not administer drugs, but

he practices what at least purports to be the healing art. The state constitutionally may prescribe conditions to such practice, considered by it to be necessary or useful to secure competence in those who follow it. We should presume, until the Texas courts say otherwise, that the reference to the diploma of a reputable and legal college of medicine, and the confining of examinations to graduates of reputable medical schools, use the words "medicine" and "medical" with the same broad sense as Section 13, and that the diploma of the plaintiff in error would not be rejected merely because it came from a school of osteopathy. In short, the statute says that if you want to do what it calls practicing medicine, you must have gone to a reputable school in that kind of practice. Whatever may be the osteopathic dislike of medicines, neither the school nor the plaintiff in error suffers a constitutional wrong if his place of tuition is called a medical school by the act for the purpose of showing that it satisfies the statutory requirements. He cannot say that it would not have been regarded as doing so, because he has not tried.

An osteopath professes—the plaintiff in error professes, as this court understands it—to help certain ailments by scientific manipulation affecting the nerve centers. It is intelligible, therefore, that the state should require of him a scientific training. He, like others, must begin by a diagnosis. It is no answer to say that in many instances the diagnosis is easy—that a man knows it when he has a cold or a toothache. For a general practice science is needed. An osteopath undertakes to be something more than a nurse or a masseur, and the difference rests precisely in a claim to greater science, which the state requires him to prove. The same considerations that justify including him justify excluding the lower grades from the law.

Again, it is not an answer to say that the plaintiff in error is prosecuted for a single case. If the legislature may prohibit a general practice for money except on the conditions stated, it may attach the same conditions to a single transaction of a kind not likely to occur otherwise than as an instance of a general practice.

Finally, the law is not made invalid as against the plaintiff in error by the fact that he had an established business when the law was passed.

Society Proceedings

COMING MEETINGS

Am. Acad. of Ophthal. and Oto-Laryngol., Niagara Falls, Aug. 20-22.
Amer. Assn. of Obstetricians and Gynecologists, Toledo, Sept. 17-19.
American Electro-Therapeutic Association, Richmond, Va., Sept. 3-5.
American Roentgen Ray Society, Niagara Falls, Sept. 11-14.
Medical Society of the Missouri Valley, Council Bluffs, Ia., Sept. 5-6.
Minnesota State Medical Association, Duluth, Aug. 14-15.
Nevada State Medical Association, Reno, Sept. 10-12.
New Mexico Medical Society, Roswell, Sept. 12-14.
Wyoming State Medical Society, Sheridan, Sept. 17.

AMERICAN ORTHOPEDIC ASSOCIATION

Twenty-Sixth Annual Meeting, held at Atlantic City, N. J., May 30-June 1, 1912

Under the Presidency of DR. V. P. GIBNEY, New York City

Officers Elected

The following officers were elected for the ensuing year: president, Dr. A. R. Shands, Washington, D. C.; vice-presidents, Dr. J. D. Griffith, Kansas City, Mo., and Dr. David Silver, Pittsburgh, Pa.; treasurer, Dr. G. G. Davis, Philadelphia, Pa.; secretary, Dr. Ralph R. Fitch, Rochester, N. Y.

The next meeting will be held in Washington, D. C., May, 1913.

Spontaneous Gangrene and Allied Conditions in Orthopedic Surgery

DR. W. G. STERN, Cleveland: Spontaneous gangrene, Raynaud's disease, erythromelalgia, akrocyanosis and intermittent claudication are allied conditions, and are probably due to

similar causes. Of fourteen cases, only five were seen by the general surgeon, and late in the progress of the disease, after gangrene had set in, for the purpose of amputation. Three of these patients were transferred by the orthopedist to the general surgical service. Ten of the fourteen were referred to the orthopedist early in the progress of the disease, on account of pain and discomfort in the feet and legs on walking, under the impression that the condition was due to flat-foot. Seven patients had some degree of flat-foot, and several had been treated for flat-foot with plates and exercises. One case had been held to be a sarcoma of the tarsus, while another was suspected of being a tuberculosis of the ankle-joint.

DISCUSSION

DR. L. W. ELY, Denver: Many years ago I had a case in an adult, who had lost one foot by amputation for gangrene, beginning above the toe and running to just above the knee. The other leg presented a well-marked case of intermittent claudication. The pulse was absent. It ceased about the middle of the leg. He had a well-marked phlebitis and treatment was without effect. He was put on the flat of his back for six or eight months and his symptoms all disappeared. He still has his leg and foot. Without rest, he would have lost the limb.

DR. H. A. WILSON, Philadelphia: I wonder whether any of the patients gave a history of the onset being a frost bite, with an exaggeration of the condition in the winter and an amelioration in the summer. Patients who apparently had exaggeration of the symptoms in the winter were relieved by applied warmth and complete rest; the circulation recovered, the gangrene disappeared and there was an arrest in the condition, with a slight recurrence the following winter.

DR. C. F. PAINTER, Boston, Mass.: Until I learned to associate with this condition etiologically the presence of various toxic conditions connected with narcotics, I did not understand the etiology very well. There seem to be two points connected with them: the fact that they occur largely in people who are fundamentally of a weak or unstable nervous system, and in those who give a history of having used tobacco or some other toxic material to excess.

Treatment of Scoliosis (Fixed Type) by Plaster, Supplemented by Pneumatic Pressure

DR. JOHN PRENTISS LORD, Omaha, Neb.: In the treatment of exaggerated scoliosis of the fixed type, it has been my experience that frequent forced corrections under plaster have rendered the best net results. The pressure surfaces are greater in casts than in braces, and, therefore, exert a greater corrective force and maintain a maximum of efficiency. To make them more sanitary, they have been fenestrated to the largest possible extent, especially over concavities in the chest. To avoid chest constriction and atrophy of the pectorals, the cast has been cut out extensively to allow of free expansion of the upper chest over the upper lateral concave portion. The breasts of females are made free by ample fenestra. To supplement the efficiency of these casts and to add more pressure over the protruding ribs, use the air bags made from sections of the inner tubes of automobile tires. The valve stem of a bicycle tire is inserted in the edge of the flattened tube. The cut ends of these sections are cemented and vulcanized. Discarded tubes of good quality make admirable pneumatic cushions which are very durable. By these means a follow-up effect is secured.

A Simple Operation for the Relief of Contracture in Certain Cases of Volkmann's Paralysis

DR. LEONARD W. ELY, Denver: This operation was first worked out on a specimen in the laboratory. It was found that a simple division of the tissues between the tendons of the flexor sublimis and the flexor profundus digitorum and the bones in the distal phalanges would release the contraction. In regard to the causation of this condition I think that the experimental work of Lorenz and others has failed to prove the claim that it is the cutting off of the blood-supply that produces Volkmann's paralysis. I think the paralysis is caused by the injury of the nerve that may have been produced at the same time as the bone was injured, and not by the pressure of the splints on the blood-vessels.

DISCUSSION

DR. R. H. SAYRE, New York City: I think Dr. Ely is incorrect in assuming that the experimental work of Lorenz and others has failed to show that cutting off the blood-supply produces this effect; because if you cut off the blood-supply for a number of hours this condition is produced.

DR. G. B. PACKARD, Denver: It has been shown that an elastic bandage does not cause this type of paralysis, but a flaccid paralysis; so in this case the paralysis was due to the splints.

DR. H. P. GALLOWAY, Winnipeg, Canada: I have operated in several cases of ischemic paralysis by lengthening all the flexor tendons in the upper forearm above the wrist. As soon as they were all divided, the different fasciculi being kept together with forceps, it was easy to straighten the fingers. I cannot reconcile this with Dr. Ely's hypothesis.

The Mechanical Treatment of Hip Disease

DR. GEORGE E. PACKARD, Denver: I believe that if sufficient mechanical treatment, in addition to proper hygienic measures, is instituted early in hip disease, a cure will many times take place with motion. Every means should be used in the early stages to effect such a result. Traction, fixation and protection from weight bearing should be persisted in as long as there seems any possibility of obtaining such results. Early weight-bearing should not be allowed, as it favors ankylosis, absorption and enlargement of the acetabulum. If stiffness persists after two years of treatment by traction, fixation and protection, and there seems to be little probability of recovery with motion and there is absolute freedom from sensitiveness, then weight-bearing, with fixation to prevent flexion and adduction, is the treatment of choice. Undoubtedly, ankylosis is to be desired in many cases as the best possible result for future comfort and permanent cure. Therefore, the treatment should not be one of routine, but selected according to the indications in each individual case.

Results in Hip Tuberculosis After Mechanical Treatment (Without Traction) and Hygiene

DR. HENRY LING TAYLOR, New York City: Seven patients treated by Phelps' brace are reported. Five children had their splints removed in the summer of 1910. All but one child had abscesses. They were all early cases and of at least average severity. All the patients are now in good health; and in all the abscesses are healed and the position of the leg is excellent. In none does the shortening exceed 1 inch. Skiagrams show more or less enlargement of the acetabulum, moderate erosion of the head (except in two), and the head in the acetabulum.

Discussion on Papers of Drs. Packard and Taylor

DR. R. W. LOVETT, Boston: We are not sufficiently careful about looking after the muscular atrophy that follows joint injury. More persons have stiff, irritable knees due to that than any other thing. There is also a large element of disuse in this condition. Athletes will not allow their joints to be fixed. They use them with light bandages. Accompanying the muscular atrophy in some cases there is a distinct atrophy of the bone, which is diminished to one-third its normal width. A good many of the effects we see in chronic joint disease are possibly due to bone atrophy.

DR. L. W. ELY, Denver: How can weight-bearing cause a less amount of atrophy of the limb than a treatment that causes function of that limb? Muscular spasm is Nature's method of putting the joint at rest. It cannot cause trauma to the joint. It is motion that causes the pain. Trauma may have a slight causative effect in joint tuberculosis, but hardly in the bone. Where the tuberculosis focus occurs in the bone, the bone is subject to trauma.

DR. H. A. WILSON, Philadelphia: Weight-bearing is not the only method applicable to bony ankylosis, but it gets rid of some of the results of uncarefully applied fixation and confinement in bed. The physical improvement of twenty patients with tuberculosis of the hip, who were in Atlantic City all winter, who never slept in warmth in their room, and with very little fixation, has been phenomenal; and it shows that the emaciation that we see when there is fixation in bed and disuse is not present.

DR. F. H. ALBEE, New York City: Where there has been a tremendous rarefaction of the head of the femur, weight-bearing should be removed and the patient either placed in bed with traction or put into a brace that will prevent weight-bearing, if not produce traction.

DR. VIRGIL P. GIBNEY, New York City: In my later work I have religiously used the plaster spica in all early cases; and the results have been so uniformly good that I have sometimes questioned the case being tuberculous. I have wondered whether it was not an infection of some kind.

DR. CHARLETON WALLACE, New York City: The solution of the problem will be in raising the resistance of the patient. He should be out of doors all the time and get good nourishing food. He should be kept from brain fatigue and brain tire.

DR. G. G. DAVIS, Philadelphia: There are two kinds of spicas. One is the short spica and the other is the long spica. I am opposed to the short spica; and I believe that a long spica, from the waist to the toes, gives fixation and rest, and that the short spica does not. So far as the treatment of the active stage goes, I believe in absolute rest in bed, with as much fixation as one can obtain. The long spica should be kept on until the patient can be got out of bed, when a high shoe should be put on the opposite side and crutches used.

DR. B. E. MCKENZIE, Toronto, Canada: I have thought that traction was meant to serve a double purpose: that of keeping the head of the femur in such a position that it will not be brought violently into contact with the acetabulum, and that of preventing deformity. We cure the disease by enabling the resistance from within to throw off the affection. The part where the tuberculous lesion is should be exposed to the light for hours every day, and this treatment continued for months. I believe that no long brace has ever supplied complete fixation for the joint.

DR. C. J. JAGER, New York City: A distinction should be drawn between the short spica and the Lorenz spica. The short spica will not fix the hip; but the Lorenz spica fixes it absolutely.

DR. T. H. MYERS, New York City: The focus is sometimes in the epiphyseal line and sometimes in the acetabulum. In the first case the amount of immobilization needed is very different from what is needed when the findings show that the focus is in the joint itself.

DR. J. E. GOLDTHWAIT, Boston: All of us are agreed that hip disease is a general disease and that local treatment is a question of individual experience. Local treatment is certainly no more than protection. I think bone atrophy does not come from disease, but from disuse.

DR. J. P. LORD, Omaha: When the head of the bone is liable to break down traction is indicated. The amount of traction now used is not adequate to prevent the destructive process and mechanical displacement.

DR. WALLACE BLANCHARD, Chicago: It is friction that does the destructive work in the hip-joint in the majority of cases. Lateral as well as longitudinal movement is necessary for this, and I have advised using both kinds of extension to produce traction in the direction of the neck of the femur.

The Use of Intra-Articular Silk Ligaments in the Paralytic Joints of Poliomyelitis Anterior

DRS. BERNARD BARTOW AND W. W. PLUMMER, Buffalo: During the past year we have employed this procedure in fifty joints. In many of the cases operation has been too recent to be more than suggestive of the improvement that is anticipated. The procedure has been developed to the point that takes it out of the experimental stage. While it is not advocated as an exclusive mode of treatment, it may become so in some cases. There is also necessity for careful protection of the joint after the operation for a prolonged period.

DR. NATHANIEL ALLISON, St. Louis: Artificial ligaments and tendons are more valuable than the older operation for stability, namely, arthrodesis. My method is to imitate the pull of normal tendons by silk cords, inserting these in the bone above and below and running the silk tendon in the sheath of the paralyzed tendon. Eighteen patients with anterior leg paralysis have been operated on, with two failures through the inserted tendons pulling free. Twelve perfect results were obtained and four with marked improvement. Three patients with com-

plete paralysis of the leg muscles have been operated on with a stability of the ankle at right angles to the foot. One patient with hyperextension of the bone, caused by hamstring paralysis, has been operated on by inserting silk cords in the hamstring sheaths and securing them to the femur above and the tibia below; the result here has been a checking of the bone at a little less than a straight angle. In no case has there been infection, nor has the inserted silk caused trouble. The use of one or another silk artificial ligaments or tendons is preferable to arthrodesis in children.

DISCUSSION

DR. PRESCOTT LE BRETON, Buffalo: Three things have impressed me: first, the little reaction that takes place in the tissues from the introduction of the ligaments; second, there are many conditions that could be relieved in this way; third, the importance of protection afterward. The real thing that takes place is the formation of the fibrous tissue along the silk ligaments later. That is what we want, rather than the silk ligaments themselves.

DR. R. W. LOVETT, Boston: I should like to ask Dr. Plummer whether he uses braid or twisted silk, and whether the strands are knotted separately or are all tied in one large knot; also whether in the cases of simple drop-foot the ligament is tied to itself or carried across the foot and fastened in a mattress suture.

DR. W. W. PLUMMER, Buffalo: We have used the Corticelli twisted silk. The knot used in the earlier cases was a square one. In the drop-foot the basket suture goes all the way around and produces a stirrup ligament. There has been no unpleasant reaction; but we have considerable reaction about the joint and thickening of the capsule. Protection should be carried out for a long time.

The Abdomen an Important Factor in Chronic Joint Affections

DR. FRANK E. PECKHAM, Providence: Many joint conditions are due to faulty physiology. Intra-abdominal pelvic pressure is an important factor. Putrefactive processes are due to sluggishness of the intestinal functions. There is a sagging of the intestines, with atonic walls and flabby muscular development. Surgeons are beginning to realize that only a few cases are benefited by so-called short-circuiting, and that the question is a physiologic one. General gymnastics, as in out-of-door sports, are beneficial. Special gymnastics that develop the abdominal muscles are important. Mechanical vibration, properly applied, is a great stimulant to general physiology.

An X-Ray Study of Gastro-Intestinal Findings in Multiple Arthritis

DR. GEORGE R. ELLIOTT, New York City: While the primary etiology of the disease does not lie in the abdomen, yet we are dealing with important factors which tend to keep up a vicious circle. The original infective toxins, in many cases, soon cease to act; but the abdominal conditions, acquired and otherwise, feed the already diseased joints. The physician who does not have a proper examination—x-ray and otherwise—neglects his patient. Most of the abdominal intestinal conditions may be remedied.

Some Conditions of the Pathogenesis and Treatment of Toxic Polyarthritis

DR. P. W. NATHAN, New York City: There exists very little definite knowledge of toxic polyarthritis. The general opinion seems to be that there is a definite joint disease as a result of auto-intoxication from the intestinal tract; but in the reports of the cases of undoubted auto-intoxication from this source no mention of joint symptoms is ever made. The conception that a toxic joint condition is the result of intestinal putrefaction, seems to rest on the basis that in a certain percentage of the cases there is indican in the urine. It has been disproved, however, that indican in the urine is of any diagnostic importance. Nor has it been definitely shown that the cases reported as toxic arthritis of intestinal origin have any connection with the intestines. The treatment must be based on general principles and directed toward the general condition. Care in the examination, attention to detail and careful study of the individual cases are necessary if treatment is to be successful.

Etiology of Chronic Arthritis

DR. LEONARD W. ELY, Denver: The cause advanced for this group of diseases is still a matter of debate. As we study the history of the subject, we see the infectious theory gradually growing in strength. I believe that all these diseases are infectious. Every bone and joint disease whose exact cause we know is infectious. It is perhaps better for the present to believe that a number of different organisms may be responsible for these diseases, especially as this agrees with clinical evidence. In many of these cases of chronic joint disease a distinct source of infection has been found, and in some the removal of this source of infection has been followed by an improvement or a cure of the joint disease.

Acute and Chronic Arthritis

DR. MICHAEL HOKE, Atlanta, Ga.: I studied a series of forty-seven cases, extending over fourteen months, without regard to classification. I found, running through the whole series, while they were acute, a profound disturbance of metabolism. As the patients got better, their metabolism became nearer to the normal. As we cut down their protein, the excretion of uric acid arose coincidentally with improvement in the patients. An ordinary healthy human being can take care of intestinal putrefaction. The arthritic patient cannot take care of it. It harms him and should always be avoided.

DISCUSSION

DR. JOEL E. GOLDTHWAIT, Boston: It seems to me that we have in the abdomen an explanation of one of the difficulties that the human family has. One of the penalties that we all have to pay for being bipeds, instead of quadrupeds, is a maladjustment of our viscera. It is of no consequence unless it leads to some disturbance. The anatomic type, usually considered normal, has been found to be rather uncommon. Many people have only half of the small intestine. Of course, these patients are not well nourished. The possibility of organisms traveling up this short intestine from the colon and getting to a point where absorption can take place is, naturally, much increased in such persons.

DR. J. L. PORTER, Chicago: In the St. Luke's Hospital at Chicago we had a nurse who suffered with a chronic arthritis of the ankle-joint. We found that she had had severe tonsillitis in previous years, a great many years before this time. After going over the case and not finding any cause for the joint trouble, the tonsils were removed. In the center of the larger of the two there was discovered a little focus of infection. The pathologist made an emulsion of the contents, and injected the ear of a rabbit intravenously with a very little dose of this material. Within a few days the rabbit developed marked enlargement of the wrist joint, which showed chronic articular changes. A professor in Chicago University died with an acute pyogenic infection, which involved all his joints. At the autopsy Dr. Davis secured this infective material. He injected the veins of the ear of a rabbit with this material. The rabbit developed the same type of infection in all its joints. The changes in the two rabbits were identical and in the same location as in the patients from whom the material had come.

DR. F. E. PECKHAM, Providence: There are a very large number of cases due to faulty physiology in the abdominal region somewhere. I think that the time may come when most of these joint diseases, with their different pathologic conditions, will be found to be due to one cause.

Bone Transplantation in the Treatment of Club-Foot, Pseudo-Arthrosis and Pott's Disease

DR. FRED H. ALBEE, New York City: In case of club-foot in older children, where adduction of the front part of the foot predominates, a wedge of bone has been ingrafted into the scaphoid, in several cases with most gratifying results. In several cases of pseudo-arthritis of long standing, a strip of bone about 5 inches long by one-half by one-third, from the crest of the healthy tibia, has been inlaid into the cortex of the end of each bone fragment and fixed with heavy kangaroo tendon through drill-holes in the recipient bone fragments. A firm union has been secured in each case and in one case in which a Lane plate had previously failed. In thirty-two cases of Pott's disease a prismatic-shaped piece of the tibia has been

implanted into the spinous processes of the diseased vertebrae, with most striking results.

DISCUSSION

DR. JOHN B. MURPHY, Chicago: Dr. Albee's treatment is the first ray of light on the management of spondylitis. It is a prophylaxis against deformity. Putting in a piece of bone is easy. You can apply the treatment of transplanting bone from the same individual, having contact of bony surfaces, the first time the child shows stiffness and fixation; and you will have a uniform regeneration of the bone in the transplant. A graft of bone, once transplanted, does not grow in length, but only in circumference. If the periosteum is left on the bone will not spread. The rôle played by the graft is that of supporting the haversian vessels. The graft must be human bone. This treatment is ideal for ununited fractures. Where there is a defect in development these grafts may be used with good effect.

DR. J. T. RUGH, Philadelphia: There are certain fractures of the neck of the femur that refuse to unite. Would the insertion of a piece of this bone tend to bring about bony union?

DR. MURPHY: Yes. I have done this in many cases.

DR. RUGH: In a case of congenital absence of the lower two-thirds of the tibia I substituted the fibula; and it became practically of the same size as the tibia and is keeping pace with its growth.

DR. T. H. MYERS, New York City: Two of Dr. Albee's skiagrams show the diseased bodies separated by considerably more interval than they would have been before he had straightened them. Our old idea was that these would not heal unless the surfaces came together.

DR. J. E. GOLDTHWAIT, Boston: I have seen a case in which both fibulae were transplanted to take the place of an absent tibia. There is deformity of the foot, but both legs have developed so that the child runs about and plays without difficulty.

DR. H. P. GALLOWAY, Winnipeg, Canada: I am a firm believer in the principle that if you can bring about ankylosis in tuberculous joints you will cure the disease. This is not easy in the sacro-iliac joint. I should like to ask whether the transplantation of a bone graft into the sacro-iliac joint would bring about ankylosis in that joint.

DR. ABRAHAM JACOBI, New York City: I found that my fractures would heal more readily when I fed my patients on phosphorus. My patients with Pott's disease and tuberculous ankles got decidedly better in a shorter time with phosphorus than without it. Tuberculous disease, not only in the lungs, but in the soft parts and in the bones, will do well when systematically treated with arsenic. We should not forget that there are other things besides operations, and that a great deal can be done to strengthen and purify the system for the purpose of making an operation more successful. Arsenic is a semi-specific in tuberculous disease. You will get better results if your patients are in good condition, such as you can bring about by the use of phosphorus and arsenic.

DR. J. B. MURPHY, Chicago: The tendency has been to go entirely away from medication; but we are coming back now to the things that combat tuberculosis in the bone, lung and every other position, the apex of which is represented by arsenic.

AMERICAN THERAPEUTIC SOCIETY

Annual Meeting, held at Montreal, Canada, May 31-June 1, 1912

Election of Officers

The following officers were elected: president, Dr. Noble P. Barnes, Washington, D. C.; vice-presidents, Dr. Howard Van Rensselaer, Albany, N. Y.; Dr. Robert T. Morris, New York; Dr. Francis M. Pottenger, Los Angeles, Cal.; secretary, Dr. Lewis H. Taylor, Washington, D. C.; treasurer, Dr. A. Ernest Gallant, New York; editor of Transactions, Dr. P. Brynberg Porter, New York.

The next annual meeting is to be held at Washington, D. C., in May, 1913.

Advances in Therapeutics

DR. ALEXANDER D. BLACKADER, Montreal: It must be recognized that among the hundreds of drugs in our pharmacopeias and dispensaries the ones that cure, the specific remedies,

may be counted on our fingers—some would even say, on the fingers of one hand. All the others assist only in the relief of symptoms. How dimly have we, up to the present, appreciated the fact that there resides within the animal body a set of potential forces capable, when aroused and stimulated of exercising a highly effective control over almost all forms of disease! No advance in therapeutics has been of greater value to the world than the modern appreciation by physicians, and altogether too slowly by the general public, of the advantages accruing from the breathing of fresh air; of sleeping in it, working in it, and, as far as possible, of living in the open. It is undoubtedly one of the greatest stimulants to the activities of the phagocytes and to the development of the various forms of antibodies which the physician to-day possesses. Doubtless, also, the great value of climatotherapy, of hydrotherapy, of psychotherapy, and possibly also of electrotherapy, depends on a similar stimulation of this wonderful defensive mechanism of Nature. I am, however, by no means willing to be classed as a hopeless pessimist regarding the value of drug therapy. On the contrary, I have a strong belief in the limited value of the great majority of our pharmacopeial drugs when used without definite knowledge of their action. The outlook in therapeutics has been dark because hitherto therapeutics has been taught as a mere empiricism. The future is bright because in all our best medical schools the students to-day are taught practically, as well as theoretically, the action of each drug. During the past year therapeutics has been greatly encouraged by the success which has attended Ehrlich's persevering investigations into the modifications of therapeutic action by variations in chemical structure. A similar investigation is now being carried on by Flexner, who is endeavoring to elaborate some modification of hexamethylenamin which, while retaining its central formation possessing an effective germicidal action, may develop a specific affinity for and a toxic action on the microorganisms of poliomyelitis. Owing to the growing demand of the profession for new agents, there have been forced on its notice an enormous number of new drugs of whose action we have no knowledge, except the statements of the commercial houses introducing them. I think it is now generally recognized that purely commercial interests have had too much to say during the last few years as to the composition and the nomenclature of many drugs much used at the present by reputable physicians. In the detection of the false and the uncovering of wrong the work done by the Council on Pharmacy and Chemistry of the American Medical Association has been of greatest value.

Some Types of Hyposecretion of the Thyroid

DR. O. T. OSBORNE, New Haven, Conn.: Undoubtedly, many of the patients suffering from hypothyroidism are psychopathic and may improve by mental treatment. The thyroid is peculiarly susceptible to mental stimulation and to mental depression; so that anything that quiets mental excitation will diminish a hypersecretion of the gland, and anything that removes mental excitation will increase a subnormal secretion of the gland. Some instances of disturbed thyroid secretion look like pure hysteria. This gland has a great deal to do with the condition of the blood. When it is subsecreting it must sometimes allow a condition to occur not dissimilar to that of hemophilia; in other words, a very aplastic condition, perhaps with a diminished calcium content. When we recognize the very active part the thyroid takes in the life of the female, it is not to be wondered at that the gland becomes overworked and that it finally hypofunctionates. The conditions for which I think thyroid subsecretion may be responsible are cretinism, some forms of eczema, some forms of asthma, infantile obesity, chlorosis, amenorrhea, some digestive disturbances, some forms of melancholia, adiposis dolorosa, lipomatosis, myxedema, senility, and, perhaps, Raynaud's disease. The stimulants to thyroid secretion are great sorrow; great joy; nervous tension; sexual excitement; genital disturbances, especially uterine; pregnancy; cerebral stimulants such as coffee, tea and alcohol; and such drugs as arsenic, iodids, phosphorus, salicylic acid, pilocarpin and, of course, thyroid extract. Let me urge that, when thyroid is needed, but small doses be used, as it is potent for harm.

When given to patients who ought not to receive it, it will make their symptoms worse, and sometimes but a little of it will push a wavering thyroid gland to hypersecretion and Graves' disease.

Cardiac Arrhythmias and Their Treatment

DR. T. E. SATTERTHWAIT, New York: There are now recognizable by means of graphic tracings, four distinct varieties of cardiac arrhythmias, and these have been classified in accordance with their correspondence with the first four of Gaskell's five physiologic attributes of heart muscle. The first type of arrhythmia, the pneumogastric, is a variation within physiologic limits, and, as a rule, does not warrant us in sounding a note of alarm. In the extrasystolic variety, of which there are two types, the ventricular and the auricular, there are supernumerary contractions, which are always followed by a pulse period longer than normal. The characteristics of abnormal contractility are strikingly shown in the pulsus alternans, distinguished from extrasystolic arrhythmias by the fact that the alternation of large and small beats is continuous. Another variety of abnormal contractility is seen in auricular fibrillation. In affections of conductivity the normal stimulus, starting in the sinus venosus, may be arrested at any one of several points, and the result of this is heart-block. Extrasystolic arrhythmias may depend on either neurotic or gastro-intestinal conditions. In the one case sedatives, such as camphor and bromids are useful; in the other, remedies to correct the digestion and obviate auto-intoxication. In auricular fibrillation no remedy is so satisfactory as digitalis; the next most valuable agent is its congener, strophanthus. Acute heart-block may, however, be caused by digitalis; in which case the drug should, of course, be at once discontinued.

SYMPOSIUM ON THE ETIOLOGY AND TREATMENT OF HIGH BLOOD-PRESSURE

The Relation Between High Blood-Pressure and the Adrenals

DR. C. E. D. SAJOUS, Philadelphia: While the adrenal secretion acts on the muscle fibers of the heart and of the arteries in general, it has been found that the brunt of this action is borne by the arterioles. When such action is abnormal, we may have the production of arteriosclerosis. All the main causes usually assigned to arteriosclerosis may be summarized by the one word "intoxication." All but one (alcohol, which has not been studied in this connection) of the morbid conditions known to provoke arteriosclerosis have also been shown to cause overactivity of the adrenals, and the evidence to this effect is further sustained by the fact that Coplin, in an examination of the adrenals of twenty-two cases of arteriosclerosis, found that seventeen were markedly altered; the glands in the other cases being the seat of either tuberculosis or a secondary neoplasm. Again, potassium iodid, our best remedy in arteriosclerosis, has been found to inhibit the secretory activity of the adrenals. Briefly, then, the pathogenic agent, whatever it happens to be, excites these glands (probably through their centers) to such abnormal action as to cause more or less reduction of the caliber of the arterioles from which the vasa vasorum receive their supply. Deficiently nourished through these, the medial and intimal vascular tissues degenerate, forming the familiar sclerotic patches.

High Blood-Pressure Arising from Nervous Strain in Diseases of the Nervous System

DR. EDWARD D. FISHER, New York: In endarteritis of a degenerative type a rather general distribution of arterial disease is found; so that not only are interstitial nephritis and cardiac hypertrophy present, but the nervous system is also involved, as shown by cerebral and spinal symptoms. In patients under 40 there are symptoms peculiar to disorders of the special organs, but no tendency, or only a slight one, to cerebral hemorrhage or epilepsy, as in older persons. In them the blood-pressure may be temporarily high, but is not continuously so, while in patients over 40 there is a constant high tension, subject also to marked increase—which is the danger point indicating the probability of a seizure, apoplectic

or epileptic. High blood-pressure in cerebral tumors, hydrocephalus or compression following trauma may be observed to fall as soon as the skull is opened, or, more surely (though not always), when cerebrospinal fluid escapes on opening the dura. During cerebral operations observation of the blood-pressure is valuable, as rapid fall indicates the need of stimulation or cessation from further operating.

Factors Which Alter Blood-Pressure in Pulmonary Tuberculosis

DR. F. M. POTTENGER, Los Angeles, Cal.: In tuberculosis low blood-pressure is favored by the action of the toxins, the disturbed action of the diaphragm, and, particularly as the disease becomes advanced, by the weakness of the heart muscle and the general wasting. I have of late made a special study of the altered function of the diaphragm and its accompanying splanchnic congestion and relative arterial anemia. High blood-pressure, on the other hand, is favored by the increase in the number of heart-beats, the hypertrophy of the heart and the thickening of the arterial walls. A relatively low pressure is found in tuberculosis, especially in advanced cases.

General Treatment of High Blood-Pressure

DR. SPENCER L. DAWES, Albany: This may be divided into (1) prophylactic, (2) curative, and (3) symptomatic. 1. A regulation of the habit of the individual as to diet, exercise and excretion is the measure indicated. Rational and systematic exercise will do more even than the regulation of the diet to prevent sclerosis of the arteries and its accompanying hypertension, and in addition to this most active business men should have, at least once a year, a sea voyage or a period of complete relaxation in the country. 2. Here we should pay attention first, to the cause, for it must be acknowledged that high pressure is a symptom, rather than a disease. By far the most popular of all drugs used with the idea of cure is iodine in some form, but in employing the iodids, which are usually prescribed, special care must be taken to avoid deranging the digestion. 3. Unfortunately, most of our efforts must be directed toward relief, as the majority of patients do not come to us until a distinct arteriosclerosis is established. Each case must naturally be dealt with according to the special conditions present. In some instances venesection may be attended with excellent results, and in others mercurials, followed by a saline purge. Free diuresis is often of great assistance, and here digitalis and theobromin sodiosalicylate are valuable. Care should always be taken not to lower the blood-pressure to a point where the secretory action of the kidneys is unfavorably affected.

Treatment by the High-Frequency Current

DR. HOWARD VAN RENSSLAER, Albany, N. Y.: From my study and experience I would say that the underlying cause of most cases of high blood-pressure is metabolic, from faulty digestion of food. The hypertension usually precedes renal, cardiac and arteriosclerotic changes. By proper treatment with high-frequency currents (1) the general condition is improved, and especially the metabolic processes, so that less toxins are formed and absorbed; (2) when, by the aid of the sphygmomanometer, hypertension is recognized early, we are able to cure the initial stages of the disease, because we remove the exciting cause; (3) we can prevent the actual development of Bright's disease; (4) when renal or cardiac lesions are already present, we can check the rapid advancement of the pathologic processes and thus prolong life; (5) in the later stages of the disease, when compensation has broken and the heart begun to fail, by lowering the tension we lessen the resistance which the enfeebled heart is obliged to overcome, and so can alleviate some of the symptoms and make the patient more comfortable; (6) by the effect of the current in lowering arterial tension we protect the brittle vessels from the liability, and thus minimize the danger of apoplexy.

Sodium Nitrite in Arterial Hypertension

DR. WILLIAM H. PORTER, New York: Some remedies act directly; others indirectly. Sodium nitrite should be classed

as one that acts indirectly, for it in no sense tends to remove directly the causes of hypertension in the vascular system. It is in the pure hypertensions, before profound pathologic changes have occurred in the walls of the vessels, that this remedy is most valuable. It is, in fact, in the management of this class of cases, which is becoming larger day by day, that we have our greatest opportunities to display, to the fullest extent, the value of scientific medication. We know exactly what can be accomplished with sodium nitrite, but the exact *modus operandi* by which it produces a dilatation of the over-tense vascular system is not quite so clear. It is probable, however, that in the presence of water and hydrochloric acid in the stomach it is decomposed, and that its decomposition products NO_2 and NO are disengaged in the form of brown vapors which are irritants and strong oxidizers. These ultimately produce an impression on the centripetal nerve-endings in the gastric mucosa, which impulse is carried to the vasomotor center and by the centrifugal nerves conveyed from the center of the vascular wall; thereby causing the expansion of the vessels. This dilatation is due either to inhibition of the vasoconstrictors or to stimulation of the vasodilators. The slow decomposition of sodium nitrite, as compared with amyl nitrite and nitroglycerin, makes it far more valuable than these when a continuous effect is desired; and its continuous action has been demonstrated both experimentally and clinically. Undue vascular contraction is much more damaging than overexpansion, for overcontraction has been known to cut off the nutritive supply to such an extent as to result in death in perfectly healthy subjects in from ten to fourteen days. Hence, from a purely nutritive standpoint, the greater necessity of modifying this hypertension; for, without an ample and well-distributed nutritive supply, pathologic conditions cannot be removed or physiologic conditions reestablished. For these reasons, sodium nitrite is extremely valuable when employed before the vascular system has become too pathologic to be influenced easily by its power to expand the unduly contracted arterioles. Its failure to accomplish the result desired is usually due to its being employed in unsuitable cases. The dose should be from 1 grain up, at frequent intervals, until the arteries soften. When it is used in the right cases and given continuously and in sufficiently large doses, the effects are all that can be desired. The distressing symptom, dyspnea, which is Nature's method of indicating tissue starvation, is completely relieved, and in a manner which at times is almost magical; while oxidation reduction is greatly augmented, as evidenced by the changes for the better in the catabolic products found in the urine. If at the same time, by other measures, the etiologic factors are removed, and the diet and digestion rendered perfect, the metabolic processes of the body can be, and often are, changed from an absolutely pathologic state to one which is perfectly normal. While from a purely histologic standpoint we may not succeed in effecting a positive cure, from the physiologic one we can. It is the misuse of sodium nitrite, as, for instance, when the arterial system is contracted in connection with an enfeebled cardiac muscle, or when there was engorgement of the general venous system, that has caused so many to doubt its efficacy. Used when and where it can assist Nature, we have no more certain and reliable remedy in our whole materia medica.

Discussion on High Blood-Pressure

DR. O. T. OSBORNE, New Haven, Conn.: The only thing of service in the presence of the phenomena of advancing age, when the thyroid grows less powerful and the suprarenals are more active is iodine. Of the iodids I prefer sodium iodid, as less irritating than the potassium salt, and cannot understand why the latter is so persistently adhered to in this country. Baking has not been mentioned, but I believe it to be one of the best measures at our command.

DR. C. M. D. SAJOUS, Philadelphia: The thyroid and adrenals both secrete less freely in advanced life, but it often happens that the functional degeneration of the thyroid is more rapid. When this is the case the persistent rise of blood-pressure sometimes seen in old age, or even just past middle life, is distinctly attributable to the adrenals.

DR. R. D. RUDOLF, Toronto: Of course, the increased blood-pressure is merely a symptom, not the disease, and in many instances a rise in the pressure is of a compensatory character. I believe that gentle exercise is of material benefit. The first effect of this is to raise the pressure, but afterward there is a gradual falling.

DR. A. E. GALLANT, New York: One remedy has not been mentioned, water. In certain cases I have had good results from keeping the patient in bed for ten days at a time, without food, but imbibing a gallon of water a day.

DR. A. C. CROFTON, Chicago: As the result of experiments on rabbits, for reducing blood-pressure I am accustomed to giving very small doses of digitalis, which have an action like that of the nitrites. Although iodine is so generally advocated and employed, I have never seen any beneficial results from its use. Neither can I endorse the water treatment, as I am a firm believer in the restriction of liquids in these cases. The restriction of nitrogenous food, especially meats, is also, I think, of great importance.

Value of Enterostomy in Ileus

DR. J. H. TAYLOR, Washington, D. C.: My object is to show the value of enterostomy in certain instances of ileus, as seen in a series of twenty cases occurring in my practice in the last two years. Most of them were postoperative cases. Sixteen were cases of peritonitis due to varying causes, two were incident to toxemia from disease outside the peritoneal cavity, one followed on the third day after a high forceps delivery and post-partum hemorrhage, and one was reflex. Leaving out two fatal cases, which can fairly be excluded, the mortality was 16.6 per cent. The conclusions I have arrived at are: 1. Enterostomy offers an excellent chance in a class of cases formerly always fatal. 2. It should be done before complete bowel paralysis and before the abdominal muscles are stretched beyond their limit of tonicity. 3. The lower ileum should be the region of election for the operation. 4. The opening should not be made in the colon. 5. Old or fat persons and those whose abdominal muscles are weakened from any cause offer an unfavorable prognosis.

Prize of \$500 Offered

The Committee on Competitive Therapeutic Research, having reported that no report on a subject of therapeutic research had been received in response to the offer of a prize of \$200, and having recommended that the amount of the prize offered should be increased to \$300, or more, and that the competition should be thrown open to the profession at large, the Society, on recommendation of the Council, voted to increase the prize to \$500 and to open the competition to the medical profession of the United States and Canada.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

California State Journal of Medicine, San Francisco

July, X, No. 7, pp. 275-312

- 1 Present Status of Nitrous Oxid in Major Surgery. M. Botsford, San Francisco.
- 2 Choice of an Anesthetic. C. E. Palmer, San Francisco.
- 3 Mishaps in Treatment. D. W. Montgomery, San Francisco.
- 4 An Epidemic of Trichinosis. G. H. Runkel, McCloud.
- 5 County Health Officer as the Local Registrar for Each County in the State. G. E. Tucker, Riverside.
- 6 Hygienic Laboratory of the State Board of Health. W. A. Sawyer, Berkeley.
- 7 Diaphragmatic Pleurisy. D. Crosby, Oakland.
- 8 Antityphoid Vaccination. Major Brooke, U. S. Army.
- 9 Tuberculous as Observed in Southern California. R. Williams, Los Angeles.
- 10 Interrelationship Between the Motor and Secretory Functions of the Stomach. R. S. Lavenson, Los Angeles.
- 11 Case of Orbital Endothelioma. P. A. Jordan, San Jose.
- 12 Twenty-Eight Cases of Tropical Liver Abscess. R. Smith, Los Angeles.
- 13 Chronic Arterial Hypertension. R. L. Cunningham, Los Angeles.
- 14 *Diagnostic Value of Pastia's Sign in Scarlet Fever. G. H. Taubles, San Francisco.
- 15 Uroscopy. M. Krotoszyner, San Francisco.
- 16 Interesting Cerebral Case. C. F. Welty, San Francisco.

14. Diagnostic Value of Pastia's Sign in Scarlet Fever.—In Taubles' series of seventy-three cases this sign was present in every case. The sign has been simultaneous with rash in time of appearance and in about 80 per cent. of the cases has lasted from two to three weeks after the rash has disappeared. In all of the cases seen the sign outlasted the rash at least three to six days. In cases definitely not scarlet fever the sign was seen in three cases of hemorrhagic measles, one case of angio-neurotic edema and in one case of dermatitis venenata. The measles cases were typical in every way as to history of exposure, mode of onset and appearance on examination. The strips of the sign were instead of rose red, a deep rusty brown in color and with stippled edges instead of the linear appearance noted in scarlet fever.

The case of angio-neurotic edema as well as the case of poison oak presented no difficulties in the way of diagnosis and here again the sign was not typical in that there was an edema present, and by reason of structural differences, the skin at the folds merely showed pink lines similar to those which can be demonstrated by strongly hyperextending the fingers, whereupon the skin folds appear as bright pink lines against the tense white skin of the rest of the palm and palmar surfaces of the digits. Three cases of erythematous drug eruption, two due to iodine and one due to morphine, failed to show the sign. Two cases of so-called fish rash also did not present the sign. Two other cases of angio-neurotic edema did not have the sign visible.

In fourteen cases of erysipelas the sign was not once seen. Two cases of autitoxin erythema did not show the sign. Two cases of diffuse acute generalized erythema with fever and gastro-intestinal disturbance, but without the usual sore throat or scarlet tongue and no history of contagion were isolated. They did not at any time present the sign and recovered in a few days without any subsequent desquamation. In our experience the sign has served with success in six cases in which the rash was not typical. These cases presented instead of the usual punctiform rash more of the diffuse redness of an erythema scarlatinoides. By virtue of the sign these cases were isolated and proved by their subsequent course that the diagnosis of scarlet fever had been the correct one.

Journal of Biological Chemistry, Baltimore

July, XII, No. 1, pp. 1-162

- 17 *Extraction of Substance from the Sperm of a Sea-Urchin Which Will Fertilize the Eggs of that Species. T. B. Robertson, San Francisco.
- 18 *Studies in Bacterial Metabolism. I. A. I. Kendall and C. J. Farmer, Boston.
- 19 Studies in Bacterial Metabolism. II. A. I. Kendall and C. J. Farmer, Boston.
- 20 The Refractivity of the Products of the Hydrolysis of Casein and a Rapid Method of Determining the Relative Activity of Trypsin Solutions. T. B. Robertson, San Francisco.
- 21 Formation of Guanylic Acid from Yeast Nucleic Acid. W. Jones, Baltimore.
- 22 *Excretion of Iron in the Urine in Pneumonia. E. H. Goodman, Philadelphia.
- 23 Studies on the Action of Trypsin. E. H. Walters, San Francisco.
- 24 *Presence of Active Principles in the Thyroid and Adrenals Before and After Birth. F. Fenger, Chicago.
- 25 *Nature of the So-Called Artificial Globulin. R. B. Gibson, Minneapolis.
- 26 Inorganic Phosphorus in Plant Substances; an Improved Method of Estimation. R. C. Collison, Wooster, Ohio.
- 27 *Experimental Studies on Creatin and Creatinin. W. E. Rose, Philadelphia.
- 28 Feeding Experiments with Fat-Free Food Mixtures. T. B. Osborne and L. B. Mendel, New Haven, Conn.
- 29 Researches on Purins. C. O. Johns, New Haven, Conn.
- 30 Phytin and Pyrophosphoric Acid Esters of Inositol. R. T. Anderson, Geneva, N. Y.
- 31 *Influence of Sodium Tartrate on the Elimination of Certain Urinary Constituents During Phloridzin Diabetes. F. P. Underhill, New Haven, Conn.
- 32 Picrolonates of the Monoamino Acids. P. A. Levene and D. D. van Slyke, New York.
- 33 Protein Metabolism from the Standpoint of Blood and Tissue Analysis. O. Folin and W. Denis, Boston.

17. Extraction of a Substance from the Sperm of a Sea-Urchin Which Will Fertilize the Eggs of That Species.—From the spermatozoa of *Strongylocentrotus purpuratus* (carefully freed from sea-water by washing them with isotonic NaCl solution) two substances were extracted by Robertson by

strongly hypotonic salt solutions containing ether which are precipitable by barium. The one is soluble in dilute acid, the other is insoluble in dilute acid but soluble in dilute alkali. Both are precipitated by acetone. The acid-soluble substance acts as a powerful fertilizing, agglutinating and cytolyzing agent on the eggs of *Strongylocentrotus purpuratus*. The alkali-soluble substance appears to be devoid of action. Robertson says that there is strong reason for believing that the fertilizing agent in spermatozoa is identical with the fertilizing agent (oöcytase) in blood-sera.

18. **Studies in Bacterial Metabolism.**—These experiments show the extent, and in a measure, the nature of the sparing action which dextrose exerts for protein in ordinary media for the organisms studied. It is interesting to note that the more pathogenic bacteria exhibit less proteolytic activity measured in terms of ammonia production and alkali formation than the more saprophytic organisms.

22. **Excretion of Iron in the Urine in Pneumonia.**—A study of Goodman's results makes apparent the distinct curve of urinary iron excretion during the course of pneumonia, there being hyposiduria during the height of the infection, and in every instance a relative hypersiduria (in most cases an absolute hypersiduria) at the crisis or during the first day following.

24. **Active Principles in the Thyroid and Adrenals Before and After Birth.**—Fenger believes that both the thyroid and suprarenals of the fetus take a distinct and active part in the growth and development of the unborn animal.

25. **Nature of So-Called Artificial Globulin.**—Gibson claims that Moll's artificial serum globulin is to be regarded as an intermediate stage in the formation of the alkali metaprotein.

27. **Estimation of Creatin in the Presence of Sugar.**—By the use of phosphoric acid instead of hydrochloric acid, and by allowing the diluted solution to stand for a few minutes before making the readings, Rose says that just as accurate estimations of creatin and creatinin may be made in diabetic as in normal urines.

31. **Sodium Tartrate and Phlorizin Diabetes.**—The observation of Baer and Blum that sodium tartrate subcutaneously injected may greatly diminish the output of nitrogen and dextrose in the urine of phlorizinized dogs has been substantiated by the results of Underhill's investigation on the subject, but he differs from these authors in the interpretation of the phenomena provoked. His experience shows that sodium tartrate subcutaneously administered to phlorizinized rabbits and dogs induces disintegrative changes in the kidney tubuli sufficient to account for the lessened elimination of urinary nitrogen and dextrose, observed by Baer and Blum. Under strictly comparable experimental conditions similar results may be obtained in animals that have not received phlorizin, thus demonstrating that sodium tartrate acts specifically in this direction and that phlorizin probably contributes little or nothing to the detrimental influence under discussion.

Cleveland Medical Journal

June, XI, No. 6, pp. 401-470

- 34 Paget's Osteitis Deformans. W. B. Laffer, Cleveland.
- 35 Gustave C. E. Weber as I Knew Him. M. Stamm, Fremont, Ohio.
- 36 Nasal Headaches. D. A. Prendergast, Cleveland.
- 37 Menace to the Public by Feeble-Minded Persons Living Outside Institutions. T. Diller, Pittsburgh.
- 38 Pulmonary Hemorrhage and Its Relation to High Altitude. F. E. Mera and I. J. Biskind, Santa Fé, N. Mex.
- 39 An Apparently Successful Psychoanalysis. H. H. Drysdale, Cleveland.

United States Naval Medical Bulletin, Washington

July, VI, No. 3, pp. 313-472

- 40 Leprosy. W. M. Kerr, U. S. Navy.
- 41 Photographs of Lepers. G. F. Cottle, U. S. Navy.
- 42 Vision in Relation to Marksmanship. E. J. Grow, U. S. Navy.
- 43 Technic of a Wassermann Test in Which Guinea-Pig Complement Is Not Required; Emery Technic; Noguchi Reagents. E. R. Stitt, U. S. Navy.
- 44 Some Minor Sanitary Defects in Modern Battleships and Their Correction. F. L. Pleadwell, U. S. Navy.
- 45 Additional Report of Cases with Unusual Symptoms Caused by Contact with Some Unknown Variety of Jellyfish. E. H. Old, U. S. Navy.

- 46 Effects of High Temperature on the Personnel of the Fire Rooms of Naval Vessels, with Special Reference to Heat Cramps. W. L. Mann, U. S. Navy.
- 47 Detection of Methyl Alcohol. S. C. Schaffer, U. S. Navy.
- 48 A Bunk Locker, a Tray and a Bracket-Stool for Use in Sickroom and Wards of Hospital Ships. E. M. Blackwell, U. S. Navy.
- 49 *Method for Use in Opsonic Index Work and Vaccine Standardization. R. E. Weaver, U. S. Navy.
- 50 Case of Fish Poisoning in Guam. W. M. Kerr, U. S. Navy.
- 51 Two Cases of Climatic Bubo. E. W. Phillips, U. S. Navy.
- 52 Rupture of the Left Kidney; Nephrectomy. A. M. Fauntleroy, U. S. Navy.
- 53 Abscess of the Liver in a Young Infant. F. E. Sellers, U. S. Navy.
- 54 Appendectomy on a Hemophiliac. B. F. Jenness, U. S. Navy.

49. **Opsonic Index Work and Vaccine Standardization.**—The following technic for use in determination of opsonic indices has proven satisfactory to Weaver and is easily executed. Glass tubing is drawn into Wright's U tubes as usually made, with the exception that the capillary extension of the bent end is made considerably longer than in the ordinary Wright's tube. The bacterial emulsion is prepared in the usual manner, using normal salt solution containing 1 per cent. sodium citrate, at least 2 or 3 c.c. of the emulsions being made, and placed in a salt cellar or ordinary medicine glass in order that it may be picked up with a bulb pipette or medicine dropper having a capacity of 1 or 2 c.c. A grease pencil mark is made at a point on the bend of the tube. The ear or finger being punctured, blood is collected to this mark. The flow of blood must be free as the capacity of the long capillary tube is quite large. When the blood reaches the point marked withdraw from source and admit a small portion of air. Fill the medicine dropper with the bacterial emulsion and, holding it with the bulb slightly compressed so as to keep a drop of emulsion hanging from the end, fill capillary tube to mark. In a flame, seal the large end, having, in the usual manner, slightly warmed the tube so that, on cooling, the contents will be drawn out of the capillary section. The contents may then be thoroughly mixed by agitation or by rolling the tube. The mixture of blood and emulsion is then jarred and shaken down into the sealed end and the tube placed in the incubator for the required length of time. After incubation, shake or jar the contents into the bend of the tube, cut off the sealed end with a pair of scissors and allow the desired quantity to escape through the capillary end (if it does not flow freely it may be easily started by blowing gently into the other end).

A drop of any size desired may be deposited on a slide and there is no bubbling and frothing which is so difficult to avoid with a bulb capillary pipette. This method has also been found to work most satisfactorily in the standardization of vaccines. Using a Wright's tube with a long capillary end, and admitting first a portion of blood, then air, then a portion of vaccine as described above for the bacterial emulsion, and finally several portions of a 2 per cent. solution of sodium citrate, the end is then sealed. The contents may now be thoroughly mixed and smears for counting prepared as above described.

Southern Medical Journal, Nashville

July, V, No. 6, pp. 365-438

- 55 The Doctor and the Community. D. T. McCall, Mobile, Ala.
- 56 Monitor's Address. S. W. Welch.
- 57 Retardation: Its Causes and Remedies. D. S. Hill, New Orleans.
- 58 Duplex Uterus. H. P. Cole, Mobile, and I. Kimbell, Jackson, Ala.
- 59 Cystoscope as an Aid to Diagnosis. J. A. McDonald, Memphis, Tenn.
- 60 Some Experiences in Operating in Inguinal Hernia. J. Smyth, New Orleans.
- 61 Edema of the Glottis. A. C. Lewis, Memphis, Tenn.
- 62 Complications During Cataract Extraction; Report of Cases. T. T. Herron, Jackson, Tenn.
- 63 Uric Acid and Indican Bearings on Diseases of Eye, Ear, Nose and Throat. J. M. Guthrie, Meridian, Miss.
- 64 Supracondyloid Fractures of Humerus. I. Cohn, New Orleans.
- 65 Etiology and Pathology of Anterior Poliomyelitis. E. M. Mason, Birmingham, Ala.
- 66 Diagnosis of Poliomyelitis. W. G. Somerville, Memphis, Tenn.
- 67 *Case of Infantile Paralysis with Unusual Features. W. G. Somerville, Memphis, Tenn.
- 68 Symptoms of Infantile Paralysis. J. E. Seay, Birmingham, Ala.
- 69 Symptoms of Poliomyelitis. L. Leroy, Memphis, Tenn.
- 70 Chronic Heart Disease with Some Early Diagnostic Symptoms. J. H. Honan, Bad Nauheim, Germany.
- 71 Some Interesting Cases of Brain Surgery. J. L. Crook, Jackson, Tenn.

67. Abstracted in THE JOURNAL, Dec. 2, 1911, p. 1940.

New York State Journal of Medicine, New York

July, XII, No. 7, pp. 341-410

- 72 Non-Surgical Treatment of Exophthalmic Goiter. S. S. Cohen, Philadelphia.
- 73 Primary Sources of Tuberculous Infection; Their Relation to Eugenics and the Cost of Tuberculosis. S. A. Knopf, New York.
- 74 Treatment of the Typhoid Carrier. F. M. Meader, Syracuse, N. Y.
- 75 *Arsenic and Digitalis in Pulmonary Tuberculosis. A. Jacobi, New York.
- 76 Proper Dosage of Air, Food and Rest in Pulmonary Tuberculosis. L. Brown, Saranac Lake, N. Y.
- 77 *Clinical Study of Relapse in Typhoid, with an Analysis of Twenty-Five Relapses in Twenty-One Out of 166 Typhoid Cases. H. F. L. Ziegel, New York.
- 78 *Treatment of Arteriosclerosis by Physiologic Methods. J. M. Swan, Rochester, N. Y.
- 79 Night Camp in the Treatment of Tuberculosis. H. H. Curtis, New York.
- 80 *Some Recent Studies in the Pathogenesis of Epilepsy. L. P. Clark.
- 81 Effect of Salvarsan on the Ear. C. E. Perkins, New York.
- 82 Id. R. G. Reese, New York.
- 83 *Significance of a Continuous Gastric Juice in the Fasting Stomach. H. Barclay, New York.
- 84 *Modern Physical Treatment of Arterial Hypertension. E. C. Titus, New York.
- 85 Toxic Deliria; Report of Cases. N. A. Pashayan, Schenectady, N. Y.
- 86 A Large Hemothorax. J. F. Black, White Plains, N. Y.
- 87 *Dust Fever. F. J. Bowen, Mount Morris, N. Y.

75. **Arsenic and Digitalis in Pulmonary Tuberculosis.**—Jacobi emphasizes that it is a grave mistake to believe that tuberculous patients should be directed to rely solely on air, rest and food, to the exclusion of drugs. Such physical measures do not cure patients with restricted means, or those really poor, anxious and sorrowful. Sanatoria which pride themselves on refusing medicinal aids are not successful. So-called symptomatic drugs, camphor, opiates, etc., are helpful and indispensable. Arsenic should be given for months and years. Jacobi never treats pulmonary tuberculosis without it. He seldom gives it without a small dose of digitalis. He never gives it without a guaiacol salt. His routine has been the carbonate.

77. Abstracted in THE JOURNAL, May 4, 1912, p. 1395.

78. Abstracted in THE JOURNAL, May 11, 1912, p. 1474.

80. **Pathogenesis of Epilepsy.**—Genuine epilepsy, Clark says, seems to be dependent on certain unknown complex heredity factors producing a form of cortical and subcortical instability on which a variety of endogenous toxins may act, causing the disease. The fit is an exhibition of a reflex action of the disease and as such should not be seriously interfered with by sedatives *per se*. The sedative treatment of epilepsy is therefore to be thoroughly discouraged so long as there is hope of bringing the real clinical pathogenesis of the disease under control.

83. Abstracted in THE JOURNAL, May 11, 1912, p. 1474.

84. Abstracted in THE JOURNAL, May 11, 1912, p. 1474.

87. **Dust Fever.**—An industrial disease which Bowen says he has several times encountered but has never seen described, is well known among grain threshers as "dust fever." He found on inquiry that the ailment occurs also among flax hatcherers. As it is caused by the inhalation of dust in excessive quantities, it probably occurs in various occupations supplying this essential etiologic factor. The only cases coming under Bowen's observation, however, have been among threshers, or farm laborers engaged in grain threshing. The sickness begins in the evening or during the night following the day's work in dust. The symptoms are severe; often alarming. There is a pronounced chill and usually vomiting. The face is flushed. The patient may be delirious and with a temperature as high as 104. There is marked congestion of the mucous membrane of the respiratory passages. The picture is not unlike that often presented at the onset of pneumonia in a robust subject. The symptoms moderate during the second and third days. A copious exudation from the nasal and bronchial passages eliminates microscopic quantities of dust.

Bulletin of the Manila Medical Society

May, IV, No. 5, pp. 97-124

- 88 Reports of Medical Conditions in the Torrid Zone Collected by the College of Medicine and Surgery, University of the Philippines.
- 89 Statement of Deaths in Zamboanga for Three Years. Page, U. S. Army.
- 90 Case of Polycoria. R. G. Mills, Seoul, Korea.
- 91 Observations at the General Hospital, Colombo, Ceylon. A. M. de Silva.

American Journal of Public Health, New York

June, II, No. 6, pp. 399-498

- 92 Methods of Accounting in the Collection of City Waste. P. M. Hall, Minneapolis.
- 93 Standard Form for Statistics of Municipal Refuse. S. A. Greeley.
- 94 Development of a Municipal Laboratory. G. E. Bolling, Brockton, Mass.
- 95 *Statistics Regarding Increased Number of Throat Infections in Boston, February, 1912. W. P. Coues, Boston.
- 96 Typhoid in New York City, Together with a Discussion of the Methods Found Serviceable in Studying Its Occurrence. C. F. Bolduan, New York.

95. **Increased Number of Throat Infections in Boston, February, 1912.**—From the clinical examination of seventy-seven persons Coues believes that there is a condition which might be termed dairymen's or milk handler's pharyngitis, incident to the long hours of constant work on the wet floors often covered with ice and milk. It does not seem as if all the scrupulous care and pains taken in the efforts to produce the cleanest possible milk could be unvaryingly successful in an unpasteurized product. It would seem as if direct or nearly direct hand contact with the milk is impossible to avoid in some stage of the preparation. Pasteurization by unit system of small packages (one sealed bottle) seems an ideal method.

Canadian Medical Association Journal, Toronto

July, II, No. 7, pp. 557-652

- 97 *Does Cholecystenterostomy Divert the Flow of Bile from the Common Duct? E. Archibald, Montreal.
- 98 *Laboratory Tests in the Diagnosis of General Paresis. C. S. McVicar, G. Bates and G. S. Strathy, Toronto.
- 99 Bone-Marrow, a Study from the Standpoint of the Clinical Pathologist. O. C. Gruner, Montreal.

97. **Does Cholecystenterostomy Divert the Flow of Bile from the Common Duct?**—Archibald says that cholecystenterostomy in the dog, in the presence of a patent common duct, does not divert the flow of bile from the common duct to any appreciable extent. Cholecystostomy, which does succeed in diverting a portion of the bile from the common duct, is therefore the operation of choice for cases of chronic and subacute pancreatitis.

98. **Laboratory Tests in the Diagnosis of General Paresis.**—In 150 sera and twenty spinal fluids of patients with no history or symptoms of syphilis examined by the author the Wassermann reaction was not present. The fluids were taken from cases of non-infective psychoses, tuberculous and meningococcal meningitis, brain tumors, paralysis agitans, disseminated sclerosis and healthy persons. From these cases the following is deduced: (1) An increased cell count is present in nearly all cases of paresis but may also be found in Korsakow's psychosis, and meningeal conditions of various origins. (2) General paresis without a positive Wassermann reaction in both spinal fluid and blood-serum is rare. (3) Globulin can be detected in the spinal fluid of nearly all paretics. The Noguchi and ammonium sulphate tests are of equal delicacy. (4) A positive Wassermann reaction may be obtained in the spinal fluid of patients who have had syphilis and who cannot yet be diagnosed clinically as cases of general paresis.

Ohio State Medical Journal, Columbus

July 15, VIII, No. 7, pp. 345-406

- 100 Relation Between Certain Functional and Organic Eye Troubles and Intestinal Auto-Infection or Auto-Intoxication. H. Woods, Baltimore.
- 101 Acute Dilatation of the Stomach. A. Crotti, Columbus.
- 102 *Anatomic and Physiologic Effects of Iodin on the Thyroid of Exophthalmic Goiter. D. Marine.
- 103 *Clinical Evidences of Relation Between Exophthalmic Goiter and Altered Function of the Thyroid. C. F. Hoover, Cleveland.
- 104 Hematuria, with Case Reports. C. M. Harpster, Toledo.

- 105 Surgical Lesions of the Stomach and Duodenum. W. D. Haines, Cincinnati.
106 Health Conservative Mastoid Operation. F. A. Leslie, Toledo.
102, 103. Abstracted in THE JOURNAL, June 1, p. 1714.

Boston Medical and Surgical Journal

July 18, CLXVII, No. 3

- 107 The General Practitioner: An Idealization. F. S. Meara, New York.
108 *Recent Studies in the Pathogenesis of Epilepsy. L. P. Clark, New York.
109 Alcohol as a Drug. W. F. Boos, Boston.
110 Regulation of Midwifery. J. L. Huntington, Boston.
111 *Hyperemic Treatment of Acute Anterior Poliomyelitis. P. McIlhenny, New Orleans.
112 Actinomyces Treated with Vaccines. R. Kinnicutt, Worcester, and W. J. Mixer, Boston.
113 Three Cases of Pellagra. C. H. Dean, Northampton.

108. Also published in the *New York State Journal of Medicine*, July. See Abstract No. 80.

111. **Hyperemic Treatment of Acute Anterior Poliomyelitis.**—The plan of treatment that McIlhenny began in June, 1906, and has carried out with five cases to date with the most satisfactory results, has demonstrated very forcibly the value of active hyperemia in infantile paralysis, and is as follows: The alimentary canal is thoroughly cleansed, the limb or limbs lightly bandaged with cotton to keep them warm, stimulating liquid diet and strychnin in minute doses. Cups are applied intermittently to both sides of the spine, and directly over the posterior processes from the sacrum to the cervical region, for one hour daily, and this continued regularly until muscular soreness has disappeared and voluntary motion in the affected muscles begins to return; the bandages are then removed and massage begun, general diet gradually being allowed, and the cupping continued. If one is able to begin treatment a day or two after the initial attack, McIlhenny says one may look for a diminution of the muscular soreness about the fourth day, and a slight return of voluntary motion about the tenth or twelfth day, depending on the extent of the inflammation when treatment was begun and the amount of hyperemia the patient can bear. As the patient becomes more accustomed to the treatment, the improvement will be more rapid; this treatment should be continued until the muscles have regained their tone.

Archives of Pediatrics, New York

June, XXIX, No. 6, pp. 401-480

- 114 *Relation of the American Pediatric Society to the Reduction of Mortality in Infancy and Childhood. W. L. Carr, New York.
115 The Agents Causing Measles and Scarlet Fever. W. H. Park, New York.
116 Inclusion Bodies in Scarlet Fever Blood as a Means of Differential Diagnosis. M. Nicoll, New York.
117 Non-Residential System of Care for Crippled Children. D. C. McMurtrie, New York.
118 Requisite Standards for Raw Material in the Successful Substitute Feeding of Infants. H. L. Colt, Newark, N. J.
119 Care of Premature Infants. R. Durham, Brooklyn.

114. Abstracted in THE JOURNAL, June 29, p. 2046.

New York Medical Journal

July 20, XCVI, No. 3, pp. 101-156

- 120 *Tincture of Iodin the Best Surgical Disinfectant. F. T. Woodbury, Fort Sereven, Ga.
121 The Latest in Skiagraphy. J. Rudis-Jicinsky, Cedar Rapids, Iowa.
122 Anemic Habit. H. Brooks, New York.
123 *Discovery of Pneumococcus in the Feces: Role of the Intestine in the Symptomatology and Treatment of Acute Lobar pneumonia. A. A. Rutz, New York.
124 Use of Spinal Fluid in the Treatment of Chronic Neurosyphilides. W. Browning and W. Lintz, Brooklyn.
125 Hypertrophied Thymus and Status Lymphaticus. J. H. Taylor.
126 Garbage Disposal. T. M. Koon, Grand Rapids, Mich.
127 Syphilitic Facial Paralysis. C. O. Files, Portland, Me.

120. **Tincture of Iodin the Best Surgical Disinfectant.**—Woodbury has used the U. S. P. tincture on the tonsils for acute and chronic tonsillitis; in the parturient uterus and on extensive lacerations of the perineum; in the cavity following the evacuation of an amebic liver abscess, on the intestine, the ovary, the bladder and stomach; in the gall-bladder knee-joint, fistula-in-ano and tuberculous osteitis; on compound comminuted fractures from crushing and gun-shot wounds, on

depressed compound fractures of the skull and spine, on amputations, on corneal ulcers, and in various ophthalmic operations; and on his own hands as a disinfectant before operating. A solution of one teaspoonful of the tincture to a quart of normal salt solution made with pure sodium chlorid has been used as a wet dressing to suppurating wounds, burns and gangrene from frost bite; as a bladder irrigation in acute cystitis, as a vaginal douche, a gastric lavage, a urethral injection, an injection into the spinal canal in a case of epidemic cerebrospinal meningitis, a nasal spray, a gargle, a collyrium, and as a cleansing solution for flushing out the abdominal cavity after suppuration, and for washing out tuberculous bone sinuses. It makes a good rinsing solution for the surgeon's hands during operations.

Woodbury says he has yet to see his first case of iodism from the use of the drug, although on one occasion a nervous patient with a duodenal ulcer was receiving gastric lavage and retained a quart of this solution, representing a teaspoonful of the tincture or four c.c., the maximum safe dose according to J. V. Shoemaker being 0.3 c.c., and failed to feel any symptoms save a sense of fulness. As regards the erythema and dermatitis, it is interesting to note that a case of acute catarrhal eczema of face and scalp, due to Mrs. Potter's walnut juice hair dye, yielded to the use of the iodine ointment reduced one-third strength by petrolatum.

123. **Pneumococcus in the Feces.**—From clinical observations and bacteriological examinations, Rutz contends that there are living and active pneumococci in the feces in acute lobar pneumonia. Tympanites is a constant and important symptom in the disease. The intestine is the special organ of excretion of the toxins. Routine injections from the onset of the disease, together with other accessory measures intended to reduce the toxemia and tympanites, materially influence the course and lower the mortality of the disease.

Virginia Medical Semi-Monthly, Richmond

July 12, XVII, No. 7, pp. 157-184

- 128 Thoracotomy Under Intratracheal Insufflation Anesthesia. H. H. Kerr, Washington, D. C.
129 Some Phases in the Management of Pulmonary Tuberculosis. W. E. Jennings, Danville, Va.
130 Arterial Hypertension. H. P. Parker, Washington, D. C.
131 Prevention of Typhoid in the Military Service. F. P. Reynolds, U. S. Army.
132 Treatment of the Verumontanum and Prostatic Utricle. W. F. Cole, Greensboro, N. C.
133 Importance of a Thorough Examination and an Early Diagnosis in Diseases of the Anus and Rectum. J. A. McVeigh, Detroit.

Medical Record, New York

July 20, LXXXII, No. 3, pp. 93-138

- 134 Case of Still's Disease. V. P. Gibney, New York.
135 *De Keating-Hart Method of Thermo-Radiotherapy. W. S. Bainbridge, New York.
136 *Twelve Cases of Mental Disease Treated with Salvarsan, with Special Reference to Blood-Pressure During Injection. C. R. McKinniss, Norristown, Pa.
137 Local Anesthetics in the Upper Respiratory Tract, Including the Adrenalin Preparations. W. Freudenthal, New York.
138 Mental Hygiene Movement. W. L. Russell, White Plains, N. Y.
139 Large Incision and the Reason for It. P. A. Perkins, Memphis, Tenn.

135. **De Keating-Hart Method of Thermo-Radiotherapy.**—Thermoradiotherapy alone or in conjunction with fulguration, according to the requirements of the individual case, is being tested at the New York Skin and Cancer Hospital by Bainbridge. He is not ready yet even to express an opinion concerning its merits, further than to say that he would not be testing it if it did not hold out a modicum of hope of at least ameliorating suffering. Later the cases treated by means of thermoradiotherapy, along with those treated by fulguration, will be reported in detail.

136. **Mental Disease Treated with Salvarsan.**—McKinniss has treated twelve patients and given fifteen injections of salvarsan, and in every case mercury, either by mouth or injection, has been used as an adjuvant. In only three was it necessary to cut down on the vein to insert the needle and only two required a general anesthetic. All the patients were kept in bed for two to six days after injection. The intravenous administration of salvarsan in these cases proved to be a simple matter with no serious complications. There was very

little change in the blood-pressure even when 195 c.c. was injected. Two of the patients whose psychoses were thought to be due to syphilis of the brain, were much improved by treatment; while two cases of paresis showed some temporary improvement. McKinniss doubts very much if paresis will be benefited by salvarsan. There was nothing in his experience to show the advantage of salvarsan over mercury in the treatment of syphilis.

Journal of Abnormal Psychology, Boston

June-July, VII, No. 2, pp. 89-160

- 140 Critique of Impure Reason. F. L. Wells, Waverley, Mass.
- 141 Evolution of Sleep and Hypnosis. I. H. Coriat, Boston.
- 142 Treatment of Writer's Cramp and Other Occupational Neuroses. T. A. Williams, Washington, D. C.
- 143 Poetry and Dreams. F. C. Prescottt, New York.

American Journal of Diseases of Children, Chicago

July, IV, No. 1, pp. 1-63

- 144 *Leukocytic "Inclusion Bodies," with Special Reference to Scarlet Fever. J. A. Kolmer, Philadelphia.
- 145 *Clinical Significance of Abnormal Respiration and Deglutition Click or Fremitus; the Pneumonic-Respiration-Pause-Cycle. L. Ott, Philadelphia.
- 146 Relationship Between the Infection in the Child and Clinical Tuberculosis in the Adult. F. M. Pottenger, Monrovia, Cal.
- 147 Recent Advances in Our Knowledge of Measles. J. F. Anderson and J. Goldberger.
- 148 Diagnostic Value of the Cutaneous Tuberculin Test of V. Pirquet. F. L. Wachenheim, New York.
- 149 Apparatus for Collecting Infants' Blood for the Wassermann Reaction. K. D. Blackfan, St. Louis.
- 150 *Tetanus as a Complication of Burns. C. Newberger, Chicago.
- 151 An Unusual Lesion of the Right Crus in an Infant of 4 Months. F. J. Farnell and H. W. Burnett, Providence.
- 152 Standardization of Blood-Pressure Readings by Means of an Automatic Device for Indicating Systolic and Diastolic Pressures in Children. B. R. Hoobler, New York.
- 153 Tuberculosis and the Mesenteric Lymph-Nodes in Infants and Young Children; Its Effects on Absorption. F. B. Talbot, Boston.

144. Leukocytic "Inclusion Bodies" with Special Reference to Scarlet Fever.—Kolmer concludes that "inclusion bodies" are composed of a plastic, probably spongioplastin, and are related to the presence of streptococci. Furthermore, they are present in the polymorphonuclear leukocytes of 94 per cent. of scarlet fever patients during the first three days after the onset of the disease. After that they diminish in frequency and are generally absent after the ninth day. They are to be found in 42 per cent. of diphtheria cases during the first three days of the disease; after this time they are but seldom found. "Inclusion bodies" are found not only in scarlet fever, but in other streptococcus infections. The diagnostic value of these "bodies" is necessarily limited. In serum sickness with a scarlatiniform rash their absence excludes scarlet fever with a fair degree of accuracy. Their presence in this condition, however, may not be due to scarlet fever but to the primary attack of diphtheria. They have, therefore, a negative value. An examination of the blood for these "bodies," however, is very simple and possesses value in aiding a differential diagnosis between scarlet fever, diphtheria, measles and gastro-intestinal rashes.

145. Clinical Significance of Abnormal Respiration and Deglutition Click or Fremitus.—Ott's experience leads him to believe that in cases of children of lowered vitality from disease other than lung troubles, manifesting cerebral symptoms, regularity of respirations negatives organic brain disease. This rule, he says, can also be applied to the pulse.

150. Tetanus as a Complication of Burns.—These two cases, reported by Newberger, are noteworthy because of their coincidence, similarity in manner of occurrence, course and result. In each instance, the symptoms of tetanus set in on the eighth day after the burn, and the complication proved fatal about twenty-six hours after its appearance.

Albany Medical Annals

July, XXVIII, No. 7, pp. 377-438

- 154 Diagnosis of Diseases of the Urinary Tract by the Combined Use of the Cystoscope and the x-Ray. E. M. Stanton, Schenectady.
- 155 Anatomy of the Intestines. J. D. Craig, Albany.
- 156 Symptoms and Diagnosis of Diseases of the Intestines. T. F. Doeschler, Albany.
- 157 Constipation; Its Treatment. A. MacFarlane, Albany.
- 158 Surgery of the Intestine. A. H. Traver, Albany.
- 159 Anatomy of the Liver. H. E. Lomax, Albany.

Kentucky Medical Journal, Bowling Green

July 1, X, No. 13, pp. 547-690

- 160 Longevity—The Wisdom of Age. T. J. Townsend, Owensboro.
- 161 Irrits as Seen and Treated by the Country Practitioner. J. F. Dunn, Arlington.
- 162 Abortion. M. A. Lenton, Lookout.
- 163 Rheumatism. T. C. Nichols, Morgan.
- 164 Relative Duty of the Teacher. C. E. Dudley, Earlington.
- 165 Ileocolitis. A. F. Botts, Glasgow.
- 166 Open Treatment of Recent Fractures. B. F. Van Meter, Lexington.
- 167 Toxic Insanities. M. Board, Louisville.
- 168 Eclampsia. E. Wilson, Pineville.
- 169 Alcoholism. T. T. Gibson.
- 170 Uncinariasis. B. E. Giannini, Straight Creek.
- 171 Prophylaxis of Specific Diseases by Legislation. T. L. Lampkin, Bardwell.
- 172 Puerperal Sepsis. W. B. Oldham, New Castle.
- 173 The Puerperal State. J. J. Rodman, Owensboro.
- 174 Simple Refraction for the General Practitioner. G. C. Hall, Louisville.
- 175 *Proprietaries vs. Official Drugs, or U. S. P. and N. F. Preparations vs. Nostrums and Proprietaries. S. H. Winsted, Paducah.
- 176 Diet. C. H. Todd, Owensboro.
- 177 Biologic Therapeutics in Pyorrhea Alveolaris; Autogenic Method. J. H. Wood, Lexington.
- 178 Infantile Diarrhea. R. N. Eliatrean, Knottsville.

175. Proprietaries vs. Official Drugs or, U. S. P. and N. F. Preparations vs. Nostrums and Proprietaries.—The author of this paper is a druggist. He says that there is much self-medication practiced among the laity to-day and that the doctors and druggists are both to share alike in this lamentable condition of affairs. For example: A physician writes a prescription for a bottle of some proprietary remedy, with usual directions. It is a short name. The patient remembers it, since in this day, a great percentage of the laity are proud to familiarize themselves with the terms applied to diseases and medicines. The patient chucks the prescription into the discard and sallies forth to the druggist, asks for a bottle of the proprietary and then takes it according to the directions. It is only natural to assume that the patient, especially the discerning one, will tell his friends and neighbors of his experience and recommend the purchase of a bottle of the same medicine, explaining that Doctor So-and-So prescribed it for such and such a malady. There is no wonder, he continues, that the unthinking doctor rates the druggist as a merchant of average intellect, when medical colleges give their students lectures in pharmacy for only eight weeks, two lessons each week, and after giving them these sixteen lectures, the young doctor launches his career in practice. As to proprietaries, physicians are never furnished with a complete formula. If they were, there is no moral or legal assurance that this formula is always adhered to. It is subject to change without notice. There is no standard set down by authorities. You think you get results, but to save you, you cannot tell what produces them.

American Journal of Surgery, New York

July, XXVI, No. 7, pp. 257-288

- 179 Injuries of the Pancreas. H. Fischer, New York.
- 180 Sparteine Sulphate a True Heart Tonic, a Reliable Diuretic in Two-Grain Doses. G. E. Petter, Memphis, Tenn.
- 181 Nitrous Oxid Gas and Oxygen Anesthesia. C. U. Collins, Peoria, Ill.
- 182 Primary Tuberculosis of Mesenteric Lymph-Nodes. C. Schram, New York.
- 183 Indications for and Technic of Abdominal Cesarean Section, and Analysis of 100 Cases. R. McPherson, New York.
- 184 Cesarean Section for Albuminuria. F. T. B. Fest, Las Vegas, N. Mex.
- 185 General Peritonitis Following Spontaneous Rupture of a Pyosalpinx. J. A. McGlinn, Philadelphia.
- 186 *Unusual Result of Truss Wearing. W. C. Cramp, New York.

186. Unusual Result of Truss Wearing.—Cramp's patient was wearing an old-fashioned, uncovered steel truss, which had a wooden pad. The truss, anteriorly, had penetrated the tissues, making a deep, clean cut wound, extending from one anterior superior spine to the other, in which it was buried. The wound involved the skin and superficial fascia, and, to varying degrees, the aponeurosis, in some places exposing the rectus muscle. The pad itself occupied a position on the left side behind the pubic bone, having cut through the rectus muscle with its sheath. The peritoneum had not been opened, having been pushed aside. With some difficulty the pad was extricated and then the wound was inspected. The latter was

smooth, no bleeding being anywhere present, the pressure having evidently been exerted gradually for a considerable period of time to bring about this unusual result. On admission the patient was stuporous and the abdomen was moderately distended; he appeared as if in a typhoid state, with no other lesions on the body except the one described. The patient died the day after admission without a definite diagnosis having been made, and without any further information referable to his previous history having been obtained.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

June 29, CLXXXII, No. 26, pp. 1737-1802

- 1 Pathology of Immunity. L. S. Dudgeon.
- 2 *Some Moot Points in the Pathology and Clinical History of Pneumonia. P. Kidd.
- 3 *Relationship of the Lungs and Genital Organs of Tuberculous Women. H. V. Bardeleben.
- 4 *Comparison Between Fleming's Modification and the Wassermann Test. R. Donald.
- 5 *Disappearance of a Skin Carcinoma under Local Application of Adrenin. L. C. P. Ritchie.

July 6, CLXXXIII, No. 1, pp. 1-66

- 6 Pathology of Immunity. L. S. Dudgeon.
- 7 *Vascular Lesion in Some Cases of Middle Meningeal Hemorrhage. F. W. Jones.
- 8 *Case of Angina Abdominis. W. K. Hunter.
- 9 Ophthalmology of General Practice. M. L. Hepburn.
- 10 The Etiology of Vaccina and on the Cultivation of the Microbe of Variola. W. J. Simpson.
- 11 *Examination of Diphtheria Specimens. C. Ponder.
- 12 Removal of an Intrathoracic Thyroid Tumor. C. B. Lockwood and W. D. Harmer.
- 13 *The So-called X Bodies. A. Balfour.
- 14 Ultraviolet Light in the Treatment of Alopecia. J. D. Harris.
- 15 An Unusual Case of Prolonged Fever Presenting Acute Hepatic Changes. G. Lawrence.

2. Some Moot Points in the Pathology and Clinical History of Pneumonia.—A review of the facts at present available, Kidd says, justifies the statement that, with few exceptions, lobar pneumonia may be regarded as pneumococcal. Moreover, it is clear that our conception of the rôle of the pneumococcus in pulmonary disorders needs to be enlarged, and the pneumococcal group must include various anomalous pleuropulmonary affections, among which must be placed the pulmonary congestions of French authors—"maladie de Woillez," pleuro-pulmonary congestion of Potain, and most instances of splenopneumonia. The varying powers of resistance of the individual may be the chief factor which determines the clinical form assumed by the infection, as suggested by Rendu. At the same time, an attenuated virulence of the germ may play its part too. A combination of the two factors in varying proportions would at least provide a plausible explanation of much that would otherwise be obscure in the clinical history of the various forms of pneumonia.

3. Relationship of the Lungs and Genital Organs of Tuberculous Women.—According to Bardeleben, G. Tb. (genital tuberculosis), as a rule, arises from L. Tb. (lung tuberculosis). On the other hand, clinical experience teaches that the prognosis of L. Tb. becomes much worse with the complication of G. Tb. Thus, G. Tb. is usually combined with severe L. Tb. in dissected cases, while an early removal of the G. Tb., by means of an operation, often makes it possible to cure a newly kindled L. Tb. In pregnancy the placenta or the placenta uterina is often the cardinal point of this action and reaction: (a) It often offers a harbor to tuberculosis bacilli circulating through the blood, from which at every opportunity, especially at the separation of the placenta, the bacilli can be again mobilized (childbed). (b) And therefore, the greater the chances may be of this happening in cases of active, manifest L. Tb., the more injurious are the effects of the pregnancy (90 per cent.), whereas the slighter the chances are of bacilli circulating in the blood the more seldom does the L. Tb. become worse (15 per cent.).

In the same manner is proved the agreement of the results of anatomic research with regard to the placenta and therapeutic interventions. (a) Artificial abortion produces really good results only in those cases in which tuberculosis bacilli are practically never found in the placenta (simple catarrh

of the lungs till the fourth month of pregnancy, indicatio primi gradus). It produces, on the other hand, unsatisfactory results in cases in which altogether 70 to 80 per cent. placental tb. is to be found (simple affection of the lungs with strongly developed placenta after the fourth month of pregnancy, or more extensive or intensive L. Tb., also in early months of pregnancy, indicatio secundi gradus). (b) The results are for indicatio s. g., just as good as for indicatio p. g., if, instead of merely removing the embryo, the simultaneous excision of the placenta uterina is made. One is led back to the same conclusions by the clinical observations, termed and described as local puerperal and post-puerperal injuries, which likewise disappear with indicatio s. g., after the excision of the placenta. The ovaries have no share in the aggravation. On the contrary, their extirpation according to indicatio p. g. makes the results eight to ten times worse than a mere artificial abortion in similar cases. The extirpation of the whole uterus, according to indicatio s. g., also produces much better results than a simple emptying, but at the same time brings with it some disadvantages, for which reason the total excision of the placenta uterina is much more effective.

4. Comparison Between Fleming's Modification and the Wassermann Test.—The reagents and the technic were carefully conformed by Donald to the directions given by the author of the modification. Compared with the Wassermann test, the modification, using active serum, was very unsatisfactory. The hemolytic system was found precarious, and, even when the controls were hemolyzed, the results were often indefinite or were failures to indicate proved syphilis. In all 186 sera were tested, in two series. In Series A, of 126 sera, thirty-four sera—i. e., 27 per cent.—failed through deficiency of amboceptor or of complement. Of the 126 sera, eighty-two were controlled by the Wassermann test done with human heart antigen. Of these, some six appeared incompletely positive by the modification, though negative by the Wassermann test. The sixty cases in Series B were all controlled by the Wassermann test with Sach's antigen and also by a fully proved micro-Wassermann test. Some thirty-seven sera—i. e., 62 per cent.—were conceded to agree with the Wassermann test; but even of these as many as sixteen failed to completely hemolyze the controls. Through complete lack of hemolytic substances eleven sera—i. e., 18 per cent.—failed to respond to the modification. One serum, from a case of continued pyrexia, was incompletely positive to the modification, though negative to the Wassermann test. As many as eleven sera (18 per cent.) were negative to the modification, though positive to the Wassermann test. Ten out of the eleven were proved syphilitics.

5. Disappearance of Skin Carcinoma under Local Application of Epinephrin.—A man 61 years of age had a recurrent carcinoma on the right cheek on a level with the lobe of the ear, measuring about 3 cm. by 2.5 cm. in area, the whole of it projecting above the skin surface about 1.2 cm. The entire surface of the tumor was ulcerated, of a dark red color, and bleeding readily. No palpable enlargement of neighboring glands was detected. At the patient's first appearance potassium iodid (15 grains thrice daily) was prescribed. A portion of the edge of the tumor was excised for microscopic diagnosis and parts of this were diagnosed independently by Dr. T. Shennan in the pathologic department of the infirmary and by Ritchie as being found to be squamous-celled carcinoma. It showed a higher cellular epitheliomatous growth, continuous apparently with some remnants of surface epithelium; fairly marked cell-nest formation; not much connective tissue, but considerable areas of inflammatory infiltration. The administration of the potassium iodid had been followed in the two weeks of its use by a slight contraction in the projecting part of the tumor. It was discontinued when the patient was treated by exposures to the x-rays for about a week. X-rays and radium failed to give any improvement.

Then Ritchie thought it might be possible to assist the penetration of the rays by the use of epinephrin, applied with the object of rendering anemic for the time being the tissues acted on, following the principle used in the application of

the Finsen light. A solution (1 in 1,000) of the active principle of the suprarenal was employed, and the method Ritchie adopted was either to paint it freely over the tumor surface or to inject a few drops of it into the tumor a few minutes prior to the application of the radium. It was found that these injections were followed by a tendency to edematous swelling of the tissues, lasting perhaps some days, and they were given on only four occasions. The use of the epinephrin was commenced on February 3, and continued regularly for three weeks. From the time of its commencement a distinct change for the better was noted, the ulcerated area steadily though slowly diminishing in size. It occurred to Ritchie, then, that possibly the epinephrin might have some beneficial action apart from assisting the penetration of the radium rays, and accordingly a wet dressing of lint soaked in the solution was applied each day. When the epinephrin was stopped, the radium being continued, there was shown a tendency to relapse; and healing was comparatively most rapid when the epinephrin was again used, the radium being discontinued. Fully six years have now passed since the disappearance of the carcinoma without there being the least indication of recurrence.

7. Vascular Lesion in Middle Meningeal Hemorrhage.—It is held by Jones that the anatomic condition of the vascular channels of the dura mater is, as a rule, not appreciated, and that an attentive examination of these channels at post-mortem inquiries held on these cases is very desirable. From a purely anatomical point of view there is great probability that, in cases not caused by excessive violence, the sinus is far more likely to be injured than the artery. In those cases—especially common in children—in which the violence is trivial, and no fracture is caused, the cerebral compression and ensuing death are due to the development of a hematoma beneath the vascular dura mater strictly comparable to the well-known hematoma developed beneath the vascular pericranium. In the twelve bleeding points yielded by three fatal cases which Jones examined in serial sections, the blood had invariably escaped from a laceration of the venous sinns, and in no instance could an arterial lesion be found. From the published accounts of the bleeding encountered at operations undertaken for the relief of symptoms Jones says it would seem that in the majority of such cases the blood was issuing from a ruptured venous sinus rather than from the artery. In the cases examined there is evidence that following on the initial wound of the sinus wall venous blood is extravasated between the dura mater and the bone, and continuance of the bleeding causes a continuance of the stripping of the membrane from the bone with the development of an accumulating laminated extradural clot. Probably only in rare cases—and especially those in which excessive violence has produced linear or depressed fractures—is the middle meningeal artery actually wounded. Dangerous, or difficultly controlled hemorrhage is not the rule at operations undertaken for the relief of this condition; that in children, especially, cranial injury, however trivial, should be regarded as the possible causation of a dangerous, and possibly fatal, dural hematoma, and that operation for evacuation of the clot and relief of pressure symptoms should always be undertaken regardless of subsequent hemorrhage, which, being usually venous, is easily brought under control.

8. Case of Angina Abdominis.—The explanation of angina abdominis as being due to an ischemia of one or other of the abdominal viscera does not seem to Hunter to be an entirely satisfactory one, even, he says, if we accept the theory that angina pectoris is due to an ischemia of the heart muscle. And if we favor Sir Clifford Allbutt's contention that, in a large proportion of cases, it is caused by a painful distention of an aorta which is the seat of an inflammatory lesion, the ischemic theory for angina abdominis would seem to fall to the ground.

11. Examination of Diphtheria Specimens.—The details of Ponder's method are as follows: A film is made on a cover-glass and fixed in the usual way. The stain has the following composition: Toluidin blue (Grubler), 0.02 gm.; glacial acetic acid, 1.0 c.c.; absolute alcohol, 2.0 c.c.; distilled water

to 100.0 c.c. A small quantity of the fluid having this composition is taken up with a platinum loop and dabbed and spread on the film; the cover-slip is then turned over and mounted as a "hanging-drop" preparation, and it is now ready for immediate examination with the one-twelfth objective in oil. This toluidin hanging drop method is said to differentiate *B. diphtheria* from the other organisms in the same film more clearly than any other method, because while giving a double stain—blue bacilli with red granules—it shows the minute structure of all organisms very distinctly, owing to the way in which the stain is taken up and the optical influence of the fluid in which it is examined. It has a special value in demonstrating the organism in a direct smear without preliminary cultivation, as by this means, in a large proportion of acute cases of the disease, a much earlier diagnosis may be made. It also demonstrates the organisms of Vincent's angina if present. It is extraordinarily simple and rapidly carried out, so that in a laboratory where a large number of specimens require to be examined a great saving of time results. As a corollary to the last two points, it follows that any practitioner who can examine films of sputum for the tubercle bacillus may himself make an immediate diagnosis in a large number of instances without having recourse to the outside aid of a bacteriological laboratory or to the use of all the apparatus incidental to the making of cultures.

13. The So-Called X Bodies.—Balfour confirms opinion as to the true nature of these bodies, viz., that they are in reality of the nature of artefacts and are probably more common in old slides that have been kept for some time in the tropics.

British Medical Journal, London

June 29, No. 2687, pp. 1469-1520

- 16 Prurigo, Pruriginous Eczema and Lichenification. M. Morris.
- 17 Certain Forms of Fever of Obscure Origin in Infancy and Childhood. C. P. Lapage.
- 18 Study of an Epidemic of Measles. A. E. Tait.
- 19 *Aneurysm of the Superior Mesenteric Artery, with Rupture. A. H. Gifford.
- 20 Electro-Cardiography and its Importance in the Clinical Examination of Heart Affections. T. Lewis.

July 6, No. 2688, pp. 1-52

- 21 Puerperal Infection. J. F. Jordan.
- 22 Etiology of Torsion of the Testis. R. W. Murray.
- 23 Acute Epididymitis Produced by Muscular Strain. J. W. G. Grant.
- 24 Sleeping-Sickness. A. Balfour.
- 25 Necessity for the Use of Color Names in a Test for Color Blindness. F. W. Edridge-Green.

19. Aneurysm of the Superior Mesenteric Artery, with Rupture.—The interesting points of Gifford's case were the facts: 1. That the aneurysm must have been one occurring in the superior mesenteric artery in its course behind the pancreas, remnants of the arterial wall found lying flat on the posterior wall of the cavity. 2. That the gradual dilatation of the large aneurysmal cavity had exercised a traction on the aorta itself, so that a fusiform aneurysm was formed. 3. That there was a rotation of the aorta, in that the opening of the celiac axis artery and what must have been the opening of the superior mesenteric artery originally, were found on the right side of the aortic aneurysm. 4. That there must have been a gradual and persistent dissection in the upward direction to the lower surface of the liver where the rupture eventually took place, as is evidenced by the thickening and induration of the walls.

Journal of Tropical Medicine and Hygiene, London

June 15, XV, No. 12, pp. 177-192

- 26 Meteorology of Malaita. M. D. O'Connell.
- 27 Case of Bacillary Dysentery, Type Y, in a Child Aged 6 Months. J. C. Graham.

July 1, No. 13, pp. 193-208

- 28 Insufficiency of the Posterior Nucleus as a Specific Distinction in Trypanosoma Rhodesiense. C. M. Wenyon.
- 29 A Supposed Peculiarity in the Structure of the Leishmania from Skin Lesions in South America. C. M. Wenyon.

Bulletin of the Naval Medical Association of Japan, Tokyo

May, No. 1, pp. 1-6

- 30 *Preventive Inoculation of the Combined Vaccin of Typhoid and Paratyphoid Bacilli. T. Kazeshima.
- 31 *Ionic Treatment. G. Suzuki.
- 32 *Case of Cancer of the Jejunum. I. Nishl.
- 33 So-Called Krukenberg's Ovarian Tumor. T. Takamiya.

- 34 Two Cases of Amebic Dysentery. T. Takamiya.
35 How to Test Cow's Milk. T. Tsuzuki.
36 Method of Localizing Foreign Bodies in the Human Body by X-ray. S. Yano.

30. **Preventive Inoculation by the Combined Vaccine of Typhoid and Paratyphoid Bacilli.**—Kabeshima calls attention to the highly favorable effect on the prophylaxis of inoculation by typhoid and paratyphoid vaccine. After pointing out the definite relation between the prevalence of these diseases and the extent of inoculation in the Japanese navy, based on close observation of cases admitted to naval hospitals during the last three years, he lays emphasis on the fact that the number of cases occurring among the inoculated is eight times as large as typhoid fever patients, and ten times as great among paratyphoid A fever patients, as among the inoculated. Moreover, the death-rate of the former is three times that of the latter in the case of typhoid fever patients, though no marked difference is observable among those suffering from paratyphoid A fever. In order to obviate the trouble, and the consequent suffering to the patient, of performing three separate inoculations for typhoid and the two kinds of paratyphoid fever, Kabeshima attempted an inoculation with vaccine made from a combination of the three kinds of bacilli. By preliminary experiments on animals he ascertained the degree of immunity against the individual bacteria by this method of inoculation, after which he proceeded to test it on human beings, more than 300 men being so inoculated. He was convinced by the experiment that a comparatively large dose of the bacteria contained in the vaccine does not to any marked degree influence the reaction accompanying the inoculation, and that 15 to 20 c.c. of the serum drawn from twenty inoculated persons protect a mouse against three times the lethal dose of each bacillus. To this extent then he advocates the reasonableness and advisability of inoculating with the combined vaccine.

31. **Ionic Treatment.**—After briefly referring to the history, significance and extent of the application of ionic treatment, Suzuki goes on to represent by tables in detail the results of such treatment with salicylic ion, which he applied in cases of acute and chronic rheumatism and sciatica admitted to the Tokyo Municipality Charity Hospital in the course of one year. He then proceeds to a consideration of the question whether by this method of treatment the ion would be introduced into the tissue, as suspected, and if so, what would be the relation between the amount so absorbed and that introduced by internal administration, and arrives at the following conclusions: 1. When an aqueous solution of sodium salicylate is applied to the skin and an electric current is introduced, the salicylic acid penetrates the tissues of the body. 2. The amount of salicylic acid absorbed by this method is small compared with that introduced by internal administration. 3. The salicylic acid so absorbed begins very soon to appear in the urine, within fifteen minutes or so after the dose; it reaches its maximum in two or three hours, gradually decreases after four hours, and the amount discharged almost disappears after seven hours. 4. After ionic treatment with salicylic acid, for a certain time the urine increases in quantity and frequent micturition occurs. 5. The ionic medication of the sodium salicylate has on the whole a favorable effect on articular and muscular rheumatism and sciatica, especially in case of the latter. 6. The ionic medication of the sodium salicylate has the advantage of avoiding such disagreeable effects as interference with digestion, which often occurs after internal administration. 7. It is probable that the favorable effect of ionic medication is due not only to its medicinal properties but to the electric current itself. 8. The ionic treatment has the further advantage of causing the medicine to act directly on the part affected, instead of taking a circuitous route.

32. **Cancer of the Jejunum.**—Nishi cites a case of cancer of the jejunum, a form of tumor which rarely affects this part of the intestine. The patient, a seaman 33 years of age, had been affected with jaundice since August, 1911, and was very anemic. He was admitted to Kure Naval Hospital on October 18, 1911, when, on palpation, a tumor the size of a small fist and easily movable by change of posture, was

observed to the right and upwards of the umbilicus. It gradually increased in size and became fixed. Various investigations, however, failed to confirm the diagnosis. On January 26, 1912, the tumor was removed by laparotomy, together with a loop of the jejunum 25 cm. in length; and entero-anastomosis was performed between the open ends of the intestine. The wound healed up, leaving a small fistula in the abdominal wall. By microscopic examination the tumor was proved to be a cylindric carcinoma originating in the jejunum.

Edinburgh Medical Journal

July, N. S. IX, No. 1, pp. 1-96

- 37 Ataxia: A Symptom. J. J. G. Brown.
38 Trauma as a Factor in Disease. A. James.
39 An Experience of Three Cases of Pubiotomy. J. L. Lackie.
40 Changes in the Thyroid Gland under Thyroid Feeding. A. D. Fordyce.

Annales de Médecine et Chirurgie Infantiles, Paris

June 1, XVI, No. 11, pp. 321-352

- 41 Diagnosis of Tuberculosis in Infants. (Diagnostic de la tuberculose chez les nourrissons.) V. Hutinel and L. Tixier.
42 Gurgling Sound in the Pleura of a Tuberculous Child. (Bruit de glou-glou pleural chez un enfant de 8 ans.) G. Variot and A. Morancé.
43 Radiotherapy. (La lumière en thérapeutique et en hygiène.) F. de Courmelles.
44 *Subcutaneous Injections of Oxygen in Treatment of Pulmonary Tuberculosis. (Traitement de la tuberculose pulmonaire par les injections hypodermiques de gaz oxygène.) R. Bayeux.

44. **Treatment of Pulmonary Tuberculosis by Subcutaneous Injection of Oxygen.**—Bayeux' report was presented at the recent international tuberculosis congress, and describes his experience with subcutaneous injections of oxygen in thirty-six cases. The results were very encouraging, and he thinks that this method should rank as a valuable adjuvant in the treatment of tuberculosis. It might be useful even in prophylaxis. The method was in use 136 years ago and its harmlessness and vital effects and the absorption of the oxygen by the tissues were early established but the method soon fell into disrepute for some reason. Bayeux applied it sixteen months ago to relieve dyspnea, and he found to his surprise that the tuberculous symptoms in his patients at the same time displayed a marked change for the better. He kept up the injections, giving about twenty in the course of three months. His patients showed such relief and benefit that he urges others to adopt this method of hypodermic oxygenation, which has, he says, both a theoretical and practical basis in tuberculosis, as this is preeminently "the lack-of-air disease."

Archives des Maladies de l'App. Digestif, Paris

May, VI, No. 5, pp. 241-300

- 45 Cholesterin. (La cholestérine. Son rôle en physiologie et en pathologie.) G. Linossier.
46 Case of Adenomatous Polyposis Generalized Throughout the Intestines. Devic and Bussy.

Archives des Maladies du Cœur, Etc., Paris

July, V, No. 7, pp. 433-496

- 47 Paroxysmal Tachycardia with Partial Heart Block. (Tachycardie paroxystique en dome d'origine supra-ventriculaire et sans contraction de l'oreillette. Sa dégradation allorhythmique par block partiel. Ses rapports avec l'arythmie complète.) L. Gallavardin and L. Croisier.
48 Aleukemia, Granulomatosis and Involvement of the Blood-Producing Apparatus in Various Acute and Chronic Diseases. (Revue critique sur la pseudo-leucémie.) J. Rieux.
49 Differential Characters of the Heart Valves. (Note sur les caractères différentiels des valvules cardiaques.) R. Argaud.

Bulletin de l'Académie de Médecine, Paris

June 11, LXXVI, No. 24, pp. 423-466

- 50 Experimental Study of Chagas' Trypanosomiasis. (Etude expérimentale de la trypanosomose américaine de C. Chagas.) R. Blanchard.
51 Epidemics in France, 1910, and Necessity for Compulsory Notification of Epidemics. E. Mosny.

June 18, No. 25, pp. 467-480

- 52 Tissues Living Outside of the Organism. (Résultats nouveaux du Dr. A. Carrel relatifs à la vie manifeste permanente des tissus séparés de l'organisme.) S. Pozzi.

Journal d'Urologie Médicale et Chirurgicale, Paris

March, I, No. 3

- 53 Colon Bacillus Septicemic Pyelonephritis During Pregnancy: Two Cases. (Pyélonéphrite gravidique par septicémie colibacillaire.) F. Widal and R. Bénard.

- 54 Renal Tuberculosis in Children. (Tuberculose rénale chez l'enfant.) P. Vignard and L. Thévenot.
55 Diversion of Urine in Treatment of Tuberculosis of Kidney and Bladder; Two Cases. (Exclusion de la vessie dans la tuberculose réno-vésicale.) A. Boeckel.
56 Congenital Hydronephrosis from Stenosis of the Mouth of the Ureter. (Dilatation kystique intra-vésicale de l'extrémité inférieure de l'uretère.) R. Rendu.
57 Radioscope Diagnosis in Urology. (Radiodiagnostic en urologie.) G. Maingot.

Presse Médicale, Paris

June 26, XX, No. 52, pp. 549-556

- 58 Infantilisism the Result of Insufficiency of the Interstitial Gland of the Testicle. (L'infantilisme et l'insuffisance de la sécrétion interne du testicule.) A. Souques.
59 The Ligament Between the Pterygoid Muscles in Relation to the Inferior Maxillary Nerve. (L'aponévrose interptérygoïdienne et ses rapports avec le nerf maxillaire inférieur.) H. Rouvière.

Revue de Chirurgie, Paris

June, XXXII, No. 6, pp. 866-1034

- 60 *Technic for Exposure of Radial Nerve. (Déconverte du nerf radial au bras.) A. Schwartz and G. Küss.
61 *Suprasternal Adenophlegmon. Soubeyran and Desmonts.
62 *Operations on the Hypophysis Cerebri. (Chirurgie de l'hypophyse.) R. Toupet.
63 *Extra-Uterine Pregnancy. (Etude statistique sur la grossesse extra-utérine.) M. Baculescu.

60. **Exposure of Radial Nerve.**—Schwartz and Küss found the usual mode of access to the nerve not practicable in a certain case of paralysis after fracture, and they worked out on the cadaver a special technic for access from the rear of the arm which seems to have a number of advantages. Their illustrations demonstrate this, showing the ample exposure without injury of the muscle fibers, merely pushing to one side the tendon of the long triceps. They report application of the technic in two cases.

61. **Suprasternal Phlegmons.**—A case of adenophlegmon in a girl of 10 is reported. The phlegmon had developed in the carotid region after an attack of influenza, and the left clavicle had become spontaneously dislocated. Eight similar cases are summarized from the literature. In all rapid healing followed evacuation of the pus by a median incision at the lowest point for draining.

62. **Surgery of the Hypophysis.**—Toupet's thesis in 1911 was on this subject, being based on twenty-four operative cases he had compiled. Progress has been so rapid since then that he finds he has to retract some of his statements. He now has a record of fifty-six cases; Eiselsberg alone has contributed twelve and Hirsch fourteen. Seven of the patients seem to have been permanently cured, the interval since the operation being over two and three years in three cases. Every tumor in the hypophysis that can be reached from the front should be removed as the only chance of saving the patient. If the tumor does not protrude into the sinus and is not accessible from the front, but is causing symptoms from the pressure on the brain, an operation through the temporal region might be tried although it offers little chance for success. It may be wiser in such cases merely to open a flap as a safety valve. Unless the sella turcica is shown by radiography to be distinctly larger toward the sphenoidal sinus, the chances are that the tumor has developed principally on the side toward the brain, and in this case no operation can do much good. The most favorable cases are those in which the floor of the sella is worn through while the quadrilateral plate is intact. When the latter is destroyed, the prospects for any intervention are bad, even when the tumor bulges into the sinus.

63. **Extra-Uterine Pregnancy.**—Baculescu concludes from analysis of the experiences last year at the Necker hospital in fifty-six cases that operative treatment should be the rule when an extra-uterine pregnancy is discovered. Expectant treatment merely paves the way for serious complications.

Revue de Médecine, Paris

June, XXXII, No. 6, pp. 417-504

- 64 Symptoms in Diabetic Coma Due to Lack of Fluids. (Le syndrome de déshydratation algue dans le coma diabétique.) A. Chauffard and H. Rendu.
65 *Mental and Motor Disturbances with Heart Disease. (Troubles psychiques, hystéro-épileptiques chez une cardiaque.) F. Mouisset and J. Gaté.

- 66 Latent Meningeal Reaction in Secondary Syphilis. (Recherches sur les menégoopathies syphilitiques secondaires cliniquement latentes.) E. Jeanselme and P. Chevallier. Commenced in No. 5. To be continued.
67 *Toxic Action of Organ Extracts: Tachyphylaxis. (Action toxique des extraits organiques: Tachyphylaxie.) Cesa-Bianchi.

65. **Psychic Disturbances in Heart Disease.**—Mouisset and Gaté report a case of chronic valvular lesion, both mitral and tricuspid, the mitral stenosis predominating, with a long period of uncontrollable progressive asystole, complicated finally by pericarditis and mediastinal pleurisy. The patient was under observation for two and a half years and during the last year there was marked psychic disturbance coinciding with the onset of the pleurisy. She uttered inarticulate cries and incoherent words, laughed or cried violently, frequently laughing when in severe pain, and executed involuntary rhythmic automatic movements, but she never lost consciousness and always knew what had happened. She knew she was talking incoherently but could not help it. These manifestations were so severe as to necessitate her confinement for some weeks. There was no history of any nervous or mental disease in the family, and the patient had had no previous nervous trouble. Necropsy showed no lesions of brain or nervous system. Mouisset and Gaté conclude that in chronic heart disease the changes in the cerebral circulation and the action of toxic substances produced by alterations in the blood, may act on a naturally hyperexcitable brain to produce either actual epileptic attacks or psychic troubles with less characteristic motor disturbances.

67. **Toxic Action of Organ Extracts.**—It has been demonstrated that aqueous extracts of lung, lymphatic organs and glands of internal secretion are toxic to a high degree when injected intravenously, the toxicity being greatest in animals of the same species. A period of violent excitement with convulsions is followed by paresis, general paralysis and death. Blood-clots are usually found in the veins, but Cesa-Bianchi does not agree with Roger in attributing death to this cause. The resistance of the animal to the toxic action may be greatly increased by injecting small doses or a much diluted extract. This is an increased resistance and not a real immunity, as it decreases markedly within twenty-four hours and disappears within forty-eight. An extract of one organ exercises this protective effect against extracts of other organs also. Dold and Roger have stated that when the extract is made with fresh blood-serum of the same animal, instead of with normal salt solution, its toxicity is annulled. Cesa-Bianchi has found that the toxicity is the same, and maintains that their opposite results were due to the slow injection of the extract, thus bringing about the increased resistance before mentioned.

Semaine Médicale, Paris

July 3, XXXII, No. 27, pp. 313-324

- 68 *Diet in Chronic Nephritis. L. Cheinisse.

68. **Dietetic Management of Chronic Disease of the Kidneys.**—Cheinisse reviews the literature on this subject since the importance of salt in the diet has become recognized. The old rule to protect the kidneys as much as possible against irritating food and drink has been enforced even more rigorously than ever since then. Even shell-fish have now fallen under the ban on account of their high salt content. Recent research by Slovtzov indicates that the albumin in fish meat has certain advantages for the metabolism, and where strictly fresh fish can be obtained it may be used; fresh-water fish are preferable as they contain less salt. The objection to fish by some clinicians is merely because fish meat putrefies so readily. Cheinisse agrees with those who reject calves' brains, kidneys, etc., high game, bouillon, meat juice and fermented cheese. The vegetables rich in oxalic acid, cabbage, asparagus, spinach and tomatoes are generally forbidden, but Kakovsky has recently reported no harm and apparent benefit from the systematic use of small occasional amounts of raw and cooked tomatoes, spinach and gooseberries. His experience has confirmed the injurious action of mushrooms in patients with chronic nephritis, the special symptoms and

general health all suffering. There has been no mitigation of the strict rule of total abstinence from alcoholic beverages, and reduction of the total amount of fluids ingested. The restriction to milk alone has been proved unnecessary as the benefits from this were found to be mainly due to the small salt content, and by restricting the intake of salt the patient can be permitted a comparatively wide dietetic range. Cheinisse emphasizes that the drugs given in nephritis act on the cardiovascular complications and secondary kidney disturbances rather than on the primary kidney affection. He cites Kakovsky's recent communication on the irritation of the kidney from administration of theobromin sodium salicylate [a double salt official in the German pharmacopeia]. He found this irritation almost constant in his experience, as evidenced by an increase in the pathologic elements in the urine. Theocin had a similar irritating action although less pronounced (*Russki Vrach*, 1912, xi, 397). Cheinisse refers to the experiences to date with organotherapy in chronic nephritis as very encouraging, but says that the method is not ready yet for adoption in routine practice, although theoretically it seems to answer every indication.

Archiv für Kinderheilkunde, Stuttgart

LVIII, Nos. 1-3, pp. 1-240. Last indexed May 11, p. 1484

- 69 *Convulsions in the Newly Born. (Ueber Krämpfe bei Neugeborenen.) C. Stamm.
- 70 *Epigastric Hernia in Children. (Hernia epigastrica im Kindesalter.) F. Brandenburg.
- 71 Symmetrical Osteomyelitis After Variola. C. Schwenk.
- 72 *Arhythmia in Healthy Children. (Ueber Arhythmie bei gesunden Kindern.) R. Friberger.
- 73 *Strabismus in Children. (Schielen und Schielbehandlung im Kindesalter.) E. A. Heimann.
- 74 Polycystic Degeneration of the Kidneys, Especially in Children. (Ueber polycystische Degeneration der Nieren, namentlich im Kindesalter.) W. P. Shukowsky and W. Ssinjoff.
- 75 *Lymphadenitis in Children. (Ueber Drüsenerkrankungen bei Kindern.) D. Ssokolow.
- 76 Unmodified Milk in Infant Feeding. (Rohe Milch als Säuglingsnahrung.) B. P. B. Plantenga.
- 77 *Sarcoma in Pelvis in Children. (Beckensarkome im Kindesalter.) H. Alexander.
- 78 Congenital Atresia of the Esophagus. (Atresia oesophagi congenita et fissura oesophago-trachealis.) W. P. Shukowsky and A. A. Baron.

69. **Convulsions in the Newly-Born.**—Stamm reports the case of an infant born at term without obstetric trauma or noticeable asphyxia. The second day convulsions occurred, with other symptoms indicating pressure on the brain. The protrusion of the fontanels, spastic phenomena and downward rolling of the eyeballs suggested internal hydrocephalus and lumbar puncture was applied. About 40 c.c. of a reddish-brownish fluid escaped under considerable pressure, after which the fontanels sank down and the symptoms gradually subsided. A second lumbar puncture a week later released 20 c.c. of a brownish-reddish fluid after which the child rapidly recuperated and has developed normally since in mind and body. The trouble was evidently a cerebral hemorrhage, and the lumbar puncture in time saved the child's life. The cerebrospinal fluid is never brownish when the blood in it comes from a vessel injured as the puncture needle is introduced. Blood mixed with the fluid for some time does not coagulate. The syndrome in the case reported was that characteristic of hemorrhage below the tentorium. This form of hemorrhage is regarded as beyond the aid of operative measures to relieve directly the pressure on the brain. This renders the successful outcome in the present case all the more encouraging. The lumbar puncture drained away the extravasation damaging the cerebellum and the medulla oblongata. In conclusion Stamm reports a case in which severe cerebral symptoms developed after a difficult forceps delivery. Necropsy revealed a large evidently congenital defect in the brain, so that the birth trauma was not responsible for the symptoms.

70. **Epigastric Hernia in Children.**—Brandenburg has operated in four cases of this kind and has found epigastric hernia comparatively frequent in children. Attention is first called to it by periodic pains in the abdomen directly connected with the meals, especially after breakfast. The trouble is that one of the appendices epiploicae has worked its way through the linea alba, with consequent traction on the peritoneum. If the hernia still persists after the systematic use of a rubber

pad held in place by long wide strips of adhesive plaster, he advises correction by injection of paraffin or a radical operation. Conditions are more favorable for the latter in children than in adults.

72. **Arhythmia in Children.**—Summarized in *THE JOURNAL*, March 16, 1912, page 828.

73. **Strabismus in Children.**—Heimann reiterates that squint is due to lack of the normal power to fuse the two eyes in the act of vision and that it requires treatment from the earliest possible moment. Only when treatment is begun as the squint first develops is it possible to correct it without an operation. As soon as convergent squint is detected, the eyes should be examined under atropin and full correcting glasses worn permanently. By the age of 3 or 4, exercises with the amblyoscope, kept up for several weeks are in order. If these conservative measures fail or the angle of the squint is over 15 degrees, or vision is imperfect in one eye, operative treatment is indicated, and it can be undertaken by the age of 4 or 5. Outward squint can seldom be cured without an operation, although Heimann accomplished this in one case, arresting incipient divergent squint in four weeks by amblyoscope exercises and correcting glasses.

75. **Lymphadenitis.**—Ssokolow discusses the various theories in regard to the physiologic functioning of and pathologic conditions in the lymph apparatus, and the etiology, emphasizing the importance of this apparatus and its liability to disease, with serious effects on the organism as a whole. He then reviews the means for diagnosis and interpretation of the physical findings. The lymphadenitis may develop in an acute, subacute or chronic form. In children the tubercle bacillus is generally involved in the process but the pus cocci, pneumococcus and influenza bacillus may also originate and complicate the lymphadenitis, as also colon and typhoid bacilli and the pertussis germ. Treatment of lymphadenitis should in every instance be strictly conservative, he insists. Rubbing, kneading, massage and other measures to promote absorption should be strictly avoided. The process should not be excised and there should be no incision until suppuration is complete, if at all. The accessible lymph-nodes may be treated with heat, compresses, cataplasms and radiotherapy. When the lymph-nodes of the air passages are involved, the air breathed should be absolutely pure, free from dust, and it is best cold. With lymphadenitis in the abdominal cavity, the food should be non-irritating and non-fermenting, and as sterile as possible.

77. **Pelvic Sarcoma in Children.**—Alexander reports two cases in detail and summarizes sixteen from the literature. In two of the cases the sarcoma was at an accessible point and was successfully removed. His little patients were girls of 10 and 2. The first symptom was pain in the hip joint which subsided under rubbing. Three months later in the first case the pains returned and acute articular rheumatism was diagnosed at first and then hip joint disease, but examination revealed a large tumor filling the left half of the pelvis. Puncture brought sarcoma tissue and the child died a month later. The younger child had had symptoms for only a month before the tumor was discovered and it proved fatal the fifth month.

Berliner klinische Wochenschrift

June 24, XLIX, No. 26, pp. 1213-1260

- 79 *Inulin in Dietetic Treatment of Diabetes. (Ueber Inulinkuren bei Diabetikern.) H. Strauss.
 - 80 *Simple Method for Recording Acidity of Stomach Content. (Einfache Methode zum Ablesen der Salzsäurewerte des Mageninhalts.) G. de Revoredo.
 - 81 Spasmodic Contraction of the Stomach During Gall-Stone Colic. (Totale Gastrosasmus röntgenologisch nachgewiesen bei Cholecystitis und Cholelithiasis.) E. Schlesinger.
 - 82 Drop in Blood-Pressure Under Hormonal. (Ueber Hormonalwirkung.) R. Mohr.
 - 83 Epiphanin Reaction Not Characteristic of Syphilis. (Nachtrag zu der Arbeit über Epiphaninreaktion bei Syphilis.) F. M. Meyer.
 - 84 Stab Wound of Brain; Recovery after Trephining. (Stichverletzung des Gehirns, durch Trepanation geheilt.) R. Mühsam.
 - 85 *The Leukocyte Inclusion Bodies Not Peculiar to Scarlet Fever. (Zur diagnostischen Bedeutung der Leukocyten einschüsse bei Scharlach.) I. Ahmed.
 - 86 Acute Nephritis After Injection of Iodmenthol. P. Michaelis.
- July 1, No. 27, pp. 1261-1308
- 87 Action of Soluble Radium Salts on the Blood. (Ueber die Wirkungen von Injektionen löslicher Radiumsalze auf das Blutbild.) O. Brill and L. Zehner.

- 88 The Secretions in Diabetes Insipidus. (Zur Pathologie der Sekretionen bei Diabetes insipidus.) A. Rosenthal.
89 Roentgenotherapy in Gynecology. (Erfolge und Technik der Röntgenbehandlung in der Gynäkologie.) H. E. Schmidt.
90 Gummatus Tracheitis. R. Stumpf.
91 Differential Diagnosis of Aneurysm of the Aorta. O. Huber.
92 *Reform in Advertising Medicinal Articles. (Die Bekämpfung des Arzneimittelunfugs und die Arzneimittelliste des Kongresses für Innere Medizin.) A. Heffter.
93 The Neurorecurrences in Syphilis. (Zur Aetologie der Neurorecidive und zur Neosalvarsanbehandlung.) W. Gennerich. Commenced in No. 25.

79. **Inulin in Antidiabetes Diet.**—Strauss has been testing further the advantages of inulin in the dietetic treatment of diabetics. [His previous communication on this subject was summarized in THE JOURNAL April 13, 1912, page 1157.] He has since been using it systematically in nine cases of diabetes and tabulates the metabolic findings in most of these patients, giving the daily details during the two or three months of the tests. He gave the inulin pure (a commercial preparation), 100 gm. a day, mixed with the food, and found that it was perfectly tolerated except possibly by one moribund patient; no intestinal disturbances were observed in any instance while all the patients increased in weight, with the above exception. The tests showed that the inulin was borne at least as well as oatmeal or wheat flour, and he thinks that it may be destined to play an important rôle in the management of diabetics. The gastric juice seems to split the inulin into levulose, but inulin, being a polysaccharid, is assimilated far more slowly than levulose; this explains the better tolerance for it. The patients continued to take the inulin over periods of five, seven or fifteen days at a time, and an unmistakable beneficial influence on the acidosis was apparent. The best results were obtained with periods of from four to eight days, with varying intervals, the inulin mixed with eggs, fruits or vegetables. He does not approve of giving the inulin in bread, as the bread may contain substances which are less likely to be tolerated. The cases in which the inulin is indicated are the moderately severe and very severe cases, especially those with acidosis. Inulin is comparatively inexpensive; it occurs naturally in artichokes, sunflower seeds, etc. It is possible that small amounts of levulose given at intervals might prove useful in diabetes, and he is now experimenting in this line. The findings in two cases are tabulated to show that the outlook is already promising with 5 gm. levulose three times a day for nine days, then suspending for a day, and then the same dose for two days. This had a decided effect in reducing the acidosis; one was a moderately severe and the other a mild case.

80. **Determination of Acidity of Gastric Juice.**—Revoredo has found Ehrmann's apparatus a remarkably simple and accurate aid in determining the amount of free hydrochloric acid and the total acidity of the gastric juice. A jar containing the alkali solution, a 1/36.5 normal solution of sodium hydrate, is mounted on a standard; a tube emerging from the base of the jar connects with a burette suspended below. The burette is graduated downward from zero to 0.5 c.c. To 10 c.c. of the filtered gastric juice are added a few drops of a 5 per cent. solution of dimethyl-amino-azo-benzol, and then some of the alkali solution from the burette. The level of the fluid in the burette sinks down as the fluid is drawn from below, and the mark where the color transformation occurs is the index of the free hydrochloric acid. Then a few drops of 0.5 per cent. solution of phenolphthalein are added, and still more of the alkali solution allowed to flow in. The mark reached by the level of the fluid when the tint changes to red is the index of the total acidity. With normal conditions, the index is respectively at the marks 0.10 (yellow) and 0.20 (red). He extols the accuracy, simplicity and rapidity of the method, the fact that no calculations are necessary, and that the findings are the direct proportions in per cent. or grams, and that at a glance it is possible to determine whether the gastric acidity is much below or above normal.

85. **Inclusion Bodies in the Leukocytes Not Peculiar to Scarlet Fever.**—Ahmed states that he found these inclusion bodies in a number of patients with fever of various origins, and consequently that they cannot be regarded as path-

ognomonic of scarlet fever. He found them in the leukocytes of five of ten febrile tuberculous patients, in a moribund patient with tuberculous meningitis, in each of six typhoid patients with high fever, and in German measles; also in three erysipelas patients, two of whom had a high fever. The findings were negative in nine healthy controls, in two patients with varicella, and in two cases of mild measles, while they were positive in two severe cases of measles. [Compare with editorial in THE JOURNAL, July 20, p. 198.]

92. Further discussion of subject described in THE JOURNAL, June 22, p. 2006, abstract 82.

Deutsches Archiv für klinische Medizin, Leipzig

CVII, No. 1, pp. 1-112. Last indexed July 27, p. 313

- 94 *Abnormal Radioscopic Findings of the Left Heart in Health. (Ueber abnorme Gestaltung des linken mittleren Herzschattenbogens bei Herzgesunden.) Ebertz and Stuertz.
95 Improved Technique for Sphygmobolometry. (Verbessertes und vereinfachtes klinisches Sphygmobolometer, zugleich ein Taschensphygmobolometer.) H. Sahli.
96 Pulse Tracings with Stenosis of the Aorta. (Sphygmographische Befunde bei Verengerung der Aorta am Isthmus.) H. Stursberg.
97 Tests of Functioning of Vegetative Nervous System. (Zur Funktionsprüfung des vegetativen Nervensystems.) J. Bauer.

94. **Radioscopy of the Heart in Health and Disease.**—Ebertz and Stuertz examined a number of soldiers and conclude that too much reliance should not be placed on the Roentgen picture in the diagnosis of heart lesions. There is often an increase in the shadow on the left side in normal men. It may be increased by exertion in normal hearts and be decreased by rest in bed in patients with mitral lesions. In early mitral disease there is no increase. They describe in detail the results of several of their examinations and recommend the upright position for radiography in general.

Deutsche medizinische Wochenschrift, Berlin

June 27, XXXVIII, No. 26, pp. 1217-1264

- 98 *Glaucoma. (Pathologie und Therapie des Glaukoms.) L. Bach.
99 *Death Under Salvarsan. (Histologische und experimentelle Untersuchungen über den Salvarsantod.) T. V. Marschalko and D. Veszpremi.
100 *Serodiagnosis of Cancer. (Zur Frage der serologischen Karzinomdiagnostik.) M. Rosenberg.
101 Bacteriolysis in Guinea-Pig Peritoneum. (Ueber Auflösung von Tuberkelbazillen im Peritoneum gesunder und tuberkulöser Meerschweinchen.) R. Kraus and G. Hofer.
102 *Cause and Initial Symptoms of Pernicious Anemia. O. Schauman.
103 *Albumose in Hormonal (now omitted) Possibly Responsible for Collapses. (Ueber Kollapswirkung des Hormonals.) G. Zuelzer.
104 Tophi on the Eyelids. (Ueber Gleichtophi an den Augenlidern.) E. Ebstein.
105 Radium Emanation. (Neue Untersuchungen mit der Radiumemanation.) P. Mesernitzky.
106 Local Treatment with High Frequency Currents. (Ueber die lokale Hochfrequenzbehandlung.) Engelen.
107 *Spontaneous Subsidence of Carcinomas. (Zur Lehre von der Spontanheilung der Karzinome.) A. Theilhaber.

98. **Glaucoma.**—In the course of this postgraduate lecture on glaucoma, Bach emphasizes the importance of recognizing the initial or prodromal symptoms, especially the unilateral frontal headache, the sensation of pressure in the eye and orbit, a mist over the eyesight, and prismatic colors surrounding a light. These phenomena may occur with other conditions, but they are seldom lacking in the history of incipient glaucoma. The cornea looks less shiny, less smooth and transparent, especially in the center, the pupil is dilated, slightly irregular and sluggish in its reactions. After a period with these phenomena, conditions return apparently to normal for a time but the intervals grow shorter and shorter, although at first they may last for weeks or months. The "near point" may remain unusually far out, even during the intervals. Emotions or excesses may bring on the prodromal attacks or they may occur without apparent cause. If they come on in the evening, they subside as the patient drops to sleep. These prodromal symptoms are already evidences of glaucoma but in a mild form. The constitutional symptoms with acute inflammatory glaucoma are sometimes so severe that they obscure the ocular symptoms. The intense headache on one side, vomiting, fever, insomnia, etc., suggest influenza, gastric catarrh, brain tumor, or migraine. The acute form may blend into a chronic or the latter may develop from the start. With simple non-inflammatory glaucoma the eye may look appar-

ently normal, but close inspection will show congestion in the anterior ciliary veins and dilatation of the sluggish pupil. Treatment should be general and local, instillation of a 0.25 to 1 per cent. solution of eserine or a 1 or 2 per cent. solution of pilocarpin or both combined. General measures include avoidance of all emotional stress or excitement, and careful regard to the condition of the heart vessels and blood-pressure. Near work sometimes arrests an attack of glaucoma as also venesection by reducing the blood-pressure. These measures are particularly useful with hemorrhagic glaucoma and in the prodromal stage.

99. **Causes for Death Under Salvarsan.**—A previously unpublished fatality after intravenous injection of salvarsan is reported, the patient of 38 dying in a few days with symptoms of encephalitis similar to the cases previously mentioned in these columns. Experimental research on rabbits gave confirmatory findings, the animals showing the same symptoms and pathologic changes as in the clinical cases after intravenous injection of salvarsan. The changes were in the form of multiple hemorrhages in the brain resulting from stasis and thrombosis. No gross changes in the nervous system could be detected. Half of the rabbits died of those given doses proportional to the current clinical dosage. The tolerated dose seems to be smaller than hitherto assumed, and it is necessary to proceed more cautiously with the dosage in the clinic, especially at first. Experience seems to show that smaller doses than those currently used are as effectual as single or repeated large doses. In the fatal case reported, with a weight of less than 60 kilograms, 0.53 gm. of salvarsan had been injected into a vein. The patient had had no symptoms from his infection twenty years before but as the Wassermann reaction was positive he insisted on the salvarsan treatment. A dose per kilogram of 0.005 gm. salvarsan seems as high as can be safely ventured.

100. **Serodiagnosis of Cancer.**—Rosenberg found positive complement fixation more frequent with serum from cancer patients than with others but similar findings are observed in so many other conditions that he regards the test as having little practical differential value.

102. **Early Symptoms of Pernicious Anemia.**—Schauman has been for years studying the previous history of patients with pernicious anemia, striving to discover some early characteristic features peculiar to it. He has become convinced that the pernicious type of anemia may occur with nearly normal hemoglobin percentage. In a typical case reported in detail the anisocytosis was what first confirmed the pernicious nature of the trouble after suspicion had been aroused by a periodically recurring feeling of soreness in the tongue and mouth, sometimes also in the throat (*Gefühl von Wundsein auf der Zunge*, etc.). The tongue was at first deeply grooved but moist and not coated. During the exacerbation the reds were abnormal in shape and size and the hemoglobin dropped from 90 to 53, but as the condition improved under arsenic the reds became normal again. He thinks that immunity processes are involved in the syndrome, and that the benefit from arsenic may be due to production of antibodies under its influence. He practices at Helsingfors, Finland, and tapeworm is common there. Some of his patients had had a tapeworm expelled.

103. **Collapse under Hormonal.**—Zuelzer is the originator of hormonal, and he always found it effectual and harmless in his extensive experience with it until recently. In the 12,000 cases in which hormonal has been used, during the last two years, including over 4,000 intravenous injections, no mishaps of the kind were observed until comparatively recently. His experience had constantly confirmed the harmlessness of hormonal until after his return from a recent three-months' absence when he had four patients develop, in turn, symptoms of severe collapse. The collapse was saved from being quite serious only by the extremely cautious method of administration of the hormonal. He was at once certain that some change had been made in the method of manufacture, and the cause—admixture of an albumose—was discovered and put an end to. The hormonal now manufactured is free from this admixture which is known to be harmful. He gives the pulse

rate and blood-pressure as determined at regular intervals while the hormonal was being injected and afterward, showing that there is no possibility now of a commotion in the cardiovascular system. The blood-pressure and pulse before the injection were 140 and 120, and during and after they were constantly 130 and 120 in one case; in another, 135 and 102 before and 120 and 92 after a third injection (15, 25 and 32 c.c. of hormonal); 125 and 100, 95 and 100, and 115 and 110 in a third case.

107. **Spontaneous Subsidence of Cancer and Prophylaxis of Recurrence.**—Theilhaber is convinced that active vital processes are unfavorable to the growth of cancer, and consequently he strives by general tonic measures, local hyperemia, stimulation of blood production by venesection, and ovarian extract treatment after hysterectomy, to bring the tissues in the region to their highest vital activity after removal of the cancer. He found that the outcome was better in his cases in which the operation was necessarily incomplete, when there had been considerable loss of blood during the operation. Consequently he now does venesection in the second week after the operation, withdrawing 400 or 500 c.c. of blood, and his impression of the effect is very favorable.

Deutsche Zeitschrift für Chirurgie, Leipzig

CXVI, pp. 1-818, T. Kocher Festschrift

- 108 *Thyroid Tuberculosis. (Zur Klinik der Schilddrüsentuberkulose.) C. Arnd. (Zur Lehre der Schilddrüsentuberkulose.) E. Hedinger.
- 109 Sporotrichosis in Switzerland. (Einige Fälle von Sporotrichose und die Sporotrichose in der Schweiz.) E. Dind.
- 110 *Contrecoup—Indirect—Concussion of Brain and Contrecoup Fracture of Skull. (Die Contrecoup-Quetschung des Hirns und die Contrecoup-Fraktur des Schädels.) K. Doepfner.
- 111 *Resection of the Stomach. (Erfahrungen über Magenresektion.) G. Feuerer.
- 112 *Gluzinski Test of Stomach Functioning. (Resultate der Untersuchungsmethode nach Gluzinski, modifiziert nach Kocher bei floridem Ulcus ventriculi. Ein Beitrag zur Mageudiagnostik.) A. Fonio.
- 113 Simple Fracture of Radius at the Wrist. (Diagnose und Behandlung der subkutanen Radiusfraktur am Handgelenke.) C. Kaufman.
- 114 *Value of Gastro-Enterostomy. A. Kocher.
- 115 *Porencephalus and Hydrocephalus. (Fall von Porencephalo-Hydrocephalus—interna—traumatica unilateralis permagna, eine klinische Studie über traumatische Porencephalie und Hydrocephalie.) J. Kopp.
- 116 *Radical Operation for Femoral Hernia. (Ueber ein Verfahren der Radikaloperation freier Schenkelbrüche.) E. Kummer.
- 117 Tincture of Iodin Sterilization at Berne. (Ueber die Jodtinktur in der Berner Schule.) E. Lardy.
- 118 *Coxa Vara. J. Lauper.
- 119 Frontal and Ethmoidal Sinusitis. (Erfahrungen bei der Radikalbehandlung der Eiterungen der Stirn- und Siebbeinhöhlen seit dem Jahre 1902.) W. Lindt.
- 120 *Enlarged Thymus with Exophthalmic Goiter. (Ueber die Kombination von Morbus Basedowii mit Thymushyperplasie.) H. Matti.
- 121 Pathologic Anatomy of Exophthalmic Goiter. (Zur pathologischen Anatomie des Morbus Basedowii.) C. A. Pettavel.
- 122 *Treatment of Inguinal and Umbilical Hernia in Child Outpatients. (Ueber die ambulante operative Behandlung der Leisten- und Nabelbrüche im frühen Kindesalter.) P. Pfähler.
- 123 Technic for Goiter Operations. (Zur Technik der Kropfoperation.) F. de Quervain.
- 124 History of the Thyroid. (Beitrag zur Geschichte der Schilddrüse.) W. E. von Rodt.
- 125 *Heliotherapy of Surgical Tuberculosis and Roentgenoscopic Control. (Höhen- und Sonnenkur der chirurgischen Tuberkulose, deren Tiefenwirkung und Kontrolle durch die Röntgenstrahlen.) Rollier.
- 126 Pyosalpinx Perforating into Rectum. (In das Rektum perforierte, besonders tuberkulöse Pyosalpinx.) C. Roux.
- 127 Gunshot Aneurysm and Varices in Axilla. (Getrennte Aneurysma- und Varixbildung der Axillargefäße durch Schussverletzung.) G. Schwyzer (Minneapolis, Minn.).
- 128 Local Treatment of Laryngeal Tuberculosis. (Unsere Erfolge in der lokalen Behandlung der Kehlkopfphthise mit Beranek-Serum, Elektrokaustik und Röntgenbestrahlung.) F. Siebenmann.
- 129 Etiology of Keratococcus. A. Siegrist and K. Kottmann.
- 130 *Artificial Thrombosis in Treatment of Varices. (Behandlung der Varizen durch die künstliche Thrombose.) E. Tavel.
- 131 Influence of Altitude on the Blood. (Einfluss des Höhenklimas auf die Widerstandsfähigkeit der roten Blutkörperchen.) F. Wanner.
- 132 Gangrene of Fingers after Suppuration of Stump of Umbilical Cord. (Spontangangrän 2 Fingerphalangen bei einem 2 Monate alten Brustkind nach nekrotisierendem Nabelgeschwür und Paronychia streptomyctica.) E. Wieland.
- 133 *Ultimate Outcome of Operative and Non-operative Treatment of Tuberculosis of the Kidneys. (Die Endresultate operativer und nicht-operativer Behandlung der Nierentuberkulose.) H. Wildbolz.

108. **Tuberculosis of the Thyroid.**—Arnd reviews the history of thyroid tuberculosis and reports three cases in which microscopic examination of a goiter after removal showed minute

tuberculous foci. None of the patients had any other signs of tuberculosis and they have been healthy since. They were two women of 35 and 53 and a man of 32; the latter had enlarged lymph-nodes in the neck. Arnd has been able to find published records of only forty-four cases of thyroid tuberculosis not associated with acute miliary tuberculosis; in five other cases the latter could not be positively excluded. In none of the cases did the infection spread from the thyroid. Hedinger states that he found traces of tuberculosis in ten of the 659 goiters he has removed; most of the patients were clinically healthy and none had severe tuberculosis. All but one were women. He thinks that tuberculous processes probably occur in the thyroid comparatively often and heal spontaneously.

110. Indirect Fracture of Skull and Indirect Concussion of the Brain.—Doepfner's research has confirmed anew the possibility of serious injury and fracture of the brain or skull, respectively, at the point opposite to the direct injury. He gives both theoretical, clinical and pathologic-anatomic data to sustain his assertions.

111. Resection of the Stomach.—Feurer describes the good results of ligation of the middle colic artery in removing a pyloric cancer. Lanz did this in a similar case in 1907, detaching the mesocolon and wrapping the transverse colon in the greater omentum, instead of resecting it. The method works well in the exceptional cases requiring it. Feuerer then reports the ultimate outcome in sixty-five other cases of resection of the stomach, including fifty-eight cancers. Nine of the cancer patients are living, the interval since the operation being four to eleven years in six and less than a year in the others. He remarks that over 2,000 persons die in Switzerland every year from gastric cancer, in a population of 3,500,000. The resections of the stomach for cancer average about fifty a year. In conclusion he reports a case of resection of the pylorus for a tumor which seemed to be a lymphomatous growth. There was no trace of cancer, ulcer or leukemia, and the man of 42 has been in good health since. Two years ago he removed from the stomach of a woman of 74 a sarcomatous myoma and the patient has been well since.

112. Early Diagnosis of Gastric Cancer.—In 1902, Gluzinski called attention to the diagnostic importance of the absence of free hydrochloric acid in the stomach content under certain conditions. Kocher's experience has confirmed his statements but he has modified the conditions for the test, and Fonio here reports its application in thirty cases. The findings were confirmed by an operation or the course of the affection, and he reaffirms that the method is an important aid in the differentiation of gastric ulcer. The chief advantage of the method is that it is a question of only the relative increase in the acid after the different test-meals, and it is immaterial whether the acidity is normal or above or below. The method is particularly instructive in the cases in which an ulcer is beginning to develop cancerous degeneration. The test is based on the assumption that an ulcer is always accompanied by an acid catarrh while a cancer never develops without a chronic mucous gastritis. Kocher applies the test as follows: The contents of the fasting stomach are siphoned out in the morning and the findings recorded as to amount, color, smell, relics of food, blood, etc., litmus reaction, free acid with Congo paper and free acid with phloroglucin-vanilin; lactic acid with Strauss or Uffelmann tests, and occult blood with the guaiac-turpentine test. The amount of free acid and total acid is determined by titration. The microscope findings are also recorded. Then the stomach is washed out clean with tepid water and an Ewald-Boas test breakfast is given. Forty-five minutes later the stomach contents are siphoned out again and the stomach thoroughly rinsed out anew. Then the test-dinner is given: about 100 gm. of chopped roast veal or boiled beef; 150 gm. potato cooked with 20 gm. fat and no fluid. The stomach contents are then siphoned out anew after two hours. All this is done on the one day. The finding of larger amounts of hydrochloric acid after the test dinner speaks for ulcer, smaller proportions for cancer. The insufficiency of the stomach mucosa is revealed by the lack of acid after the test-dinner, even when some acid was found after

the test-breakfast. Fonio regards such findings as absolutely conclusive in dubious cases. He tabulates the findings in twenty-six ulcer cases and comments on the value of the information thus derived. In four other cases the findings were dubious and the course of the cases showed that the ulcer at the time must have been just starting malignant degeneration.

114. Gastro-Enterostomy.—Kocher reviews fifty cases in which gastro-enterostomy was done alone for a non-malignant gastric affection, and the patients were reexamined from two to twelve years afterward. The outcome was almost invariably good. Kocher makes the opening at the lowest point of the greater curvature and does not close the pylorus. The patients with preceding hyperacidity were found with normal acidity. There was reflux of bile in nearly every case, even the oldest, but this seemed to do no harm. Pre-existing constipation had also been cured. The bowel functioning was normal in all except that one patient had a tendency to diarrhea. There was no recurrence of the ulcer in any case. The ultimate results in the cases of florid ulcer were found so excellent that Kocher insists there is no need for resection; a simple gastro-enterostomy answers every purpose and wards off cancerous degeneration. The best technic is Hacker's longitudinal retro-colic opening with a short loop or none at all (Petersen, Czerny), at the lowest point of the greater curvature. The Wölfler technic is more liable to complications on the part of the bowel. Occlusion of the pylorus prevents integral restitution of the ulcer. The earlier the gastro-enterostomy is done, the less danger of cancer. On suspicion of the latter, of course, resection is inevitable.

115. Successful Operative Treatment in Case of Traumatic Porencephalus and Hydrocephalus.—Kopp gives an extensive report of a case in which he succeeded in restoring to health a young woman who had presented serious brain symptoms since childhood. After a fall on the head at the age of 3, the child was sick for a year but then seemed well until the age of 12 when epileptic seizures developed and at 16 she was operated on. Instead of the anticipated cicatricial process involving the skull, meninges and cortex at the site of the old trauma, a cavity containing water was found. The cavity and the hydrocephalus were so extensive that the comparative insignificance of the resulting symptoms was most remarkable. The patient had no further seizures after the operation, and except for a slight transient recurrence of certain motor symptoms, she has been in normal health during the five years since the operation. The protracted early symptoms after the trauma, the complete clinical recovery for nine years, and the incongruence between the severity of the lesion and the mildness of the symptoms, were striking features of the case. The cyst was more than twice as large as the largest brain cyst yet reported (Kocher, 200 c.c.) aside from the echinococcus cysts. Among the symptoms noted before the operation were hemianopsia and loss of the hemiopic pupil reflex. The operation consisted in filling the empty cavity with salt solution and making a Kocher decompressive valve without draining. Kopp compares his case with similar ones in the literature, devoting seventy-five pages to discussion of the subject.

116. Femoral Hernia.—The technic described by Kummer aims to isolate, ligate and remove the hernial sac at the very highest point possible, and to close the femoral canal completely, both at the inner and outer ring. He reports twenty-two cases in which the method was applied with most excellent results. The hernial sac is exposed in the triangle of Scarpa and mobilized as high up as can be reached. It is then opened, all adhesions broken up and the sac is pulled out again and again until the wall of the bladder is dragged into view. The sac thus pulled out is pierced and ligated above its neck. The left forefinger is then introduced through the femoral canal and worked up gently between Gimbernat's ligament and the femoral vein up to Cooper's ligament. A needle is then introduced from without through the fascia of the external oblique muscle and through the internal oblique and transverse muscles until the tip of the needle touches the tip of the finger. The needle is then pushed on through into

the femoral canal—all the time under guidance of the finger, close to the horizontal ramus of the pubis. A stout double silk suture thread is then threaded in the needle and the end is drawn up and out above as the needle is withdrawn. The same procedure is then repeated with the needle introduced 1.5 cm. farther inward and a little downward, and the two ends of the silk are tied above the skin, thus forming a stout U loop which draws up and thus closes the entire femoral canal with a single suture and no damage to any organs in the vicinity. The skin above is drawn in to form a little recess, showing that the suture is still doing its work. The article is accompanied by six loose stereoscopic pictures in an envelope showing conditions in the groin in both men and women, to emphasize the advantages of this simple method of correcting hernia.

118. Coxa Vara.—Lauper gives the results of recent reexamination of fifteen patients with coxa vara and discusses the various indications and technics followed. Wedge osteotomy of the neck of the femur with or without resection of the head gave excellent results, and it is safer than blind measures in the dark. There is always a possibility of a tuberculous process being involved, with danger of its becoming aggravated by forcible reduction without incision.

120. Enlarged Thymus with Exophthalmic Goiter.—Matti analyzes ten cases of exophthalmic goiter in which the patients died during or soon after an operation on the thyroid and the thymus was found exceptionally large. He has compiled 133 similar cases from the literature; fully 76.5 per cent. of all the exophthalmic goiter patients who have died during or immediately after an operation on the thyroid had an unusually large thymus. It seems evident, he thinks, that the thymus and the thyroid act in concert and each aggravates the morbid condition induced by abnormal functioning of the other. Certain features of the cases suggest further that adrenal functioning is depressed by excessive or perverted thymus-functioning. In the ten cases reported the adrenals were exceptionally small. It is possible that an operation on the thymus accompanied by epinephrin treatment might be a logical and useful preliminary to an operation on the thyroid for patients with exophthalmic goiter whose thymus is known to be enlarged. In any event, special caution is necessary with such patients.

122. Office Treatment of Hernia in Children.—Pfaehler reviews his experiences with seventy-six operations for inguinal or femoral hernia and twenty-four for umbilical. In twenty-five cases the hernia was bilateral. Complicated dressings and bed rest are not necessary and the simpler the operation the better the results. Asepsis should be the rule, refraining from antiseptics on account of the liability to eczema. Chloroform should never be used for children; ether carefully given is entirely harmless for them.

125. Heliotherapy or Sunlight Treatment of Surgical Tuberculosis.—Rollier's views and results have recently been summarized in these columns May 25, p. 1646, and June 15, p. 1885. He here gives further details and brings his report down to date, emphasizing in particular the perfect results obtained by his conservative mountain air and sunlight treatment as shown by radioscopy later.

130. Artificial Thrombosis in Treatment of Varices.—Tavel's announcement of his successful application of this means of treating varices was summarized in *THE JOURNAL*, April 27, 1907, p. 1466. He has applied it in fifty cases to date and reports gratifying results. The method is based on the better outcome noticed after ligation when spontaneous thrombosis occurs, and the assumption that the thrombosis is a natural healing process. The artificial thrombosis cures the varices without necessity for general anesthesia and without disfiguring scars. Ligation alone is not effectual, as he found in an experience of thirty cases, and collateral circulation is liable to annul the benefit even when resection supplements the ligation. But his method of artificial thrombosis as adjuvant to ligation and resection has proved extraordinarily effectual, while it is entirely harmless, he affirms. Local anesthesia is generally sufficient. Before ligating the vein he outlines its

course with fuchsin as the patient stands on a table. A Pravaz needle is then introduced into the vein and blood aspirated to show that it is really in the vessel. Then the patient sits on a chair on the table and 2 or 3 c.c. of a 5 per cent. phenol solution is injected at this point and again elsewhere until 10 c.c. in all is injected at one sitting. The injection is made one or two days after the ligation-resection. His experience has been that the best point for it is in the triangle of Scarpa, where he resects the saphenous vein for a stretch of about 5 cm., near its junction with the femoral vein.

133. Tuberculosis of the Kidneys.—Wildbolz states that over 60 per cent. of his 125 patients nephrectomized for tuberculosis recovered, and nearly 60 per cent. are still in good health after an interval of over three years. Complicating tuberculosis of the genital organs renders the prognosis much graver, but 43.2 per cent. are still in good health of the thirty-seven in this group. He has been collecting statistics from his colleagues in Switzerland in regard to the outcome in non-operative cases. From a total of 1,500 Swiss physicians he obtained data in regard to 316 cases with bacteriologic control and under observation for at least two years. Only ninety-eight are still alive and sixty-eight of these are great sufferers. Only thirty are free now from appreciable subjective symptoms; objective examination was not possible. This clinical recovery has lasted to date for over five years in sixteen, and from two to five years in the fourteen others. One of these patients has been clinically well during the ten years since tuberculosis of the kidneys was positively diagnosed, and she has borne several children in the interim. One other passed safely through a pregnancy, but another went into a decline during a recent pregnancy. Thirteen other patients finally succumbed to a flaring up of their kidney tuberculosis after a lull and apparent recovery lasting from eight months to seven years. Long survival even with continuous symptoms is possible; sixteen patients thus survived for from ten to thirty years. In thirty-six under 20, eight are in the group of clinical recoveries but only two in the fifty-six over 40. In Wildbolz' own experience with sixty-four patients with renal tuberculosis who were not operated on, only thirty are still living, and only nineteen whose first symptoms were noted over five years ago. All but five of the total survivors still suffer seriously from their renal tuberculosis and only one of these seems really cured; the others still have pus and tubercle bacilli in the urine. The one cured patient had only an incipient tuberculous process in the kidney and it seems to have healed without impairment of function. She took no medicine but went to live in the country for several months.

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- 134 Differential Diagnosis and Complications of Cholelithiasis. F. Ueber.
- 135 *The Modern Treatment of Syphilis. (Moderne Syphilisbehandlung.) C. Bruhns. Commenced in No. 25.
- 136 *Vertigo as a Symptom. (Diagnostische Erörterungen über Schwindel.) S. Erben.
- 137 *Local Serotherapy in Diphtheria, Scarlet Fever and Suppurative Processes. (Neue Gesichtspunkte zur Behandlung der Diphtherie, des Scharlachs und von eitrigen Prozessen.) Lorey.
- 138 Serotherapy of Pneumonia. (Behandlung der Pneumonie mit intravenösen Injektionen des Neufeld-Haendelschen Pneumokokkenserums.) W. Weitz.
- 139 Housing and Infant Mortality. (Die Lokalisation der Säuglingssterblichkeit in Berlin und ihre Beziehungen zur Wohnungsfrage.) H. Liefmann and A. Lindemann.
- 140 The Amphibian Eye. (Das Amphibienauge in der Entwicklungsmechanik.) V. Franz.

135. Treatment of Syphilis.—Bruhns concludes with the statement that recent progress in treatment of syphilis consists mainly in our being able now to attack the disease with greater vigor from the start. He says of the neurorecurrences under salvarsan that they are very rare in comparison with the extensive use of salvarsan. A footnote added later reports the severe collapse of a patient after infusion of 0.15 c.c. neosalvarsan. Nausea, vomiting, cyanosis and pulselessness followed immediately and an intense scarlet eruption broke out over the whole body. The woman began to recuperate after an hour of stimulants of various kinds and in five hours

was apparently quite restored. In none of the five other patients given similar injections the same morning was any tendency of the kind observed, and he is inclined to assume a special idiosyncrasy in the case.

136. Vertigo as a Symptom.—Erben describes the reaction of the normal vestibular apparatus to stimuli of various kinds, especially pouring a little cold water into the ear, and the differential importance of modifications in the reaction. The vertigo from pressure on the brain is a continuous sense of being about to fall, with paroxysmal exacerbations. Vestibular vertigo subsides more completely in the intervals, and is more of a sensation as if the environment were turning around. Vertigo from oculomotor paralysis is generally arrested when the patient shuts his eyes. Extreme pallor coming on suddenly with the vertigo explains it as syncope and excludes simulation. Lead and tobacco poisoning, and auto-intoxication of intestinal origin, are all liable to entail dizziness. Hysterical and neurasthenic vertigo is brought on generally by emotions or certain associations, and generally outside of the home. The dread of falling is more marked in this form, and nystagmus is never encountered nor the Romberg sign. The reaction to the cold water poured into the ear is exceptionally intense and may last for half an hour. The vertigo sometimes noted after a mild accident to the skull is transient; when it persists for months it is of neurasthenic nature. But any accident to the skull severe enough to induce unconsciousness, vomiting and slowing of the pulse is liable to occasion mild vertigo at times during the first six months, even when the ear does not seem to have been injured.

137. Local Serotherapy in Diphtheria, Scarlet Fever and Suppurative Processes.—Lorey comments on the peculiar malignancy of the diphtheria which has prevailed at Hamburg during the last three years. The old confidence in the saving virtues of antitoxin has been rudely shaken, and he queries whether it might not be more effectual if the antitoxin were made from a local strain of diphtheria bacilli; a strain might be found which has a special aptitude for inducing paralysis and thus prove particularly effectual in the severer forms of diphtheria. Lorey calls attention to the remarkable efficacy of antitoxin applied locally to the eye, nose or throat in diphtheria and scarlet fever. He uses a 400-fold antitoxin, diluted one part to twenty-nine of physiologic salt solution or 0.5 per cent. solution of phenol. The patient gargles or sprays with this, or it is sprayed through the tracheotomy opening, and a tampon dipped in it is applied afterward, where the location permits. The membranes break up and are thrown off, while there is a profuse watery secretion beneath. Antitoxin is injected as usual besides, and the parts are kept well cleansed, the skin around being vaselined to ward off eczema. The same local treatment has proved equally effectual in the severe sore throat of scarlet fever, etc. The principle of this local serotherapy is like that of Müller and Peiser's proteolytic ferment treatment, that is, with undiluted blood-serum or puncture fluid, the antiferments contained in it checking the proteolytic leukocyte ferment action. Lorey found fresh horse serum from the slaughter house as effectual as diphtheria antitoxin, and is now experimenting with beef serum. The serum from different horses varies in its bactericidal power, and when no action is observed he throws away his supply and gets new. No injurious by-effects were observed in any instance, and he commends this local serotherapy as a valuable adjuvant in treatment of diphtheria by the general practitioner. The effect was particularly marked in his cases of diphtheria of the eye, and the serum could be kept longer in direct contact with the lesion.

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- 141 *Irruption of Pleural Empyema Into the Lung. (Ueber langsamen Durchbruch kleiner Pleuraempyeme in der Lunge.) A. Schmidt.
- 142 Obstetric Paralysis of the Arm. (Die Entbindungslähmung des Armes.) F. Lange.
- 143 Experimental Research on Poisoning from Rattlesnake Bite. (Vergiftung mit Klapperschlangengift.) E. Harnack and H. Hildebrandt.
- 144 *Plastic Operations on the Nerves. (Neue Wege der Nervenplastik.) A. E. Stein.

- 145 *Chronic Recurring Pyelitis in Children. (Chronische rezidivierende Pyelitis im Kindesalter.) W. Birk.
- 146 *Epilepsy After Electric Accident. (Epilepsie nach Unfall durch elektrischen Starkstrom.) P. Jolly.
- 147 Probable Aggravation of Brain Cancers by Salvarsan. (Ueber einen mit Salvarsan behandelten Fall von malignem Gehirntumor.) C. E. Jooss.
- 148 Acute Appendicitis in Two Young Children in One Family in One Week. (Epidemiologisches zur Perityphlitis.) S. Wahle.
- 149 Clinical Importance of Hypersusceptibility to Albumin. (Die Auslösung von Fieberempfindlichkeitsercheinungen durch körpereigene Eiweisssubstanz und ihre klinische Bedeutung.) P. Haussner.

141. Perforation of Pleural Empyema Into the Lung.—Schmidt does not refer to the rupture of a large empyema or its sudden occurrence but to the gradual and generally unsuspected irruption of the pus into the lung proper, from some old encapsulated, small stationary suppurative process in the pleura. He has encountered three such cases, as he reports in detail with twelve radiographs. If the perforation had been into a bronchus, the expectoration would have been more profuse and more rapid. The sputum was only moderate in amount and it consisted of small lumps coated with mucus, free from a putrid odor. It assumed this character at once after an exploratory puncture; this probably had been a factor in the perforation into the lung. The pus was passing into the lung for weeks and months, but the lung did not seem to suffer from this except possibly very slightly in one case as was suggested by the discovery of elastic fibers. In such cases it is probably better to wait a while instead of attempting to evacuate the focus at once, merely repeating the puncture and aspiration as needed. In the case of children in particular, puncture soon ceases to bring pus, the temperature returns permanently to normal and the child is soon well. Such experiences in the past have been explained as spontaneous absorption of the pus, but Schmidt is able to prove that in many cases, at least, the pus is gradually evacuated by expectoration.

144. Plastic Operations on the Nerves.—Stein regards Stoffel's work in this line as very important. [The principles involved were summarized in THE JOURNAL, Dec. 30, 1911, p. 2168.] Stein gives a detailed description of a case in which he cured a boy of 9 of typical Weber's paralysis of the arm by a plastic operation on the nerves, instead of the tendons, applying Stoffel's method of separating out the special nerve fibers involved, by means of weak electric stimulation of the separate bundles of fibers. The results have been excellent to date and the improvement is still progressing.

145. Chronically Recurring Pyelitis in Children.—Birk has encountered ten cases and thinks that acute pyelitis is more liable to leave traces favoring recurrence than is generally suspected. The trouble flares up after months or years of apparent complete recovery. In the first case reported there were five of these recurrences in ten years, the last one at the age of 12. Coexisting tuberculosis and the exudative diathesis afford a marked predisposition; in seven of the ten cases reported the patient or other members of the family were tuberculous and all showed signs of the exudative diathesis, very pronounced in three cases. All but one of the patients were girls, and the recurrences seemed to develop in connection with a "cold." The symptoms did not always point to the urinary apparatus; generally there were only fever, headache or vomiting, but there may be pains in the kidney region and tenesmus. Typhoid, pneumonia, or meningitis may be suggested, as no one thinks of pyelitis. This is especially liable to be the case with infants, as the affection generally begins with a stormy onset. The diagnosis is cleared up by the turbid aspect of the urine and an acid reaction to litmus paper. Microscopic examination will settle the matter and point the way to effectual treatment. Unless properly treated the disturbance may drag on and the child run into an actual decline. In most cases the pyelitis yields to hexamethylenamin and salol with copious flushing of the kidney pelvis with tea or mild mineral water. This cures in the majority of cases and cures the fever in all. Only a few writers have mentioned this protracted tendency to recurrence but it cannot be very rare. It is a question what becomes in later life of persons who had recurring pyelitis in childhood.

Birk has had opportunity to investigate this question in one case and states that the young woman had no signs of urinary trouble when she passed through puberty and a pregnancy although she had had several recurrences of the pyelitis up to the age of 12.

146. **Epilepsy After Electric Accidents.**—Jolly's patient was a healthy young man of 23 who became involved in a short-circuit of the trolley wire, carrying a current of nearly 500 volts. Except for burns on his hands and transient pains in the abdomen he showed no ill effects of the accident, which had rendered him unconscious, until fourteen days later when he had an epileptic seizure. Similar seizures have returned since every two weeks at least, and the young man's mind has shown slight impairment. Jolly compares this case with a few similar ones on record; in most of them a predisposition had been noticed. He thinks there can be no doubt that the electric current is able to induce the changes in the central nervous system which are responsible for epilepsy.

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- 150 Diatheses in Children. (Kinderliche Krankheitsanlagen — Diathesen — und Wahrscheinlichkeitsrechnung.) M. Pfaundler.
- 151 Cretins and the Neanderthal Type. (Neanderthalmerkmale bei Kretinen?) E. Bircher. (Nochmals die Kretinenfrage.) Finkbeiner.
- 152 Cleavage of Fat in Infant's Blood. (Fettpaltung im Säuglingsblut.) S. Samelson.
- 153 Pepsin Digestion in Infants. (Die Pepsinverdauung im Säuglingsmagen unter Berücks. der Acidität.) H. Davidsohn.
- 154 Severe Motor Neurosis in Child. (Psychogene Akinesie auf Grund einer schweren Neurose im Kindesalter.) T. Goett.
- 155 Transmission of Whooping-Cough to Monkey. (Ueber den Bordet Gengouschen Keuchhustenbacillus, bes. Uebertragungsversuche des Keuchhustenbacillus auf Tiere.) I. Inaba.

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June 22, XXXIX, No. 25, pp. 841-872

- 156 Duodeno-Jejunal Ileus. (Der duodeno-jejunale Darmverschluss ein selbständiges Krankheitsbild.) E. Bircher.
- 157 Distention of Ampulla of Rectum Early Symptom of Septic Appendicitis. (Die Maximaldehnung des Mastdarms als ein sehr frühes Symptom bei Appendicitis acuta septica.) B. Przewalsky.
- 158 Local Anesthesia of the Brachial Plexus. (Die supraclaviculäre Anästhesierung des Plexus brachialis.) E. Borchers.
- 159 *Drainage by Opening Hole in Suture. (Drainage durch "Wegnähen" der Wundränder.) W. Wolf.
- 160 Fracture of the Scapula. Preiser.

159. **Round Hole Left in Suturing Aseptic Wounds, for Drainage.**—Wolf draws the lips of the wound apart at one or two points between the stitches and fastens the lips back on each side by a single stitch, thus leaving a round or, to be more correct, a square hole through which the secretions escape. This is his routine practice for small aseptic wounds; no drain is required, merely an opportunity for the natural secretion of the wound to find its way outward instead of accumulating beneath the incision as it heals. The incision grows together so rapidly that unless the lips are thus held apart there is no chance for oozing.

Zentralblatt für Gynäkologie, Leipsic

June 22, XXXVI, No. 25, pp. 793-832

- 161 Treatment of Placenta Praevia. (Zur Placenta praevia-Therapie.) B. Schweitzer.
- 162 Stroganoff's Prophylactic Treatment of Eclampsia. (Die Eklampsiebehandlung nach der prophylaktischen Methode in den Berliner Kliniken.) W. Stroganoff.
- 163 Instrumental Dilatation of Uterine Cervix. (Bemerkungen zur mechanischen Collumerweiterung.) V. Frommer.

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- 164 Importance of Bacteriologic Control of Blood for Prognosis. II. (Prognostische Bedeutung des Keimnachweises im Blut. Neue Ergebnisse der bakteriologischen Blutuntersuchung bei fieberhaften Aborten.) E. Sachs.
- 165 *Prophylaxis of Thrombosis by Air-Pressure Massage. (Prophylaxe der Thrombose durch Luftdruckdauer-massage—Hochdruckmassage und künstl. Zirkulation.) F. Kuhn.

165. **Compressed-Air Massage.**—Kuhn expatiates on the importance of mechanical factors in the development of thrombosis, and in the location of the thrombi. If the blood-stream is kept active throughout its course, thrombi do not develop. In prevention of thrombosis, therefore, the aim should be to keep the circulation active, and he has devised a special technic to accomplish this by drawing over the

limb a double-walled, air-tight bag and pumping air into it. The inner wall fits against the skin and the distention of the outer wall by the air under pressure exerts a uniform gentle pressure over the surface of the limb, and, gently but effectually, it forces the blood out of the limb. The pressure is then relieved by opening the stopcock and allowing the air to escape from the bag. The blood pours back into the limb and the circulation is thus maintained extremely active through the region by alternating rhythmical compression and release, kept up by a little clockwork. This is arranged to close and open the stopcock automatically as the patient lies in bed. Kuhn has a large bag to cover the leg to the knee or two bags to cover both legs still higher. The high pressure massage can be regulated to be as gentle or powerful as desired; it does not harm even wounds, and the massage can thus be applied for hours at a time. The method is particularly useful in prophylaxis of thrombosis in gynecologic cases, but it also aids in promoting absorption, and it seems to have an anesthetizing action besides its main efficacy in promotion of the circulation not only through the arteries and veins but also in the lymphatics. The gentle automatic high-pressure massage can be kept up while the patient is asleep, even during the night, without attention from the attendants. The main field for the application of the method is in the after-care in major operations on the pelvis.

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- 168 *Adiposis Dolorosa Developing Consecutive to Ovariectomy. F. Sabatucci and C. F. Zanelli.
- 169 Necessity for Vaccination of Troops Against Typhoid. (Vaccinazione antifica delle nostre truppe in Libia.) A. Castellani.
- 170 The Fatalities in Modern Warfare. (Le perdite—morti e feriti—nelle guerre moderne.) P. Imbriaco.

168. **Adiposis Dolorosa Developing After Ovariectomy.**—A large fibroma was removed from the uterus at the age of 30; the hemorrhages and pain had been so severe that the ovaries were removed at the operation. All these symptoms ceased afterward but others developed from the artificial menopause, vasomotor and mental, periods of excitement alternating with depression and suicidal tendency, and gradually nodular adiposis dolorosa developed, with painful nodules at various points on the forearms, thighs and lower part of the trunk. The patient is now 40 and she has improved very much during the last few months under ovarian treatment and tonics. The headaches and vasomotor disturbances have subsided and no other nodules have developed. Sicard and Russy have reported a case of the nodular form, and Gavazzeni in 1909 published a case of adiposis dolorosa developing after castration, Burr a case in which necropsy showed atrophy of the ovaries and another in which there was colloid degeneration of the thyroid, and others cases in which the adiposis dolorosa accompanied a tumor in the hypophysis.

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- 172 Protozoan Nature of the Kurloff Bodies. (Sulla natura protozoaria dei corpi di Kurloff.) V. Patella.
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THE PROBLEM OF THE PUBLIC HEALTH *

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WASHINGTON, D. C.

When the historian of the future records the accomplishments of the decade in which we are now living, he will no doubt call it "the sanitary renaissance," the period marked by a wide-spread desire to improve the conditions under which men and women work and live, an era in which our truly altruistic profession has instituted and led a movement for the physical salvation of mankind. We must not be blind to the fact, however, that we have sometimes confused change for the sake of change with real progress and that our impatience has sometimes obscured the main object of our quest. This does not apply solely to medicine, for whether it be in religion, politics, or public health, it sometimes seems as though all the enthusiasm is on the side of the champions of change. But not all change is progress and not all progress is change. The economic principles which govern us to-day were not born of sudden inspiration but are the product of countless centuries of slow and painful evolution. Every organized institution or effort which has profoundly influenced the race for good has been brought about by slow processes and has not been prodneed as a *de novo* creation. Real progress has followed the plan of building from a basic nucleus, of carefully erecting the superstructure on a foundation which has stood the stress and strain of time and service.

No better example of this principle can be found than in the way in which the public health institutions of our country have been built up from the simple colonial quarantine to the chain of working sanitary bodies of the nation, the state, the county and the municipality. No better or more hopeful prophecy for their continued usefulness and future improvement can be found than in the contemplation of the gradations which have been followed in this evolutionary process.

The colonial period brought forth an attempt on the part of the various ports and cities to exclude and eradicate pestilential disease. This was a local, unorganized, and non-uniform movement, too often influenced by commercial motives and civic pride, but the seed of preventive medicine thus sown took root, and one of the first bills introduced into the First Congress of the United States provided for the assumption of the quarantine power by the federal government. But the time was not ripe, and we passed through a long period of state and local quarantine,

and not a few devastating epidemics, before the citizenship had evolved to the point where it would impose these duties on the general government. Even then we were unprepared for the step, and the short-lived national Board of Health came and went, but not before it had touched with prophetic finger the heart of the problem of the public health, the state and local boards of health. In a republic where the right to govern rests on the consent of the governed, where public sentiment very largely influences the enforcement of sanitary law, where people think before they obey, the cornerstone of the whole public health fabric is the state board of health, and its efficiency determines in large measure the efficiency of the whole.

Coincident with the development of the state boards came the improvement of the federal health agencies. The national Board of Health was a *de novo* creation springing fully formed from the brains of a number of the most brilliant and public-spirited medical men of their time. The principle on which it was founded, however, was not accepted at the time and it fell to the ground of its own weight. In the meantime a small body of men were plodding steadily along the public health path; studying exotic disease in the hospital; wrestling with the wraiths of pestilence in fever camps; learning in the solitude of isolated quarantines the management of our coast defenses against disease. Congress gradually recognized the work of this body and by the enactment of laws enlarged its functions and powers. From this source came the Public Health and Marine-Hospital Service.

A great deal has been said recently about a national department of health. The logic of this seems to me to be so apparent as to need no defensive argument. But much as a strong federal bureau of health is required and earnestly as we must strive for its accomplishment, the great problem lies in the improvement of the state and local health agencies, in the extension of their powers and the increase of their appropriations. The key to the solution of the problem lies in education, the simultaneous education of both the leaders and the led. The great universities are now providing for the training of competent health officers, and various public-spirited medical bodies are acting in cooperation with the sanitary authorities as teachers of the adult public. This agitation is largely the result of the continued efforts of the American Medical Association for the past sixty-five years, and its wisdom is apparent, because no law can be effectively enforced which is not in accord with public sentiment. This has been conclusively demonstrated in recent years in the various campaigns for the suppression of epidemic disease in this country. Plague was not eradicated from San Francisco, in 1907, until the public had been educated by lectures and newspaper articles and their cooperation

* Chairman's Address and Oration on State Medicine before the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

thus obtained. Similarly the yellow fever suppressive measures during the New Orleans epidemic of 1905 would have failed of the highest accomplishment, in the broadest sense, had not the public conscience been quickened by the thorough inculcation of the mosquito dogma.

But we are not waiting for epidemic outbreaks of disease to make necessary such eleventh-hour sanitary conversion. The common schools now teach elementary hygiene; the colleges supplement this earlier instruction with more advanced obligatory courses, and the fruition of these labors will carry us a long way toward the sanitary ideal. The reaping of this harvest is an affair of the future; the immediate and crying need is the enlargement of the scope of the state boards of health. Many of these are already doing work of a high standard of excellence, but in some states they are merely skeleton organizations with little power and small appropriations for the task which confronts them. Too frequently their laboratory facilities are inadequate, and research work is entirely out of the question. Next to a highly trained personnel, the most important thing in a state health organization is an efficient diagnostic laboratory to which medical practitioners may send specimens for examination. This service should be extended free of charge, and physicians, particularly in the rural districts, where laboratory facilities are usually very meager, should be encouraged in every way to avail themselves of this means of accurate diagnosis. This reacts to the improvement of the public health not only in the benefit received by the individual patient but also because an increasing accuracy of the morbidity and mortality statistics is made possible thereby. This means an increase of the registration area, a line of extension in which it is hoped the federal bureau of health may be able to assist.

We should not, however, be content to have these laboratories employed solely in the performance of routine work. There is a great and varied field for research open to us and as no two states have exactly the same problems confronting them, an extension along the line of original investigation promises results of world-wide benefit.

Laboratories and an extension of duties on the part of state boards of health cost money. The guardianship of the public health is an obligation of such great importance that the personnel of the sanitary department should be the most highly competent men available and they should be paid accordingly. There has been in the past a policy of parsimony in this regard—in fact, in all health appropriation matters—which has seriously impeded sanitary progress. This is most short-sighted. Every dollar spent on health boards should be regarded as an investment and not an expense, and be it said to the credit of these boards that they are run with a smaller wastage of funds than any other institution of the government.

Those experienced in public health work know how extremely difficult it is to secure adequate appropriations and suitable laws for even the simplest sanitary problems with which we have to deal. This is partly because of the reputation of our profession for making bricks without straw and partly the fault of the method of presenting the case to the people's representatives. In the final analysis, it is a simple business proposition, a form of health insurance. To be sure, it is pretty hard to buy good health back, once it has been allowed to get away, but once possessed, it is merely an economic

problem to maintain it. This is the duty of the health bodies which are in close touch with the people. The plan of organization of our sanitary agencies, modeled as it is on the scheme of the nation, recognizes this fact. When our forefathers founded the republic, the rights of the states from the interference of federal control was guaranteed, and it is now recognized that "the power of the federal government begins where the power of the state government ends."

Federal interference with the right of a state to administer its own health measures would scarcely be tolerated unless it could be shown that some extraordinary condition prevailed, and even then, such service could be rendered only at the request of the state in question. This clothes the central sanitary organization with advisory powers except in such matters as concern all the states, or the relations of one state to another state or to the outside world. It also imposes certain executive functions, such as the collection of vital statistics, the administration of the quarantines between the states or between our country and foreign countries, and the control of such products as would affect the health of a large mass of the people, for example, the toxins, antitoxins and viruses.

It will be seen from this that there are great limitations to the activities of the health department of the general government. It was intended from the beginning that the federal departments should take over only such functions as could not be relegated to the states. The Department of State, the Department of War, the Department of the Treasury, the Postoffice Department, the Department of the Interior—all of these are peculiarly governmental departments, and it is with the affairs of the central government that they are concerned. But the health of this nation is in the main the health of the various states, and to their care must be entrusted much of the machinery of its promotion. This is the most vital aspect of the public health problem.

There has always been a great deal of confusion in the minds of persons who have not studied the matter deeply as to the sanitary powers of the federal government; many persons are prone to think that a department of health, with a secretary in the President's cabinet, would accomplish a great deal in solving public health problems. Our legislators have therefore wisely determined that the public health interests, in so far as the government can control them, shall be entrusted to a bureau whose personnel is composed of trained sanitarians. The bureau of health at Washington is capable of great expansion, and when so enlarged, it can do a great deal more than it is now doing for the betterment of sanitary conditions in the states.

The present Secretary of the Treasury has evinced an interest and sympathy for the advancement of health interests not heretofore shown by any of his predecessors in office. This is a splendid beginning, and we may expect a greater liberality in appropriations and the granting of additional powers from time to time by Congress.

Few persons, even in our own profession, are aware of the organization which already exists, and the triumphs which it has achieved in the field of preventive medicine. There is no nation in the world which has a more efficient sanitary corps, and if you would build a department of public health, you have here a foundation of proved worth which is capable of an enormous advancement if you but lend it your aid. This bureau

needs your support, and the sanitarians of this country need its help.

I believe that this spirit of mutual dependence should be developed. Changes in methods and forms are sometimes necessary, but in changing to meet the needs of the present, the builders should see to it that they are selecting a firm foundation of correct principles which will not fall in the future. The first of these principles, and the one which should receive our hearty support, is that of mutual dependence, "one for all and all for one," between the federal, state, county and municipal health authorities, and the medical profession as a whole.

Such cooperation has received the sanction of law by the Act of Congress of July 1, 1902. It should also receive the seal of approval of the medical profession to the end that our endeavors be correlated and harmonized, and that all of the agencies for the protection of the public health may come together beneath the broad banner of the movement for the public weal. And thus we may be fulfilling the saying that "all things work together for good . . ."

PSORIASIS FAMILIALIS*

FRANK CROZER KNOWLES, M.D.

Instructor in Dermatology, University of Pennsylvania; Dermatologist to the Presbyterian, the Howard, the Children's and the Babies' Hospitals, to the Church Home for Children, the Baptist Orphanage and the Southern Home for Destitute Children; Assistant Dermatologist to the Philadelphia Hospital and to the Dispensary of the Pennsylvania Hospital

PHILADELPHIA

The thought would naturally occur to one familiar with the many etiologic factors which have been suggested as causative of psoriasis, why write on such a hackneyed subject unless something definite can be stated? I have written this short article with the sole purpose of eliminating one of the most frequently mentioned causative factors—heredity. So much has been mentioned in regard to the diseases of the forebears descending to the offspring, either of the next younger generation or, skipping these descendants, those of the second period, that a careful study has been made of the cases of psoriasis to eliminate this causative factor.

Various writers have attributed a large number of their cases of psoriasis to a hereditary cause. Wilson, according to his studies, found evidence of hereditary causation in 30 per cent. of his cases, Payne in 22 per cent., Abraham in 16 per cent., Rosenthal in 15 per cent., and Nielsen in 25 per cent.¹

To disprove heredity as a cause of this affection I have examined carefully the records of the skin dispensary of the Hospital of the University of Pennsylvania, since its foundation in 1871 up to the present time; of the Howard Hospital skin dispensary, from its inception in 1889; of the skin dispensaries of the Pennsylvania, the Children's and the Presbyterian hospitals, from their inauguration, and only in those instances mentioned below has there been even a suggestion as to the hereditary origin of the disease.

During the last nine years each psoriasis patient has been interrogated as to the possibility of other cases of this affection in the immediate or the related family.

Although in quite a few instances eruptions have been mentioned as being present in other members of the family, these could be easily distinguished from this disease because of the character of the outbreak, the course and the distribution of the affection. In several instances other members of the family were examined for a supposed psoriasis, and almost uniformly some other dermatologic condition was found to be present. The hereditary origin of the disease, which was mentioned so often by the patients, was found so frequently to be incorrect that no dependence could be placed on the history. Hundreds of cases of psoriasis have been seen and only in six families were we able to prove the presence of other cases of this affection.

On March 13, 1877, a girl 6 years old was brought to the skin dispensary of the Hospital of the University of Pennsylvania, exhibiting a marked case of this affection. Six days later her sister, aged 8, was examined and presented a typical eruption of the usual distribution.

There came to the skin dispensary of the Howard Hospital on Nov. 15, 1901, a man, aged 24, a laborer, born in Delaware, with a typical outbreak of psoriasis of three weeks' duration on the scalp and the extensor surface of the extremities. The brother, aged 16, came to the same hospital on Feb. 29, 1904, showing the disease on the scalp, the elbows and the back. The attack had first started three years before and developed a few weeks after the outbreak had appeared on the older brother.

A boy, 4 years old, was brought to the Howard Hospital skin dispensary, March 9, 1903, with a typical psoriasis of three months' duration on the trunk and the extremities. The mother also showed a characteristic outbreak, which exhibited its greatest intensity during pregnancy.

Some years ago a little girl was observed in the skin dispensary of the Children's Hospital, with a typical outbreak of this affection. The disease began at 3 years of age and the child is now 10. This little patient is still under observation and has been treated for several relapses. Two years ago her younger brother, aged 6, developed psoriasis and has been treated intermittently for over a year.

Two patients presented themselves at the skin dispensary of the Pennsylvania Hospital on Nov. 27, 1911; a mother aged 35 and her daughter 12 years of age; each exhibited a characteristic outbreak of psoriasis. No other member of this family, consisting of ten children and the parents, exhibited a cutaneous affection. The mother was attacked by psoriasis eight years ago and has never since then been entirely free of lesions. The eruption is more marked during the summer months. The lesions are from a pinhead to a silver dollar in size. The face shows an unusually marked involvement. The little girl had the advent of her attack one year ago, with the commencement of the warm weather. The lesions are generalized with a marked outbreak on the face.

A girl, aged 14, came to the skin dispensary of the Pennsylvania Hospital, on May 15, 1912, with a typical generalized outbreak of psoriasis of six years' duration. The face exhibited a marked involvement. The eruption had been more marked during the summer months. The mother, aged 49, came under observation twelve days later and presented a characteristic outbreak of this affection, which had run an intermittent course of twenty-four years. The twelve other children in the family

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Quoted by Pollitzer, Tr. Am. Dermat. Assn., thirty-third meeting, 1909, p. 116.

exhibited no skin eruption. The mother has a more marked involvement during the cold weather.

Dr. Dengler, my assistant at the Howard Hospital, has observed several cases of psoriasis in members of a family under his care. Five members of the family presented psoriasis—the grandfather, the father and three sons.

Poor² related six instances of family psoriasis; the father and the mother, in each, exhibited the outbreak.

McCall Anderson³ reported a family tendency to this affection. The home circle consisted of the father, the mother, two daughters and a son; the mother alone was without the disease. In another instance recorded by Anderson, the husband developed the affection some years after the wife had been attacked.

Unna⁴ mentioned the appearance of the outbreak in three children in the same family, their nurse having developed the disease some time previously.

Hammer⁵ refers to four cases in a household. The father and the daughter developed psoriasis at the same time; a considerable period afterward the mother and an aunt exhibited the disease.

Nielsen⁶ recorded two instances in the same family; the mother showed the disease some time after the daughter had been attacked.

Aubert⁷ reported two cases in the same family; the husband showed the disease some little time before the wife was attacked.

Beissel⁸ recorded the appearance of the eruption in several members of two different families. Two brothers developed the condition while traveling together; two cousins contracted it apparently from the grandfather.

Meneau⁹ mentioned the occurrence of the outbreak in a girl of 8, which was followed by the affection in the sister, aged 3.

Cantrell¹⁰ reported two series of family cases of psoriasis. A boy of 12 first acquired psoriasis, several years later a sister was attacked and a year subsequently the mother showed a typical outbreak. In the other family, the son of 18 first developed the disease and later the mother, aged 50, exhibited the eruption.

Crocker¹¹ has seen five out of seven members of a family with typical psoriasis.

Kogon¹² has recorded two cases of family psoriasis. Schamberg¹³ has also mentioned two instances, a mother and her daughter.

It should be stated in conclusion, the further one delves into the etiology of psoriasis the more convinced one becomes that this affection is of parasitic origin.

CONCLUSIONS

1. Psoriasis is not a hereditary disease.
2. Very seldom do we find more than one case in a family.
3. I have been able to discover but six instances in hundreds of cases examined.

2. Poor: *Vrtljschr. f. prakt. Heilk.*, 1878, p. 103.

3. Anderson, McCall: *Psoriasis and Lepa*, London, 1865, pp. 12, 37.

4. Unna: Quoted by Schamberg, *Trans. Am. Dermat. Assn.*, Thirty-Third Meeting, 1909, p. 128.

5. Hammer: *Mitt. a. d. med. Klin. Würzburg*, 1886, ii, 404.

6. Nielsen: *Monatsh. f. prakt. Dermat.*, 1892, xv, 375.

7. Aubert: Quoted by Schamberg, *Tr. Am. Dermat. Assn.*, thirty-third meeting, 1909, p. 128.

8. Beissel: *Aix le Chapelles as a Health Resort*, Lond., 1892, p. 121.

9. Meneau: *Jour. de méd. de Bordeaux*, 1895, p. 578.

10. Cantrell: *Med. Rec.*, New York, 1896, xlix, 627.

11. Crocker: *Diseases of the Skin*, Ed. 3, 1905, p. 365.

12. Kogon: *Dermat. Centralbl.*, 1909, xii, 132.

13. Schamberg: *Tr. Am. Dermat. Assn.*, thirty-third meeting, 1909, p. 129.

4. Psoriasis familialis has been very little touched on in dermatologic literature.

5. The etiology of psoriasis is as yet to be ascertained, but cumulative evidence points strongly toward a parasitic origin.

I wish to express thanks to Dr. M. B. Hartzell and to Dr. C. N. Davis for the privilege of using some of their cases.

332 South Seventeenth Street.

ABSTRACT OF DISCUSSION

DR. WILLIAM T. CORLETT, Cleveland: In 1881, at the Blackfriars Skin Hospital, I saw representatives of three generations of the same family suffering from psoriasis. The fact that the disease was hereditary was strongly insisted on, and it made quite an impression on me. In later years, however, I grew less positive regarding a hereditary factor in psoriasis, and the results of my observations have been quite in accordance with those of Dr. Knowles. In many cases of psoriasis one gets a history of other skin diseases, such as dry eczema or seborrhea in the same family but it is rather exceptional to find psoriasis affecting other members of the immediate family or a clear history of the disease in the ancestry.

DR. JAMES M. WINFIELD, Brooklyn: I think this whole question hinges on what we mean by inheritance. Probably, strictly speaking, we do not inherit any disease, but it is possible that certain persons inherit a skin of special texture which renders it more liable to a psoriatic eruption. In carefully looking into the histories of these family cases of psoriasis we not infrequently learn of other cases of seborrhea or a dry skin, and it is probably this peculiar texture of the skin that is inherited and not psoriasis itself.

DR. MARCUS HAASE, Memphis: I have three cases of psoriasis that developed in individuals after entering families in which psoriasis already existed.

One woman, who married a widower with one child affected with psoriasis, developed the disease seven years after marriage. The second, a negro nurse girl, developed distinct psoriatic patches on both elbows about one year after beginning work in a family in which there were two cases. The third case occurred in an orphan boy, two and one-half years after being adopted by a family in which the disease existed. In the first case, a complete family history revealed no member with the disease. In the other two no family history was obtainable.

DR. F. C. KNOWLES, Philadelphia: It is rather unfortunate that the etiology of many of our skin diseases is arrived at more or less by elimination. That is why I carefully reviewed hundreds of cases to show that in the few instances in which there is a history of family psoriasis occurrence must be either a coincidence or possibly due to some unknown bacillus.

LACTIC ACID AND COLONIC IRRIGATION IN THE TREATMENT OF PSORIASIS *

JAMES MACFARLANE WINFIELD, M.D.

BROOKLYN

Some one has said that if one wishes to learn how much is known of the etiology of a certain disease it is only necessary to look at the chapter on its treatment: if the list of remedies is large and diversified, it is an evidence that but little is known of the cause of the disease in question. In spite of the great advance made in dermatology, psoriasis still remains a disease that baffles our therapeutic skill, mainly because we are uncertain as to its etiology. This introduction will serve as an excuse for presenting a paper on such a trite subject as psoriasis.

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

While it is perhaps necessary to touch on the etiology of this disease, time will not permit of a detailed discussion, nor is it material, except in so far as it is necessary to explain why this treatment was instituted.

The claims of those who think psoriasis is of parasitic origin have much to verify their belief, but on closer study of the subject it becomes apparent to the unprejudiced observer that the parasitic theory is not yet proved, while on the other hand the belief that this disease is the expression of some disturbance in metabolism seems to be nearer the correct solution of the problem; for many cases of psoriasis have been observed in which there were unmistakable evidences of faulty metabolism, as for instance rheumatism appearing simultaneously with the outbreak of the cutaneous disease. In these cases the psoriasis is perhaps only a symptom of the general systemic disturbance.

It might not be beyond reason to assume that the fundamental cause of the dermatosis is some disturbance of the metabolic function, which by lowering the cutaneous resistance renders the skin susceptible to the invasion of some special organism that, providing all things are favorable for its growth, causes the characteristic lesions of this common and intractable disease; however, this is only a speculation, and much more study must be given to the subject before this, or any other theory heretofore advanced, can be verified.

Having always been of the opinion that psoriasis was due to metabolic changes and not primarily a parasitic disease, several years ago I began to treat many of my patients according to the method outlined in the title of this paper, and it has been my gratifying experience that the symptomatic cure and the permanency of the cure are far better than when the other well-known remedies and measures were employed. All the cases receiving lactic acid and colonic irrigation were controlled by a similar number treated by the classical methods.

Long before the dictum of Metchnikoff that the lactic acid bacillus was the remedy for all the ills the flesh is heir to, even old age, it was a well-known fact that milk, buttermilk and fresh pot cheese prevented and checked intestinal fermentation and putrefaction. This action is brought about by lactic acid manufactured by the lactic acid bacillus; further experimentation proved that free lactic acid would have a similar inhibitory effect on the fermentative putrefactive changes of the contents of the intestinal tract. Later Metchnikoff demonstrated that the lactic acid bacillus inhibited and prevented the growth of the colon bacillus and many of the other deleterious bacteria of the alimentary canal. Taking these various views and facts together it occurred to me that lactic acid might be of benefit in psoriasis, especially if the psoriasis were due to auto-infection, and disturbed metabolism caused by putrefaction and fermentation of the intestinal contents.

The high colonic irrigation was instituted because of the fact that psoriatics are more or less constipated, and examination of the stools of many patients reveals the presence of mucus and shreds, indicating that there is a low grade of inflammation of the mucosa of the lower intestines. In my cases the irrigations, in every instance, cured the chronic constipation by stimulating peristalsis; they also washed away all decomposed and fermenting refuse that was lodged high up in the colon.

If psoriasis is one of the evidences of faulty metabolism, and if my reasoning is clear and the theory correct, we have here an ideal combination for com-

bating auto-intoxication and metabolic disturbances, and thereby removing the psoriatic etiologic factor. Lactic acid disinfects the alimentary canal by its antibacillary action; the colonic irrigation washes out any decomposing masses in the intestinal tract, relieves the constipation by stimulating peristalsis, tones the intestines by improving the circulation, relieves any passive inflammatory changes that might be present and ultimately elevates the cutaneous resistance by improving the general health.

Nothing original is claimed for this method of treatment, for both lactic and nitric acid have been used in psoriasis, and colonic irrigation has been recommended by a number of observers as a method of treatment in psoriasis, eczema and other diseases of metabolic origin.¹

As all of the cases treated by this method were typical examples of psoriasis it will be unnecessary to enter into detail; therefore a general summary will be given.

This report is based on the results obtained in forty cases, thirty-two male and eight female patients, natives of nearly every part of the world, although the Anglo-Saxon predominated, 80 per cent. being either German or English, or of that descent; the ages ranged from 6 to 59 years—four patients were under 20, eight between 20 and 30, nine between 30 and 40, fourteen between 40 and 50, and five between 50 and 60; thirty-two were hospital cases, the remaining eight were private patients, and all except one, the 6-year-old child, were put in a hospital to enable me to carry out this special line of treatment. The stay in the hospital ranged from four days to four months, the average stay being six weeks. Most of the hospital patients were from the lower walks of life; nearly all of the men were intemperate and some of them drank to excess. Five of the patients had signs of kidney degeneration, such as albumin, casts, etc.; five others suffered from rheumatic arthritis. One, a woman, aged 34, completely crippled from the arthritic changes, showed marked improvement after she had been on the treatment for a month; the cutaneous lesions disappeared and her general condition improved, but another exacerbation quickly supervened. In passing, it might be interesting to note that later this patient was treated by the intramuscular injections of salvarsan in petrolatum, the drug given weekly in 1 decigram doses until she had received in all 8 decigrams. After the third injection a marked change for the better became noticeable, the skin rapidly began to clear, the stiffened joints limbered up and her general condition became better than it had been for years. It is now six months since the salvarsan was given; the psoriasis has not recurred and the rheumatic condition is quiescent.

Only eight out of the forty patients gave a history or showed signs of having had syphilis, and these were the only ones that gave a positive Wassermann reaction. One patient had glandular tuberculosis as a complication.

In twenty-three cases the attack was cured, sixteen were improved; many of those who showed slight improvement were in the hospital for only a short time, some as brief as four days; in one hospital case, that of the patient who had tuberculous adenitis, no improvement was noted after four months of treatment. Thirty of the patients received only the lactic acid and the irrigations; the ten remaining had in addition chrysarobin ointment.

1. Mantle, A.: Successful Treatment by Colonic Lavation of Some Cases of Eczema, Psoriasis, etc., *Lancet*, London, July 30, 1910.

It is an interesting fact that in those patients who exhibited chronic thickened patches, and also those who had had many acute exacerbations in addition to the chronic lesion, the outlined treatment seemed to act beneficially up to a certain point. The acute symptoms would quickly disappear and the fresh patch clear up, but the old chronic ones would persist; then if chrysarobin were used, these patches would perceptibly melt away.

If there is anything in the parasitic theory, it is possible to assume that the special parasitic organism may remain locked up in the old resistant patch, much the same as the spirochete does in the tertiary syphilitic tumor. When the resistance of the skin is elevated by any means—treatment, improved hygiene, etc., the more acute and superficial lesions disappear while the older ones may remain, as was the case in many of these here reported. Chrysarobin is the parasiticide, and if applied after the general tone of the skin is improved, it cures the attack by removing the parasitic foci, as demonstrated by the existence of the resistant, localized patches.

The urine of all of the patients was examined and in most of the cases it showed evidences of metabolic disturbances. The urinary changes in connection with psoriasis, and the effect of this line of treatment on these cases will furnish the subject for a further communication. Practically all of the forty patients were chronically constipated, and in many cases the stools contained mucus and shreds.

To illustrate the type of case in which the treatment was used, I report in detail two histories:

CASE 1.—The first patient was a youth of 17, who, except for a sluggish circulation had always been perfectly healthy, had developed rapidly and was a great overgrown boy. He had a seborrheic skin and was of a constipated habit. He came from a home of affluence, but was accustomed to unwholesome food. During the summer a few psoriatic patches, twenty in number, developed over various parts of the extensor surfaces of his body; in spite of treatment they remained more or less prominent throughout the summer and winter; in the following spring, nearly a year after the disease first appeared he took a strenuous college entrance examination and became greatly reduced in health; his constipation became more pronounced and his general resistance was considerably below par. Just as he was preparing to leave for his home an acute attack of psoriasis rapidly developed, involving nearly the whole cutaneous surface.

After the attack had lasted for two weeks he was referred to me. I immediately placed him in the hospital, and instituted the lactic acid and colonic irrigation² treatment; the external treatment consisted of lanolin and cold cream, used simply to keep the skin from sealing. His condition rapidly improved, and at the end of the third week he was dismissed from the hospital cured.

I have seen or heard from him at frequent intervals during the past five years and only once has there ever been any recurrence of the psoriasis, a year after the primary attack and limited to a few small patches over the shins. Lactic acid was given without the irrigations, and within a month the cutaneous lesions had all disappeared; the patient has remained well ever since, and the chronic constipation is entirely relieved.

CASE 2.—The second patient, a child, aged 6, was sent to me about three months after the primary attack. I hesitated to place her on this treatment, but after trying the classical remedies for six weeks without any benefit, lactic acid and colonic irrigation were instituted; the good effects became

apparent at once, and in two months the patient was well. She has had three recurrences, and each time the same treatment was used. She is now ten years old and is free from any cutaneous blemish.

I hope that this report is not too optimistic, or that too much is claimed for this method of treatment; for it is a well-known fact that psoriasis is a disease that will often improve under simple hospital rest, supplemented by indifferent treatment. In view of this fact, every case that is here reported was controlled by others similarly hospitalized and treated by the classical methods. The cases treated by colonic irrigation responded much more readily than the controls; consequently, it would seem that this report is justified, for it is the summary of forty cases in which either cure or marked benefit was obtained from a simple line of treatment.

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ABSTRACT OF DISCUSSION

DR. L. DUNCAN BULKLEY, New York: Some of us have for many years advocated the view that psoriasis is the result of metabolic disturbances which prepare the skin for the development of either one of the ordinary parasites or of a parasite which we have not yet found. We know that these lesions yield to parasitic treatment, such as chrysophanic acid or the white precipitate ointment. We know that many of these patients, under a proper diet and by the avoidance of nitrogenous food, remain free from lesions for long periods of time. I have not resorted to the use of colonic irrigations, but we perhaps may accomplish the same purpose by a strict supervision of the diet, and clearing out of the intestinal tract when necessary. I have seen good results from nitric acid.

DR. M. L. RAVITCH, Louisville: Psoriatics, like the poor, will always be with us, and I do not know of any one who can assert that he ever cured a case of psoriasis. Lactic acid, nitric acid, high colonic irrigations—any remedy, in fact, new or old, may temporarily produce good results. I have used lactic acid and Bulgarian bacilli, and have seen very little benefit derived from it. The only remedy that I have seen followed by good results in psoriasis, is Donovan's solution, beginning with five drops and gradually increasing in dosage. In one case of thirty years' standing I have kept the eruption in abeyance by the use of hot soda baths and Donovan's solution, but I do not speak of the patient as cured.

DR. J. M. WINFIELD, Brooklyn: I give the dilute lactic acid from 10 to 30 drops, well diluted with water and taken before meals. The colonic irrigations should be made with one, two or three quarts of normal salt solution, given once a day. If constipation is very marked, they can be given twice daily.

Intestinal Putrefaction and Water Drinking.—Data were presented which indicated a marked decrease in the output of bacteria in the feces when normal men were caused to increase their water ingestion by 3,450 c.c. per day, the water being taken with meals. That intestinal putrefaction was also diminished under these conditions was indicated by an accompanying decrease in the urinary indican values during the interval of high water intake. The course of the total ethereal sulphate excretion did not parallel with that of indican thus furnishing additional evidence in favor of the view that indican has an origin different from that of the other ethereal sulphates. When a normal man passed into a seven day fast from a high protein level, it was found that the daily output of fecal bacteria was markedly lowered, with a return to normal values with the inception of a post-fasting period of low protein character. Indican and total ethereal sulphates were also decreased under the fasting regimen, this decrease being followed by an increase on the subsequent ingestion of food.—Blatherwick, Sherwin and Hawk in *Jour. Biol. Chem.*

2. The irrigations are best given with the patient in the knee-chest position. From 2 to 3 quarts of normal salt solution at body heat is slowly injected, with the reservoir about 3 feet above the patient's body. The lactic acid is given in doses ranging from 20 drops to 1 dram. It is best given in a large glass full of water that has been sweetened with sugar, not glycerin.

THE RELATION OF AORTITIS TO SYPHILIS,
AND THE IMPORTANCE OF ITS
RECOGNITION *

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It is not quite ten years since Chiari,¹ Marchand² and others described a condition found post mortem in the aorta which they named mesaortitis. They pointed out the frequency with which this condition was associated with manifestations of syphilis or with a definite history of the disease. Chiari found that a large proportion of paretics showed this affection and Marchand pointed out its constant association with aneurysm of the aorta. Their conclusions gained support from the work of Schmorl,³ Wright and Richardson,⁴ and others who from 1907 to 1909 reported the presence of spiral organisms morphologically similar to the *Spirochæta pallida* in aortas showing mesaortitis. Since then, these observations have been confirmed by numerous workers. The association of mesaortitis with the other signs of syphilis and the finding of the *Spirochæta pallida* in the lesions have given this condition definite recognition as a result of syphilitic infection.

As viewed at autopsy, this syphilitic involvement of the aorta has several striking characteristics. It usually occurs at the root, sometimes extending not more than 5 cm. above the aortic valves, although a large part of the arch may be affected. The aorta is thickened in patches, shows pitting and scarring in places, perhaps small aneurysmal dilatations. Calcification is rare, but there is usually an elastic rubbery thickening. This thickening extends even to the valves. Microscopically, it is found that there is a primary necrosis of the media and probably of the intima with development of the reparative connective-tissue. The spirochetes are found in the media and the intima in and about the necrotic areas. The process is a chronic one and is usually a late manifestation of the disease. The demarcation of this form of arterial disease from the general class of arteriosclerosis has led to an increased interest in the syphilitic affections of the heart and aorta, and it is now well recognized that the involvement of the aortic cusps in syphilitic mesaortitis is very common. Wright found an involvement of these valves in all cases in which spirochetes were found in the aorta. Longcope⁵ found that mesaortitis was associated with 81.5 per cent. of eighteen cases in which there was pure aortic valvular disease, that is, disease of this valve uncombined with that of the other valves.

While clinical observation cannot in any way take the place of pathologic study, a great many interesting facts have been brought out since the introduction of the x-ray and the Wassermann reaction as adjuncts to the study of diseases of the circulatory system. Longcope gives the results of observations by himself and seventeen other writers, showing that out of a total of 182

cases of heart-disease in which the aortic valve was involved, 135, or 74.1 per cent., gave strongly positive Wassermann reactions. Three of Longcope's cases came to autopsy and in all three, typical syphilitic aortitis was found associated with the disease of the aortic valves, and in all spirochetes were found in the aorta.

This report is written for the purpose of enumerating additional cases of aortic disease which have been studied clinically with the aid of serologic and x-ray examination. It seems to us important that if aortitis does occur with some degree of frequency as a late visceral complication of syphilis, this fact should be recognized. Moreover, if it is shown that antisyphilitic treatment can be administered with benefit in an early case of syphilitic aortitis, the early diagnosis of aortitis and, especially, the recognition of the etiologic factor become of the utmost importance to the clinician.

The series embraces the statistics of thirty-six cases of aortic disease which have come under our observation. By aortic disease we mean involvement of the aorta or the aortic valves, singly or in combination. Included in this number are three cases in which there was a complicating mitral lesion. Only cases in which the anatomic diagnosis could be made with positive certainty, either by physical signs or by the x-ray examination, have been included. Of this series, twenty-seven (75 per cent.) showed positive Wassermann reactions. The proportion is almost identical with that which Longcope reports in his collected cases. When it is remembered that a negative Wassermann reaction cannot be interpreted as evidence against an old luetic infection, it is apparent that the actual proportion of cases with a luetic basis is undoubtedly greater than our figures would represent. An analysis of the group showing positive Wassermann reactions, which we think fair to call cases of syphilitic aortic disease, should be profitable.

In our series, the occurrence among men was much more frequent than among women. Of the total of twenty-seven, nineteen (70.3 per cent.) were men. This suggests the possibility that the conjunction of hard physical labor with syphilis determined the aortic location. Some support is lent to this supposition by the fact that the majority of the men were or had been engaged in hard labor, as day-laborers, puddlers, masons, bricklayers, hod-carriers, etc.

The ages of the twenty-seven patients ranged from 29 to 64, but the great majority (twenty-three patients, 85.1 per cent.) were between the ages of 35 and 55.

Ages	No. of Cases
Between 25 and 29.....	1
Between 30 and 34.....	1
Between 35 and 39.....	1
Between 40 and 44.....	6
Between 45 and 49.....	5
Between 50 and 54.....	7
Between 55 and 59.....	2
Between 60 and 64.....	1
Total.....	27

The late incidence of this manifestation may be understood when we turn to the patients' accounts of infection and find that of the twelve patients who were able or were willing to give an adequate history, the average number of years since the appearance of the chancre was about seventeen (17.2). The actual numbers ranged from eleven to "many over twenty-five." It is evident, then, that this process is distinctly a late one.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.
* From the Department of Medicine of Western Reserve University.
* The serologic portion of this report is from the H. K. Cushing Laboratory of Experimental Medicine of Western Reserve University.
1. Chiari: Verhandl. d. deutsch. path. Gesellsch., 1903, p. 137.
2. Marchand: Verhandl. d. deutsch. path. Gesellsch., 1903, p. 197.
3. Schmorl: München. med. Wchnschr., 1907, liv, 188.
4. Wright and Richardson: Boston Med. and Surg. Jour., 1909, clx, 539.
5. Longcope: Bull. Ayer Clinical Laboratory, 1910, No. 6, p. 60.

A significant fact in regard to these cases is the long period of latency. In only three of the entire twenty-seven was a definite account of the amount or nature of previous treatment to be secured. Two men had had treatment for one month each; one man had taken one and one-half years of treatment. Apparently none of the twenty-seven cases, except three with cerebrospinal involvement had shown any obvious or troublesome signs of lues between the disappearance of the early signs and the oncoming of aortic disease during the lapse of an average of seventeen years.

Another important fact is the concomitant occurrence of cerebrospinal syphilis in one case and of tabes dorsalis in two. One of the patients, a woman (B. S.), aged 38, presenting both aortic disease and tabes dorsalis, showed the stigmata of congenital lues.

The symptoms of aortitis are usually indefinite and for that reason frequently are passed over as of little moment. Pain referred to the region of the upper sternum is often the first symptom. The pain may be slight and inconstant, is usually brought on by exertion, and becomes more intense as time goes on until it has all the characteristics of angina pectoris. Pain was a prominent early symptom in eighteen (66 per cent.) of our twenty-seven syphilitic cases. At times the patients complain of a sense of constriction as if they had a belt drawn tightly about the upper part of the chest, until they feel as if they would strangle to death. Dyspnea on exertion often occurs early. It is not infrequently paroxysmal in character, the patients complaining simply of "asthmatic attacks," which come on after slight exertion or after trifling excitement. One of our patients was perfectly comfortable while at rest, but the least effort brought on an attack of choking, which made housework impossible. It is interesting to note that though this patient could walk without much trouble, sweeping at once brought on an attack. At times the dyspnea is associated with fainting spells. A dry, irritating, non-productive cough is fairly common, especially after the dilatation of the aorta has become well marked. Palpitation of the heart is rare as an early symptom. It occurred in but one of our cases.

Early aortitis gives but meager physical signs. By the time the symptoms have become severe enough to cause the patient to seek medical advice, physical examination will usually reveal the presence of a varying amount of dulness in the second intercostal spaces to the right and left of the sternum. This increased dulness was noted in seventeen of our twenty-seven cases. Often this is the only sign, though it may be accompanied by a diastolic impact which is palpable over the upper sternum. Even in the early cases it is usual to hear diastolic murmurs along the left border of the sternum referable to the aortic valve, and when the process has become well established, systolic and diastolic murmurs originating at the aortic orifice are common. Such murmurs were heard in nineteen of our series. The tracheal tug is not usually demonstrable early in the condition, unless there is extensive involvement of the arch of the aorta. This sign was noted in five of the twenty-seven cases. Visible pulsations, just to the right or to the left of the sternum in the second intercostal space, occur late in the course of the disease. Only seven of our cases showed visible pulsations in this region.

This brief review will suffice to indicate that the symptoms and signs of early aortitis are extremely slight, and are of a nature to render early recognition

difficult. We have found the method of direct percussion of the area of the aorta to be of the greatest value in detecting a slight increase in dulness to right and left of the sternum. It is important to remember that the physical signs may vary early in the condition, being well marked shortly after exertion or excitement and disappearing again during rest.

The *x*-ray plate served to verify the results of physical examination, and it seems almost indispensable in early lesions in which it would be unreasonable to expect striking signs. A properly prepared photograph gives a definite and convincing picture, if there is dilatation of the aorta.

The nine patients who had aortic disease with negative Wassermann reactions deserve attention. Three gave definite histories of rheumatism. Another, who showed unmistakable signs of a well-marked aneurysmal dilatation of the transverse arch, stated that the symptoms of pain and shortness of breath had followed a severe blow on the sternum due to a fall about three years before observation.

One case is of such interest as to warrant a detailed account.

CASE 1.—Mrs. F. C., aged 30, brought her daughter, aged 10, to the children's clinic at the Lakeside Hospital Dispensary. The child showed definite stigmata of congenital lues, and both mother and daughter gave strongly positive Wassermann reactions. The mother admitted a luetic infection shortly before the birth of her child. At the time of examination the mother appeared to be in excellent health. About six months later, she returned to the dispensary complaining that for a month she had been getting short of breath on exertion and that recently she could not do her housework on account of a sense of oppression under the upper part of the sternum which came on as soon as she began to sweep or dust. She was pale and manifestly in distress. The heart was enlarged slightly to the left and there seemed to be a slight increase in dulness to the left and to the right of the upper part of the sternum. There was a slight though definite diastolic impact over the manubrium, and a very faint diastolic murmur was heard along the left border of the sternum. The patient was admitted to the wards of the hospital where an *x*-ray was taken after a rest in bed of twenty-four hours. This, it is interesting to note, showed no dilatation of the aorta. While in the hospital she had several attacks resembling those of angina pectoris. The dispensary physical findings were confirmed. Two days after her admission, the patient sat up in bed and died. The presumptive diagnosis here is an early syphilitic involvement of the root of the aorta. Whether the death was due to coronary interference or vagus involvement is a matter of pure speculation. The case is interesting because of the early date at which the signs and symptoms were observed and because the previous observations settled the diagnosis of latent syphilis.

CASE 2.—Another case, which is of more practical importance and is worthy of a report in some detail, was seen in the dispensary at Lakeside Hospital. The patient, F. K., a man, showing signs of a dilated aorta and aortic insufficiency, which were definite clinically and were confirmed by the *x*-ray, admitted lues and showed a strongly positive Wassermann reaction. His complaint was of substernal distress and pain of two months' duration. He was given antiluetic treatment, and the response to it was so prompt that at the end of the first week he had no pain and little distress and when last seen was practically free from his symptoms.

Alleviation of pain by mercurial treatment was noted with other patients. The improvement was especially marked with one (J. P.). In this instance, inunctions were used with great relief.

These cases raise the question as to the utility of specific treatment after a luetic mesaortitis has pro-

CASES IN WHICH AORTA OR AORTIC VALVES, OR BOTH, WERE AFFECTED

No.	Initials	Hosp.*	Sex	Age	Years Since Infection	Rheumatism	Cardinal Complaint	X-Ray†	Wass.‡	Diagnosis	Remarks
1,386	M. L.	L. H. D.	M.	27	Denied.	None.	Pain in heart.	+	—	Aortic regurgitation and dilated arch.	Aortic dulness increased; heart enlarged; right radial > left.
1,053	L. R.	L. H. D.	F.	58	Denied.	None.	Pain in throat.	0	++	Dilated aorta.	Double aortic murmur; heart enlarged to left.
1,117	R. D.	L. H. D.	F.	55	Indefinite.	None.	None.	0	++	Aortic regurgitation.	
1,081	B. S.	L. H. D.	F.	38	Congen.	None.	Pain in legs.	+	++	Dilated aorta and tabes.	
826	P. F.	L. H. D.	M.	50	19	None.	Cough.	0	++	Dilated aorta.	Tracheal tug; pulsation $\frac{2}{3}$ space rt. of sternum; aortic dulness increased.
714	M. K.	L. H. D.	M.	42	Denied.	None.	Pain in side; cough.	—	—	Aortic stenosis and regurgitation.	No signs of dilated aorta.
701	A. C.	L. H. D.	F.	53	Many.	None.	Pain to shoulder-blade.	+	++	Dilated aorta and aortic regurgitation.	
352	R. A.	L. H. D.	M.	29	13	Subacute.	Pain in chest and dyspnea.	0	++	Aortic stenosis and regurgitation.	
144	P. M.	L. H. D.	M.	38	Denied.	20 years before.	Palpitation and dyspnea.	0	—	Aortic regurgitation.	
64	J. P.	L. H. D.	M.	50	Denied.	None.	Pain in side.	+	+	Dilated aorta and aortic regurgitation.	
29	J. M.	L. H. D.	M.	26	Denied.	None.	Dyspnea on exertion.	—	—	Aortic regurgitation.	
54	A. L.	L. H. D.	F.	65	Denied.	Not noted.	Pain in sternum.	+	—	Aneurysm arch of aorta.	
368	J. L.	L. H.	M.	37	22	Yes.	Pain and dyspnea.	0	++	Dilatation of arch of aorta.	Visibly pulsating tumor, 2d lt. I. S.; tracheal tug; symptoms followed fall three years ago.
669	E. F.	L. H.	F.	43	Indefinite.	None.	Dyspnea; pain in "heart."	+	++	Aneurysm and transverse arch.	Also pericarditis, chronic nephritis, edema; autopsy.
373	C. H.	L. H.	M.	49	Denied.	Yes.	Dyspnea.	0	++	Dilated arch; aortic regurgitation.	Also aortic regurgitation.
318	A. B.	L. H.	M.	53	Denied.	None.	Precordial pain and dyspnea.	+	—	Aortitis and dilatation aortic and mit. regurg.	Aortic systolic murmur and thrill; diastolic aortic murmur.
414	A. S.	L. H.	M.	49	Denied.	None.	Epigastric pain and dyspnea.	0	++	Mitral and aortic regurgitation.	Left pupil > right; marked dilatation of aorta; diastolic impact and murmur.
78	S. S.	L. H.	M.	46	Denied.	21 years before.	Dyspnea and cardiac pain.	0	++	Aortic regurgitation; dilatation of aorta.	Heart enlarged; aortic dulness increased.
268	J. Z.	L. H.	M.	38	20	None.	Pain in heart and left arm.	0	++	Aortic regurg.; lupetic aortitis.	
115	G. B.	L. H.	M.	51	Many over 25	None.	Periodic dyspnea.	+	++	Aortic aneurysm and regurgitation.	Autopsy.
186	A. W.	L. H.	F.	30	Denied.	6 years before.	Dyspnea.	0	—	Aortitis; aortic and mitral regurgitation.	Signs of dilated aorta slight; definite signs of valvular involvement.
1,005	J. C.	L. H.	M.	53	Denied.	24 years before.	Dyspnea; recent pain in left side.	0	++	Aortic and mit. regurg.; angina pectoris.	No increase in aortic dulness; blood-pressure 240 mm. Hg.
1,476	C. F.	L. H.	M.	43	20	None.	Precordial pain and dyspnea.	+	++	Aneurysm of aorta.	Also cerebrospinal lues.
1,959	S. L.	L. H.	M.	53	12	11 years before.	Cough and pain in chest.	+	++	Aortic regurg. and stenosis; dilated aorta.	Aortic dilatation slight.
•2,170	D. C.	L. H.	M.	43	23	None.	Pain in chest and epigastrium; dyspnea.	+	++	Aneurysm of aorta.	Also tabes dorsalis.
1,576	J. R.	L. H. D.	M.	64	20	Twice.	Pain in back.	+	+	Aneurysm of aorta; aortic regurgitation.	
1,854	F. K.	L. H. D.	M.	38	16	None.	Pain in chest.	+	++	Aortitis; aortic regurgitation.	
2,265	E. M.	L. H.	M.	41	Denied.	Yes.	Dyspnea and cough.	+	++	Aortitis; aortic and mitral regurgitation.	
2,290	S. L.	L. H.	F.	36	Denied.	5 years before.	Fainting spells.	—	—	Aortic stenosis; regurgitation.	
1,564	M. T.	L. H.	F.	60	No history.	None.	Dyspnea.	+	—	Aortitis.	Tenderness over precordium; diastolic murmur in 2 R.L.S.
2,213	N. F.	L. H.	F.	42	Denied.	4 years before.	Pain in stomach; dyspnea; palpitation.	+	++	Aneurysm of aorta.	
471	J. P.	†	M.	50	17	None.	Pain and shortness of breath.	0	++	Lupetic aortitis.	R. and L. dilatation over aorta; syst. thrill and murmur over aorta; marked imp. with treatment.
993	C.	M. H.	M.	48	14	None.	Palpitation.	0	++	Aneurysm of aorta.	Marked dilatation of aorta and heart.
371	T.	C. H.	M.	42	Denied.	None.	Paroxysmal dyspnea.	+	++	Aneurysm of aorta.	
242	Mrs. F. C.	L. H.	F.	32	11	Not noted.	Pain and cough.	—	++	Aortitis.	Child, aged 10 years; has cong. lues; patient died suddenly; no autopsy.
1,912	E. T.	L. H.	F.	48	Denied.	None.	Dyspnea.	+	++	Dilatation aorta; aortic stenosis and regurg.	

* Initials in this column stand for the following institutions: L. H. D., Dispensary of Lakeside Hospital and Western Reserve University; L. H., wards of the Lakeside Hospital, Cleveland; M. H., Marine Hospital, Cleveland; C. H., City Hospital, Cleveland. † Case of Dr. A. S. Maschke, to whom we are indebted for the privilege of reporting it. ‡ In these columns the plus sign (+) means positive findings; the minus sign (—), negative findings; a zero (0) shows that no x-ray was taken.

gressed to such a point as to make it recognizable. The question is most important, but aside from the case mentioned, it is impossible for us to speak from experience. In these cases, particularly those in which a positive Wassermann reaction exists and in which the symptoms are of short duration, it would seem that antisyphilitic treatment should be administered vigorously. For although one cannot expect to repair the destruction that has already taken place, there is a hope in every case of this kind of arresting the process, which if left alone will lead in all probability to actual aneurysm-formation with all its distressing features.

SUMMARY

From the cases reported by others and the work done on them, together with the material on which this paper is based, the following conclusions seem justifiable:

1. A large proportion (70-75 per cent.) of lesions of the aorta or aortic valve are syphilitic in origin.

2. Syphilitic aortitis is a definite pathologic and clinical manifestation of syphilis, usually coming late after the disappearance of the early manifestations following a long period of latency.

3. Aortitis occasionally is associated with luetic cerebrospinal manifestations.

4. A complaint of pain in the chest and dyspnea should lead to careful examination of the thorax, especially in the region of the aorta. In case of suggestive or doubtful physical findings, an *x*-ray examination is desirable.

5. After a diagnosis of aortitis has been made, a Wassermann reaction should be performed. A positive reaction indicates the desirability of urgent mercurial treatment.

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ABSTRACT OF DISCUSSION

DR. DELANCEY ROCHESTER, Buffalo, N. Y.: In the hospital in Buffalo we have had a number of cases of aortitis and cardiosclerosis; we have taken pains in every case to have the Wassermann reaction instituted. Unfortunately, I am not prepared to give the actual percentage of cases now; but a large number gave the positive Wassermann test. The cases that responded to the Wassermann reaction improved under the hypodermic administration of mercury together with a certain amount of rest.

DR. NATHANIEL BOWDITCH POTTER, New York: At the City Hospital in New York City, Dr. Harlow Brooks has been giving salvarsan to a number of selected patients of the kind under discussion. Two patients on whom mercury had no effect whatever in relieving pain and the symptoms of broken compensation were very much improved by the use of salvarsan. The dose was small and was repeated only three or four times.

I think that this is a very important point—that in a case of aortic involvement, even with no definite history of syphilis, antisyphilitic treatment should be employed. Such a patient has been under my observation for a number of years, and he had a definite history of an attack of acute articular rheumatism; but it was not until the Wassermann reaction, which should be used as a routine procedure, gave a positive result that under the use of mercury the patient rapidly improved.

DR. HENRY KENNON DUNHAM, Cincinnati: There is one point which I think is slightly misleading: the possibility of diagnosing these early aortic lesions, even to a limited extent, by means of percussion. Only 44 per cent. of 100 patients examined by *x*-ray and percussion were demonstrable by percussion. Enlargement to the right is more difficult to detect than enlargement to the left. I think, however, that this is

rather a low percentage, because many patients examined were tuberculous.

DR. LOUIS FAUGERES BISHOP, New York: There is a certain point in the *x*-ray examination of these cases of aortitis that one should always keep in mind, the dilatation of the aorta which is dependent on increased blood-pressure. I have spent two summers in Nauheim working with one of the best *x*-ray men in the world who makes a specialty of *x*-ray work on the chest. We found that this knuckle or dilatation of the aorta to the left of the clavicle showed up in those patients who had a high blood-pressure. All patients are *x*-rayed and in many instances aneurysms are present. There is no doubt but that with this increase in the blood-pressure, there must be an increase in the distention of the aorta. This condition is not very difficult to diagnose and, even when the Wassermann reaction has not been sought for, under treatment these patients improve greatly.

DR. ARTHUR D. DUNN, Omaha, Neb.: One point should be emphasized more; practically all cases of angina vera in men under 50 are due to an involvement of the coronary arteries by syphilitic disease. In one case of syphilitic aortitis I was misled by a negative Wassermann reaction; the case came to autopsy and spirochetes were found in the aorta. Syphilitic involvement of the myocardium with or without aortitis should be emphasized. I have now under observation three cases of myocarditis. These patients were under control and in the hospital for a considerable length of time (one to two months), so that improvement due to rest, etc., could be excluded. The patients, all under 50 years of age, denied syphilis, and there was nothing to show that syphilis had ever existed. The Wassermann reaction was positive. In two salvarsan was given with marked improvement in the condition; in the other case there was no improvement. Tabes and paresis are often associated with aortic insufficiency and aortic syphilis. The attention of surgeons should be called to this well-known fact. I have in mind a patient operated on in Philadelphia, who came to me a few months later for cardiac decompensation due to a syphilitic aortitis and valvulitis. He had been operated on for gastric crises.

DR. WALTER L. BIERRING, Des Moines, Iowa: Since *x*-ray pictures are taken of patients in the upright position at a distance of from 3 to 6 feet, the heart form and connecting large vessels are brought out more distinctly. In this position, the form of the heart is elongated and the curves produced by the large vessels are also outlined more definitely. In observing these pictures I have often been confused by the sharp curve which the aorta makes as it turns upward and backward forming a distinct bulging very suggestive of a dilated aorta or a beginning aneurysm. In connection with this work a large number of healthy young men, resident physicians and others, were examined. In every instance the blood-pressure was normal, and a previous luetic infection was definitely excluded. While I recognize that the *x*-ray is very helpful in recognizing early changes in the aorta, I feel that great care should be exercised in properly interpreting the normal curves that are seen in the *x*-ray picture.

DR. RICHARD DEXTER, Cleveland: I believe that the *x*-ray should always be used in the early diagnosis of aortitis. Among the early signs of this disease are shortness of breath on the slightest exertion, with pain, referred to the upper chest. There is also a sense of constriction high up in the chest. The use of *x*-rays in these conditions is of great help and will often bring out the condition when the signs fail us. I agree that the bulging to the left is often found in normal cases. When I first became interested in this class of cases, I found many with but a moderate increase of dulness over the aorta, but I found that this occurred in almost every case. I think that all roentgenologists recognize the possibilities of error in *x*-ray work. A combination of signs and of symptoms, together with the use of *x*-rays, seem to be the most effective in making a diagnosis of this condition. The Wassermann reaction is an indication for intensive treatment, and it also has its diagnostic importance. When positive it shows that we have to deal with a luetic aortitis.

FISCHER'S THEORY OF EDEMA AND
NEPHRITIS

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In his work on edema, Martin H. Fischer¹ has proved beyond a doubt what had also been found to be true by Loeb² and by W. Ostwald,³ that fibrin and gelatin plates and the dead muscle of frogs absorb water to a greater degree in acid than in neutral solutions. From these experiments he goes on to argue most plausibly that edema in the living animal body is caused by an excessive accumulation of acid. He completely fails to prove that such is the case, and leaves unanswered the all-important question, Can acid accumulation account for the edema of living muscle?

It can easily be shown that acid content does not account for the swelling of muscle in Fischer's "artificial edemas." These edemas are produced by ligating the leg of a frog just above the knee, severing above the ligature and keeping the preparation in distilled water. It was found that these preparations increased in weight. Without attempting to obtain any direct evidence on the point, Fischer lets us assume that this increase in weight is due to the accumulation of acids within the amputated leg. I repeated the experiment and kept the preparations in tap-water for twelve hours. The result in each case was an increase in weight of 20 per cent., as shown in the accompanying table.

EXPERIMENT SHOWING EDEMA BY ABSORPTION OF WATER

Preparation.	Weight.		Increase in Weight. Per Cent.
	At Begin- ning. Gm.	After 12 Hours. Gm.	
No. 1.....	3.750	4.540	20
No. 2.....	3.805	4.630	20

At the end of the experiment the preparations were opened and the muscles found to be irritable. When the lymph and muscles were tested with acid fuchsin and neutral red, they were found to be neutral. Clearly, then, acid accumulation does not take place in the artificial edemas which Fischer has devised to prove his hypothesis.

Fischer records a great many experiments on the swelling of the gastrocnemii of frogs in various solutions. The muscles are almost always killed by placing them in distilled water. It has been clearly pointed out by R. Beutner,⁴ and I have shown⁵ that if instead, the muscles be put into salt solutions, preferably isotonic, to which acid has been added, such muscles first act like osmotic systems and only later like purely colloidal ones.

In a series of such experiments it was found that only a high degree of acidity, 0.009-normal, will cause any significant swelling of the muscle. It is well known that the death of a tissue follows rapidly on its being given an acid reaction. On the other hand, Kantor and Gies⁶ have shown that free acid must be present in a solution in which fibrin threads are suspended in order that such threads may swell.

Von Fürth⁷ correctly calls attention to the fact that Fischer's colloidal theory of edema seeks to explain only the imbibition of water by the cells, while as a matter of fact the greater part of the fluid of an edema is outside the cells, lying between the tissues.

Fischer's later work on "Nephritis"⁸ consists of an application of the experiments and arguments used in connection with edema to the more special problems of nephritis, and so criticism of much the same character as those given on the earlier work apply here. If one can, for a moment, forget the skillful and convincing style in which the book is written, and set before oneself the meager evidence which Fischer uses for his theory, the lack of a few fundamental facts at once becomes apparent.

Briefly stated, the reasons for his theory are three:

1. Fibrin dissolves in acid or in alkaline, but not in neutral solutions, and this, to Fischer's mind, is what takes place in the cells of the nephritic kidney, thus giving rise to albumin in the urine. In order that the analogy may hold, then the secreting cells of the kidney must be acid in reaction.

2. It is shown by means of tables quoted from Höber that urine from nephritides is more acid than that of normal persons. Farther on in the book Fischer states (p. 184): "The presence of some abnormal acid in the urine does not yet prove that the actual acidity of the body as a whole has arisen." It is hard to see then how the abnormal acidity of the urine could be used as an argument for the acidity of any part of the body as, for example, the kidneys.

3. Artificial albuminuria may be produced in rabbits by the injection of sufficient quantities of tenth-normal hydrochloric acid.

It is curious to note that Fischer goes to great pains to demonstrate that normal kidney tissue is neutral in reaction to acid fuchsin and sodium indigo sulphonate. He then records a large number of experiments in which albuminuria was induced in rabbits by the injection of tenth-normal hydrochloric acid, made isotonic with sodium chlorid solution, but scrupulously avoids telling whether the kidneys in such cases were neutral or acid in reaction. If sections of kidney in a case of artificial nephritis should test acid to indicators we should have good reason for trusting Fischer's theory. In order to satisfy myself on that point I injected a 2,200-gm. rabbit with 175 c.c. tenth-normal hydrochloric acid, made isotonic with serum by the addition of 2.5 mol sodium chlorid. The temperature of the solution was from 35 to 37 C. The injection occupied one hour. One-half hour after the injection had ceased the rabbit was catheterized and the urine found to give an abundant precipitate with phosphotungstic acid. The rabbit was killed by a blow on the head, the kidneys at once removed and sections of them tested for acid with neutral red and acid fuchsin. The result in all cases indicated neutrality of the secreting cells. Occasionally slight staining took place in the lining of the collecting tubes, just as in normal kidney.

Here, then, is a case of albuminuria, induced by acid injection, in which the kidney tissue retains its neutral reaction.

If more be needed to indicate the insecure basis on which the acid theory of nephritis rests I might refer

1. Fischer, M. H.: *Edema: A Study of the Physiology and the Pathology of Water Absorption by the Living Organism*, New York, John Wiley & Sons, 1910.

2. Loeb, J.: *Arch. f. d. ges. Physiol.* (Pflüger's), lxxix, 1; lxxi, 457; lxxv, 303.

3. Ostwald, W.: *Arch. f. d. ges. Physiol.*, (Pflüger's), cviii, 563; iii, 581.

4. Beutner, R.: *Unterscheidung kolloidaler und osmotischer Schwellung beim Muskel*, *Biochem. Ztschr.*, xxxix, 280.

5. Moore, A. R.: *Univ. of Cal. Pub. Physiol.*, iv, 111.

6. Kantor and Gies: *Jour. Biol. Chem.*, ix, 1911.

7. von Fürth, O.: *Probleme der physiologischen und pathologischen Chemie*, Leipzig, 1912, i, 256.

8. Fischer, M. H.: *Nephritis: An Experimental and Critical Study of Its Nature, Cause and the Principles of Its Relief*, New York, John Wiley & Sons, 1912.

to the fact that Fischer⁹ himself has shown that injections of solutions of the three sodium salts, sodium chlorid, sodium iodid and sodium bromid, frequently, though not always, cause albuminuria in rabbits. Burnett¹⁰ found that when sea water is made isotonic with blood-serum and injected into rabbits it gives rise to albuminuria, and yet Fischer advocates to physicians the use of injections of salt solutions in cases of nephritis.

It would seem to be wisdom on the part of those engaged in the practice of medicine to view with extreme caution the use of any theory in practice which is founded mainly on argument based on a minimum of experimental evidence. It has been shown how slender is the experimental basis for Fischer's theory of edema and nephritis, and I should say that no matter how skilfully that writer has put his argument, his theory at present has no place in the practice of medicine.

THE HOSPITAL'S NEED OF A DENTAL STAFF*

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The last decade has produced many writings calling attention to the part the oral cavity can play in health and disease; not alone of the health and disease of the mouth, but of the entire body as well; and this has changed the general opinion held in the past—that the mouth played only a small and insignificant part in the pathology of the human system.

Now, while these ten years have been productive of great changes for the betterment of knowledge and treatment, yet, to me, the one great institution which one would expect to do the greatest good for humanity has not produced results commensurate with its ability and opportunity. For about twenty years I have been associated with the service extended by a dental practitioner to several average hospitals, and during that time experience and observation have brought forth cogitations and deductions.

On the front page of the *Dental Cosmos* is observed the quotation, "Observe, compare, reflect, record." I will here apply this quotation to my hospital experience and give a few plain thoughts which, while perhaps not scientific, yet come from the school of experience. If the experience is a mistaken one, it will have at least one virtue—it will be an honest one not borrowed from the books.

A patient enters the average hospital for one of a score of serious operations, to be followed by several weeks, if not months, of slow recovery. Extreme care is employed to prevent septic infection—save the foul condition of the oral cavity. Experience and science of the oral hygienic movement have demonstrated the need of intelligent dental service before many of these operations. The use of the scaler, tooth brush, tongue scraper, swab, and compressed antiseptic spray is needed in many such cases; but perhaps no part of the body is more neglected than the oral cavity, and in many instances no part of the body manifests more strikingly the result of this neglect. In my opinion the hospital has no one greater need of the dental staff than in the

proper preparation of the oral cavity before and after operations.

In fractures of the mandible dentists have the ability to make a diagnosis and to correct the fracture with dental appliances of a cleanly, comfortable and sure method. The day of the old-fashioned manner of wiring or of bandaging these fractures should be a thing of the past. I would place the ability of dentistry to handle fractures as the second great need of the hospital for a dental staff.

Dentistry is part of the healing art and hospitals need it in diagnosing disease of dental origin. The twentieth century has demonstrated there are serious pathologic conditions arising from infected glands, interstitial gingivitis, non-erupted teeth, dental cysts, dental abscess, caries and necrosis. There is no greater list of troubles to ordinary humanity than the one headed neuralgia. A very large number of so-called facial neuralgias are of dental origin. The x-ray has been a boon to humanity and medicine, yet the one great need in the majority of cases is some one to read the picture, and I believe that dentistry can tellingly read some of dental origin. We hear much of faulty metabolism, but how about the cases caused from lack of masticating power, poor occlusion and infection from diseased and foul conditions of the oral cavity?

Surgery has done much for cleft palate, but there are numerous cases which surgery cannot help, and also those in which surgery has been tried and found wanting. The hospital has yet the need of the velum and obturator. There are phases of specific disease in which the oral cavity is more liable to show symptoms to the dentist than to the regular medical practitioner. In my opinion there are many other pathologic conditions of the human body in which advanced, scientific dentistry can do much to assist the healing art, but space forbids enumerating them.

To sum up in a few words, cannot the intelligent and scientific dentist, practicing true stomatology, assist general medicine and surgery in ways needed? In fact, has not the need of the hospital for a dental staff, of true professional ability, been apparent to hundreds of intelligent, observing and scientific lay and medical people for years?

ABSTRACT OF DISCUSSION

DR. G. V. I. BROWN, Milwaukee, Wis.: I believe no one questions that the dental staff might be of great usefulness in the hospital. There would be no question as to the value of proper treatment of the mouth in preparation for surgical operation, if this were practicable in all cases, but while it is applicable for some operations, when the patient's condition is such as to make it possible to take the time, and to perform the procedures necessary to cleansing the mouth, the vast majority of patients are in such condition that local treatment of this nature would be out of the question.

DR. C. K. TETER, Cleveland: There is no question about the need of the services of the dentist on the staff of different hospitals. I am officially connected with two in Cleveland, not as a dentist, however, but as an anesthetist, but the rest of the staff take advantage of the fact that I am a dentist in consulting me in regard to their surgical procedures or treatments of diseased conditions of the mouth in which the teeth enter into consideration. I do not think there should be any trouble in getting positions on the staffs of the different hospitals if the question is taken up in the proper manner. It will be brought about by personal effort. A few weeks ago I was in Newark, N. J., where I gave a clinic in one of the largest hospitals. I was very glad to find that three hospitals in Newark had dentists on the staff. At Bridgeport, Conn., only a short time ago I also found a dentist on the staff of the hos-

9. Fischer: Univ. of Cal. Pub. Physiol., i, 113.

10. Burnett: Jour. Biol. Chem., iv, 57.

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912

pital there. My advice would be to the dentists as they go back home to take up this matter with the proper men in the hospitals, and I think they will meet with success in getting appointments on the staffs.

DR. W. C. FISHER, New York: About the nearest solution I could offer would be to have an examination held immediately after graduation, and appoint two or three of these men as interns in the hospitals, at a small recompense, to care for their actual needs, and a little extra, and let them serve the course the same as the medical men. Have the term, for instance, two years and allow the men to serve one year with the privilege of serving the second year if they so desire. The care of the mouths of people who are to undergo operations is frequently out of the question to a great extent because of the condition of the patients. Therein, however, comes the point of having the nurse keep the mouth in such a condition until the patient improves beyond the condition of helplessness. To have the nurses properly trained to care for the mouths during that period would be at least a means of helping these people over that period in which the ravages of decay are so rampant. I do think, however, that if a corps of dental interns was established, it would meet with a great number of applicants from among the men just graduating from the dental colleges.

DR. C. F. LYNCH, Springfield, Mass.: The medical profession, for the past few years, has awakened up to the fact of the necessity of the care of the mouth before operation. Moynihan of Leeds, England, in his work on abdominal operations makes that important point in connection with his stomach operations. He saw the necessity of protecting the operation from above and the following, at a time previous to the operation, of such technic as would afford protection against the filthy condition of the mouth. Root infection is a very important matter. Physicians see a great many people suffering from facial neuralgia due to infected teeth and all that many dentists will do in these cases is to paint the gums with iodine. There is a cardinal rule in surgery that pus must be evacuated and it cannot be evacuated by painting the gum with iodine. Pus must go somewhere; it will not go through a crown or cap on a tooth, or an impervious filling, but it goes out of the side of the jaw or into the circulation. I have found it difficult to persuade dentists to take off a cap or take out a filling to obtain drainage. I believe that they should not hesitate to remove the filling and evacuate the pus, just as a physician would open up any suppurative sinus, the drainage of which was blocked.

DR. A. J. FLANAGAN, Springfield, Mass.: After an address I gave in the Institute of Stomatology of New York City in 1902, dentists were appointed in one or more of the hospitals. Current dental literature afterward took up the paper on two occasions and editorials were written on the subject. In all these years, however, there has been but slight advancement. Dr. Brown spoke of the vast majority of patients that could not have proper oral preparation because of the lack of time. Of course, in all things we must use judgment, but in all these hospitals in the United States, just think of the large proportion of cases that could properly be attended to. There must be in every large city one or more dentists of true professional ability. There must be in the hospital at least one dentist who knows proper pathology and therapeutics. I know dentists exist with correct knowledge of oral conditions who can render needed assistance to the healing art and humanity if general medicine and hospital management wish their cooperation and service. The hospitals have nurses who receive lectures; what is to prevent intelligent men from giving one lecture to the nurses during the course on the care of the mouth in health and disease? The plan mentioned by Dr. Fisher of having interns is a good one. Through popular journals and the newspapers, people are being educated in the knowledge of pathology, and dentistry is beginning to wake up because the press has partly forced them through the knowledge imparted to the public. If dentistry—as a part of the healing art—can render service to humanity along the lines of hospital service why not give the opportunity? If dentistry is not able to meet the demands let the world know it.

CLEFT PALATES

WITH SPECIAL REFERENCE TO THE CLOSING OF A SURGICAL CLEFT BY THE USE OF A DENTAL APPLIANCE *

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One of the most distressing deformities to which the human frame is liable is found in the defective condition known to the dentist and surgeon as cleft palate. The unfortunate sufferer is compelled, in a great measure, to be an alien among his fellows and an object of compassion to the considerate; and is often made painfully conscious of notice by the heartless crowd. Were he gifted with the power and eloquence of a Demosthenes he could make little more use of his endowments than if he were a mute.

In times past, one so afflicted was doomed to go through life suffering from his deformity with no hope of relief, but thanks to the advancement of both surgical and mechanical means this imperfection may at least be remedied and often cured.

There are two distinct classes of palatine defects: acquired and congenital.

The first includes all loss of tissue in either hard or soft palates whether the result of accident or disease. These defects are not uniform in locality nor in extent, consisting sometimes of simple perforations and at others involving the destruction of the velum, a considerable portion of the palate, the vomer and turbinated bones and the loss of a greater or less number of teeth.

The second class includes all malformations, from the simple bifurcation of the uvula to an opening through the velum, palatine and maxillary bones and a fissure of the lip, thus uniting the oral cavity with the nasal passages throughout.

Congenital clefts are similar in character but are not uniform in extent. The uvula and velum are always divided through the median line but as the fissure progresses toward the interior portion of the oral cavity it may be deflected to one side of the vomer, and following one nasal passage may divide the lip. When this is the condition, the vomer is firmly attached to the palatal process on but one side. In other cases, the deformity follows the median line, separating the vomer from the palatal process and involving both nasal passages, ending in a double fissure of the lip.

Unless the cleft is complete (involving the lip) the deformity is not visible as the facial contour is unimpaired but is immediately detected when speech is attempted, distinct utterance being impossible.

Mastication and deglutition are often so much interfered with as to be performed with great difficulty.

These effects are always in proportion to the extent of the separation or the deficiency of the parts. The simple act of triturating the food may not be materially impaired by the absence of a portion—however extensive—of the palatal organs, unless the natural relations of the teeth of the maxilla and mandible are disturbed and do not occlude properly. Still, the process is more or less interfered with, as substances taken into the mouth cannot be so readily managed as when the parts are in their natural state; the food is liable to escape from the control of the tongue and pass into the cavity of the nose.

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Imperfection of speech always results from an opening in the palate, giving a nasal twang to the voice and rendering the formation of certain sounds impossible.

Deglutition is not materially interfered with in an ordinary case of congenital deformity; the patient having never known any other method of swallowing is not conscious of any difficulty. Acquired clefts, occurring as they most frequently do in adult life, cause, in this respect, great inconvenience.

The remedy for these evils must be the closing of the abnormal passage by some means which will restore their functions to the deformed organs.

In perforations of the hard palate, unless very extensive, the method is quite simple. In the loss of the soft palate by disease the remedy is more difficult, and in extensive congenital deformities still more complicated measures must be resorted to. The surgeon resorts to staphylorrhaphy, an operation which has been successful in many instances, although there are numerous cases in which more benefit would be derived from a mechanical appliance than from a surgical velum.

It has been said that "any unnatural opening between the oral and nasal cavities which will permit the full passage of the breath will impair articulation, while any appliance which will close such passage and can be worn without inconvenience will restore articulation." This is true in the case of an acquired cleft but not entirely so when the deformity is congenital. In the former case, the patient has known the use of the lost organs and can readily accustom himself to the appliance replacing that loss, while in the latter instance, the patient never having known its use it is unreasonable to suppose that he could articulate properly without careful and painstaking practice. Dr. Kingsly says: "The possession of an apparatus of whatever nature, however cunningly conceived and skilfully adjusted to the needs of the patient, will not transform him immediately into a perfectly speaking person, any more than would the possession of a violin transform the possessor into a master of that instrument."

Having classified the palatal defects as acquired and congenital, it may be well also to classify the appliances used for their remedy, not that a certain kind of appliance is always indicated for all congenital deformities and another for all acquired clefts, for such is not the case, but each cleft, whether it be of the first or the second classification, is a study in itself and demands special thought and skill to bring the operation to a successful conclusion. The term obturator is used to designate all instruments to stop or cover all openings in the hard or soft palate which have a well-defined border or outline. The term artificial velum is applied to a mechanical contrivance which consists of an elastic, movable valve which is under the control of the surrounding muscles and is capable of opening and closing the posterior nares at will, and which is applicable to cases of congenital cleft palate and also in certain cases in which the soft palate has been destroyed by ulceration.

Obturers were formerly made of either gold or silver plate and many very ingenious instruments were the result of such efforts; but of later years vulcanite has superseded the metals, being so much more easily formed into the various shapes, especially when the opening is of irregular form.

The velum is, of necessity, made of soft vulcanite, as it is yielding to the movements of the surrounding muscles and is not in the least irritating to the tissues.

The success of these appliances depends largely on the accuracy of the models since it is on these that the

parts are molded. It being essential that the outline of the border of the entire fissure be represented in the model as these parts are in repose, it becomes necessary to take the impression in plaster-of-Paris, as it is the only material adapted for such work. Various methods of securing such impressions are followed but it is unnecessary here to give a detailed description of any one of them.

A better understanding of the benefits rendered the patient by the prosthetist after a surgical operation resulting in a cleft of the palate, may be given by citing a case of recent date:

Patient.—Mr. S., aged 38, had undergone an operation for the cure of necrosis of the superior maxillary. The major portion of the alveolar ridge and the palatal process were involved, thus necessitating the removal of the superior teeth, together with the portion of the alveolar process extending from the first molar, superior left, to the position of the third molar on the right, and from the region of the incisors upward to and including the anterior nasal spine.

Condition on Examination.—On first examination the conditions were found to be most unpromising. There was an irregular opening extending from the region once occupied by the second bicuspids on the left to that of the second molar on the right. This opening varied in width from one-fourth to three-fourths of an inch, the mucous membrane having partly closed the cleft. On pressure it was found that a greater portion of the roof of the mouth would yield readily, thus affording no foundation on which to rest a denture save directly over the tuberosities and a short distance forward of that point. The superior lip having no support from beneath, hung like a curtain, and could readily be pressed backward and upward to an appreciable extent. His articulation was such that it was with great difficulty that he could be understood; he had the characteristic nasal twang and was unable to produce certain sounds. His ability to masticate his food was entirely lost and deglutition was greatly interfered with.

Method of Repair.—The teeth having been lost and a greater portion of the osseous tissue removed, there appeared to be nothing left on which to rest or attach the appliance for the closure of the cleft, but a digital examination of the opening into the nasal cavity disclosed a heavy band of cicatricial tissue extending transversely at the base of the nose, and it was to this band that the finished appliance was attached. Having secured a perfect impression in plaster-of-Paris of the parts least movable, a base plate of vulcanite was constructed, to which wax was added, until the facial contour was restored and the cleft entirely closed. The addition in wax was reproduced in vulcanite and the appliance again fitted to the mouth, when the position of the lower teeth relative to the upper jaw was determined and the projection or hook on the rim of the plate was located. Attaching the artificial teeth to the plate and reproducing, in vulcanite, the attachment to engage the scar tissue surrounding the cleft was readily accomplished. To insert the appliance it is necessary to grasp the upper lip and draw it forward, thus opening the cleft to its fullest extent, when the obturator with its hook-like attachment readily passes through or into the cleft, and on releasing the lip the cicatricial band engages that part of the appliance intended for its reception.

Result.—When the finished appliance was placed in position, the patient's speech was immediately restored, deglutition was not interfered with in the least, and what gave him great pleasure was the fact that he could again enjoy his cigar.

In conclusion let it be understood that success in the treatment of all cases of cleft palate depends largely on the thought given it, the selection of the proper appliance for the case, and the care and skill with which it is constructed.

Patients suffering with a congenital defect usually have difficulty in adapting themselves to the changed conditions but with proper instruction and perseverance

they soon unlearn their former way of speaking and in many instances have become so proficient that their deformity was not suspected.

ABSTRACT OF DISCUSSION

DR. VIDA A. LATHAM, Chicago: We all know that in cleft palates in which we have a high arch and a good vault, we have good speech. We also knew that where the reverse conditions exist nobody can understand the speech. We do not know the reason. I have seen cases in which the speech was unintelligible, and yet the examination of the mouth never led me to think that there would be any difficulty. It is not due to the condition in the throat, and not always to the condition of the soft palate. In many cases we are never able to get good speech even with artificial appliances, and when we consider that this is a rigid appliance and has so little attachment, it is marvelous that the speech is good.

DR. M. I. SCHAMBERG, New York: These conditions of acquired cleft palate call for greater ingenuity than congenital cleft palate; in fact, congerital cleft palate, at present, is susceptible of treatment by surgical methods, and according to my views is indicated in a large proportion of cases which were formerly considered irreparable, but in these acquired cases the ingenuity of the dentist is severely tested. In connection with these cases it is always essential to endeavor to study the means by which the muscles can be brought into play to counteract the absence of suction or other means of retention. The manner in which the front portion of this piece slips backward so as to enable the patient to acquire control of the piece by means of the muscles and the lips is certainly a beautiful illustration of what can be done in a prosthetic way.

DR. H. S. HASLETT, Pittsburgh: When first examining the mouth I was very much discouraged. I thought there was nothing to which I could attach anything, until I discovered this band of cicatricial tissue, and to that I pinned my hope as well as hung my appliance. I took an impression in modeling compound first. I then made a tray over the model made from that impression, with the hope that I could get an impression from which I could make a complete model. I failed in that, however. If the appliance is taken out, the face falls in, and I could not get any impression material which had force enough to force the tissues out and hold them in the proper position. I then decided to take an impression of what was left of the hard palate, and I felt that that was all that I could do. To that I attached a thin layer of rubber, and vulcanized the base plate, as we do with two vulcanizations when we want to line a plate with pink rubber, and to that base, which showed the shape of the hard palate, or what remained of it and the inner border of the cleft, I built wax until I obtained the proper contour of the face. Then I had an edge for the plate to rest against until I got it to the proper position. After that was built out it was little or no trouble to locate just how I wanted the appliance, to attach the teeth, and finish the work. In work of this kind it is much easier to get happy results with acquired than with congenital cases. I have had a great many congenital cases and it is always with great difficulty that the patient learns to use the appliance. Some become discouraged, while others persevere, but those patients with acquired cleft will do as well as ever as soon as the appliance is placed in the mouth.

Fees and Ability.—If a practitioner, for any reason whatsoever, sees fit to reduce his fees below the minimum, for one or for all of his patients, that is his own personal business, and nobody has any right to interfere. There is no medical trust, no medical union, no boycott. Time will teach him the lesson he needs without our concern. He will learn one day that the public, after all, gauges a man's ability by his self esteem. Look about in your own community and see whether this is not true. The good men command the best fees; and one reason they are good men is that they have demanded the best fees. *Idemque* the cheap man.—*Delaware State Med. Jour.*

ACUTE OSTEOMYELITIS OF THE JAW *

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PHILADELPHIA

Osteomyelitis is an inflammation of the marrow and adjacent osseous tissue of a bone. Usually the inflammatory process is widespread, tending to involve the entire marrow cavity, the process, as a rule, being very destructive with extensive secondary necrosis of the bone. Of the jaws, the upper jaw, on account of its protected position, the peculiarities of its vascular supply and the absence of any true marrow cavity is so free from this disease, that osteomyelitis of the lower jaw only will be considered. While the lower jaw has no distinct marrow cavity as compared with one of the long bones, it has a central nutrient canal containing the inferior dental nerves and vessels, adjacent cancellous tissue, which largely disappears near the symphysis, all enclosed by firm, dense walls of compact bone surmounted by soft cancellous bone forming the alveolar portion. An inflammatory process within the body of the lower jaw, while it does not spread through a mass of soft marrow, quickly produces serious involvement of the inferior dental vessels and nerves. There follow, therefore, a rapid death of the interior of the jaw involving half or even the entire body of the bone and an interference with the circulation and innervation of the teeth followed by their progressive loosening, and frequently complete separation from the softened or disintegrated alveolus. Osteomyelitis of the jaw is, therefore, to be differentiated from the simpler infections and forms of necrosis by:

(a) The extensive involvement of the contents of the inferior dental canal.

(b) The tendency for the widespread secondary destruction of bone.

(c) The damage to many or all of the lower teeth.

Alveolar abscess, periostitis and many forms of necrosis produce a relatively limited involvement of the mandible.

From a clinical standpoint, osteomyelitis also differs from other infections of the jaw by the fact that it develops within the bone, and therefore local swelling is not a primary feature; from the fact that many teeth are involved and that their involvement is secondary; by a tendency to widespread bone necrosis, and especially by the very early and often violent general systemic disturbance from the absorption of septic material retained under tension within the body of the jaw.

ETIOLOGY

The jaw is exposed to infection by reason of its exposed position, its many duties, the proximity of the cavity of the mouth, and by reason of the contained teeth. Apart from traumatic injury, it would seem probable that bacteria would reach the interior of the bone chiefly from the mouth, especially through infected dental canals. The possibility that bacteria may be carried by the circulation and be deposited from within, as so frequently occurs in the long bones of the body, is also to be considered, especially in the forms of osteomyelitis developing without evident cause in young persons. The well-recognized types of osteomyelitis, of traumatic origin, those following infectious diseases such as typhoid and typhus fevers, or the exanthematous fevers as small-pox, scarlet fever and measles, or such

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severe constitutional disorders as scurvy are well recognized and will be given little consideration. Poisons leading to inflammation or necrosis of the jaws such as phosphorus, the dust from mother of pearl, as well as the more chronic inflammatory and degenerative lesions occurring in association with locomotor ataxia, syphilis, tuberculosis and actinomycosis, I shall not discuss at this time.

The form to which I particularly desire to direct attention is the developmental type which occurs between the twelfth and sixteenth years. It is not a common condition and probably is seen more frequently by the physician than by the dentist. Usually a correct diagnosis is not made until widespread destruction of the mandible has occurred. For this reason the condition deserves especial attention. It may be compared to the osteomyelitis occurring in children and involving the long bones of the extremities. In the latter infections, the exciting cause is often trivial; the child may have been exposed to cold and wet, perhaps has waded in cold water, or has fallen and received a slight bruise on the shin or other part and there rapidly follow signs of a severe infection, chill, fever, delirium and widespread destruction of bone. The infectious organism, usually the staphylococcus or streptococcus, has been circulating in the blood and has localized in the bone as a result of the slightly lowered local resistance. So it is with the mandible; the teeth may be crowded or may have erupted irregularly; possibly a corrective appliance has been fastened to the teeth and as a result, the oral cavity contains a larger number of bacteria than usual; or an extraction may have been done, a large cavity may be present or the child may have received a slight blow over the jaw. Again, there is no history of any of these conditions, and the disease develops without apparent cause and it is probable that infection originated as in the forms of osteomyelitis of the long bones, from the lodgment of bacteria carried in the circulating blood.

PATHOLOGY

The pathology of acute osteomyelitis of the lower jaw is that of a rapidly spreading infection along the inferior dental canal. Whether the bacteria invade the area from the blood-stream, through the root canal, the cavity left after the extraction of a tooth, or the opening from a fracture of the jaw, the danger lies in the involvement of the inferior dental vessels. The inflammatory exudate of serum and leukocytes soon fills the canal and compresses the nutrient blood-vessels; and from the pressure and infection, thrombi form in the vessels, the circulation is arrested and rapid degenerative and inflammatory changes occur in the bone. The alveolar process softens, the teeth loosen, and if the exudate within the canal becomes purulent it burrows along the roots of the teeth, finally escaping at the gum margin, or perforates the process, the pus collecting under the mucous membrane or skin, finally to discharge or evacuate. As the pus or exudate passes through the bone, it lifts the overlying periosteum, and as this is stripped from the bone, the osseous circulation is cut off from without as well as from within; thus it follows that a rapid and very widespread necrosis is usual. The inflammatory edema may spread to the floor of the mouth, to the epiglottis and larynx, thus seriously interfering with deglutition and respiration. Bacteria may enter the facial veins and be carried into the sinus of the skull, producing septic sinusitis or meningitis. The buccal layer of the process usually suffers more than the lingual.

SYMPTOMS

As with other forms of osteomyelitis, the early local symptoms are often relatively slight so that serious damage occurs before the condition is recognized. A child may complain of only slight discomfort in the jaw or of toothache, and in the early stages, as the process is confined within the bone, there is little edema or external swelling to indicate the deep lying mischief. Prolonged firm pressure over the body of the bone or on the teeth, may, however, elicit diffuse tenderness. Especially striking are the severe constitutional symptoms. Often there is an initial rigor or chill followed by a rapid pulse, high fever and at times delirium, entirely out of proportion to the local signs. This early disproportion of the local and constitutional symptoms is of great diagnostic import. Within from twenty-four to forty-eight hours the beginning loosening of the teeth and the increasing edema of the adjacent tissues indicate that the condition is much more serious than an ordinary toothache or alveolar abscess, while the increasing temperature and pulse-rate, and possibly delirium, show the serious septic absorption. As the bony process is perforated, the external swelling becomes evident, abscesses form or on pressure pus escapes from under the gum margins. The face assumes a puffy, pasty appearance, with the rapid development of a severe septic anemia. Complications to be feared are extensive or total necrosis of the mandible, severe sepsis which may be fatal, edema of the epiglottis or larynx causing suffocation, pyemia or secondary infection within the cranium. The teeth may be lost or seriously damaged.

DIAGNOSIS

The diagnosis may be made by the history, the severity of the early general symptoms, with relatively slight local symptoms, the pain on prolonged deep pressure over the body of the jaw, or on the teeth, the early widespread loosening of the teeth, and the general septic manifestations. With the secondary swelling of the adjacent soft tissues and the discharge of pus, the diagnosis is confirmed.

TREATMENT

The treatment should aim to prevent widespread necrosis and other complications. Most important is the early securing of a vent for the escape of inflammatory exudates from the bony canal. At the outset a small opening through the bone, by relieving tension, may entirely arrest the process, preventing the formation of pus, the interruption of the circulation and the widespread destruction of bone. The cleanest opening may be made from without through a minute incision carried along the under surface of the jaw to avoid conspicuous scarring. The incision is carried to the bone, which is drilled until a free vent is secured on the affected side for the inferior dental canal. In some cases, seen very early, external drainage may not be required, and the skin incision may be immediately closed with a reasonable hope that the inflammatory exudate will pass through the opening in the bone and will be neutralized and absorbed in the subcutaneous tissues. The bone may also be drilled from within the mouth remembering that the inferior dental canal lies about or just below the level of the mucous reflection from the mandible to the cheek. Unfortunately, this desirable prophylactic treatment may rarely be instituted. The parent or untrained attendant delays and the patient is first seen after suppuration has started. The teeth are loosened and there is some discharge of pus into the mouth. At this time,

it is important to try and preserve the teeth, to give a free vent to the discharges and to limit septic absorption on the part of the patient. If the process be a relatively limited one, drainage through openings made within the mouth may be sufficient.

Under nitrous oxid anesthesia, the gum and external plate of the alveolar process are to be freely separated from the buccal surfaces of the teeth by means of a small but strong knife for a distance as far as there is evidence of distinct bony destruction. In this way, a fairly free vent from the interior of the bone may be secured into the mouth. Frequently a number of the teeth will spontaneously separate from the alveolar process and will be found to hang merely by a bit of mucous membrane. As a rule, these teeth should not be detached or removed. If it is evident that the discharge of pus will be free and long continued or that a sequestrum of considerable size will be formed, it is best at once to make free external incisions from under the body of the jaw. In this way the bulk of the pus is permitted to escape promptly from the body instead of passing into the mouth, perhaps to be swallowed, or to contaminate the cavity. Drainage is to be facilitated as necessary by drilling or opening the bone and by introducing through the external incision strips of gauze which must not

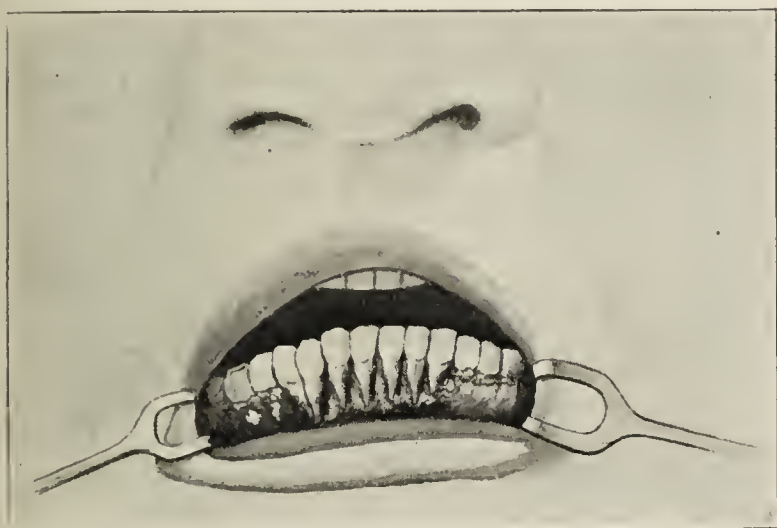


Fig. 1.—Developmental type of osteomyelitis occurring during the eruption of the upper teeth at the age of 13. The anterior part of the alveolar process has been entirely destroyed and the incisors hang by a delicate attachment to the lingual mucosa only. These teeth gradually became reembedded in new-formed process. The separation of gum margins and escape of pus along the bicuspids is shown. All the teeth were involved but were retained.

be tightly packed. Over all external wounds, a heavy moist dressing is to be constantly applied. I prefer gauze wet with 30 per cent. alcohol saturated with boracic acid, to which is added 5 per cent. of tincture of myrrh or compound tincture of lavender, all being covered by rubber tissue or oiled silk, and a thick layer of cotton. Drainage is also facilitated by keeping the patient propped up in bed, and hot-water bottles are applied over the dressing. If the external drainage is insufficient, and particularly if large sequestra form, the incisions must be sufficiently enlarged from time to time as is found necessary so that the patient does not become too cachectic from constant pus absorption. Mouth washes such as 0.5 per cent. permanganate of potash, liquor antisepticus alkalinus, or diluted alkalized peroxid should frequently be employed. The internal administration of the time-honored tincture of the chlorid of iron in doses of from 10 to 15 minims every two or three hours is also of value from its local as well as its systemic action.

Extensive edema of the floor of the mouth calls for free external incisions. Serious edema of the larynx or epiglottis may be treated by steam inhalation, epinephrin sprays and, if suffocation threatens, by scarification, intubation or tracheotomy.

The fate of the involved teeth is most interesting. During the destructive process within the bony canal, the nerves and vessels entering the apical foramina of the teeth are severed or destroyed. Later, however, as granulation tissue forms, the root, which may have been entirely free and exposed, becomes imbedded in the new granulation tissue and an opportunity is afforded for the proliferation of new blood-vessels in the pulp chambers of the loosened teeth. Granulation tissue also becomes attached to the surfaces of the teeth, and as the imbedding process proceeds, the root, which at first may have dangled from but a bit of adherent gum on its buccal surface, becomes covered in large part by granulation tissue and proliferating mucous membrane. Gradually the root is imbedded and the tooth becomes more firmly attached and with the regrowth of the

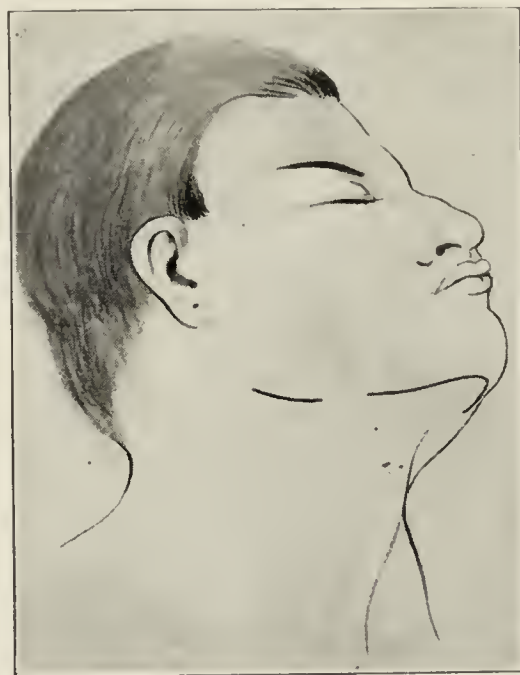


Fig. 2.—Lines of incision interrupted over the facial vessels for drainage in osteomyelitis. The surfaces of the bone and the floor of the mouth may be drained through these incisions. Should the resultant cicatrix be unsightly, it may later be excised and a careful plastic approximation done to render the scar inconspicuous.

alveolar process, acquires a solidity sufficient for even violent forms of mastication.

It is surprising that evidence of putrefaction of the pulp is not universal, but I think that this is explained by the early free drainage and later by the possible growth of resorbing granulation tissue through the apical foramen. One recalls that celebrated experimenter of a century ago, John Hunter, who implanted a tooth in the comb of a cock and showed that a vascular penetration into the center of the tooth took place so that on injecting the comb, vessels within the tooth were likewise injected. Recent experiments with closely opposed cover-glasses placed within the abdominal cavity have demonstrated that granulation tissue has a remarkable power of invading narrow spaces. While our present knowledge is against the possibility of heterologous transplantations such as the transplantation of a human tooth into the tissues of the fowl, we need not doubt Hunter's observation that the cavity of the tooth became vascularized even though a true transplantation was not effected.

In the developmental type of osteomyelitis conditions are different. The tooth is not an alien substance and is never, as with a transplanted tooth, completely separated from its source of nutrient supply. With the reformation of the alveolar process and the imbedding of the loosened tooth, its vitality should approximate that of a tooth in which the root canal has been filled, rather than that of a replanted tooth. One should also consider the possibility of the reestablishment of an internal vascular supply to the tooth through the apical foramen. The absence of distinct discoloration and the preservation of translucency of some of these teeth have suggested to me the possibility in a revascularization or reformation of a vascular pulp, after the contents of the apical foramen have been completely divided. It would seem as if this were not beyond the bounds of possibility.

That some of these teeth will be treated by the tissues as foreign substances and have progressive absorption of their roots, while others will retain sufficient nutrient supply to retain, at least in part, a nutrient connection with the adjacent tissues would seem plausible. In the first instance, the teeth may be retained and be of service from a few months up to ten or twelve years. In the latter case, the retention of the tooth should approximate that of a tooth with a devitalized nerve or be from ten to twenty years. In any case, the probability of a considerable period of useful functioning is sufficient argument for the retention of all attached teeth, even though they retain but a slight mucous attachment after the destructive effects of the osteomyelitis. During the formation of the granulation tissue which progressively surrounds the separated roots, the mouth should, of course, be kept as clean as possible. Excessive granulation tissue in exposed portions of the bone or roots should be touched with 5 per cent. solution of nitrate of silver. As the teeth become imbedded, and as the mouth becomes cleaner, appliances very cautiously inserted may be desirable to regulate and to hold the teeth in proper position. If these are used, the serious deformities so often seen as a result of unnecessary extraction of teeth or too radical early removal of bone may be avoided. For extensive bony necrosis I would warn against the early removal of the sequestrum; if sufficient external drainage is maintained, a delay of months sufficient to enable the formation of new bone may be obtained so that when the sequestrum is finally removed a loss of the chin or the destruction of the contour of the body of the jaw may be prevented.

For the types of osteomyelitis occurring in middle and advanced life, such conservatism especially as concerns the teeth is, of course, less important. The danger of osteomyelitis and its grave prognosis in patients with serious systemic disease, particularly diabetes, should be mentioned. I have seen the removal of a loosened bit of bridge work in a middle-aged diabetic followed by rapidly spreading osteomyelitis of the lower jaw and death from diabetic coma. Dentists should more fully realize the importance of the urinary examination and the danger of operative work within the mouth in the presence of diabetes mellitus.

SUMMARY

Osteomyelitis in the young occurs in the lower jaw as well as in the long bones of the extremities, although at a somewhat later age.

Its early diagnosis is to be based on the early severe, systemic disturbance, and the widespread involvement of the bone.

The prophylactic treatment consists in drilling the bone under aseptic precautions.

After the formation of pus, free drainage should be employed which should be external if there be much necrosis.

No teeth should be extracted nor should teeth which merely hang from attached mucous membrane be removed.

Dead portions of bone should not be removed until entirely detached or until new bone capable of maintaining the contour of the jaw is formed.

Separated and loosened teeth with gum attachment usually become reimbedded and serviceable.

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ABSTRACT OF DISCUSSION

DR. M. I. SCHAMBERG, New York: If there is any distinction in the pathology of osteomyelitis and other suppurative conditions of the mandible there should be a distinction in their clinical significance and certainly in the surgical management of these cases. I have during the past fifteen years handled a large number of cases of suppuration about the jaws, some of which I style suppurative osteomyelitis that call for extensive surgical interference, and I have likewise handled many cases in which a simple puncture through the gum tissues and alveolus to give evacuation to the pus was all that was necessary, and I do not believe the patient was subject to any great danger as outlined by Dr. Babcock. I never make external openings in operations of this character unless I feel that I cannot reach the entire area efficiently through the mouth, and I do not believe that there is any great danger in entering these regions too soon. We sometimes are enabled to render an operation more simple by waiting until Nature has localized the sequestrum and made it possible for the surgeon to remove it with great ease. One of the reasons why young children are so susceptible is that the temporary teeth are in the transitional stage, where they are about to be thrown off, and where any slight blow is likely to interfere either with the root of this tooth or with the erupting permanent tooth germ, and the reason why the infections are so severe is that these tooth germs are so located that infection spreads rapidly through the mandible.

DR. C. E. FRAZIER, Kansas City, Mo.: In osteomyelitis of the jaw or in long bones, the same method applies to one as to the other, and I am sure that much of the trouble that has been pointed out in treating osteomyelitis is in the method of treating it. Usually the curet is run in and the necrosed bone scraped out and overhanging portions of bone left around the opening. The bones are supplied with blood and nutrition through the haversian canals, and when the curet goes into a necrosed area and cuts it out, leaving a round hole in the bone, the blood-supply and the supply of nutrient material to the overhanging portions is destroyed, and the result is that after all the necrosed bone is thoroughly removed, then these overhanging portions break down and die. Then we have a larger area of osteomyelitis, which continues to increase. To overcome that, the first incision should be made large enough and should be cut out squarely or obliquely in order that there may be no overhanging particles of bone. Another practical point is the preservation as far as possible of as much as possible of the periosteum. If the periosteum is raised (leaving no overhanging places), and then laid down in proper position, it will facilitate the work and aid Nature in the redepositing of bone.

DR. VIDA A. LATHAM, Chicago: A case occurred in my practice, in which we had no history of an injury of any form; if I had had that one point, I could have saved the child. Nobody seemed to know of an injury. The only point in this connection that we could get was that the child had been sitting in the grass, and they thought it must be rheumatism. We must not forget that many cases of osteomyelitis are confused with rheumatic conditions. That child was suddenly taken ill on Saturday, and on Sunday morning I was called and found the child suffering with high temperature and

intense pain in the lower extremities and in the back of the neck. Examination under anesthesia was refused. On Monday morning a consultation was held with a number of leading physicians, but no agreement was reached. By Tuesday the condition was such that I was sure it was sepsis. The child had a temperature of 104, and petechiae on the wrists but would not allow any handling of the right leg, in which we noticed a flexing. One consultant said that if we noticed an eruption on the forehead we could be sure of small-pox. The following morning there was a rash, and they said it was small-pox. Consent to operation was not obtained until 5 o'clock Saturday afternoon, and we operated on the femur and got a beautiful osteomyelitic condition and septicemia. Of course, the child died Sunday morning, a week after the beginning of the condition. We found out afterward that the child had had a fall, hurting the knee.

Examination of the blood will help a little in these cases. We find in these conditions a most beautiful phagocytosis.

DR. G. V. I. BROWN, Milwaukee, Wis.: I wish to ask Dr. Babcock to explain how he accounts for and distinguishes conditions involving the superior maxilla and mandible in which the symptoms as described present the characteristic swelling, the high temperature and the various other phenomena which accompany the infection, as when under ordinary circumstances one would reasonably expect to find pus after having openings, but in which there is no pus.

Only the other day I was called to see a patient in whose case openings such as have been described had been made and packing inserted. The only thing I could suggest was the removal of the packing by which an effort was being made to effect drainage. The woman was dying and there was no use in making her life unnecessarily miserable. They were giving streptococcus serum, and apparently all the well-recognized methods of treatment, but she had not the slightest evidence of pus on the wound surfaces. Such cases are more frequent than we realize. The other day, in a hospital with which I am connected, a child, 5 years of age, died of osteomyelitis affecting the lower jaw. The case would have been referred to me if the trouble had been recognized while the child was alive. Bacterial cultures were made in the hope of finding pneumococci, but without success until the vital force had become exhausted. As suggested by Dr. Sehamberg, the question is really one of diagnosis.

DR. M. L. RUEIX, New York: Dr. Babcock, as a general surgeon, has fallen into an error of diagnosis. I question whether, where he makes a diagnosis, he realizes the difference in the tissues between osteomyelitis in one of the long bones, and osteomyelitis of the mandible which he had under discussion. The general surgeon frequently diagnoses a condition of osteomyelitis where osteomyelitis does not exist, and in a certain respect I think this is due to his lack of familiarity with the detailed pathology of the mandible proper. When we study the substance of the mandible, the spongy absorbing nature of the alveolar process, and how it ends in the true bone itself, we find that it has a density or structure far greater than that of any of the long bones. I am not satisfied with the etiology which he gives in regard to these so-called cases of osteomyelitis.

The pulps of the teeth play a much more important rôle than he has conceded in reference thereto, and we cannot safely leave the pulpal conditions to themselves. At the present time with the use of the radiograph, it is possible for us to localize very accurately the amount of tissue that is involved. If the diseased area involves to any extent the ends of the roots of the teeth, nothing should be permissible short of the thorough removal of the contents of the root canals of such teeth.

Premature operative interference so far as any osseous necrotic area is concerned is absolutely wrong, because it is impossible operatively to fix the line of demarcation. I am in accord with Dr. Babcock's opinion that premature operations of this kind interfere with the regenerative process, and that Nature will not respond in such a way as she does when we wait until sequestration has taken place. My own opinion is that osteomyelitis in the mandible is not of very common occurrence, as the hospital records would lead us to

believe. In other words, I am convinced that many cases of what is nothing more or less than alveolar abscess are continually diagnosed in the hospitals as osteomyelitis, and treated, or rather mistreated, as such. I believe that every surgeon is liable to fall into such an error. The great number of doubtful osteomyelitis cases recorded illustrates the necessity of instilling more stomatology into the knowledge of general surgery.

DR. W. M. MARSH, Chicago: The one point in Dr. Babcock's paper that I should like to emphasize is in reference to the diagnosis, which I think perhaps is most important. In the first place we have the usual febrile action, and a good deal of pain. Pain is a very prominent symptom, and at first reaches all over the face. I have seen a few patients of that sort in whom the pain is all over the jaw, analogous to what we have in acute abdominal conditions, such as appendicitis, in which the appendix is acutely inflamed and the pain is distributed all over the abdomen. Morphine is not to be given indiscriminately, but I find that a full dose of morphine abolishes the reflex pain, and limits the pain to the point more or less approximating the seat of the disease.

Another point that I wish to emphasize is that by pressure with the finger we can locate very exactly sometimes the location of the trouble, especially after the dose of morphine. This is true in the long bones, and in the mandible, not crudely, but going at it systematically, and we can often very definitely localize a small area, which gives us a clue to the location of the trouble. I believe that the same treatment prevails in this class of cases as in all cases of osteomyelitis, granted, of course, that we can approximate the location; I am thoroughly in accord with Dr. Babcock in advocating thorough incision; I would not hesitate to make an external incision to try to reach the point of infection. I know that the mouth is considered to be more or less immune from infection; that there is undoubtedly a degree of immunity there that some other locations have not, but I would not hesitate to open from the outside in any case in which I deemed it necessary. I believe that the most important point in osteomyelitis is to make an early diagnosis, and then early operation.

DR. THOMAS L. GILMER, Chicago: I have seen many cases of inflammation of the jaws, but rarely, if ever, a genuine case of osteomyelitis of the mandible. Most cases known as osteomyelitis of the jaw are simple infections, originating in alveolar abscess. Suppurative osteitis (which strikes me as being a better term for this condition than osteomyelitis, since there is practically no bone marrow, strictly speaking, in the lower jaw) may result from such abscesses. Most of the so-called cases of osteomyelitis which I have observed have originated in the alveolar process as the result of pulp infection. There are many other avenues of infection in the mouth besides the pulps of teeth. There are pus pockets about the roots of teeth due to so-called pyorrhea alveolaris; there are pockets between the gums and peridental membrane and the roots of teeth, due to improper contours. In these pockets food and bacteria collect. The fusiform bacillus and spirillum are found deep down in these pockets. This is an anaerobic organism. Some of these infections of the bone are due to this organism, and when due to it, we have a much more serious infection than when the condition is due to the staphylococcus. We have recently had in Chicago an epidemic of streptococcus infection of the pharynx, tonsils and jaws. Fusiform bacillus infections involving the jaws cause much swelling of a brawny nature, the infection and swelling passing quickly from one side of the jaw to the other, producing so-called Ludwig's angina, with edema of the glottis in the more serious cases, as indicated by Dr. Babcock. In some of these cases in which pus was suspected incisions were made, but no pus was found. It is believed by some that incisions should not be made unless the pus is palpable. Early incision for the purpose of relieving congestion I believe is indicated, but generally the incision should be external to prevent a mixed infection from mouth contamination. In a simple alveolar abscess, before the pus has burrowed through the process, it is good practice to drill through to the apical end of the root as indicated by Dr. Babcock, but if a fusiform

bacillus, streptococcus or pneumococcus infection of the jaw is present, the drilling may do harm. I do not believe it wise under such circumstances to make incisions of any kind in the mouth, as it seems to intensify the inflammation, probably due to the introduction of other organisms from the oral cavity. If we know that the infection is due to a dead pulp and that the pus is very limited in quantity we might evacuate it through the tooth, but often this is impracticable owing to the small caliber of the root-canals.

I believe that making an opening on the outside of the face is the only way we can get good drainage in the posterior portion of the mouth when there is great swelling. Good drainage is of prime importance. In these serious cases mouth incisions invite mixed infections, which may add to the gravity of the case. I agree with Dr. Schamberg that where an abscess can be reached from within the mouth and thorough drainage maintained, it is indicated, but there are many cases in which this cannot be done.

DR. M. J. SCHAMBERG, New York: There is scarcely a week in which I do not open externally several times for the drainage of neglected abscesses and in a few cases of osteomyelitis. Danger, however, may arise from Dr. Babcock's advocacy of the external incision for the purpose of puncture in the early stages of a condition which may or may not exist and in which there is so great a difficulty in making a diagnosis. I would not agree with any paper that suggested an external incision where there was even no likelihood of finding pus; definite means of diagnosis should be arrived at before such a method is generally advocated.

DR. W. W. BABCOCK, Philadelphia: The question has been very properly brought out by Dr. Schamberg as to the definition of osteomyelitis. If what I am talking about, and what you are talking about are different conditions, our conclusions cannot harmonize. Of course, in osteomyelitis we can include any inflammation involving the marrow cavity and adjacent bone. I direct attention to-day, not to a limited osteomyelitis but the form involving in many cases the nutrition of the entire lower jaw. I would consider only those cases in which the result is an involvement of all the nutrient vessels of the inferior dental canal. When this occurs, the first question is not whether we are to save the teeth or avoid scars, but rather whether we are to save the patient's life. As to prophylactic drainage, I do not think it makes a great difference whether we go from the inside or outside of the mouth, because an opening about the size of a gimlet-hole does not make much of a scar externally nor is there much danger of infection if we open from the inside. Later, however, free drainage may be extremely important, and it is advisable to open from the outside, because the tissues can be kept more aseptic, the drainage freer and the patient does not swallow the discharges. It is not a matter of a week or month in these cases, but usually a matter of a year or two years—and the tissues may discharge not pints but gallons of pus. In such patients it is paramount that this toxic material freely escape from the body. A ennet may serve to spread and carry the infection.

The symptoms are not so clear as we would like to have them. First, there is little swelling or severe toothache. The swelling and loosening of the teeth, discharge of pus and necrosis are secondary symptoms.

The features are the early chill and fever. The early local symptoms are relatively inconspicuous; the pain may not at first be referred to the jaw. The degree of tenderness is also peculiar. Early transient pressure may not cause pain, and it is only when we make firm pressure continuously over the body that the patient finally cries out. It is not like an alveolar abscess or exposed dentine which is sensitive on the slightest touch. In the early stages the sensitiveness is not on the outside of the bone because the inflammation has not reached the periosteum. Early edema indicates different conditions. If from a streptococcus or pneumococcus infection, suppuration may not occur.

As to the pulp in the involved teeth, does it remain or putrefy or what happens to it? That all pulp cavities should be evacuated and cleaned out is impracticable as the teeth are so loose that they may often be picked out with the finger.

The apical foramen is often exposed in the mouth and the drainage from the pulp cavity does no harm. The strange point is, if the pulp dies, why do the teeth at times retain their color and translucency? Later the pulp may regain some sensitiveness. How that could occur in a dead tooth is hard to understand. Hunter's experiments showed that a tooth imbedded in the comb of the cock had new vessels projected into the pulp cavity. We must remember that the condition in osteomyelitis is different from the imbedding of a dead tooth that may last only ten years and be absorbed and thrown off. The teeth are never completely detached or absolutely separated from their source of nutrient supplies. They may become, I believe, under certain conditions, revitalized.

THE DUBOSCQ COLORIMETER AS A MEANS OF ESTIMATING HEMOLYSIS IN THE WASSERMANN REACTION *

ROBERT H. IVY, M.D.

PHILADELPHIA

Many methods have been devised to measure accurately the amount of hemolysis in the end-reaction of the Wassermann test. Notable among these is that of Boas, who makes a set of ten standard tubes, showing hemolysis ranging from 10 to 100 per cent., with which he compares the color of the tube at the end of a given test. So far as I know, however, the Duboscq colorimeter has not hitherto been put to this use.

For most practical purposes the naked eye is sufficiently accurate in reading the end-result of the reaction. By it we can readily determine that the reaction is strongly, medium or weakly positive, but there are cases in which hemolysis is almost complete, in which a more accurate reading is necessary to decide whether the reaction should be called weakly positive or negative, particularly those in which the effects of treatment are being gauged by the reaction. A difference of 5 per cent. of hemolysis can be detected by the Duboscq colorimeter. In cases in which the reaction is being used for diagnostic purposes only, 90 per cent. of hemolysis and over is regarded as negative, between 90 and 60 as weakly positive, between 60 and 30 medium positive and from 30 to 0 as strongly positive. In cases in which the effects of treatment are judged by the reaction, 90 to 95 per cent. of hemolysis should still be regarded as positive.

For the standard solution, the fluid in the control tube of each case in the Wassermann test is used (back row), and is regarded as 100 per cent. hemolysis. This fluid can be diluted to any desirable amount to be placed in the colorimeter, provided that the fluid from the tube to be tested is similarly diluted. It is understood, of course, that the original amount of fluid in each tube must be the same. The standard fluid from the control tube is placed in one side of the colorimeter and the fluid to be tested in the other. The screw is turned until the two solutions have a homogeneous color, and the readings and calculation made as in the case of estimating renal function with phenolsulphonephthalein. Thus the reading on the standard side is used as numerator, that on the side to be tested as denominator, and the fraction multiplied by 100. As can be seen, it is not necessary to apply the method in all cases, and it can be quickly performed in the few cases in which it is found necessary. It has the advantage that there are no standard tubes to deteriorate, as but one is required, and this is fresh at hand every day the reading is made.

1623 Walnut Street.

* From the Genito-Urinary Department, Philadelphia Polyclinic.

AN OPERATION FOR POTT'S DISEASE OF
THE SPINE*

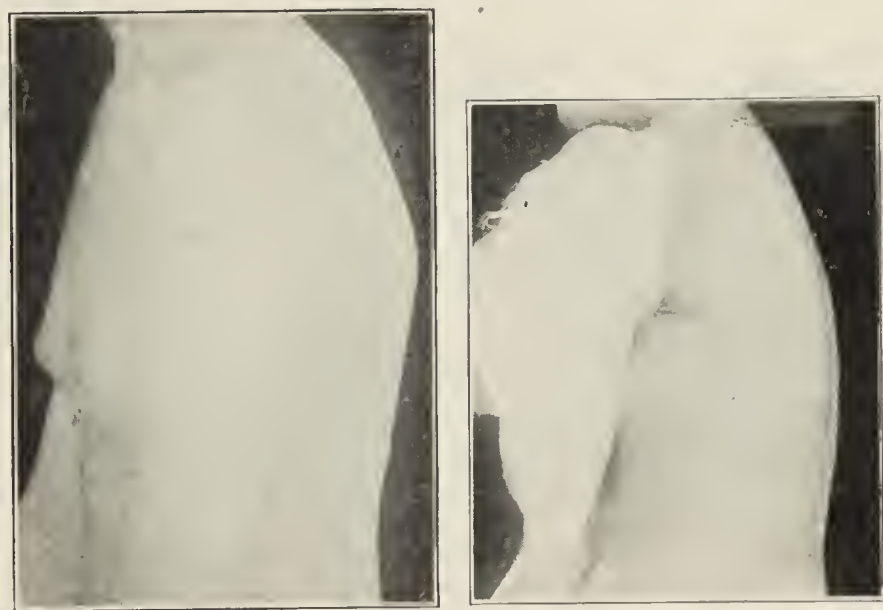
RUSSELL A. HIBBS, M.D.

NEW YORK

The treatment of Pott's disease, or humpback, by immobilization of the diseased joints has long been the accepted method and is accomplished by various mechan-

methods, while they limit motion, do not secure absolute immobilization of the diseased joints or entirely relieve pressure on the involved bodies; for this reason it is necessary to continue treatment for long periods of time, and in almost every case the deformity increases more or less, especially in the dorsal region. It would seem, therefore, that a method of treatment which would absolutely eliminate motion of the diseased vertebrae and entirely relieve pressure on the involved bodies promises more rapid cure of the disease and prevents deformity.

The disease, being confined to the bodies of the vertebrae, leaves the posterior aspects, laminae and spinous processes unaffected. It was thought that an operation on this healthy bone-structure offered an opportunity of producing a fusion of the laminae and spinous processes which would accomplish the desired result. The operation was suggested to me by my experience in the use of an operation, involving practically the same principles, for stiffening the knee-joint by mortising the patella into the joint after it was denuded of periosteum.¹ The patella periosteum was carefully preserved and sutured to the periosteum of the femur above and to that of the tibia below. In these cases continuous bone was produced between the femur and the tibia, obliterating the joint. I thought that, in the spine, the careful



Figs. 2 and 3.—Girl, aged 16; mid-dorsal disease, four months' duration; left, before operation; right, eight months after operation.

removal of the periosteum of the spinous processes and the laminae, with the spinous processes transposed to bridge the gap between the vertebrae and with the gaps between the laminae also bridged by bone, would lead to extensive formation of bone, fusing the vertebrae. It is important to observe that in the case of the spine, the gap to be bridged between the laminae and the spinous processes of any two adjacent vertebrae is very narrow.

After experimental work on the cadaver in the laboratory of Dr. George S. Huntington, at the College of Physicians and Surgeons, New York, during the fall of 1910, the first patient, a boy, aged 9, with disease of the second and third lumbar vertebrae, was operated on Jan. 9, 1911, at the New York Orthopaedic Hospital. A preliminary report² was made of this case, with two others, in which I stated that it might possibly be necessary, in the very young, to graft bone from the tibia. This feature of the technic has since been practiced by



Fig. 1.—Spinous processes partially fractured and used for bridging the gap between the vertebrae.

ical means, such as braces, plaster-of-Paris jackets, etc. That much success has been obtained by these means there is no question. That there is still much to be desired is equally unquestionable, because these various

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Hibbs: Operation for Stiffening the Knee-Joint, *Ann. Surg.*, March, 1911.

2. Hibbs: *New York Med. Jour.*, May 27, 1911.

Albee and Whitman of New York. The former³ reports three cases, the first operated on June 9, 1911; the latter, Whitman,⁴ reports a case operated on Aug. 11, 1911.

I have not used a bone graft as yet, as it has not seemed necessary. It is obviously an advantage not to do so if the desired result may be accomplished without it.

In performing the operation, a longitudinal incision is made directly over the spinous processes, through skin, supraspinous ligament and periosteum, to the tips of the spinous processes. The periosteum is split over both the upper and lower borders of the spinous processes and the laminae, and stripped back from them to the base of the transverse processes. The spinous processes are then transposed after partial fracture, so that they make contact with fresh bone, the base of each with its own base and the tips with the base of the next below. The adjacent edges of the laminae being absolutely free from periosteum, a small piece of bone is elevated from the edge of the laminae and placed across the space between them, its free end in contact with the bare bone of the laminae next below it.

Figure 1 is a lateral view of the transposed spinous processes.

The lateral walls of periosteum and the split supraspinous ligament are brought together over these proc-

the vertebrae involved in the kyphos are not diseased and that inaccuracy in the number of vertebrae to be operated on is possible. But care should be taken to include a sufficient number, as otherwise the elimination of motion of the diseased joints will not be obtained. The stiffening of a small segment of the spine in a given case is not a serious matter in view of the fact that the remaining healthy joints compensate for the loss of function of the few. Indeed, is it not a fact that comparatively few patients with Pott's disease (except in the cervical region) recover with movable joints?

It has long been the accepted theory that the osteoblast was generated from the periosteum and for that reason great care has been exercised to remove it without injury. However, Macewen's⁵ experimental studies of bone-growth seem to prove that the osteoblast emanates from the bone. Whether it is generated from periosteum or from bone, or from both, is a question which need not be determined in estimating the value of the surgical procedure under discussion.

We have both structures here in abundance; the operation stimulates the generation of the osteoblast, provides a place for its deposit and nutrition between the periosteum and bone, insures continuous bone formation along the posterior aspect of the vertebrae operated on and produces a fusion of laminae and spinous processes

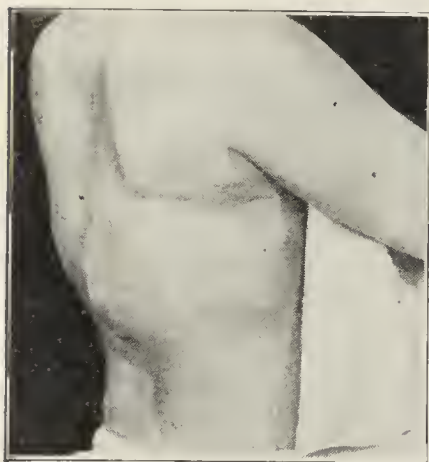


Fig. 4.—Woman, aged 25. Lower dorsal disease, before operation.



Fig. 5.—Patient (Fig. 4), twelve months after operation.

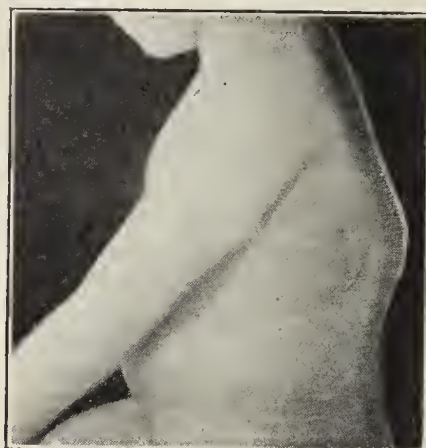


Fig. 6.—Child, aged 5. Dorsal disease, before operation.



Fig. 7.—Child (Fig. 6), ten months after operation.

esses by interrupted chromic catgut sutures. The skin wound is closed by silk, and a steel brace applied, with the space between the uprights increased somewhat at the site of the wound, so as not to make pressure on it. In some cases the gaps in the periosteum removed from the spinous processes and laminae have been closed by suture, thus establishing at once a continuous periosteal wall. With the bone bridge established, I doubt the necessity of this practice.

Rest in bed is absolute for from eight to ten weeks. During the next four weeks, sitting up is permitted. At the end of the twelfth week, walking is allowed. The brace is continued for another month, when it is removed for a part of each day until gradually left off entirely. With children under 5 it should be worn for six months.

The number of vertebrae in each instance included in the operation is determined by the extent of the disease. It is necessary always to be sure of attaching the diseased vertebrae at either end of the involved area to healthy ones above and below. The extent of the disease may be determined accurately in some cases by x-ray pictures. When this is not possible, the only guide is the kyphos or the region of rigidity. It is a fact that all

from the transverse processes of one to those of the other side, thus giving a perfectly symmetrical, extensive and adequate support.

My experience of the beneficial effects of immobilization, even when imperfectly obtained by braces and jackets on tuberculous disease of vertebral and other articulations, justifies me in believing that a more perfect degree of such immobilization, produced by bony anchorage of the diseased structures in the desired position, will unquestionably be of the greatest help in arresting and controlling the morbid process, and will eventually lead to a radical cure of the disease.

I have felt justified in continuing this work and have operated on forty-seven patients at the New York Orthopaedic Hospital, twenty-eight operations being in the dorsal, six in the lumbar and thirteen in the dorsolumbar region. Twenty-nine patients were from 2½ to 10, fifteen from 10 to 15, one 18, one 25 and one 41 years of age. The duration of the disease has varied from three months to ten years, but in the large percentage, under five. In all, the wounds have healed without complication, pain has been slight and there has been no reac-

3. Albee: THE JOURNAL A. M. A., Sept. 9, 1911, p. 885.

4. Whitman: Ann. Surg., December, 1911.

5. Macewen: The Growth of Bone, Observations on Osteogenesis, an Experimental Inquiry Into the Development and Reproduction of Diaphyseal Bone, 1912.

tion from the operation. Twenty of the patients have been without support for from three to twelve months and have shown no symptoms of disease or any increase of deformity.

While it is too early to make a final report on these cases, several observations have been made in connection with this operative experience, which are of very significant importance. In twelve cases, or over 25 per cent., a fusion of the laminae and the spinous processes of two or more vertebrae involved in the kyphos was found. Ten of these patients were under 10 years of age, one 21½, one 15 and one 16 at the time of operation. The duration of the disease in one was four months (the patient 21½ years old), in one two years, in eight under four years and in two ten years.

In eleven cases the fusion was of vertebrae in the lower segment of the kyphos, in four of three vertebrae, in seven of two vertebrae and in one of seven vertebrae, the only one in which fusion was complete in producing anchorage of the diseased vertebrae to healthy ones both below and above. This attempt on the part of Nature to eliminate motion of these diseased joints by extraordinary bone-growth, though it was incomplete in all but one, is very important, as it indicates the principles which should guide the surgeon in attempting to produce this result by operation, and suggests that the procedure herein described, which preserves all the structures essential to the development of bone and stimulates their activity, is consistent with those principles.

CASE REPORT

A boy, aged 5, operated on Aug. 23, 1911, had active dorsal disease with a marked kyphos. The operation included the seventh to the tenth dorsal vertebrae, but the patient did not show, however, after a reasonable length of time, the relief of his symptoms that had been observed in the other cases. It was thought, therefore, that enough vertebrae had not been included in the operation to immobilize all the joints involved. He was operated on a second time, Feb. 20, 1912, and the condition found was very interesting. There was a continuous bone-formation extending in length from the seventh to the tenth dorsal vertebrae, and in width from the transverse processes on one side to those of the other, which was the extent of the first operation. The bone-bridge was not disturbed; it was only extended by anchoring the fifth and sixth dorsal vertebrae to it above, and the eleventh and twelfth below.

There are two considerations in connection with this case that are of very great importance: (1) that in this child of 5 there had taken place throughout the operative field extraordinary bone-growth, sufficient to produce a fusion of the posterior aspect of the vertebrae, and (2) that error in the number of vertebrae included was made.

The rapid improvement of the general health has been observed in most of the cases, especially those operated on early in the disease.

No attempt has been made to correct the deformity by exercise of force. The transposition of the spinous processes does diminish the deformity, however, in all cases, and in those of the lower dorsal region conspicuously so. The operation should be done before deformity develops.

It has been possible to demonstrate the fusion in many cases by the x-ray, but not in all. It is very difficult to get pictures which can be reproduced, though occasionally this has been possible.

Figures 2, 3, 4, 5, 6 and 7 are from photographs, before and after operation, of three patients, and illustrate the effect on the deformity at different ages and different stages of the disease. For instance, Figures 2 and 3 show a case of mid-dorsal disease in a girl of 16

operated on three months after the disease began, and illustrate the possibility of the prevention of deformity when the operation is done early. Figures 4, 5, 6 and 7 are of patients 25 and 5 years of age, respectively, and show a conspicuous change in the deformity though the operation was done later in the disease.

The fact that twenty of these patients have been without support from three to fourteen months since the operation and show no symptoms of increase of deformity or activity of the disease leads one to hope that the operation will be rapidly curative.

130 East Thirty-Sixth Street.

ABSTRACT OF DISCUSSION

DR. GEORGE S. HUNTINGTON, New York: From the standpoint of the development of the vertebral column and its adult structure, there are several points which may be worthy of consideration: 1. The bony spine and the associated ligamentous apparatus tend to synostotic union of the individual segments under very slight provocation. I have been impressed by the relative frequency of fusion, partial or complete, between two or more vertebrae of the lumbar and lower thoracic groups as observed in the reference osteologic collection at Columbia, containing over 5,000 columns. In many instances the skeletal conditions are otherwise normal, without trace of arthritic or exostotic processes. Dr. Hibbs' operation invades a territory in which natural tendencies are in favor of a good result, with abundant and markedly responsive osteoplastic material ready to hand at the site of the operation. 2. In the younger individuals, I have no doubt that the epiphyseal plates and centers of the spines respond actively to the operative stimulus and contribute materially to the successful results which Dr. Hibbs has achieved. 3. The characteristic cancellous structure of the vertebrae suggests the propriety of securing an osteoplastic bed of the same material for the production of the bridge. This appears to me to have a natural and important advantage as contrasted with the attempt to acclimate a corticalis splint from one of the shaft bones in the cancellous environment of the spine. 4. Spontaneous cure of a slight kyphos involving a single center, by synostotic union of spines and neural arches, has been observed in our material. Dr. Hibbs' operation appears correctly devised and executed to secure the best results by employing the most available osteoplastic material and by taking advantage of the natural tendency toward fusion existing in the region involved.

DR. FRED H. ALBEE, New York: In 1911 I operated, for the first time, on a child at the Post-Graduate Hospital, using a method somewhat similar to that employed by Dr. Hibbs. The spinous processes of the vertebra involved were split longitudinally, and then broken. The right half was broken down and approximated to the left half of the next lower vertebra. Four patients were operated on by this method and the cases were reported in abstract at the American Orthopedic Association, May 15, 1911. The only element in the mechanics of the spine which holds it in extension are the muscular and ligamentous action on the spinous processes as levers. If we hold the spine rigid until bony union takes place, the Pott's disease is cured. Of course, there is a large amount of cartilage in the spinous processes of young children and the union is sure to be slow and no appreciable fixation can be obtained until union does take place. In forty-seven cases I have transplanted a plate of tibia of the same patient into the notch produced by splitting the spinous processes of the vertebra involved and one healthy one on each side. The spinous process acts as a posterior lever, and each vertebra should be considered as a lever, the spinous process being one arm and the body of the vertebra the other arm. The fulcrum consists of the joints of the spine or the lateral facets. In most cases the spinous process is longer than the body; therefore, if we fasten together the tips of the spinous processes, we will prevent the approximation or crushing of the bodies of the vertebra and the resulting deformity. If the spinous

processes are completely broken or cut at their base the leverage action is lost and the natural stability of the spine is much weakened. The advantages of my bone transplantation operation are that it is very superficial; that it straightens the spine and gives very perfect fixation the moment the operation is done; that it is away from the spinal canal, and that if there is overgrowth of bone, no harm may be done to the spinal cord. I have seen cases in which fractures of the lamina have produced exostosis in the spinal canal and pressure on the cord. This must be avoided. In my method the spinous processes are split *en masse*, and this plate of bone taken from the tibia is placed into the split, acting as a sort of wedge, which holds the vertebra as a splint would. I have not been able to amalgamate the vertebrae in dogs by any other method.

DR. MICHAEL CASPER, Louisville, Ky.: Is there any danger in a patient, 40 years old, of breaking the spinous processes off entirely? Is not the same thing true of the lamina? How does Dr. Hibbs hold in place the piece of lamina which he breaks off?

DR. R. A. HIBBS, New York: After the periosteum is removed from the spinous processes and laminae and the spinous processes are transposed so as to bridge the gap between them, a bone bridge is also made between the laminae by elevating a small piece of bone from the laminae and turning its free end down, so that it makes contact with the adjacent laminae. After the periosteum is brought back and sutured, both of these bone bridges are held in place by it. It is not necessary in the dorsal region to fracture the spinous processes completely, though sometimes it may be done in the lumbar region; it is always easy to have either end of the transposed spinous process in contact with fresh bone, which is all that is necessary. In all the cases thus far, complete fusion has occurred, demonstrated by skiagrams, by unmistakable clinical evidence of the elimination of motion and by the case operated on the second time. My first idea was, that in very young children it would be necessary to use bone-grafts, but it would seem that we have at hand, at the seat of operation, sufficient bone and bone-producing structures to make bone-grafting unnecessary.

The results I have obtained are sufficiently encouraging to justify a continuance of this work, and I will make a detailed report of every case when a sufficient length of time has elapsed to show end-results.

PHYSICAL INJURIES AS RESULTS OF HYDROFLUORIC ACID

LAURA H. BRANSON, M.S., M.D.
IOWA CITY, IOWA

History.—March 20, 1912, Mr. E. M. A., an instructor in the chemical laboratory of the Iowa State University, while etching glass with a 48 per cent. solution of hydrofluoric acid, sustained an injury to the thumb, index- and middle fingers of the right hand.

Immediately following the accidental application of not more than 3 minims of the acid, the patient complained of a sharp stinging pain on the surface covered by the acid, which gradually gave way to a deep-seated penetrating pain which he described by the Norwegian word, *gjennentraengende*. Accompanying this deep penetrating pain were loss of appetite, a feeling of increased bodily warmth, and a restlessness which gradually merged into an intense nervousness as the pain became more severe. Locally the region attacked by the acid became blackened and sharply defined from the normal tissue.

Examination.—The patient was first seen eight hours after the occurrence of the accident. The superficial pain had subsided, and the deep pain had increased in severity, and was accompanied by local heat, edema and stiffening of the first joints of the three fingers attacked. There was an area of escharotic, blackened tissue separated from the normal tissue by a sharp line of demarcation, a temperature of 103 F., and a general nervous condition.

Treatment.—As I had never had any experience in regard to poison or burn by hydrofluoric acid, treatment could be initiated only on the general principles underlying treatment of corrosive mineral acid injuries, viz.: use of remedies for relief of pain, and use of alkalies to limit action of acid.

Patient was next seen six hours later, fourteen hours after the occurrence of the injury. During these six hours the deep penetrating pain had increased in severity until it had become almost unbearable, the patient walking the floor constantly in his agony. The temperature was 105 F. and the nervous condition was extreme.

For the relief of pain and the control of the nervousness codein was administered every fifteen minutes until narcosis had set in, as manifested by the desired relaxation and finally by sleep. In the meantime, the tissues attacked were painted with a preparation consisting of equal parts of tincture of iodine and hydrogen peroxid, and covered with a light dressing of absorbent cotton and surgeon's gauze.

The use of codein was continued for forty-eight hours, when the penetrating quality of the pain ceased, leaving in its place a dull heavy pain particularly noticeable on pressure of the afflicted parts. With the cessation of the pain the nervous symptoms and the elevation of temperature disappeared.

The external applications were continued every hour for four days, then four times a day for two weeks, when rubber finger-stalls lined with absorbent cotton were substituted for the purpose of protection.

Result.—Resolution was exceedingly slow, final separation of the escharotic tissue taking place in the middle-finger in three and a half weeks, in the index-finger in four and a half weeks, while in the thumb the process required eight weeks for its completion. At the time of writing, ten weeks after the initial lesion, the bony structure and also the first joints are still very sensitive to touch or pressure, this sensitiveness corresponding to periosteum and synovial membrane.

Hydrofluoric acid is produced by the action of sulphuric acid on calcium fluorid; it is classed in special toxicology¹ with the mineral acids under corrosives or irritant poisons. It is an intensely irritating acid gas, and is dangerous when taken internally either in the form of gas or solution; when applied externally even in a dilute solution its effects are disastrous. Its principal use has been for etching on glass in making labels and signs; recently, however, since the introduction of porcelain inlays by dentists, hydrofluoric acid is extensively used to roughen the posterior surface of these inlays in order that they may better adhere, through the cement used, to the surfaces of the teeth to which they are to be attached. Dentists keep this acid in rubber bottles and apply it to the inlays by means of a platinum wire loop, great care being taken to avoid direct contact with animal tissue.

Two deaths have been reported from the inhalation of hydrofluoric acid gas: one that of a chemist at Nancy,² the other that of a Belgium chemist.³

Three suicides by taking hydrofluoric acid in solution are on record: 1. A man took internally 15 c.c.; death occurred in thirty-five minutes.⁴ 2. A glass-sign maker took a gill; death occurred in two hours.⁵ 3. A glass-sign maker took a tablespoonful of a 9 per cent. solution diluted; death occurred in one hour.⁵ In these three case reports the exact degree of concentration is not given; it is difficult, therefore, to tell the exact amount of this acid in solution which might be called a fatal dose.

Action of hydrofluoric acid on animal tissue when applied locally:

1. Witthaus: Manual of Toxicology, 1911, p. 227.
2. Jour. de pharm. et de chim., 1869, 4s, ix, 446.
3. Rabuteau: Toxicologie, Ed. 2, 710.
4. Tr. Path. Soc., London, 1873, xxiv, 98.
5. Stevenson: Brit. Med. Jour., 1899, ii, 1145, 1376.

1. Hydrofluoric acid may act as an acid and destroy tissue, or it may be absorbed and act as a poison.

2. The amount of tissue destroyed is great in comparison with the amount of acid used.

3. The action of hydrofluoric acid does not stop with the escharotic effect on the surface and the tissues immediately underlying; it penetrates to the deep tissues on which it has a most deleterious effect, as evidenced by the condition of the periosteum and synovial membranes in the case reported.

4. Hydrofluoric acid injuries are peculiar also when we take into consideration the great length of time for resolution to take place after the involvement of a comparatively small amount of tissue.

Action of hydrofluoric acid on animal economy in general.—There is danger from the liability of shock and collapse following its external application because of the peculiar penetrating nature of the pain accompanied, as it is, by most intense disturbances of the nervous system.

104½ South Clinton Street.

THROMBOPHLEBITIS OF THE LEFT LEG *

HERBERT D. KISTLER, B.S., M.D.

BUTTE, MONT.

The unexpected occurrence, the obscure etiology and the constancy of localization of thrombophlebitis in the left leg attach to it a universal interest which does not belong to either a strictly medical or a strictly surgical subject. The internist, the surgeon, the obstetrician, the gynecologist and the genito-urinary man all have to deal with it and have given us their ideas concerning it.

Because of its relations to other diseases we must consider it to be a sequel or a complication, and as such it is associated with a great variety of troubles, as infectious diseases, gout, confinement, cardiac insufficiency and operations, both clean and infected.

Thrombophlebitis, as the term implies, is an inflammatory process of a vein which is accompanied by the formation of a thrombus within the involved vessel.

The primary factors in the production of a thrombus are toxemia, bacteriemia and the coagulability of the blood, while, secondarily, the seat of such a process is determined by such changes in the vessel wall as result from trauma, local infections, degenerations, and by a slowing of the blood-current.

The effect of toxemia on the formation of thromboses bears a very close relation to its effect on the coagulation time of the blood. The shorter the coagulation time the more likely thromboses, and *vice versa*. These blood changes Myer Solis Cohen,¹ of Philadelphia, has thoroughly reviewed, and from his conclusions we see that there is no one particular chemical condition of the blood which we can invariably hold responsible for thrombosis, nor can we change at our pleasure the chemistry of the blood so as to prevent or favor thrombus formation, as even those substances on which we have placed most reliance to alter the blood's coagulation time, as calcium salts, gelatin, citric acid, etc., act differently in the presence of different diseases.

Bacteriemia, a condition which exists in the majority of all infections, is a very prolific cause of thrombosis.

Jakowski² injected cultures and solutions of toxins of typhoid and diphtheria bacilli into the circulating blood of rabbits and guinea-pigs. Without constriction of a vessel no thrombus was formed; also, there was no thrombus formation after toxin injection with constriction; but there was always a thrombus formation after bacterial injections accompanied by a vessel constriction. Jakowski concluded that the toxins after being injected into the blood-stream were too weak to induce a thrombotic process, but that the bacteria lodging and growing on the vessel wall made sufficient intimal and blood changes to produce a thrombosis.

That change of the blood-vessel wall which superinduces thrombosis is the destruction or alteration of the intimal cells. Just so long as the intima remains intact and in a healthy condition a thrombus does not form, but when intimal changes do occur and we have their chemical and physical effects acting on the blood-stream in sufficient strength to produce coagulation, we have a thrombus formation in that place, but in no other.

Since the condition of the intima is the all-important factor which determines the location of thrombus formation, let us consider carefully its relations and the source of its alteration from the normal. The intima is a very delicate membrane of the serous type. Its nourishment is derived principally from the blood-stream of the vessel which it lines and not from the vasa vasorum which nourish the rest of the vessel wall. Thus we see that the intima of the veins has not only a depleted blood from which to derive its nourishment, but is also subjected to the actions of the concentrated toxins of the venous flow.

Of the many cases of venous thrombosis reported, exclusive of capillary thrombi, we find that at least 90 per cent. occur in the veins of the left leg. This is not true of arterial thrombi for, although the most frequent site of their formation is in the lower limbs, they occur as frequently in the right as in the left (Welch³).

If the dominating factor of thrombus formation be a primary phlebitis with a low-grade infection coming through the vasa vasorum, as suggested by Cordier;⁴ or if it be the consequent feebleness of the general circulation of cardiac insufficiency, anemia or cachectic states when marantic thrombi form; or if it be the blood changes of septicemia, pyemia or infectious diseases; or even if it be the effect of traumatism on the deep epigastric veins during abdominal operations, as suggested by Clark,⁵ why should it take place so constantly in the left leg? If the valves of the veins play so important a part, why should not the valves of the right leg or the more extensive pockets and irregularities of the cerebral sinuses act in the same way? We can readily understand why a thrombus should form in any location as the result of injury, inflammatory process or local degeneration, but in such cases as typhoid, anemia and after operations, why should it occur so persistently in the veins of the left leg? Certainly the local conditions of the veins of that part are the determining factors.

To say that a *locus minoris resistentiae* exists in the left saphenous, femoral and external iliac veins with no specific reason for the same, as suggested by several

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Cohen: Arch. Int. Med., 1911, viii, No. 5, p. 684; No. 6, p. 820.

2. Jakowski: Ueber die Mitwirkung der Mikro-Organismen beim Entstehen der Venen-thrombosen, Centralbl. f. Bakteriolo., 1900, xxviii, No. 3, p. 801.

3. Welch: Thrombosis, Allbutt's System of Medicine, vi, 155, 666.

4. Cordier: Phlebitis Following Abdominal and Pelvic Operations, THE JOURNAL A. M. A., Feb. 16, 1905, p. 1792.

5. Clark: Etiology of Postoperative Femoral-Phlebitis, Univ. Penn. Med. Bull., 1902-1903, xv, No. 5, p. 154.

writers, seems only to be begging the question, and I believe it is not so much the degree of resistance as it is the severity of the conditions to be resisted that allows such a majority of thromboses to occur in the one location. The intimal cells of the veins of the left leg certainly have the same metabolic powers as do the intimal cells of other veins, and therefore it must be the greater devitalizing effects of the blood-current in the left saphenous, femoral and external iliac veins that favor thrombus formation in these vessels. This greater

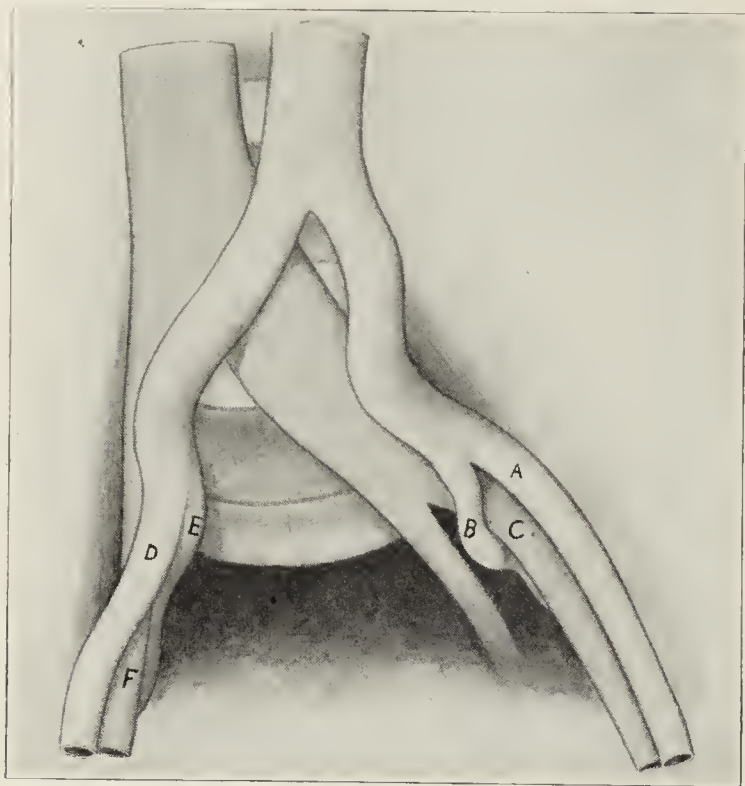


Fig. 1.

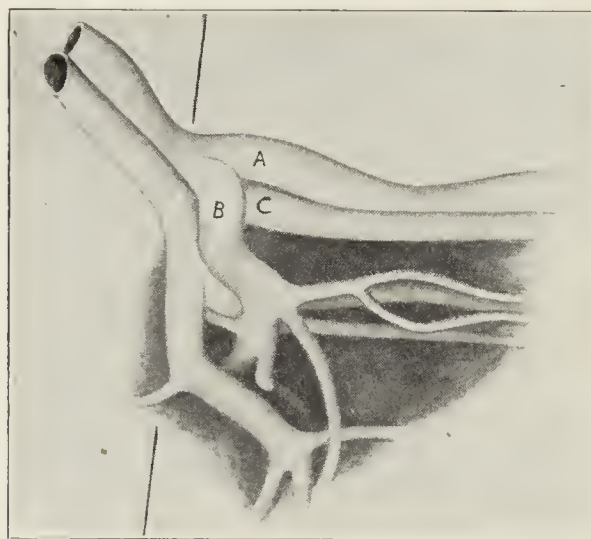


Fig. 2.

A = Left external iliac artery.
B = Left internal iliac artery.
C = Left external iliac vein.
D = Right external iliac artery.

into the circulating blood of rabbits and guinea-pigs. A thrombus does not form unless the injection be accompanied by vessel constriction and a slight continued elastic pressure is found to be more effective than a stronger, but transient pressure.

The factors which have been mentioned as producing a retarded blood-flow in the veins of the left leg are: (1) the fact that the left common iliac vein is crossed by the right common iliac artery which compresses it against the body of the fifth lumbar vertebra and intervertebral disk (Leibermeister); (2) that the left internal iliac artery as it passes downward to the great sacro-sciatic foramen crosses the left external iliac vein at a right angle, which is in marked contrast to the relation of the vessels on the right side (Haward⁶); (3) the



Fig. 3.

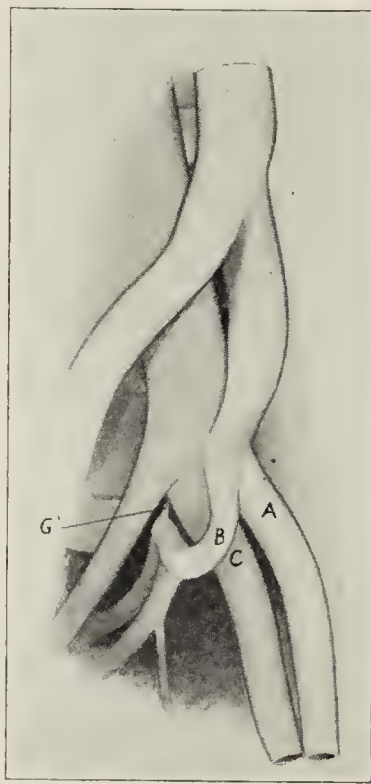


Fig. 4.

E = Right internal iliac artery.
F = Right external iliac vein.
G = Left ilio-lumbar artery.
H = Right ilio-lumbar artery.



Fig. 5.

devitalizing effect is not because the toxins are more concentrated or virulent, but rather that they have a better opportunity to act. And now the question, why do they have a better opportunity to act?

In comparing the left leg with the rest of the body the most important condition with which the veins there have to contend more than do the veins of other parts is the peculiar relations of the surrounding structures which produce a retarded blood-flow.

The effects of a retarded blood-current in the presence of factors favorable for thrombus formation are nicely demonstrated by injecting cultures of bacteria and toxins

greater length of the left iliac vessels; (4) a loaded sigmoid colon and frequent enemas.

There is no question, but that the obstructive effect of the right common iliac artery crossing the left common iliac vein is a retarded venous flow which is most favorable for thrombus formation, but if this compression of the left common iliac vein by the right common iliac artery were the determining factor of a left-sided thrombophlebitis, the internal iliac vein and branches should suffer the same as do the external iliac vein and

6. Haward: Phlebitis and Thrombosis, The Hunterian Lectures, 1906.

branches: but this is not the case, and we must look for an additional factor acting only on the external iliac vein. This condition, I believe, we find in the constricting elastic arterial loop about the external iliac vein at its termination (Figs. 1-5).

On the left side the terminus of the common iliac artery and the point of origin of the common iliac vein lie on the mesial surface of the psoas magnus muscle, the artery being anterolateral to the vein. The internal iliac artery passes mediad, caudad and dorsad around the termination of the external iliac vein and comes to lie anterocaudad to the internal iliac vein (Figs. 1, 3). The trunk of the internal iliac artery varies from $\frac{1}{2}$ to $1\frac{1}{2}$ inches in length, but in the majority of cases is not more than $\frac{3}{4}$ inch long. In the angle of junction of the external and internal iliac veins the iliolumbar artery arises from the posterior surface of either the main stem or the posterior division of the internal iliac artery (Figs. 4, 5). If the main trunk of the internal iliac artery is long, the iliolumbar arises from it.

The iliolumbar artery passes cephalad, dorsad and laterad from its origin into the iliac fossa under the psoas and iliacus muscles. With but very few exceptions the first portion of the iliolumbar artery lies in direct contact with the external iliac vein at, or near, its junction with the internal iliac vein (Fig. 3). When this is the case the external iliac vein is encircled for three-fourths of its circumference by an arterial loop formed by the termination of the common iliac, the internal iliac, with its posterior division occasionally, and the iliolumbar artery. This arterial loop hugs the external iliac vein so closely that, when both arteries and veins *in situ* have been filled with a plaster-of-Paris mixture and allowed to harden, it produces a decided groove in the vein (Fig. 3). The filling of these vessels was done by injecting the plaster into the abdominal aorta and inferior vena cava. By this method both the right and left iliac vessels were subjected to the same pressure of the mixture within their walls.

On the right side the relations of the vessels are very different and do not produce any evidence of obstruction to the venous flow (Figs. 1, 5). The common iliac artery at its termination lies almost directly anterior to the termination of the external iliac and the formation of the common iliac vein. The internal iliac artery passes from its origin in an almost straight line caudad and dorsad into the pelvis. The iliolumbar artery nearly always arises from the posterior division of the internal iliac about $\frac{1}{2}$ inch below the level of the external iliac vein (Fig. 5). In only three instances was it found to touch the external vein in its passage cephalad and dorsad into the iliac fossa, and in no case in which the subject was injected did the vein show evidence of constriction or compression by the surrounding structures. The relations of the external iliac veins below the points where they are crossed by the internal iliac arteries are almost identical, and nowhere do they show that they are encroached on by the adjacent structures.

Since it has been shown that constriction and especially mild continued constriction is a most important factor in inducing a thrombotic process, I believe that the above-described constricting arterial loop about the termination of the left external iliac vein a very important, if not the most important, factor in determining a left-sided thrombophlebitis.

We do not find, however, that the thrombotic process is always initiated at the point of obstruction, for certainly a large portion of thromboses of the left leg

manifest their first symptoms about or below the knee. It is not probable that only the portion of the vessel-wall and blood-stream adjacent to the point of obstruction are altered by such an obstruction: the probabilities are rather that all parts distal to it suffer, and this, with the presence of valves or varicosities, gives us those conditions which are necessary to initiate a thrombophlebitis.

Murray Hospital.

ABSTRACT OF DISCUSSION

DR. H. A. ROYSTER, Raleigh, N. C.: There are some objections to any anatomic explanation. The first is that these cases occur in groups. I think it is the experience of every surgeon who has had this condition occur in his work that at certain times there is a run of cases, three or four in a year, and then for several years he does not see a single case. An anatomic explanation ought to be more uniform in its expression.

I would like to ask, moreover, whether or not anatomic anomalies have any significance, and whether Dr. Kistler has thought of such variations occurring, and their relation to this constriction. In 1902, Riedl, of Jena, brought out the fact that the right iliac vein crosses the right iliac artery at a very acute angle. The artery gradually pushes itself past the vein to emerge above Poupart's ligament, to the lateral side of it, and then rests in the median line above it. The same artery still higher up crosses the left iliac vein almost at a right angle, exerting a greater pressure on the left than on the right vein. At this point anteriorly the quite large median sacral artery passes downward to the spinal column, so that the left iliac vein is to a certain extent enclosed within the acute angle formed by the crossing of the right iliac artery and the median sacral. Still lower down the left hypogastric artery passes obliquely in front of the left iliac vein. The left iliac vein is therefore subjected to a three-fold arterial pressure, while the right iliac vein is subjected to but a single pressure. This, Riedl said, might explain the relatively larger frequency of left-sided thrombosis. In such cases as this we may have all sorts of anatomic explanations which really do not explain at all, unless we can prove that they actually existed in the individual case.

The most important thing for the practical surgeon is not so much to determine how it occurs as to ascertain what might be done to prevent the occurrence of the condition or to give relief from it. If it is really a case of arterial constriction or anatomic pressure, we can hope to do very little to relieve the condition or to prevent its coming on.

Other explanations have been made. Clark spoke of the pressure of the abdominal retractor on the deep epigastric artery. Many writers have referred to keeping patients in bed too long on their backs. Others have regarded it as being due to a low-grade toxemia. What we want to know, however, is how to prevent this condition, and perhaps the explanation offered by Dr. Kistler might be followed up by some suggestion for its relief.

DR. H. D. KISTLER, Butte, Mont.: I cannot say why these cases occur in groups. I do not think that anybody knows exactly what the etiology of this condition is. The only question is why it always occurs in the same place. I believe that is due more to the anatomic relation of these vessels than anything else. This condition of the vessels occurs in about 90 per cent. of all individuals. I believe we have this condition of the constriction of the external iliac vein in about 90 per cent. of the cases we have examined. On the other side of the body the relation of the external iliac vessels is very different, and in no case have we found a constricting circle, and in only three of the cases examined have we found this vessel, the iliolumbar, even to touch the termination of the external iliac vein. This vessel can readily be reached and severed, and thus the patient can be saved from much suffering and a convalescence made smooth which otherwise would be very much disturbed.

A NEW SIMPLE APPARATUS FOR THE INTRA- VENOUS ADMINISTRATION OF SALVARSAN WITH SALINE SOLUTION PRECED- ING AND FOLLOWING

O. LEGRAND SUGGETT, M.D., ST. LOUIS

My apparatus consists of a small glass funnel $2\frac{1}{4}$ inches in its widest diameter and $2\frac{1}{2}$ inches long, having just enough stem to attach snugly the longest tubing, which is of dark, very flexible rubber, with a lumen of $\frac{3}{16}$ -inch and 36 inches long, which is united with another piece of the same kind, 6 inches long, by a section of glass tubing of the same caliber, 2 inches long, with a bayonet needle on the end of this. This may all be encompassed in a sterile glass jar $2\frac{3}{4}$ inches in diameter and 3 inches in height, as shown in illustration, by coiling the tubing snugly around inside and placing inside this the short section of glass tubing and needle and last the funnel, conical end down, and replacing the glass lid which is supplied with a rubber washer, as are fruit jars, making it air-tight, and fastening it down with the wire spring. The entire outfit can be carried in one's pocket. Its use is equally simple. After sterilizing the little apparatus thoroughly by running a continuous stream of boiling water through it for a few minutes, then an ounce or two of alcohol, finally rinsing it out by pouring distilled water into it, and sterilizing the patient's arm at site of puncture with alcohol and gauze and injecting 2 minims of a 10 per cent.



Apparatus for the intravenous administration of salvarsan with saline solution preceding and following; also the glass container, as marketed by the A. S. Aloe Company, St. Louis.

solution of cocain intradermically, which is sufficient to anesthetize the skin but not distort the land-mark, and having the salt solution and salvarsan prepared in the usual way—filtered and warm, in separate Florence flasks of about 10 ounces capacity, the needle is plunged into the vein; the salt solution is poured into the funnel which is held about three feet above the patient's arm by a nurse or assistant, enough being allowed to flow through to warm the tubing and expel all the air before it is coupled onto the needle. It is poured in continually and the funnel never permitted to become entirely empty; a sufficient quantity is permitted to flow to assure that the needle has entered the vein, then the salvarsan is poured in before the last of the salt solution has left the funnel—an uninterrupted flow being kept up until the desired dose has been given, when 2 or 3 ounces more of the salt solution is poured in just as the last of the salvarsan is receding from the funnel, thereby flushing out the tube and needle and preventing any of the salvarsan from getting into the tissues outside of the vein on its withdrawal, taking the precaution before mentioned, throughout the entire procedure, not to permit the funnel to become empty. As the last of the saline is leaving the funnel, the flow should be shut off, by pinching the tubing between thumb and finger at its juncture with the needle, withdrawing the latter quickly.

If at any time the flow becomes slow or tedious, the tubing should be milked toward the vein, or a loop of it may be taken up in the disengaged hand and compressed sharply several times giving it a pumping or bulb effect after, of course, the

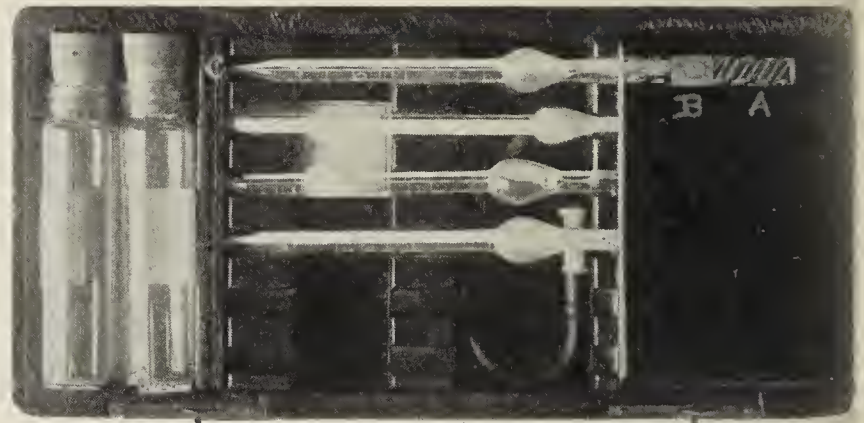
assistant has pinched it tightly near the neck of the funnel to prevent it regurgitating. The little section of glass tubing would indicate a bubble of air, but is wholly unnecessary, if the technic is properly carried out. Should it become imperative to use it when gas or other heat was not available, the little apparatus I have described can be thoroughly sterilized in the office and the solutions may be prepared there, also, and maintained at the proper temperature for hours and conveyed in small suitable sterilized thermos bottles.

A POCKET-CASE FOR FULL BLOOD-PIPETS

GAYLORD W. GRAVES, M.D., NEW YORK

That need for so simple an agent still exists is proved by the multiplicity of home-made contrivances in the possession of laboratory workers and by the fact that an expensive sterilizable, metal affair recently introduced to the instrument market has twice the weight and dimensions desirable and yet provides for only two pipets.

My case has space for two bottles of diluting fluid, a small supply of cover-glasses for smears, and compartments for six pipets. Each of the last is held securely in position between rubber buffers, B and C, by the action of a strong spiral spring, A, which is capped with hard rubber cork, and anchored at the base of a cylindrical hole in the wood of the case. Pressure backward on this spring permits of the withdrawal or insertion of a pipet; and experience has shown



A pocket-case for full blood-pipets.

that the contained fluid when carried in a tube, thus automatically locked in position, does not escape. The measurements of the case are 8 by 4 by $1\frac{1}{4}$ inches. It can readily be duplicated by any good cabinet-maker at moderate cost or modified as desired to permit of space for slides, alcohol, gauze, and Widal or Wassermann tubes.

46 West Eighty-Third Street.

DETERMINATION OF END-REACTION IN ESTIMATION OF GLUCOSE

FRANCIS BRINTON JACOBS, M.D., PHILADELPHIA

I offer a slight modification of a very old method of determining the end-reaction of the quantitative determination of glucose in the urine. In the experience of every one who has used Fehling's solution in the quantitative determination of glucose and tried to make up his mind when the reaction is complete by the disappearance of the blue color of the solution, it must be impressed on him how hard it is to say at just what point the "blue" all disappears and when the solution becomes clear, which is recommended in most textbooks on the subject as the final step.

The chemical reaction for determining this end-reaction is given to us as follows: Remove a small portion of the mixture (of Fehling's solution and urine) contained in the beaker (in a test-tube), add a few drops of acetic acid and then a few drops of potassium ferrocyanid. If the color of the mixture turns brown then the reaction is not finished

or, in other words, the copper in the solution has not been entirely reduced by the glucose and the process must be continued or, to be accurate, should be entirely done over, this process being repeated until the remaining fluid in the test-tube after another attempt (on the addition of acetic acid and potassium ferrocyanid) is entirely clear.

This necessitates a long and tedious repetition and it is my object to accomplish the same end without necessitating a repetition of the processes.

The removal of several cubic centimeters of the mixed urine and Fehling's solution in the beaker of necessity diminishes the quantity an appreciable amount and thus if the process were continued without making up new dilutions of the urine and Fehling's solution the result would be far from accurate, especially if it was done more than once, and therefore the final reading and calculation would be too high.

The very simple method I suggest is as follows: Take a porcelain plate in which are several depressions. In Depression 1, place acetic acid; in Depression 2 place potassium ferrocyanid solution. Then, with a large-sized stirring-rod remove one drop of the mixed urine and Fehling's solution from the beaker and place in Depression 3. Wipe off on a towel the end of the stirring-rod, add a drop of acetic acid from Depression 1 to Depression 3, containing the mixed urine and Fehling's solution, and then one drop of potassium ferrocyanid from Depression 2, mix the three drops together. If a brown color remains the reaction is not finished. Therefore, add a few drops more of the diluted urine from the buret and test again on the plate as before, repeating this process until there is no color to the last mixture.

By this method only three or four drops of the mixed urine and Fehling's solution will be removed from the beaker and the result will be as accurate as it is possible to be by this method and is near enough for all practical purposes.

I have used this method in several hundred examinations at the Polyclinic Hospital laboratory and have found it so satisfactory that I thought it might be of use to the profession in general.

The reaction will show the change of color or dividing line on the addition of one drop from the buret and at the same point when all the "blue" has disappeared.

2032 Chestnut Street.

A NEW METHOD OF USING FEHLING'S SOLUTION*

JOHN W. HUNTER, M.D., PHILADELPHIA

The principal difficulty which obtains in the use of Fehling's solution is the determination of the end-point of the reaction, that is, the point at which the copper has been just completely reduced. Heretofore, we have usually relied on our judgment as to whether the blue color had entirely disappeared from the more or less clear supernatant fluid after the precipitate had settled.

This, I contend, is not a reliable method of determining the end-point. We can often demonstrate the presence of unreduced copper in what is apparently a colorless or rather "blueless" supernatant fluid. Several means of fixing the end-point have been suggested, but they are all more or less cumbersome or time-consuming, especially for ordinary clinical work.

The method which I propose has proved very satisfactory and has the merit of being simple, rapid and fairly accurate. The principle on which it depends is that of separating the more or less clear supernatant fluid into two adjacent layers by heating the upper portion and then comparing these two layers after the reducing substance has been added to the upper hot layer. If there is reducible copper in the fluid the upper layer will show a reddish tinge whose density will depend on the amount of copper reduced.

The technic is as follows: The urine is diluted five times if the specific gravity is 1.030 or below and ten times if above 1.030.

Into a long, comparatively narrow test-tube is put 1 c.c. of Fehling's solution and a small amount of very finely powdered talcum or pumice. This is diluted with 3 or 4 c.c. of distilled water so that we have in the tube a fairly long column of fluid. After boiling, a few tenths of a cubic centimeter of the diluted urine are added and the contents of the tube brought to the boiling point. The precipitate is allowed to settle. This settling takes place rapidly if the pumice or talcum is very finely powdered. After the precipitate settles the tube is cooled by holding it in a running stream of cold water for a moment or two; it is then wiped with a towel and the upper portion of the supernatant fluid heated to or near to the boiling point. One-tenth cubic centimeter of the diluted urine is then carefully added and after a moment or two the appearance of the two layers (cold and hot) is noted. If there is a reddish tinge, due to suspended cuprous oxid, in the upper layer, the contents of the tube are again boiled, the precipitate allowed to settle and the foregoing procedure again carried out. This process is repeated until on the addition of 0.1 or, to be more accurate, 0.01 c.c. of diluted urine to the upper hot layer, no reddish tinge is discernible in that layer. This means that there was no copper to be reduced, it all having been reduced by the previous additions of diluted urine.

The amount of diluted urine added less the last instalment is the amount required to reduce 1 c.c. of Fehling's solution and from this the percentage calculation is made.

3400 Spruce Street.

A METHOD OF PHOTOGRAPHING LIVING ORGANISMS*

KENNETH TAYLOR, M.A., MINNEAPOLIS

The lack of any satisfactory method of photographing living microscopic organisms *in situ* makes it seem desirable to publish the following simple method. It is one by which a microscopic preparation of the living organism can be made, which will allow the latter to be watched in its growth and photographed by transmitted light. It will be of service especially as applied to the higher bacteria and fungi where the manner of division, branching and spore-bearing is of importance, and its accurate registration desired.

The method is a combination of the hanging-block and the India-ink methods of demonstrating unstained bacteria. The blocks for this purpose are easily made by pouring melted glycerin agar on a microscopic slide to form a thin film, and retained by standing other slides on edge about the first. This will be found to be more easily handled than the film poured in a Petri capsule. When cool it may be cut into blocks about 10 mm. square.

It is important to use glycerin agar for the blocks because the glycerin seems to prevent the fixation of the carbon granules of the India ink to be used later, and the consequent formation of an immovable film to obscure the growth of the organism.

A small drop of India ink, diluted one-half with sterile water, is placed on a clean cover-slip and inoculated with the organism from broth or solid media. A block of agar is then pushed half way off the end of the slide on which it was poured as above and gently lowered until the edge is in contact with the inoculated ink, which will quickly spread by capillary attraction along the line of contact. The rest of the block may then be freed from its slide and lowered, spreading the ink with it. In this way a fairly even film of ink may be secured between the agar and the cover-glass. Many organisms will grow quite normally in this India ink.

The cover-slip preparation may be inverted and mounted on a hollow-ground slide in the usual way. Microphotographs of the organism may then be taken in successive stages of development, without showing the distortion and fragmentation inevitable in the ordinary stained preparation.

* From the William Pepper Laboratory of Clinical Medicine, University of Pennsylvania.

* From the Department of Pathology and Bacteriology, University of Minnesota.

A CASE OF UNSUSPECTED MELANOSARCOMA OF THE CHORIOID*

CLINICAL REPORT BY CHARLES R. HEED, M.D., PHILADELPHIA
PATHOLOGIC REPORT BY SIDNEY L. OLSHO, M.D., PHILADELPHIA

The case reported below is considered of interest for the following reasons:

1. Because of the unsuspected serious nature of the condition present, the symptoms being those of iritis, with diminished intra-ocular tension, whereas one would expect those of glaucoma, with increased intra-ocular tension.
2. Because it emphasizes the necessity of enucleating blind eyes which are giving pain, as these may contain life-destroying potentialities.

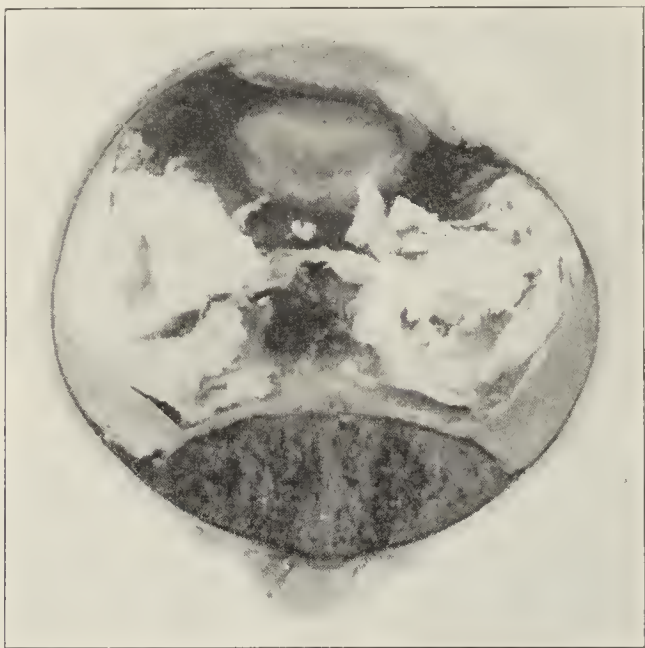


Fig. 1.—Gross pathologic specimen from a case of melanosis of the chorio, mounted in formalized gelatin.



Fig. 2.—Low magnification of same specimen as in Figure 1, showing detached retina and intrachorioidal position of tumor.

3. Because it demonstrates the importance of a pathologic examination of all eyes removed.

History.—The patient, D. McA., aged 31, was a core-maker, native of Philadelphia. His father died as result of accident, aged 55; health always good; he used glasses for near work only; eyes were healthy. Mother, aged 55, living and well; uses glasses for near work only. Four brothers and two sisters are living and in good health. Only one brother wears glasses. No family history of ocular disease is obtainable. Patient had pneumonic typhoid at 15; no other illness remembered. He has had deafness of right ear for ten years; no discharge. On July 28, 1910, patient's right eye was struck by a fist. Soon afterward he had a "black eye." The sclera was red for two weeks. All pain disappeared within twenty-four hours. The sight was not noticeably impaired. Six months previous to this trauma, the patient passed an

examination for admission to the Navy and he says that he was at that time able to read the test-cards equally well with either eye. Seven months after the accident, while removing a foreign body from the left eye, he discovered the blindness of the right eye. Patient suffered no ocular pain until Aug. 1, 1911, one year after the accident. The onset was sudden at 3 a. m. The pain was to the temporal side of the eye and extended to the back of the head. It was constant and became gradually worse. The eye became very red. He applied to his physician for treatment on the following afternoon. He was seen at the Polyclinic Hospital, Dr. Sweet's service, for the first time on Aug. 12, 1911. He said that he had suffered intense pain all night. He had some lotion containing laudanum and arnica, which he had applied on cloths to his eye, by direction of his first physician.

Examination, Treatment and Course.—Right eye vision equaled light perception. Palpebral and bulbar conjunctiva was extremely congested. Ciliary congestion was very marked; cornea hazy; pupil fixed, 2 mm. in diameter. Iris was dull-gray; tension was minus. A diagnosis of iritis was made. Heat, atropin and protiodid of mercury were prescribed.

August 15: Patient said that pain was lessened but still quite severe at night. Examination showed congestion of conjunctiva unchanged; cornea slightly clearer; pupil irregular, dilated to 4 mm. Pupillary area showed a dull reflex in day-



Fig. 3.—Magnification 73 diameters.

light, resembling a lens with early sclerotic changes. No fundus reflex. Treatment continued.

August 19: Pupil 4 to 5 mm. Pain continued to be severe.

August 21: Pain was so severe that patient applied at Will's Eye Hospital, where he was assigned to Dr. Sweet's service. At this examination a floating membrane was found in the vitreous with no other fundus detail. A diagnosis of iridocyclitis with detachment of the retina was made. After a course of atropin and heat locally, injections and aspirin for three days, there being no relief of pain, enucleation was advised and agreed to.

On August 28, the eye was enucleated and a 14 mm. gold ball implanted. There was considerable bleeding that night, and on the following day there was much pain, discoloration and moderate swelling about the orbit. The bandage was removed, ice applied and morphin given. Extrusion of the gold ball was expected. The untoward conditions rapidly subsided, however, and the patient was able to leave the hospital with an excellent socket and free from pain. An artificial eye has since been made and worn. Patient says that he has had no discomfort to date.

PATHOLOGIC REPORT¹

Macroscopic Examination.—The eyeball measured 25 mm. in each diameter. The uncut ball presents nothing unusual. Inter-

* Read before the Section on Ophthalmology, College of Physicians, Philadelphia, March 21, 1912.

1. From the laboratories of the Jefferson Medical College Hospital.

nally, the posterior third is occupied by a dark and solid irregular mass. The posterior surface of the mass is smooth and in approximation with the sclera over an area 20 mm. in diameter directly over the posterior pole of the eye. The anterior surface of the growth is irregularly tuberculous, extends at its apex 14 mm. forward from the nerve-head to within 3 mm. of the lens. The retina is pushed forward. The vitreous chamber is filled with exudate. The lens is displaced and the anterior chamber contains considerable exudate. The cut surface of the growth is of a mottled gray color.

Microscopic Examination.—An extremely cellular mass infiltrates the chorioecapillaris. The mass lies directly over the nerve-head. The lamina suprachorioid separates it from the sclera. The vitreous lamina of the chorioid together with the retina are pushed forward by it. Within its confines the chorioidal structure is entirely replaced by a more or less dense aggregation of small, spindle-shaped, pigmentiferous cells, which have no orderly arrangement. Collections of extracellular pigment are also present. The mass contains a scanty amount of fibrous connective tissue in scattered strands, a few thin-walled blood-vessels and a number of blood-spaces. At the tumor margins normal chorioid can be identified and anteriorly a portion of the retina. The optic nerve is infiltrated with scattered spindle-shaped cells, similar to those making up the tumor mass.

Diagnosis.—Small spindle-cell melanosarcoma of the chorioid.

SARCOMA OF THE CEREBELLUM IN A BOY

ALANSON W. HAWLEY, M.D., AND JOHN B. MANNING, M.D.
SEATTLE, WASH.

History.—The patient, a boy, aged 11, came under our observation in June, 1911, with the following history: Father and mother were both living and well. One child died four years ago from "ear trouble" following measles. Two other children were well. The patient had had scarlet fever at four years and measles at five years; he had not had diphtheria. He was always well except for occasional attacks of severe headache and nausea occurring suddenly and without prodromal symptoms since the attack of scarlet fever, which had become much more frequent during the last few months. Five weeks ago he left school and was up and about until three weeks ago with almost constant headache on exertion and frequent vomiting. Absolute quiet greatly diminished both these symptoms.

Examination.—Temperature was 97.4, pulse 80, respiration not accelerated. The patient was well-developed and rather poorly nourished. He lay mostly on the right side. He was mentally clear, but had slow cerebation. The skin was dry and cold. There was no retraction or rigidity of the head. The pupils were of equal size, dilated, and reacted to light; no nystagmus was present, and no strabismus. Mouth: The teeth were good, but the tongue was slightly coated. Throat: Tonsils were hypertrophied with deposits in crypts. The nasopharynx was small. The face was of the adenoid type. There was good resonance throughout the chest, no alteration in breathing and no râles. The heart sounds were of good quality; no murmurs and no enlargements were detected. Liver: Dulness extended from the sixth rib to the costal margin; not palpable. Abdomen: Rigid, retracted, no tenderness, no masses made out. Spleen: Not palpable. Extremities: Knee-jerks, both lively; no Babinski, no Kernig. There was severe headache and almost constant nausea, and vomiting on turning over in bed or assuming an erect position. The urine was cloudy; phosphates present, no albumin, no sugar and no acetone. The cutaneous tuberculin reaction was negative. Vision: July 6, 1911, hazy and poor with some photophobia. Ophthalmoscopic examination showed choked disk in both eyes; right eye about plus 4.00; left eye about plus 3.00. A few scattered areas of hemorrhage were seen; the veins were distended and the arteries appeared smaller in contrast. Operation of decompression was advised but refused.

Progress.—The tonsils and adenoids were removed on request of the parents, who understood it could have no effect on the condition in the brain. There was an improvement, however, in the general health and in spite of the

persistent headache, frequent nausea and vomiting, the appetite was better. Nov. 14, 1911, vision was gone. There was no choked disk, but in its place optic atrophy as shown by abnormally white disks, pupils dilated and inactive. Dec. 1, 1911, tube feedings were begun. The patient was unable to clear his throat owing to weakness, probably, and not paralysis. At times, he was quite rational, though most of the time his mental condition was much blunted. About Jan. 1, 1912, symptoms of nausea, vomiting and headache abated almost entirely. An improvement occurred in the general condition. There was no corresponding improvement in the mental condition. The pupils exhibited peculiar reactions at times, mostly widely dilated, yet often they were observed considerably contracted. The improvement was attributed to the relief from pressure due to considerable separation of the coronal suture. This separation was plainly noticeable by feeling along the line of the sutures. In six weeks all symptoms returned and persisted until death.

Post-Mortem Examination.—On exposing the brain after the dura mater had been removed the veins over the right temporal and occipital lobes were seen to be engorged. The brain was large, the convolutions flattened and consistency soft. A large amount of clear cerebrospinal fluid came away as the brain was cut free from the body. A soft, disintegrating, non-capsulated tumor, size of a very large hen's egg, was found on sectioning the cerebellum, involving the right side more than the left, probably having originated there and invaded the left portion later. Forming the roof of the fourth ventricle it had obstructed the aqueduct of Sylvius so that on section the lateral ventricles were found enormously dilated.

Pathologic Report.—Dr. O. J. West reported a small round-cell sarcoma.

Remarks.—This case is interesting on account of the lack of localizing signs. Cerebellar ataxia and hypotonus might have been observed earlier if the patient had been seen earlier, but if present they were masked by a general muscular exhaustion.

704 Leary Building.—604 Cobb Building.

A CASE OF ECTOPIC GESTATION AT FULL TERM WITH FETUS CARRIED IN ABDOMEN FOR THIRTY-FIVE YEARS

FRANK N. YEAGER, M.D., HAMILTON, PA.

Mrs. M. N., aged 72, married twice, had two children by her first husband and two miscarriages. By her second husband she had two children; the youngest died at the age of 3 years from Bright's disease, and the oldest, a daughter, is still living at the age of 43 years.

The patient was always in good health until she became pregnant the last time, and expected to be confined Aug. 2, 1877. She felt life up to the time she went into labor. Her physician being away at the time, another one was called. She had great labor pains, which seemed of the natural order. The physician gave her opiates to relieve her, and, as there was no dilatation, he left, telling them that she would not be confined at the present time. She had a violent chill the same night. She then lay some days without attendance, the pains being controlled by opium, until her family physician returned and took charge of the case. After making a vaginal examination, he made no diagnosis.

The following six months the patient suffered greatly from neuralgic pains in the right ovarian region, shooting down the thigh to the knee, which no doubt was caused by the pressure of the tumor and an ovarian cyst. During this time she had a number of attacks of metrorrhagia with bearing down pains. A number of physicians were called in consultation, but no positive diagnosis was made. Her suffering was relieved by powdered opium and capsicum. In notes made during her illness, her husband states that her abdomen had decreased in size six months after her expected confinement. From that

time on she was in fair health, menstruating somewhat irregularly until the menopause, which occurred about the usual time, giving her little trouble; in fact, suffering less than most women do at that time of life. After the menopause she was in excellent health, and able to do all kinds of work, incident to taking care of a large house, until 1896, a period of eight years, when she commenced suffering from ascites. In June of the same year, her daughter took her to Philadelphia to ascertain whether she could not be relieved by an operation to remove the tumor. The surgeon was afraid to undertake it on account of her weak condition; after staying there two weeks, she returned home without anything having been done to relieve her.

During all these years the hard mass could be readily outlined in the lower part of the abdomen. In addition to this, the patient evidently also had a large ovarian cyst, as on May 31, 1898, after a bad fright, she immediately felt as if something gave way in her abdomen, which was followed by an enormous flow of urine during the next twenty-four hours, filling three chambers during the night. (On the right side of the specimen, the remains of the cyst could be seen.) The size of the abdomen diminished perceptibly after the excessive flow of urine.

The following year the ascitic condition increased rapidly, until the abdomen and limbs were of great size, and on Jan. 12, 1899, she was tapped for the first time, 42 pounds of ascitic fluid being removed. The first four tapplings were from five to ten months apart, removing 42 to 47 pounds at a time, which is about 5 to 7 gallons of fluid. After this the ascites formed more rapidly, so that she was obliged to be tapped every three months up to her death, which occurred March 13, 1912, from apoplexy. The attack came on suddenly while engaged in baking, stooping over to look into the oven, and she died four hours later without regaining consciousness.

I tapped her myself five times; she showed wonderful vitality. The day after the operation she was up and about attending to her work. During the last thirteen years of her life, she was tapped forty-seven times, the amount of fluid removed varying from 29 to 47 pounds, amounting to 1,452 pounds in all.

During the past few years, at times, she had a hemorrhagic flow from the uterus. In January, 1912, she had quite a flooding, which made me suspect that she might have a fibroid, as I felt a large mass posterior to the senile cervix. The hemorrhage ceased after administration of ergot and *mex vomica*.

Autopsy.—The morning after her death, I performed the autopsy. The body was somewhat emaciated, and the outlines of the tumor could be seen, because the ascitic fluid had been removed the day before by the undertaker. The tumor was removed with difficulty, because of the firm and extensive adhesions. Coils of the large intestines were adherent, but with care they were separated without tearing. The left ovary and tube were normal, showing only atrophic change due to age. The right ovary was cystic, about the size of a large orange. It was enveloped by a very tough membrane, which at one time was a large cyst. The tumor weighed 6½ pounds; it had the appearance of and felt like a hard calcified fibroid growth. It was so hard that it could not be cut with a knife. No one could tell from its appearance that it contained a fetus at full term. The atrophied uterus was firmly attached to the lower part of the tumor.

After the calcareous capsule of the tumor was removed, it was found to contain the mummified fetus of a female child at full term. The placenta, which no doubt, was attached to the intestines, must gradually have been absorbed, as nothing could be recognized which might have been the remains of that organ.

The interesting features about this remarkable case, are, first: how Nature came to the rescue depositing around the child's body a calcareous substance which acted as a preservative, besides protecting the system from septic infection; and second, that in all these years, the woman only suffered from pressure symptoms causing ascites, and with it all was able to attend to her household duties.

This case, evidently from location and advancing to full term without inconvenience to the patient, was an abdominal ectopic gestation, the impregnated ovum falling from the fimbriae into the abdomen and there attaching itself.

The *modus operandi* of tapping which I carried out and which gave the patient so little pain and no discomfort, may be interesting: First I gave her 1 dram each of compound spirits of ether and aromatic spirits of ammonia in a wine-glass of water. Then I had the patient, who was already prepared for bed, sit on a chair with the abdomen firmly supported with a broad bandage, the ends of which, overlapping at the back, were held by two assistants, one on each side, back of the patient. The bandage had an opening in front corresponding to the field of operation. After sterilizing the site of the puncture I froze the skin with ethyl chlorid, nicked it with a bistoury and quickly thrust in the trochar and cannula, removed the former and let the fluid flow into a large pail placed between the patient's feet. The puncture was dressed with sterilized gauze, held in place by adhesive plaster and the patient was placed in bed.

It is always well to have the patient urinate just before the operation, as there is less danger of injury to the bladder.

A VIRULENT CASE OF EPIDEMIC CEREBROSPINAL MENINGITIS; FOUR HUNDRED AND TWENTY CUBIC CENTIMETERS OF SERUM ADMINISTERED; RECOVERY

ARTHUR A. HEROLD, M.D., SHREVEPORT, LA.

City Health Officer

The following case of epidemic cerebrospinal meningitis, which occurred in Shreveport during the late outbreak of the disease, is remarkable for the unusual amount of serum administered and the complete recovery in spite of the almost hopeless condition of the patient at several different times during the progress of the disease.

C. P., aged 17, school boy, had a severe chill on the night of February 27. I was called in on the morning of the 28th, when he was suffering from severe headache (frontal), backache and persistent vomiting. I considered the case suspicious of meningitis, though, in the absence of rigidity, I did not feel justified in making a puncture. I saw him, again, early in the afternoon, when I noted undoubted evidences of the disease—the pain in the head, which stubbornly refused to be relieved in spite of large doses of morphin and thorough purgation, rigidity of the neck, Kernig's sign, together with partial delirium. A spinal puncture was made, when the fluid literally spurted out, so great was the tension; we removed about 90 c.c. of very cloudy cerebrospinal fluid and injected 30 c.c. of antimenigitis serum; some relief was immediate, owing, no doubt, to reduction of tension. The fluid contained a large amount of pus which, when stained, showed the Gram-negative intracellular diplococci in great abundance. At noon, on the 29th, the injection was repeated and again on the morning of March 1. Although, after the first dose, we noted improvement, this was not the case after the second and third: in fact, the delirium increased; the patient was unconscious and the pulse and temperature went higher. Early on the morning of March 2, I was called and found the patient practically *in extremis*—deep coma, shallow breathing, cyanosed and a rapid pulse, which could not be counted accurately but which was in the neighborhood of 160 per minute. Stimulants, hypodermically, produced very little improvement; after working with him for about two hours and when we had about despaired, the idea of oxygen occurred to me; we had Mr. Bradley of Shreveport bring out one of his oxygen generators: in ten minutes improvement was noticeable and in an hour's time the patient's condition was fully as good as it was the day previously. We did not repeat the serum on that day, the fourth of the disease, but, on the fifth day, the symptoms being more marked, we gave the fourth 30 c.c.; the fluid being still cloudy and the tension still great, we gave the fifth dose on the sixth day; on the next day, we made another puncture and finding the fluid still cloudy, we gave him another 30 c.c.;

this time I took another specimen of fluid, which I found to contain the specific organism, in spite of the fact that he had received 180 c.c. of antimeningitic serum. But we refused to rest content with this and, on the following day, after withdrawing about 75 c.c. of cerebrospinal fluid, we administered 60 c.c. of the serum, this making a total of 240 c.c. The reaction from this was rather severe, the delirium increasing and the pulse and temperature going higher, the former varying from 140 to 160 and the latter in the neighborhood of 103 F. The patient was still rigid and hypersensitive and we were hesitating as to what to do next. After informing the family of the serious condition, from which we had little hope of a favorable outcome, we decided on further consultation, the result of which was the administration of 180 c.c. additional serum, in three doses, within a period of thirty hours, the canal being drained as thoroughly as practicable before injecting each dose. For the first twenty-four hours after this was completed, there was no noticeable improvement. Tincture aconite was administered in small doses, frequently, and the effects were carefully watched. Oxygen was also used at intervals ever since it was first brought into the case. Nourishment was forced, though with great difficulty. After another twenty-four hours, there was some improvement; this continued; gradually but steadily, and, on March 27—one month after onset—the patient was discharged as cured, considerably emaciated (having lost about 40 pounds), but with no sequelae. (Consultants in above case were: first, Dr. S. Y. Alexander, who saw the case with me throughout the entire illness, and, second, Dr. W. K. Sutherland, who holds the record for having administered probably the largest amount of antiphtheritic serum in one case, with recovery.)

This patient, as will be seen, received 420 c.c. antimeningitic serum; it would be interesting to know if anyone has ever given a larger amount than this. Whether his recovery would have been obtained without the last heroic doses is a debatable question, but we feel that his complete recovery (without sequelae) would not have occurred had we stopped at 240 c.c.

628 Stoner Avenue.

A DISTURBING FACTOR IN LIEBEN'S AND IN GUNNING'S TEST FOR ACETONE IN URINE*

JACOB ROSENBLOOM, M.D., PH.D., NEW YORK

Lately, while testing a urine for acetone by means of Lieben's and also Gunning's test, I found both tests to be negative when applied to the urine direct, but positive when applied to the distillate. Naturally, one would think that some substance was present in the urine interfering with the formation of iodoform, the reaction on which the above-mentioned tests are based.

This urine gave a marked reaction for protein and it was found that it was the presence of this substance which interfered with the above tests on account of the fact that after removal of the protein by means of dilute acetic acid, the urine responded to Lieben's and to Gunning's test.¹

It is well recognized that only the distillate of the acidified urine should be used for acetone tests, but many workers often apply Lieben's test to the urine direct and if it is found to be negative no further inquiry is made; but if a positive reaction is obtained, the urine is distilled and the test applied to the distillate so as to eliminate the other substances present in the urine that react with an alkaline iodid to form iodoform.

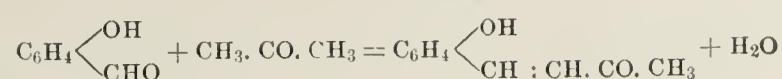
Bardach,² several years ago, noticed that the formation of typical iodoform crystals from iodopotassium iodid and acetone in an alkaline solution may be prevented by the presence of protein. He showed that instead of the characteristic hexagonal platelets or stellar masses of iodoform forming, fine yellow needles, apparently of some other substance, appeared. He found that the following substances had the power to produce this change in the reaction: acidalbumin,

proto-albumoses, peptones, phytovitellin, casein, yeast nuclein, hemoglobin, tendomucoid, gelatin, and the following protein-containing materials: pancreatin, sperm, blood, sputum, normal urine and albuminous urine. Seaman and Gies³ continued the work and have shown that a large number of additional proteins and protein-containing materials also show the positive results that were obtained by Bardach with the above-mentioned substances.

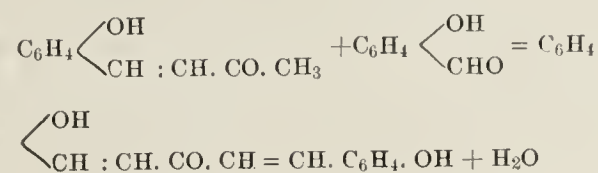
There is no doubt in the case of the urine examined by myself that the presence of the protein in the urine interfered with the formation of iodoform and the deposit of iodoform crystals. This experience emphasizes the necessity of using the distillate from a urine when testing for acetone by Lieben's or by Gunning's test.

In conclusion, I would like to call attention to a test for acetone which has appeared lately and with which I have obtained very satisfactory results; it is the Frommer⁴ test and is based on the fact that acetone reacts with salicylaldehyd to form dioxydibenzoylacetone as the following equations show:

EQUATION 1



EQUATION 2



This test may be applied to the urine direct and it also does not react with diacetic acid if the heating is not carried too high. The test is performed as follows: 10 c.c. of urine are rendered strongly alkaline with potassium hydroxid; 10 to 12 drops of a 10 per cent. solution of salicylaldehyd in absolute alcohol are added and the mixture warmed to about 70 C. In the presence of acetone, the fluid becomes yellow, then red, later purplish red and on long standing, dark red. In the absence of acetone the color of the urine is practically unchanged.

The test may also be carried out by the following method: about 10 c.c. of the urine are treated with about 1 gm. of sodium hydroxid in substance and without waiting for it to dissolve 10 or 12 drops of the salicylaldehyd solution are added. The mixture is heated to 70 C. In the presence of acetone a marked purple red color results at the zone of contact with the alkali. Frommer asserts that this test can indicate the presence of 0.000001 gm. acetone in 8 c.c. of water and I have found that the presence of protein in the urine does not interfere with this test for acetone in distinction from the tests of Lieben and Gunning.

Seventy-Sixth Street and Park Avenue.

SYPHILIS COMPLICATED WITH UNCINARIASIS

THOMAS W. DORSETT, M.D., WILLACOOCHIEE, GA.

The patient, a young man, aged 20, came under my observation shortly after Christmas, with all the classical symptoms of syphilis, including one of the largest chancres I ever saw. I gave, intravenously, 0.6 gm. salvarsan. There was very little reaction from the injection and the patient was up in twenty-four hours feeling as well as usual. He and I were very hopeful and expected daily to see some sign of improvement. The expected improvement, however, did not develop; in fact, the symptoms gradually became worse. The chancre grew larger and became very foul. On the tenth day, I began to realize that I had to do something more for my patient; consequently, knowing that he had

* From the Chemical Laboratory of the German Hospital and Dispensary, New York.

1. This urine gave no reaction for diacetic acid.

2. Bardach: *Ztschr. f. physiol. Chem.*, 1908, 11v, 355.

3. Seaman and Gies: *Proc. Soc. Exper. Biol. and Med.*, 1907-08, v, 125.

4. *Berl. klin. Wchnschr.*, 1905, xlii, 1008.

what I considered a mild infection of hookworms, I gave him the usual treatment, which brought forth a large number of worms. He immediately began to improve and on the fourth day said he felt like a different person. The chancre quickly disappeared, as did all the other symptoms. One week later I gave him another treatment for the worms and he expelled a very few more. From this time on he rapidly improved and at the end of ten days he was as well as he ever was.

Did the hookworm infection retard the effects of the salvarsan? My suggestion is that the toxins produced by the worms either retarded or counteracted the effect of the salvarsan. I really think that the toxins only retarded the action of the salvarsan and that in a short time the salvarsan would have produced its effects.

SPIROCHETES IN THE MOUTH*

A. A. THIBAudeau, M.B., BUFFALO, N. Y.

In the routine examination of smears from the mouth, as carried out by students in the class-room, a considerable number were found, which, when stained by the Giemsa method, showed spirochetes morphologically resembling *Spirochaeta pallida*. As some observers have considered it possible to make a diagnosis of syphilis by the finding of *Spirochaeta pallida* in smears from suspicious sores in the mouth and pharynx, it was thought desirable to examine the smears from a number of normal mouths.

Smears were accordingly made from apparently healthy mouths, using the deposit at the junction of the gums with the teeth, and from the root of the tongue. After fixation in absolute alcohol they were stained by Giemsa's rapid method. Smears from each case were also stained by Loeffler's methylene-blue or an aqueous solution of gentian-violet.

Three main types of spirochetes were found:

1. The large *Spirochaeta buccalis* with long flat curves, which is much thicker and wider than the other spiral forms found in the mouth, and which has fewer turns.

2. A moderate-sized spirochete, probably the "medium form" of *Spirochaeta dentium* described by Hoffmann and Prowazek.¹ This organism stains a very faint purple by Giemsa. The coils of this spirochete, as found in mouth smears, are not so sharp or so regular as those of *Spirochaeta pallida*, and the organism is thicker.

3. A small, very delicate spirochete, with sharp coils fairly closely applied was the form that most resembled *Spirochaeta pallida*—probably the *Spirochaeta microdentium* of Noguchi.²

This organism very frequently exhibited irregularities in the arrangement of the coils, seldom seen in *Spirochaeta pallida*, but specimens were found in which the coils were regular throughout the organism. The spirochete, stained by Giemsa's rapid method, showed a coloration from a rose-red to a light purple, depending apparently on the degree of heat used and the length of time that it was exposed to the stain. Typical organisms of this type showed pointed ends. It stained but poorly with Loeffler's methylene-blue, and in about 30 per cent. of the cases, where present, could not be found in the control smears stained by this method. It is to be noted that while these organisms may not present all the characteristics of a typical *Spirochaeta pallida*, there are usually in stained smears from definite syphilitic lesions, and in which typical *Spirochaeta pallida* may be present, numbers of spirochetes, undoubtedly *Spirochaeta pallida*, which are not typical in every respect, and which could not be distinguished in stained smears from this type of mouth spirochete.

I have examined smears from 149 mouths; in sixty-one, or 40.9 per cent. of these, spirochetes of the last type, which might be taken for *Spirochaeta pallida*, have been found. In none of these cases did inquiry bring out a history of syphilitic

infection. The possibility of these organisms causing a mistake in diagnosis in a non-syphilitic ulceration or other non-syphilitic lesion of the mouth seems self-evident.

It has long been known that the differentiation of *Spirochaeta pallida* from some of the mouth spirals is extremely difficult and even at times impossible. My investigation has shown that spirochetes closely resembling *Spirochaeta pallida* were found in as many as 41 per cent. of normal mouths examined.

24 High Street.

A SIMPLE REFRIGERATOR FOR LABORATORY WORKERS

LOYD OSCAR THOMPSON, PH.D., M.D., LITTLE ROCK, ARK.

City Bacteriologist; Pathologist to St. Vincent's Hospital

Many physicians who do their own laboratory work, and even many of the smaller clinical laboratories, do not have refrigerator facilities, and it is often a problem to keep certain substances at a low temperature. This problem was solved recently in the Little Rock City Laboratory, when the ice-man failed to fill the refrigerator, by utilizing a vacuum bottle. We wanted to keep some guinea-pig blood at a low temperature over night to collect the serum for the Wassermann reaction. The vacuum bottle was filled about one-half full with ice-water and the test-tube containing the blood was lowered into it and the cork inserted. In the morning the temperature was 10 C., and the serum had completely separated.

This simple expedient may be used as above, for keeping complement, corpuscle suspension, antigen and patients' serum for the Wassermann reaction; for keeping urine, small samples of milk, etc.

606 State Bank Building.

Therapeutics

PULMONARY TUBERCULOSIS

In the treatment of this disease the following important points should not be forgotten. It is not sufficient to order fresh air, rest, proper diet and such medication as needed; more must be done. So much has been accomplished by fresh air, rest and food that the physician is too likely not to treat the patient as though he were seriously ill. While daily attention is not needed, unless the patient has considerable fever, a weekly study of his case and his symptoms and his signs are essential to the best treatment for him and for the promotion of as rapid recovery as possible, if he is to recover. To repeat, the diagnosis is not the only essential to the successful treatment of pulmonary tuberculosis. The patient must be studied weekly; physical examination must be made weekly to know exactly what is being accomplished by the treatment, or to ascertain why the treatment is not producing results. Toward this end the following items are suggestive, "lest one forget."

1. The cause of the patient's temperature should be sought. It may not be from the tubercle bacillus or the active tuberculous process alone. It may be from a coincident streptococcal infection, or the so-called double infection with a purulent bronchial exudate. There may be a pathologic condition of the throat and nose; there may be a digestive disturbance; there may be a genito-urinary disturbance; in fact, all other causes of high temperature must be eliminated before the decision is made that it is due to a more or less acute tuberculous process.

2. Continuous loss of weight may mean that the food is not sufficient, that the food is not properly digested or that there is some other source of loss to the individual than the tuberculous process. If the patient is a woman,

* From the Laboratory of Bacteriology, University of Buffalo.

* Read at the Annual Meeting of the American Association of Pathologists and Bacteriologists, April 4-5, 1912.

1. Hoffmann and Prowazek: Centralbl. f. Bakteriol., 1906, xli, 817.

2. Noguchi: Jour. Exper. Med., 1912, xv, 81.

the cause may be too profuse menstrual discharge, or some vagino-uterine catarrh, or some serious pelvic disturbance. There may be a purulent discharge from an ear or from a kidney.

3. The digestion should be carefully studied. Gastritis, dyspepsia, duodenal inflammation, liver disturbance with possible slight jaundice, constipation, diarrhea, chronic appendicitis or any chronic abdominal or pelvic pain with the necessary reflex disturbances to digestion must all be noted and eliminated if possible.

4. All of the functions should be studied and, if found wrong, treated. This includes not only the digestion and the bowel movements, but a study of the twenty-four hours' urine, a study of the secreting ability of the skin and of the regularity and type of the menstrual periods. If the skin is dry, massage, hot baths, and oil or fat imunctions should all be inaugurated. If there is too profuse perspiration causing prostration, alcohol rubs should be given. An albuminuria should be noted, and treated, if present.

5. The cough and expectoration should be studied; whether the cough is productive or unproductive; whether there is a dry, tickling cough which may be due to lingual tonsil inflammation; whether there is laryngeal irritation, tracheal inflammation, pleural pains, or other reflexes, all should be noted in relation to whether or not the patient need have the amount of cough he does have. If the expectoration is profuse and the cough is consequently necessary and productive, some codein and ammonium chlorid combination (not sweet) or terpin hydrate, are advisable. An iodid should rarely be given in tuberculosis, as it may be as much of a stimulant to tuberculous processes that are quiescent as is a small dose of tuberculin. The following is a suggestion for the codein mixture:

R	Gm. or c.c.		
Codeinæ sulphatis.....	20		gr. iv
Ammonii chloridi	5	or	ʒi
Syrupi acidi citrici.	25		fl. ʒi
Aquæ q. s.....ad	100		ad. fl. ʒiv

M. et Sig.: A teaspoonful, in water, every two or three hours.

Or:

R	Gm. or c.c.		
Terpini hydratis	5	or	gr. lxxv
Fac capsulas siccas.....	20		

Sig.: A capsule, with water, every four hours.

An inflamed lingual tonsil which is causing a dry, tickling cough should be treated locally by swabbing with boroglycerid. The throat should be carefully studied and treated with such gargles and sprays as seem indicated. Irritations in the nose may be a cause of reflex cough. Consequently the nostrils, throat and also ears should be studied and receive such treatment as is indicated. The glands in the thorax may be enlarged and press on nerves and cause reflex cough. Such glands may be discovered by *x-ray* pictures. Enlarged glands in the neck should be carefully watched and the decision made whether they require extirpation, whether they improve with the general improvement of the patient, or whether *x-ray* treatment is or is not advisable.

6. The circulation should be carefully studied. A heart may be very rapid, not from the tuberculous process, but from a hypersecreting thyroid gland; or there may be pain that causes the circulation to be rapid; or there may be nervous excitations; the patient may be troubled by his friends and his family. Such patients should be more or less quietly isolated and see no one but the nurse or the immediate family, and should not

be disturbed with troublesome household or business cares. Tuberculous patients should be protected from disturbance as much as a convalescing typhoid patient. The heart may be insufficient and need a cardiac tonic.

The blood-pressure should be noted, and though perhaps it may not need treatment, it should be watched. A high blood-pressure may be a cause of pulmonary bleeding. On the other hand, a low blood-pressure from insufficient force of the heart may require digitalis.

7. Laryngeal tuberculosis, when properly treated, is not nearly so hopeless in prognosis as has been thought. In other words, a laryngeal tuberculosis should not be neglected, but should receive immediate and constant expert treatment.

8. If a patient does not soon show improvement, the advisability of using tuberculin in minute doses should be seriously considered. To use tuberculin properly as a curative agent, however, experience is necessary, and no physician should use tuberculin for this purpose until he has studied the method and reactions at some sanatorium, hospital or dispensary where tuberculin is frequently used.

INTESTINAL HORMONE: HORMONAL

In this note of warning it is not necessary to go into the chemistry or activities of hormones. Suffice it to say that an intestinal hormone is offered for therapeutic use with the object of causing intestinal peristalsis. Not only is it declared to act successfully in paresis of the intestine, which so frequently occurs after abdominal operations and in serious conditions, as a tympanites in pneumonia or other serious infections, but it is also urged as a cure in obstinate chronic constipation. It occurs in two forms: for injection intravenously, and for injection subcutaneously.

This substance is prepared most advantageously from the spleen. Its activity is perhaps, and probably, mostly due to cholin, which is a toxin which is formed more or less in the intestine, and which is a peristaltic stimulant. If, as seems probable, the cholin is the active principle of this hormone prepared from the spleen, it seems unwise and unscientific to administer the mixture of substances with which it is combined. In other words, if cholin is what does this sort of therapeutic work, cholin should be prepared and administered alone.

It is suggested that before administering this preparation, a large dose of castor oil be given to lubricate and soften any dried or retained fecal matter that may be in the intestines. This is undoubtedly good advice.

As a matter of fact, some recent clinical investigations do not seem to show that this preparation is valuable in the cure of chronic constipation. In the next place, it is a more or less dangerous preparation to use. Intravenously it seems hardly excusable—certainly never excusable in chronic constipation. Used intramuscularly its success is not sufficient to warrant injection of such mixed toxins into the tissues.

It has been positively noted that hormonal will cause vasodilatation, and serious symptoms of collapse have been produced. In other words, in serious shock conditions or obstructive conditions of the intestines, with paresis of the intestines, when hormonal is supposed to be indicated, more or less low blood-pressure is present, and the injection intravenously of hormonal is likely to increase the shock.

In a recent communication Zuelzer, the originator of hormonal, explains the symptoms of collapse as due to an impurity consisting of albumose which he will have eliminated from subsequent samples of the preparation.

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[For other information see second page following reading matter]

SATURDAY, AUGUST 10, 1912

IS CANCER OF INFECTIOUS NATURE?

A few years ago much was written about the infectious or parasitic nature of cancer, and intracellular and other bodies were described which some regarded as probably the actual cause of cancer. The failure to cultivate these bodies, coupled with the demonstration that they in large measure most likely are products of degenerative changes in the cells, as well as other reasons, soon led to the general abandonment of the idea that such bodies have any etiologic significance, and for a time we have heard comparatively little about the parasitic nature of malignant tumors. Now, however, voices are being raised again in favor of the parasitic theory, and the reasons now advanced in support of this view are seemingly more substantial because based on experimental observations on animals and plants. There is no doubt but that the investigation of cancer entered on a much more promising phase when it began to concern itself less with the purely morphologic study of human tumors and more and more with the experimental study of transplantable tumors. It is out of the question to discuss all the facts bearing on the possible infectious nature of cancer that have been brought to light by the experiments with transferable tumors, and therefore attention will be confined to what at present appear to be the most significant results in favor of the infectious hypothesis.

Of all the results of the experiments with transplantable tumors in animals the most noteworthy from the point of view of infection are those obtained by Peyton Rous of New York with a sarcomatous tumor of the hen. This investigator has shown conclusively that sarcoma may be produced by the injection of fluid obtained from the tumor after it has been filtered free from every trace of tumor cells. Quite naturally this result is being interpreted as due to a living virus so small that it passes through rather coarse filters, and this interpretation may be accepted as the most reasonable withal, even though it perhaps cannot be denied that it is within the range of possibility that it may concern some non-living substance produced by the cells in the animal body. At all events, this is so far the only instance in which it has been shown beyond any doubt that a growth corresponding in every character-

istic to a malignant tumor can be propagated by cell-free material, except possibly the remarkable thyroid proliferations that occur in epidemics in fish in hatcheries, which are being studied by Gaylord of Buffalo and others, and concerning the real nature of which, whether cancerous or not, there is some difference of opinion. While it would not be warranted yet to conclude that all cancers are of infectious nature, these observations certainly seem strongly and directly to favor that view.

Recently the view that cancers are infectious has received support from another source also, namely, plant pathology. It is urged by Erwin F. Smith of the Bureau of Plant Industry in the United States Department of Agriculture, that the disease of plants known as crown-gall is in truth a plant cancer. The growth is cellular and infiltrative in character; it sends out long strands of new tissue in the course of which secondary growths may develop of the same structure as the parent growth so that when the primary growth is in the stem, secondary growths in the leaf do not have the structure of the leaf but of the stem. Discontinuous metastasis does not seem to occur, metastatic growths being connected with the primary growth by strands of new tissue, and Smith points out that on account of the absence in plants of a rapidly circulating stream, discontinuous metastasis can hardly be expected to take place. The disease is caused by a definite bacterium, *Bacterium tumefaciens*, discovered by Smith, which occurs in the cells of the growths and which produces typical crown-galls when inoculated into plants (daisy).¹ Smith holds that this bacterium stimulates the cells to rapid and indefinite proliferation, and that the facts discovered in regard to crown-gall or plant cancer have a direct bearing on human cancer. Jensen also holds that a similar growth in the sugar-beet shows strict analogy in structure and development to human and animal cancer.

If it becomes necessary to adopt the view advanced by Smith that the crown-gall he has studied with such success is a true cancer, then to him will belong the credit of having discovered first the precise cause of a cancerous growth. On account of the absence of complete analogy between the structure of plants and that of animals, the question whether crown-gall is a cancer or not in the ordinary sense of the word would seem to be a difficult one to settle at this time; but Smith makes out a very strong case in favor of his view, and we must acknowledge that the view of the infectious cause of cancer in general is strengthened by his work.

The cause of animal cancer still awaits solution, but the discoveries of Rous in regard to his hen sarcoma and of Smith with respect to so-called plant cancer warrant the adoption of the idea that cancer is infectious, as a tentative or working hypothesis to stimulate and guide investigation of this difficult problem.

1. Smith and Townsend: Bull. 213, Bureau of Plant Industry, U. S. Dept. of Agric., 1911. Smith, Brown and McCulloch: Bull. 255. Smith: Proc. Path. Soc. Phil., 1912, xiv, 169, Science, Feb. 2, 1912; abstr. in THE JOURNAL A. M. A., March 23, 1912, p. 872.

ANGLO-AMERICAN EXPEDITION TO PIKE'S PEAK

The physiology of altitude has long had an interest not only because of its evident bearing on the sports of mountain climbing, ballooning (and we may now add aeroplane flights), but also in relation to the reputed therapeutic effects associated with a sojourn at high mountain resorts. Mountain-sickness has been subjected to rigorous experimental analysis by a number of well-known physiologists without reaching a complete accord regarding the explanation of the phenomena. Most of the investigations have been undertaken in the Swiss Alps where the facilities for experiment and the convenient availability of suitable laboratory equipment have, until very recently, been far from satisfactory. It is strange that the unusual opportunity offered by the very accessible Pike's Peak, reaching an altitude of 14,109 feet above sea-level with a barometric pressure of only 18 inches at the summit, has never been adequately appreciated. During the summer of 1911 an Anglo-American expedition, consisting of Drs. Haldane and Douglass of the University of Oxford, Dr. Henderson of Yale University, and Dr. Schneider of Colorado College, spent some time in attempting to discover to what extent and by what means adaptation takes place to low barometric pressure and consequent deficiency in the partial pressure of oxygen in the air. A preliminary report of their observations on the summit of Pike's Peak has just been made.¹ The more immediate effects after arrival were blueness of the face and lips, nausea, intestinal disturbance, headache, fainting in some persons, and periodic breathing, besides great hyperpnea on exertion or holding the breath a few seconds. With the exception of the latter these symptoms disappeared after two or three days when acclimatization had begun to appear. There has been much dispute as to the real cause of these phenomena; but these scientists state that all of the symptoms (apart from the effects of bright light) observed by them in the large number of persons who ascended the peak are referable directly or indirectly to want of oxygen, produced by the diminished pressure of oxygen in the air. The respiratory exchange remained about normal. There appeared to be very little change in the rate of circulation on Pike's Peak after acclimatization. Pulse and blood-pressure were little affected, though in most cases there was a slight increase in the pulse-rate. The percentage of hemoglobin in the blood increased for several weeks on the summit. The number of red corpuscles increased parallel with the hemoglobin, and the percentage volume of the corpuscles increased in proportion to the percentage of hemoglobin. During the first three weeks there was a large increase in the total amount of hemoglobin. On descent from Pike's Peak the percentage of hemoglobin decreased much more rapidly than the total amount present. It required

about four weeks for the excess of hemoglobin and blood-volume to disappear.

Perhaps the most striking feature of the observations of the Anglo-American expedition of 1911 was what its members interpret as an adaptation whereby the arterial oxygen pressure was maintained at a higher level than one would expect from the diminished alveolar oxygen tension. They ascribe this to a progressive increase in the activity of the alveolar epithelium in secreting oxygen inward. According to these physiologists acclimatization to high altitudes is due mainly to the increased secretory activity of the alveolar epithelium, but partly also to the increased lung ventilation, and to a lesser extent to the increased hemoglobin content of the blood. The acclimatization takes some days to develop. They add that during rapid ascents in balloons or aeroplanes it would not have time to develop, and this explains the contrast between the experience of balloonists, etc., and that of mountaineers who ascend gradually.

The view that the pulmonary epithelium may take an active part in secreting oxygen into the blood instead of acting merely as a passive membrane in the process of gaseous exchange is by no means new; but it has never received very active support from the majority of physiologists. The fact that a group of competent investigators advocate anew the active secretory function of the lungs will make the detailed publication of their evidence awaited with great interest. Meanwhile the hypothesis gives some tangible suggestion as to what actually may happen when an individual becomes adjusted to the atmospheric environment of high altitudes.

McCARRISON'S RESEARCHES ON GOITER

Although it must be frankly stated that the cause of goiter is unknown, the old belief in the relation of this disease to drinking-water still has many facts to commend it. The etiologic factor may be associated with the chemical composition of the water or related to its microbiology. It has been difficult to connect the causative agent of goiter definitely with either of these features. While there is much to support the idea of a living agent as the responsible cause of the disorder of the thyroid, it is not easy to understand, on this hypothesis, why the gland eventually returns to a condition of equilibrium when the individual leaves the harmful region. Are we to assume that the destruction of the germs can follow so readily when there is no longer any source of infection? Few infections are thus limited to locality or fail to be progressive and self-propagating.

The existence of a living infectious agent in the etiology of endemic goiter has been vigorously maintained by Captain McCarrison of the Indian Medical Service.¹ Extensive observations in some of the goitrous

1. Douglass, C. G., Haldane, J. S., Henderson, Y., and Schneider, E. C.: The Physiologic Effects of Low Atmospheric Pressures, as Observed on Pike's Peak, Colorado, *Proc. Roy. Soc. London (B)*, 1911, 19, 65.

1. McCarrison, R.: *Quart. Jour. Med.*, 1909, ii, 279; *Ann. Trop. Med. and Parasitol.*, 1911, v, 1; *Proc. Roy. Soc. London (B)*, 1911, lxxiii, 335.

regions of India have led him to the belief that suspended matter in the drinking-waters which give rise to goiter there contains the causal agent. It can be removed by filtration. The filtered waters are innocuous, but administration of the suspended matter leads to goiter in man. Inasmuch as boiling destroys the goiter-producing powers of the water, it is assumed that the etiologic factor is an organism. McCarrison believes that the infecting agent exists in the intestinal tract and that a plentiful amebic infection was present in this situation in the vast majority of all cases of goiter where he investigated the disease.

Theories of intestinal toxemia as the causal factor in all sorts of organic disease are far too current in modern medicine to be accepted with more than extreme skepticism. Whatever one may think of his explanations, McCarrison's protocols and photographs leave little doubt that he has produced goiter experimentally in man by the administration of matter separated from a goiter-producing water by means of a Berkefeld filter. Reasoning in familiar channels, McCarrison has lately prepared vaccines from the bacillary growths cultivated from intestinal material from the feces of goitrous patients and has employed them in the treatment of recent cases of goiter.² The results are reported to be most encouraging. In several cases the thyroid swelling disappeared after two or three inoculations and the patients have found the treatment agreeable. There is no effect in cases of long-standing goiter, that is, cases in which the main part of the swelling is made up of adenomas or of cysts; the value of the treatment is confined exclusively to cases of recent parenchymatous goiter.

So much for facts. They are derived from clinical reports and can be accepted as correct observations. McCarrison contends further that the results of the vaccine treatment confirm his view of the microbiotic etiology of goiter. There is no evidence that a specific organism of the disease has been isolated or that it is present in the vaccines. To this McCarrison would make reply that the thyroid is markedly influenced by the nature of the bacterial flora of the intestine and is normally called on to combat many toxic substances which find their way into the blood-stream from the alimentary tract. When the thyroid is relieved of part of its normal work, the different vaccines are assumed to enable the gland to destroy the specific toxin of goiter without continuing in a state of hypertrophy from overwork.

All this is of interest and value, but not conclusive. We must be on our guard in accepting any hasty generalizations, particularly in the field of vaccine therapy which has so often proved illusive in the past. Hypothesis is of value in stimulating research. The real cause of goiter is still unknown.

VACCINE AND SERUM THERAPY IN THE COMPLICATIONS OF OTITIS MEDIA

In this newest application of vaccine and serum therapy, the English are among the earliest in the field with reports. An important report is that of Turner¹ who describes in detail a series of five cases in which a polyvalent antistreptococcus serum was used subsequent to the ordinary surgical operation. In each of these cases there was involvement of the sigmoid sinus or the meninges, and in each case the streptococcic nature of the infection was established by bacteriologic examination. In three cases in which serum treatment was given early, recovery occurred. In the two fatal cases the post-mortem showed that the disease must have progressed widely before the serum was given, and in one of these cases infection with the *Bacillus aerogenes* also was found to have taken place.

In four cases in which autogenous vaccines were used, there were three recoveries. In the first of these cases, in which a sigmoid thrombosis existed, the *Bacillus proteus* was isolated at the time of operation. On treatment with a vaccine of this organism, the patient improved rapidly, the temperature remaining down. When the vaccine was stopped, the temperature immediately rose and exacerbation of the condition developed. The vaccine treatment was resumed and the case went on to a complete recovery. The author concludes that in every case there should be no hesitation in employing one or the other of these methods of treatment.

In a general discussion of the treatment of streptococcus infections by vaccine and serum therapy, Ball² includes three cases of the nature of those of Turner. In two cases of sinus and labyrinthine involvement, vaccine treatment after operation was followed by rapid fall of temperature and prompt recovery. In a third fatal case, systemic infection had occurred previous to the injection of the vaccine. Ball suggests that with earlier beginning of the treatment a favorable response possibly might have resulted here also. It is the opinion of Ball that the highest value of this therapy lies in its prevention of systemic infection in those cases which are on the borderline. In a recent report by Rosenow³ two cases of sinus thrombosis and meningitis associated with streptococci in otitis media are described in which very good results followed vaccine and serum treatment. In one instance administration of autogenous vaccine was followed by prompt alleviation of symptoms and the subsequent injection of antistreptococcus serum produced or was followed by further favorable developments.

The number of cases so far reported is indeed small, but it would seem that the results are such as to make it advisable to adopt this treatment in practically all cases of complications in middle ear disease. Surely the work so far done in this field fully warrants further efforts in the same direction.

1. Turner: Jour. Laryngol., Rhinol. and Otol., 1912, xxvii, 22

2. Ball: Lancet, London, 1912, i, 1515.

3. Rosenow: Read before Illinois State Medical Society, May, 1912.

2. McCarrison, R.: The Vaccine Treatment of Simple Goiter, Proc. Roy. Soc. Med., 1912, v, No. 4.

While there is much of suggestion and value in reports of individual cases which have been watched closely and studied scientifically, including in the cases under consideration the establishment of an etiologic diagnosis, examination of the blood and comparisons of the specific opsonic indices before and after treatment, the final decision as to the real value of the treatment can be made only on the basis of statistics of a large number of cases under this treatment as compared with others in which a different treatment was followed.

AN UNWISE ECONOMY

It has become a habit with certain congressmen, desiring to secure the passage of a measure without publicity and discussion, to insert it in the form of an amendment or "rider" on an appropriation bill. By means of this legislative trick, "jokers" of varying degrees of importance, the passage of which would be possible in no other way, are frequently pushed through Congress. An interesting and peculiarly stupid instance of such action has recently occurred. During the consideration of the appropriation bill for the District of Columbia, the following section was slipped into it:

"No money appropriated by this or any other act shall be expended for membership fees or dues of any officer or employee of the United States or of the District of Columbia in any society or association or for expenses of attendance of any person at any meeting or convention of members of any society or association, unless such fees, dues, or expenses are authorized to be paid by specific appropriations for such purposes or are provided for in express terms in some general appropriation."

This sweeping provision, if allowed to remain on the statute-books, will not only have most unfortunate results in our own country, but will seriously affect the scientific standing of the United States throughout the world. For years past, officers of the government service have been accustomed to attend national and international scientific meetings to present reports of work done or to secure cooperation between government services and scientific, philanthropic and other organizations. Government representatives have borne an important part in building up the American Public Health Association, the American Association for the Advancement of Science and other scientific bodies whose work has been of the greatest public benefit. In our international relations, notifications are constantly being received through diplomatic channels asking the cooperation of the United States in international congresses, covering all branches of social and scientific questions, sanitation and public health of the utmost importance not only to scientific men but to the welfare of nations.

The adoption of the section quoted above practically prohibits any officer or employee of the national government from attending any scientific body or scientific meeting. Government employees, especially in scientific lines, are notoriously ill paid and cannot be expected to attend such meetings at their own expense. The provision for specific appropriation does not relieve the

situation, as it is impossible to determine a year in advance what occasion may arise for attendance on scientific bodies. The result of the passage of this section, therefore, will be that the United States government will cease to participate hereafter in the congresses and scientific gatherings which have exercised so stimulating an influence on modern scientific problems and progress. It will be interesting to know the reason of the introduction of this measure. Certainly when it was adopted the members of Congress did not realize that they were practically barring the government services from participating in scientific gatherings. Whatever the reason for such blundering stupidity, it is to be hoped that it will be speedily remedied at the first opportunity by the repeal of this section.

THE SO-CALLED FUNCTIONAL TESTS FOR ORGANIC DISABILITY

Much ingenuity has been exhibited and numerous chemical tests have been devised in recent years to meet the demand for methods of detecting defective functioning of various organs in the body. The liver, for example, is a gland endowed with a multiplicity of activities of supreme importance for the welfare of the individual. Certain impairments of its normal processes can be detected with comparative ease, especially when they have advanced to the point of becoming prominent defects. Cirrhosis of the liver, in an advanced state, is not particularly difficult to recognize; but the incipient stages of this and various other pathologic conditions may call for the closest diagnostic scrutiny before they reveal themselves. Hence comes the demand for clear-cut tests to indicate these abnormalities in their early stages with specific accuracy.

We are prompted to refer to this matter in view of a recent discussion of certain aspects of the subject by Dr. Nellis B. Foster of the New York Hospital.¹ His contribution, which bears primarily on the functional tests for hepatic cirrhosis, deserves attention because it offers a sort of sane criticism which is all too frequently lacking in such clinical literature. Dr. Foster clearly recognizes that the fundamental question involved in securing a function test for any organ depends in good measure on the discovery of some activity which is peculiar solely to the organ involved. In many instances this is most difficult to accomplish; but further than this, the incipient impairment of an organ by no means implies that it is no longer capable of accomplishing in some degree or other the specific functions involved. There are numerous processes, such as the synthesis of urea in the liver, which are executed with such apparent chemical readiness that a deficiency in a given important function does not make itself apparent through urinary analysis until a stage of pathologic disruption easily diagnosticated by simpler means has had

1. Foster, N. B.: Functional Tests for Hepatic Cirrhosis, *Am. Jour. Med. Sc.*, June, 1912, p. 830.

its onset. In other words, the ordinary capacity of an organ like the liver to perform its metabolic duties is far beyond what this gland is called on to display in the usual run of nutritive events. There is here as elsewhere in the body a large "factor of safety," to use Meltzer's suggestive expression.

The preceding facts have an immediate bearing on some of the proposed functional tests for hepatic disease. Among these the power of the liver to deamidize amino-acids and convert their nitrogen into urea has been recommended especially by continental investigators. Compounds like glycocoll (amino-acetic acid) have been fed and the partition of nitrogen in the urine has then been followed, with particular reference to reexcretion of the unaltered amino-acid. Foster's critique of the available data, pointing out the uncertainties of the dietary factor in most of the trials and the inadequacy of the analytic methods, lends little weight to the supposed value of this test. In truth there must be a severe impairment of the liver before any disturbance in nitrogenous metabolism clearly manifests itself. The word "test," however, implies a delicate as well as a specific reaction. A real test for disease should accordingly reveal a morbid process in its minutest manifestation.

Other tests are subjected to a criticism scarcely more favorable. Here belongs the levulose test proposed by Strauss in 1901 and widely tried. The presence of alimentary levulosuria after giving 100 grams of levulose to a fasting patient is taken as an index of hepatic abnormality on the theory that the glycogenesis of levulose is confined exclusively to the liver cells. At best it must be admitted that this "test," which not infrequently charges defect to clinically normal individuals, requires further investigation before its real import can be determined. The tolerance for sugars undoubtedly depends on a multiplicity of factors.

Similarly the defense of urobilinuria as diagnostic of hepatic impairment has much to contend with; for here too there are inevitable complicating sources and circumstances. We would not be understood as ready to discard the numerous functional tests which are familiar in the literature and practice of clinical diagnosis. The recent success of the investigation of renal function by means of phenolsulphonephthalein is too fresh in our minds to warrant a sweeping disregard for much that is useful. What is called for, however, is a check to the over-ready acceptance of every plan which is proposed as an unfailing test for functional disorders. As already pointed out, some of the difficulties are inherent in the unusual efficiency of our organs themselves.

Current Comment

A LIBRARY OF MEDICAL CLASSICS

The idea of an anthology of the classics of medical literature is not specially new. Oribasius and the other Byzantine compilers attempted to skim the cream of the

Greek writers and in the sixteenth century many huge encyclopedic collections of medicine, surgery, gynecology, syphilography and balneology were made by the Aldi, Giuntas, Gesners and others. The great Renaissance printers made a specialty of fine library editions of the Greek masters, and this custom has been continued more or less to the present time. As late as 1830 we find Choulant editing a neat little vest-pocket edition of the Latin text of Fracastorius' poem on syphilis. A new phase of the matter is the appearance of translations of the classics of exact science, published serially in cheap, accessible and handy form, such as Ostwald's well-known library of scientific classics or the chemical publications of the Alembic Club of Edinburgh. Some years ago Dr. C. N. B. Camac brought together Harvey, Auenbrugger, Laennec, Lister and other interesting things in one volume. In France a neat little collection comprising John Hunter, Claude Bernard, Bichat and Lavoisier was begun by Charles Richet in 1892, but not carried very far. The series of "Klassiker der Medizin," which was started by that industrious medical historian Karl Sudhoff in 1910, bids fair, however, to be a collection quite as extensive and popular as Ostwald's. It consists of a number of inexpensive pocket editions of different medical classics, similar in size, shape and binding to the Ostwald series and, like them, in the German language. The most important issues so far are Harvey on the circulation, Helmholtz on the ophthalmoscope, Fracastorius on contagion, Sydenham on gont, Virchow on thrombosis and embolism, Koch on the causation of anthrax, Jenner on vaccination, von Graefe on iridectomy in glaucoma and Rhazes on small-pox. Reil on the life-force and Henle on miasms and contagia are more especially intended for German palates, no doubt, but Kussmaul on the treatment of dilatation of the stomach by means of the stomach-pump (1869) deserves to be better known as an important innovation in therapeutics. Translations of Auenbrugger on percussion and Bichat's physiologic researches on life and death are announced to appear shortly. An issue of special interest to English readers is a bilingual (English-German) text of Sir Charles Bell's "Idea of a New Anatomy of the Brain" (1811), which occasioned the famous dispute about the functions of the spinal nerve roots and has become so rare in its original edition that the latter cannot now be had for love or money.

A GERMAN COUNCIL ON PHARMACY AND CHEMISTRY

In the Propaganda Department of a recent issue¹ we discussed the organization of a German council on pharmacy and chemistry — Die Arzneimittelkommission des Kongresses für innere Medizin — and its first preliminary report. While Germany lacks a central organization which corresponds to the American Medical Association in this country, it is hoped that the work of this council, or commission, will receive the general endorsement of the medical profession in Germany. It is to be expected that this effort toward a supervision of proprietary medicine exploitation will be opposed by the industries affected. One sign of this has already

1. THE JOURNAL A. M. A., June 27, 1912, p. 291.

appeared in the form of a protest by manufacturers.² The nature of the protest is a general objection to any interference with trade. One phase of this protest, however, is especially characteristic of Germany's tendency: it is charged that this report is liable unfavorably to affect the sale of German proprietaries in foreign countries. To those German physicians who feel that patriotism demands the support and advancement of all German industry regardless of its character, we would say that the time has long passed when we in this country took as gospel truth the claims made in German advertising circulars and in the many articles exploiting proprietaries which come to us in the form of reprints from German medical journals. Let us hope that those who constitute the German commission will not be daunted by the protests of interested concerns and that our colleagues will give the members of this council the support which they deserve.

SENATOR OWEN ELECTED

Senator Owen, against whom a bitter fight has been waged by the League for Medical Freedom crowd and by others who are opposed to a national Bureau or Department of Health, has been nominated by a majority reported, at the time we go to press, to be between 35,000 and 50,000. This nomination in Oklahoma is equivalent to election. Congratulations are extended to Senator Owen in this victory.

ACROMEGALY—A PERSONAL EXPERIENCE

One who has undergone a remarkable experience generally likes to tell about it, and we have many accounts of this kind by explorers and others. That one who has suffered from a distressing and progressive disease for at least thirty-two years should be able to write a complete and highly valuable account of his experience is more rare—indeed, so rare as to make the account almost unique. And this is what Dr. Mark, pathologic draughtsman to St. Bartholomew's Hospital, has done in his book³ on acromegaly as it afflicted himself. Of all the accounts that have been written about this strange disease none equals this in interest and charm of style. Let the author himself speak: "When fate, shaping my 'ends,' decreed that I was to suffer from the malady acromegaly [acromegaly means 'big ends'] she perhaps gave me the greatest compensation possible by causing me to enter the medical profession. After the distress caused by the one and the enjoyment due to the other—both extending over more than a quarter of a century—I find myself in the unique position of being able to relate a personal experience of this rare complaint as it affected one with some medical knowledge." Dr. Mark suffered from acromegaly for years and years before he discovered what had long been obvious to his friends. "For some fifteen or twenty years, each day when I looked into the glass to brush my hair or to shave, there was a typical acromegalic literally staring me in the face. Yet I never recognized

the fact." Fortunately he had kept a diary, the entries in which made it possible to fix the time of the appearance of certain symptoms which at first were not accounted for. The manner in which Dr. Mark became aware of the disease he had had so long is strange: "I was walking across the northeast corner of Cavendish Square one afternoon in November, 1905, when all at once the idea seized hold of my mind that perhaps I might be suffering from acromegaly, and that it might be the cause of my troubles. It came on me like a bolt from the blue. As far as I could remember afterward, no particular train of thought led up to it. For the first time I thought there might be some connection between my headaches and the enlargement of my hands and feet." The patience and fortitude that have enabled Dr. Mark to continue his work and to write this most remarkable book arouse the highest admiration. He has retained such hold on himself that he describes phases of the extremest bodily discomfort with a fine play of humor. We are given a noble example of the way in which a brave man retains courage and usefulness in the midst of severe and daily suffering.

Medical News

COLORADO

Leper in Denver.—A leper who escaped from the City Leper Hospital, San Francisco, is at present under surveillance in Denver and is confined in a tent at the pest house.

Home for Mental Defectives.—A new city home for mental defectives, Denver, was opened for the reception of patients, July 21. The present capacity of the institution is eighty. The first patients admitted were sixteen children, wards of the state, who had been inmates of a private hospital in Pueblo.

Free Clinic at Pueblo.—The month of July was devoted by the Pueblo County Medical Society to a free clinic at Pueblo. The operative work was done chiefly between July 22 and 29, at St. Mary's, Minnequa, Woodcroft and the County hospitals. During this week the members of the State Medical Society were the guests of the Pueblo County Medical Society. A complimentary banquet was given to the visiting physicians by the society, July 21, at which Dr. William Frederick Singer officiated as toastmaster.

Personal.—Dr. Henry Sewall, Denver, was given the honorary degree of doctor of science by the University of Michigan, June 27.—Drs. W. F. Singer and J. H. Woodbridge, Pueblo, while answering a call to a wrecked Rock Island train, suffered painful injuries by the overturning of their automobile.—Dr. Perry Jaffa, Trinidad, physician of Las Animas County, who recently underwent a serious operation at St. Joseph's Hospital, Denver, is reported to be improving rapidly.—Dr. William C. Mitchell has been reappointed city bacteriologist of Denver.

CONNECTICUT

New Officers.—Yale Medical Alumni Association at New Haven: president, Dr. H. B. Ferris; secretary-treasurer, Dr. M. M. Scarbrough, both of New Haven.

State Board of Health Elections.—At the annual meeting of the State Board of Health in Hartford, July 12, Dr. E. K. Root, Hartford, was elected president, and Dr. Joseph H. Townsend, New Haven, secretary-treasurer.

Personal.—Dr. and Mrs. Morris Tuch, Hartford, have sailed for Europe.—Wesleyan University, Middletown, at its eighty-first annual commencement conferred the honorary degree of LL.D. on Dr. Amos J. Givens, Stamford.—Lieut. Arthur H. Griswold, Hartford, M. C. N. G., Connecticut, has resigned.—Dr. Robert Lander, Bridgeport, has been appointed physician to the Soldiers' Home, Noroton.—Dr. Thomas G. Alcorn, Thompsonville, has succeeded the late Dr. Edward F. Parsons as medical examiner.—Dr. Edward J. Lynch, Portland, has been appointed assistant superintendent of the Hartford County Home.

2. Wien. klin. Rundschau, June 30, 1912, p. 416.

3. Mark, L. C.: *Acromegaly: a Personal Experience*. London, Baillière, Tindal & Cox, 1912. Pp. 160; price 7 shillings 6 pence net.

ILLINOIS

Chicago

Progress on the Milk Ordinance.—The public meeting on the milk question held in the city council chamber, July 31, mention of which was made last week, proved to be a stormy session, attempts being made by the opposition to block the meeting. Resolutions were passed, however, for the organization of a citizens' committee to work in harmony with the councilmen favoring the milk ordinance, for the preparation of a new ordinance and the creation of an active public sentiment that would compel its passage by the council. The subcommittee of the health committee of the council, having the milk ordinance in charge, have had meetings with the small milk dealers and a better understanding has been reached in regard to the proposed ordinance and the opposition has somewhat abated. A number of the councilmen also have changed their opinions in regard to the questions at issue and will, no doubt, favor a new ordinance, which is being prepared. Mayor Harrison, who is on his vacation, sends word that his name may be used in any way favoring a clean milk supply.

MARYLAND

Typhoid Outbreak.—There has been an outbreak of typhoid fever at Cambridge, which is now being investigated by the State Board of Health. Up to August 1, about eighteen cases have been reported and it is believed that the number under blood test will reach forty. It is believed that the outbreak was due to infected milk.

Baltimore

More Births Are Being Reported.—The good results of the law passed by the legislature last November requiring the physicians and midwives to report all births within four days are already being shown. During July, 1,690 births were registered, the largest number on record.

Milk Plan Only Tentative.—Dr. C. Hampson Jones, acting commissioner of health of Baltimore, advises that a tentative plan has been made by the department which requires that no raw milk may show more than 500,000 bacteria per cubic centimeter and that the outside limit of bacteria for pasteurized milk as delivered to the customer should be 50,000 bacteria per cubic centimeter. This plan will probably be adopted. The standard referred to July 27 was not adopted.

Personal.—Dr. Eugene B. Wright, resident physician to the Church Home and Infirmary, Baltimore, has received an appointment to a similar position at the Hebrew Hospital, vice Dr. Chadbourne Andrews. Dr. Wright has been succeeded by Dr. Luke V. Zartman. —The residence of Dr. August Horn was struck by lightning, July 29. —Dr. Gilbert T. Smith, surgeon to the Alaska-Canada Boundary Commission, has returned from Alaska and has started for Europe. —Dr. Harvey Cushing will leave Baltimore permanently next month, and will assume duties as surgeon in chief of the Peter Brent Brigham Hospital, Boston, on October 1. —Dr. William Royal Stokes, city and state bacteriologist, is ill in Mercy Hospital with bronchitis.

MICHIGAN

Combined Society Meeting and Picnic.—A meeting and picnic of the Muskegon-Oceana County Medical Society was held at Clear Lake, near Holton, August 2. Papers were read by Dr. Ryan, Des Moines, Ia., and Dr. Channing W. Barrett, Chicago. The meeting was in charge of Dr. B. F. Black, Holton. The guests provided their own lunches, but coffee, ice cream and plates were furnished by Dr. and Mrs. Black.

Personal.—Dr. W. S. Picotte, Ishpeming, has returned from Europe. —Dr. H. E. Locher, president of the board of health of Grand Rapids, who has been ill for several months, has recovered and resumed practice. —Dr. Alexander M. Campbell, Grand Rapids, fractured his right wrist while cranking his automobile, July 26. —Dr. Thomas C. Weston, Muir, underwent operation at St. Mary's Hospital at Grand Rapids, July 24. —Dr. Carl D. Chapell, Flint, fractured his right leg while wrestling at Watkins Lake, July 18. —Dr. Edward T. Abrams, Hancock, and Dr. F. M. Harkin, Marquette, have been appointed medical inspectors for the twelfth district and Dr. H. A. Hume, Owosso, medical inspector for the eighth district.

MISSOURI

Personal.—Dr. O. Wendell Mitchell, Columbia, sailed for Europe, July 22. —Dr. D. K. Morton, Kansas City, is seriously ill at his home with paralysis. —Dr. F. W. Burke, Laclede, has been appointed a member of the State Board of Health, vice Dr. M. P. Overholser, Nevada, resigned. —Dr. L. C. Cook, Webb City, has been commissioned major M. C.,

N. G. Mo., and assigned to the Second Infantry. —Dr. Thomas Lynch, St. Joseph, was painfully injured in an automobile collision, July 13. —Dr. Thomas J. Dandurant, St. Joseph, has had conferred on him the honorary degree of LL.D. by Christian Brothers College, St. Louis.

New Officers.—Second District Medical Society, at Hannibal, July 16: president, D. C. E. Callison, Kirksville; secretary, Dr. Fred D. Stichter, Louisiana. —North Missouri Medical Association at Kirksville: president, Dr. C. S. Wilson, Kirksville; secretary, Dr. E. W. Gnilford, Monroe City.

Hospital Officers and Staffs Elected.—The staff of German Hospital, Kansas City, has elected Dr. F. W. Froehling, president; B. L. Sulzbacher, vice-president; Dr. M. W. Pickard, secretary; Drs. J. Q. Chambers and G. H. Hoxie have been elected physicians; Dr. E. F. Robinson, J. F. Binnie, William F. Frick and E. Von Quast, surgeons; Dr. George C. Mosher, obstetrician; Dr. Frank C. Neff, pediatricist; Dr. W. K. Trimble, bacteriologist; Dr. H. C. Anderson, anesthetist; Dr. J. E. Sawtell, rhinologist and laryngologist; Dr. W. H. Schutz, ophthalmologist and otologist; Dr. W. L. McBride, dermatologist and Dr. Ellsworth Knerr, roentgenologist. —The following appointments of medical staff have been made at the Levering Hospital, Hannibal: Dr. J. N. Baskett, physician in charge; attending staff, Dr. Thomas Chowning, surgeon; Dr. I. E. Hill, physician; Dr. J. J. Farrell, gynecologist and urologist; Dr. W. H. Hays, obstetrician and pediatricist; Dr. J. N. Baskett, pathologist; Dr. E. T. Hornback, oculist and aurist and Dr. J. F. Cooper, roentgenologist; consulting staff—Drs. C. E. Paxon and H. L. Banks, surgeons; Drs. Richard Schmidt and Mary S. Ross, physicians; Drs. J. F. Cooper and C. E. Paxon, gynecologists and urologists; Drs. W. C. Guss and E. E. Waldo, obstetricians and pediatricists and Drs. U. S. Smith and James S. Howell, oculists and aurists. —The Hadley Hospital for tuberculosis patients, at the Fulton State Hospital, completed at a cost of \$50,000, was opened June 11. Drs. Frederick Walter, Perry and H. G. Dallas, Augusta, have been appointed members of the staff.

St. Louis

New Health Bulletin.—St. Louis Board of Health has begun the publication of a monthly magazine to be known as the *Bulletin of the St. Louis Health Department*. The object of the publication is the dissemination of information and advice regarding sanitation and disease prevention.

Luncheon to Medical Reserve Corps.—About twenty of the members of the Medical Reserve Corps, U. S. Army, were entertained at Jefferson Barracks, July 12, by Major Deane C. Howard, M. C., U. S. Army. After an informal reception, the officers inspected the reservation, and the hospital corps detachment gave an exhibition drill. The entertainment concluded with an informal luncheon.

Inebriate Ward Needed.—On account of the number of cases of injuries of the skull in which patients have been sent to the police stations and detained there on the charge of intoxication, the establishment of a detention ward for inebriates has been suggested, and temporarily, the city dispensary physicians have been ordered to send all such patients to the City Hospital for detention and observation.

NEW YORK

New Hospital at Saranac.—The foundation of the new General Hospital which is being erected at Saranac has been completed. Many summer visitors have made contributions and the subscriptions now amount to \$6,500. The Saranac Lake Graduate Nurses Association has contributed \$125.

Pellagra at Hornell.—Mrs. Rose M. Palmore died from pellagra at Hornell on July 30. Attention was first called to the case last April and since that time the patient was under the observation of the state dermatologist, Dr. Frederick C. Curtis. It is said that this is the first case of this disease that has been observed in this state.

New York City

Post-Graduate Directors Reorganize.—At a reorganization meeting of the New York Post-Graduate Medical School and Hospital the following officers were elected: president, Dr. James F. McKernon; vice-president, Dr. Edward Quintard; secretary, Dr. Arthur F. Chase; treasurer, William Falme-stock; secretary of the faculty, Dr. George G. Ward, and superintendent, Dr. H. T. Summersgill.

Increased Number of Street Accidents.—Deaths and serious injuries from street accidents continue to increase. During July, the National Highway Protective Society reported 52 persons killed and 259 injured, as against 26 killed and 186 injured during the corresponding month of last year. There

has been a reduction in the number of accidents and deaths due to street cars, which is the direct result of rigidly-enforced regulations of the traction companies.

Cleaning Up the City.—The Department of Health and Street Cleaning, the Charity Organization and the Boy Scouts have begun a week's campaign in cleaning up streets, cellars and backyards throughout the city. The idea of such a campaign had its inception with James Jenkins, Jr., secretary of the Brooklyn Tenement House and Tuberculosis Prevention Committee, who had tried the plan in an Italian colony in Brooklyn, where it met with such success that it has seemed worth while extending the work.

Teaching Tuberculous Children on Hospital Roof.—The elementary schools committee voted to have a school room on the roof of the Long Island College Hospital for tuberculous children. Forty boys and girls will make up the class to start with; food and clothing will be furnished them so that they can endure the severest weather. Roosevelt Hospital expects to offer the use of its roof for a class of this description. Five other roof classes will be established in Brooklyn this fall. This will be the first instance in which a public school has been joined to a hospital so that the children may receive medical attention every day.

To Stimulate Defective Children.—William H. Maxwell, superintendent of schools, has decided to ask the Board of Education to sanction an experiment in electrifying a school room for the purpose of stimulating mentally defective children. The plan used will be that of Nikola Tesla, who has tried the plan in Stockholm. The electrical apparatus is installed in the walls of the room and is so hidden that neither the children nor the teacher are aware of its presence. In order to test the efficiency of this plan, about fifty deficient children will be instructed in an electrified room, while the same number of defective children will be used as controls.

Personal.—Dr. Charles Fraser, ambulance surgeon of St. Catherine's Hospital, Brooklyn, while responding to a hurry call was seriously injured by a collision between the ambulance and a trolley car, July 31.—Dr. Louis L. Sweeney, ambulance surgeon of the Bradford Street Hospital, Brooklyn, was painfully injured while responding to an emergency call, July 28, but in spite of his injuries, rendered first aid to a man who had cut his throat, and inserted a tracheotomy tube before returning to the hospital to have his own wounds dressed.—Dr. Robert L. Gray, Dr. George W. Warren, Dr. and Mrs. Edwin Beer, Dr. David Bovaird, Jr., Dr. James L. Porteous, Dr. L. C. W. Chapin, Dr. and Mrs. Edward E. Hicks, Brooklyn; Dr. J. P. McParlan, Dr. and Mrs. Ernest Hubbard have sailed for Europe.—Dr. William B. Pritchard has returned from abroad.

NORTH CAROLINA

New Hospitals.—Ground was broken last week for a new private hospital in Fayetteville to be known as the Cumberland Hospital.—The sanatorium of Dr. Charles T. Harper, Wilmington, formerly the Wilmington Sanitarium, was reopened July 20. The building has been thoroughly remodeled and a story has been added.

City Acquires Sewer System.—After long consideration and preliminaries, the sewer lines of the Wilmington Sewerage Company have been acquired by the municipality. The system is twenty miles in extent, exclusive of laterals and cost the city \$130,000. Betterments and extensions will be added to the amount of \$200,000. It is also planned to construct, conjointly with New Hanover County, a garbage incinerator to cost not more than \$50,000, four-fifths of the expense to be assumed by the city and the remainder by the county.

OHIO

Physicians' Building.—Contracts have been awarded for the erection of a three-story office and apartment building in Columbus, to cost \$26,000.

New Officers.—Tri-County Medical Society (Wood, Hancock and Seneca counties) organized at Findlay, July 25: president, Dr. Jacob A. Kimmell, Findlay; vice-presidents, the presidents of the county societies; secretary, Dr. C. B. Kennedy, Findlay.—Sandusky County Medical Society: president, Dr. M. Stamm; secretary, Frank Moore, both of Fremont.

Personal.—Dr. John C. Hervey, Martins Ferry, is reported to be ill with scarlet fever.—Dr. M. H. Cannedy, Painesville, coroner of Lake County, has resigned.—Dr. Charles Flint Kline, Portsmouth, is reported to be critically ill.—Dr. H.

P. Martin, Chillicothe, was stunned during a severe electric storm, July 18.—Dr. W. C. Gates has purchased a building in Bucyrus which is to be remodeled and equipped as a hospital.

Welfare Work for Employees.—The National Cash Register Company, Dayton, has added an innovation in welfare work for women employees. Last year it undertook the preparation of a lecture on the "Venereal Peril" illustrated by lantern slides and kinemacolor motion pictures of hospital cases. This lecture has been given before several medical societies and by invitation of the American Medical Association was given several times during the Atlantic City session. Thus far the lecture has been given to about 800 of the 5,000 men employees of the National Cash Register Company. Last month in response to a request from a committee of women employees, the company had a series of lectures given its 700 women employees on "The Physiology and Hygiene of Sex and the Social Diseases." Four lectures and two conferences were given by Dr. Elvora C. Folkmar of Washington, D. C. The subjects discussed were: (1) "Reproduction in Plants, Fishes and Frogs"; (2) "Reproduction in Insects, Birds, Mammals, Man"; (3) "The Hygiene of Adolescence" and (4) "Social Diseases." The conferences were given to answer more than 300 questions that had been handed in by the women at the close of the fourth lecture. All the lectures were illustrated by lantern slides and moving pictures. The slides for the first three lectures (250) were prepared from illustrations selected by Dr. Folkmar especially for this course. The slides used for the lecture on "Social Diseases" were selected from those prepared for the lecture on "The Venereal Peril." The motion pictures showed the development of the frog from an egg, the development of the chick from an egg, and the ravages of the *Spirochæta pallida*. This sort of educational work is unique among industrial institutions and demonstrates the interest which this manufacturing concern takes in its employees. Each of the 700 women employees was allowed one and one-half hours working time for six successive days to attend these lectures which were furnished at the company's expense.

PENNSYLVANIA

Philadelphia

State Railway Accidents.—Records of the State Railway Commission show that in the first six months of 1912, 7,566 accidents occurred on the steam railroad and trolley railways of the state as compared with 6,167 in the same period of 1911. The fatalities on steam roads in the first half of the present year, numbered 559 and 85 on street railways, as compared with 530 on steam roads and 101 on street railways for the same period of 1911.

Increase in Typhoid.—There has been a decided increase in the number of cases of typhoid fever and they are chiefly confined to the downtown sections. According to Dr. A. A. Cairns, chief medical inspector, who has been investigating these cases, out of the twenty-five cases reported from downtown during July, it was learned that ten had been caused by swimming in the Delaware, six in the Schuylkill and nine from drinking unfiltered water.

Italian Ships Fumigated.—The Italian Steamship Company is cooperating with the City Board of Health in adopting safeguards to prevent its vessels, plying between this city and Italy, being contaminated by any rats and in the case of the steamship *America* which reached here July 31, appealed to Chief Vogelson, of the Bureau of Health, to have the ship thoroughly fumigated and disinfected while she was lying at the municipal pier, Race Street.

Personal.—Dr. Lewis Brinton was struck by a motorcycle as he alighted from a trolley car in Atlantic City on July 30 and sustained concussion of the brain and internal injuries.—Dr. A. H. Stewart has resigned as first assistant bacteriologist at the city's antitoxin laboratory.—Dr. Benjamin L. Gordon, a police surgeon, was attacked by highwaymen, August 1, beaten into unconsciousness and robbed.—Dr. Paul J. Sartain has sailed for Europe.

Society Urges New Tuberculosis Hospital.—The Pennsylvania Society for the Prevention of Tuberculosis issued, on July 31, a survey of the tuberculosis equipment of Philadelphia, which sets forth that the number of beds available for consumptives in Philadelphia is alarmingly small, there being 582 beds, while 2,960 deaths occurred last year. The location of the wards for consumptives at Blockley is criticised and recommendations are made for the building of a modern tuberculosis hospital on a site elsewhere. Four sections of the city are shown to be without dispensary service. They are: the Gray's Ferry District; the western part of West Philadelphia;

LONDON LETTER

(From Our Regular Correspondent)

LONDON, July 27, 1912.

The Annual Meeting of the British Medical Association

The eighteenth annual meeting of the British Medical Association was held in Liverpool, July 23-26. The university and public buildings furnished ample accommodation for the general and sectional gatherings. The meeting was attended by delegates from the oversea branches, of which South Africa sent as many as eleven and Australasia fourteen. Canada was represented by Professor Cameron of Toronto and Professor Birkett of Montreal. Among the foreign guests were Professors Blanchard de Beurmann of Paris, Drs. Hajek and Kahler of Vienna, and Snellen of Utrecht, Professor Strauss of Amsterdam, Dr. Haenisch of Hamburg, Dr. Seidelin of Mexico and Drs. Casey A. Wood and Ballenger of Chicago. The president, Sir James Barr, gave his address the title, "What Are We? What Are We Doing Here? Whence Do We Come? and Whither Do We Go?", which he took from Bergson's Huxley lecture on "Life and Consciousness." In the present case "we" of course was narrowed down to the medical profession. The address was mainly concerned with eugenics. The president pointed out that a selective death-rate, which is Nature's method of eliminating the unfit, has been at least partially suspended by the efforts of the profession. On the other hand, it had made no serious attempt to establish a selective birth-rate so as to prevent the race being carried on by the least worthy citizens. The same maudlin sentimentality which often pervaded the public not infrequently affected the profession. We often joined forces with self-constituted moralists in denouncing the falling birth-rate and called out for quantity regardless of quality. We were apt to forget that a high birth-rate is practically always associated with a high death-rate and a low birth-rate with a low death-rate. The former is Nature's method and has always produced a fine race, but with the advance of civilization it became too crude and barbarous. We were compelled by the dictates of conscience to preserve as far as possible every human being no matter how imperfect. To elevate humanity it was now necessary to begin with the unborn. The race must be renewed from the mentally and physically fit and moral; physical degenerates must not be allowed to take any part in adding to it. Above all we must breed for intelligence. The laws of heredity should be widely taught, so that those with hereditary blemishes may consider their moral responsibility in bringing children into the world.

THE REPRESENTATIVE MEETING AND THE NATIONAL INSURANCE ACT

Great interest centered in the meeting of the representatives, as on their decision depended the result of the most important political crisis in the profession which has ever occurred in this country—the deadlock in the negotiations with the government on the national insurance act. For the fifth time the matter has been before the representatives. Many had been sent as delegates to vote as instructed by their divisions, while others were given a wider discretion. The question was whether the concession demanded from the government not having been obtained, negotiations should be broken off. A long and animated debate took place and the following resolution was adopted by an overwhelming majority: "1. That the government be informed that the association adheres to its minimum demands as formulated in the letter of Feb. 29, 1912, and since elaborated in interviews with the Chancellor of the Exchequer. 2. That the association call on all members of the association who are members of advisory committees in connection with the national insurance act, and also on other medical members of those committees who are in sympathy with the policy of the association to withdraw from these bodies. (3) That the association call on all practitioners to refrain from applying for or accepting any post or office of any kind in connection with the national insurance act, except in regard to sanatorium benefit, provided it is carried out in accordance with the wishes of the association, until such time as the government has satisfied the association that its demands will be met." Thus the deadlock continues and it is impossible to forecast the solution.

PROPOSAL TO CONVERT THE ASSOCIATION INTO A TRADE-UNION

The prolonged struggle against the pernicious proposal of the insurance act has rendered the association much more political and many of its methods are now analogous to those of trade-unions. One of the representatives moved that the council seek to obtain the opinion of the divisions as to the desirability of the association becoming a registered trade-union. Among

the advantages are the possibility of using the funds as was wished and immunity from libel actions; for example, in case it were necessary to publish the fact, that certain members of the profession were "black-legs." If funds were required for any purpose instead of begging all that would be necessary would be for the executive to authorize a levy. Though when supported the resolution received considerable opposition, the chairman of the council strongly objected and said it was impossible to use powers honestly as a trade-union and that the carrying out of the proposal would split the association from end to end. The solicitor of the association pointed out that there were great legal difficulties. In the first place, the association should be wound up. Under their memorandum of association they were registered as a scientific association and existed for certain purposes limited by that memorandum. They were impressed with the trust for those objects and could not properly utilize their funds for trade-union purposes. Then with regard to the *British Medical Journal* he knew of no authority for a trade-union to run a journal on the lines of the British Medical Association; therefore that would have to be put into a separate trust. A motion to postpone the question for a year was carried.

Sir Clifford Allbutt's Criticism of the National Insurance Act

In a letter to the *Times* Sir Clifford Allbutt expresses a fear lest the insurance should "stereotype a kind of practice which, if not artificially revived, is dying down—the popular practice of pill and potion on rule-of-thumb diagnosis." In chronic disease reparative medicine is a stay and a consolation; in acute disease it saves individual lives, and soothes when it cannot save; in mild and transient cases it often makes a shorter way back to health. All this is good, but it is a Partingtonian mop when flourished before the battalions of disease. If the insurance act is to reduce sickness in the bulk, the act must do more than bring aid to individuals; it must create a preventive medicine by promoting researches into the causes of diseases and the means of prevention. His fear is that the act will prove an example of "our inveterate habit of ignoring causes and throwing all our strength into the mopping up of consequences."

The Parliamentary Committee on Nostrums

Mr. E. F. Harrison, who had analyzed the nostrums for the book "Secret Remedies," published by the British Medical Association, testified that there was a constant succession of nostrums being produced, amounting to about one new one per week. Dr. Mary Sturge, on behalf of the British Medical Association, gave evidence on the subject of "medicated wines." The widely accepted definition of these as "wines so medicated as to be unfit for use as beverages" did not apply to widely advertised ones on the market. The alcoholic strength of these preparations was 16 to 20 per cent., so that they were approximately on the level of port wine. The cocoa wines contained the strong alkaloid, cocaine; to others various salts and meat extracts were added. The fancy names given avoided any hint that they contained alcohol. The association urged that as these wines were taken freely by the public the proportion of alcohol should be stated on the label. Emphasis was laid in the advertisements on the amount of nutriment present, but analysis showed that the proportion of meat extract was nothing approaching that contained in beef tea. The advertisements were misleading in that they laid greater stress on the meat extract than the proportion warranted and said nothing about the proportion of alcohol present in such considerable proportions. They were taken by teetotalers and were given to children under the belief that they were non-alcoholic. In certain cases they had produced inebriety. In one case a young lady who had been drinking daily three bottles of a widely advertised meat wine was found in a condition bordering on delirium tremens.

Mr. P. Macleod Yearsley, F.R.C.S. (aurist), spoke on deafness "cures." He divided advertisements addressed to sufferers from diseases of the ear into two groups: (1) those which promised to cure all forms of deafness "without operation" by drugs, and (2) those having for their object the sale of some appliance. The favorite method was to treat by correspondence and to charge sums for worthless plasters, drops, snuffs and the like. He mentioned deafness "cures" which contained petrolatum, beeswax, soap, glycerin, oil and turpentine. These might appear harmless but were capable of considerable mischief. Oil dropped into the ear would tend to become rancid and so act as an irritant. The appliances advertised were mostly vibrators and "artificial ear-drums." Vibrator massage was of value in one or perhaps two forms of deafness, provided it was used under skilled supervision, but carelessly applied it might do more harm than good. Most

of the widely advertised artificial drums consisted of rubber disks with a metal stem and were obsolete and useless. Sometimes they were put in by the patient and lost. They then had to be removed under anesthesia from ear-passages swollen with inflammation and bathed in foul pus. He had seen discharging ears in which rubber drums had been inserted and kept for days; the foul condition of the aural passages was indescribable. New advertisements of deafness cures were constantly being issued and the same remedies constantly appeared under new names.

Sir Malcolm Morris gave evidence on behalf of the British Medical Association and the dermatologic section of the Royal Society of Medicine. He said that many of the advertised remedies for diseases of the skin did harm by exciting inflammation. In cases of cancer valuable time was lost in trying useless remedies until the disease became incurable. Some of the internal remedies produced drug eruptions and so increased the patient's sufferings. The mere publication of the formula would not be sufficient protection of the public because the majority of people would not understand it. He suggested that all remedies should be submitted to a special board for analysis and that advertisements for the treatment of disease should be submitted to the same board, who would act as censors and forbid as far as possible untruthful advertisements from appearing. When they did appear the public prosecutor should act. The board should consist of three persons: a chemist who would analyze substances, a physician of experience and an independent person, probably a lawyer. His reasons for these suggestions were: 1. The state recognized a special responsibility for the health of the people. 2. There was nothing as to which people were so prejudiced as secret remedies. 3. The majority of people could not discriminate between valid and worthless remedies.

The Two Hundred and Fiftieth Anniversary of the Royal Society

The two hundred and fiftieth anniversary of this famous society, the origin and development of which were described some time ago in *THE JOURNAL* (The Royal Society, *THE JOURNAL A.M.A.*, April 6, 1912, p. 1016), has been celebrated. Delegates from all over the world to the number of 200 attended to offer the congratulations of scientific societies and universities. After formally welcoming the delegates Sir Archibald Geikie, the celebrated geologist, pointed out that at the time of its foundation it was the only scientific society in the country; but since that time the progress of science had necessitated that every great department of research should have a society of its own.

The National Insurance Act

It may be remembered that one of the points of contention between the profession and the government is the remuneration for services under the national insurance act. The government offers a capitation sum of 6 shillings (\$1.50) per annum for medical attendance and drugs, which it asserts is an advance on the sum generally paid by friendly societies (4 shillings or \$1). The British Medical Association replied that the present condition of friendly society work is unsatisfactory and semi-charitable and must not be taken as a basis. Moreover, it includes only selected lives. A capitation fee of 8 shillings and sixpence (\$2) without drugs, as well as a list of extras for operations, etc. (given in a previous letter), is demanded. The Chancellor of the Exchequer replied that the government was willing to consider the question of increasing the remuneration if the demands were justified, but could not hold out any hope that those put forward could be granted, as they would involve an increased charge on the exchequer of \$20,000,000 per annum and, he contended, would amount to guaranteeing to each physician an assured income of \$5,000 per annum. The calculation on which he based the latter figure was disputed by the British Medical Association. As a means of settling the difficulty he proposed to appoint an accountant to investigate the accounts of physicians in a number of towns in order to ascertain what are the actual earnings of the profession and how it would be affected by the insurance act. With the concurrence of the association this has been done. The accountant reports that in five selected towns with an aggregate population of 404,184 served by 214 physicians, 539,616 visits or attendances at the physicians' offices were made and medicines supplied (except in the case of one town in Scotland, where the English custom of the physician supplying medicine does not exist) for which £80,776 (\$400,000) were received. With operations, sums obtained for certificates, public and other medical appointments and coroners' fees the gross income amounted to £110,900 (\$550,000) or 5 shillings and sixpence (\$1.50) per

head of the population. In addition, for work done outside the towns in question the physicians received £20,790 (\$100,000), bringing the gross remuneration up to \$650,000. Before the issue of this report the British Medical Association pointed out that the figures could not be taken simply as basis for the national insurance act. Greater demands would be made on the profession under the act, as attendances paid by capitation would involve no personal charges on the insured. Moreover, the remuneration of the poorer patients under the present system is more or less insufficient and often on a semicharitable basis. The organization of the profession against the act is now very complete, as practical unanimity to resist it has been attained; but while no difference of opinion exists as regards objects, some critics think that trades-union methods are being carried too far. The original pledge not to practice under the act except on terms accepted by the British Medical Association, and the supplemental pledge placing the resignation of all contract work in the hands of the association to be used if necessary have been described in previous letters. In a recent editorial the *British Medical Journal* advises the non-employment of any locum-tenens or assistant who has not signed the pledge, and also enjoins the members of hospital staffs who are concerned in the selection of candidates for resident appointments to observe the same rule. *Guy's Hospital Gazette* twits the association on the ground that it has adopted a policy hitherto associated with dockers, miners and other laborers, and says that the policy is analogous to the physical intimidation of industrial disputes. It condemns the attempt to take advantage of the position of the recently qualified man on the outlook for appointments in order to compel him to sign a pledge with which he may not be in agreement. The adoption of trade-union methods has caused trouble in another matter. The Brighton education authority recently appointed a whole-time school medical officer at a salary to which no objections were taken. But as his duties included treatment as well as inspection of school children, the appointment was contrary to "Minute 97" of the British Medical Association and the appointment was condemned by the Brighton division. The chairman of the division protested that interference by the association could not be fairly used beyond ensuring that the appointment was properly paid and that the question of employing a whole-time doctor for the discharge of its responsibilities was entirely a question for the Brighton Education Committee. He hoped that a wide difference of opinion on this point would not be incompatible with continued membership in the association. As a large majority of the branch, however, as well as the medical secretary of the association, condemned the appointment, he came to the conclusion that his only course was to resign his chairmanship as well as membership in the association. He points out that apart from considerations of justice, it is unwise for the association to adopt a policy which is an incitement to all physicians who intend to occupy themselves with public health to hold aloof from the association.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, July 19, 1912.

Election of Two Foreign Associates to the Academy of Medicine

On July 16, out of a list of nominations including Sir William Ramsay of London, Flügge of Berlin, Osler of Oxford, J. Reverdin of Geneva, Durante of Rome and Kitasato of Tokio, the Académie de médecine elected Sir William Ramsay and J. Reverdin as foreign associates.

Death of Professor Monoyer

The death is announced at Lyons of Dr. Monoyer, former professor at the Faculté de médecine of that city. His specialty was ophthalmology. He served in the Franco-Prussian War as ambulance surgeon. Before the war he had been an *agrégé* at Nancy; when annexation took place he left Alsace and followed the school when it was transferred to Nancy. Some years later he accepted the chair at Lyons when the Ecole de médecine at that city was made a *faculté*.

Cheap Lodgings

The bill has been presented providing for the loan of \$40,000,000 (200,000,000 francs) voted by the municipal council of Paris for the construction of cheap lodgings. Out of that loan the city of Paris will lend the sum of \$10,000,000 to societies organized for the construction of cheap lodgings. The remainder is to be used by the city in the construction, acquisition or sanitation of buildings containing lodgings reserved, up to two-

thirds of the rented value, for families having more than three children under 16.

M. Charles Stern has just erected in Paris a group of workmen's dwellings constructed on hygienic principles and containing 109 apartments, all opening on the street or garden. The number of occupants is 408; of these 175 are children. The two-room apartments rent for \$50 (250 francs); the three-room apartments, \$65; four-room apartments, \$79. An entire novelty is the provision that every tenant who has another child shall pay no rent for the term following the birth. The purpose of the philanthropy is double. On the one hand it furnishes laborers with sanitary dwellings at reasonable prices and on the other, the net revenues amounting to about 3 per cent. are devoted to the maintenance of a mothers' canteen where free breakfast and dinner are given to every mother who nurses her own child.

Red Cross Flag Days

At the time of the national festival the Société française de secours aux blessés militaires put on sale a little tricolored flag bearing the insignia of the French red cross, with on one face the word *Maroc* ("Morocco") and on the other "Société française de secours aux blessés militaires." During July 13 and 14, a little more than 2,000,000 of these tricolored flags were sold. The proceeds of the sale, which in Paris alone amounted to \$55,000, are to be devoted to the purchase of clothes, linen, etc., for the French soldiers in Morocco.

The Doctorate of the University of Paris and Surgeon-Dentists

For some time surgeon-dentists have been endeavoring in vain to obtain either the special diploma of doctor of dental surgery or concessions which would favor their securing the degree of doctor of medicine. They have now adopted the ingenious device of studying for the diploma of doctor of the university of Paris, which requires only two years. This is not a government doctorate. It does not permit the holder to practice medicine, but in the eyes of the public the degree seems the same as that of the government. The Syndicat médical de Paris is much disturbed by this condition. The medical profession is against the creation of special diplomas. The surgeon-dentists have the right of practicing a part of medicine and of the employing therapeutic means including general anesthetics; to permit them to acquire easily the diploma of doctor of the university would lead to a regrettable confusion with the degree of doctor of medicine and might become to some extent a public danger. What is permitted to-day for surgeon-dentists may to-morrow be allowed to radiographers, masseurs, etc. The Syndicat médical de Paris, therefore, has resolved that the doctorate of the university ought to be reserved, according to the spirit of the law, for savants and especially foreigners.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, July 19, 1912.

Personal

Professor von Krehl of Heidelberg has declined the call to Munich.

Professor Hertel of Strasburg will not accept the call to Marburg.

Prof. Hugo Neumann, the well-known pediatricist, died in Berlin, July 12, at the age of 53. His services were chiefly in infant hygiene, a field in which he was to a great extent a pioneer. Through his especially favorable position he was financially independent and devoted himself particularly to the service of the poor. He established a large polyclinic in which, under his direction, children were treated by several specialists; it also contained a clinic for hospital treatment, and a lying-in home which served for the training of nurses for service among the well-to-do. Professor Neumann devoted his special attention to illegitimate children; he watched over a large number of Berlin foundlings until they reached puberty, and the results are of sociologic value. As a consultant he was very popular. His text-book of children's diseases, written in the form of letters, has reached several editions.

German University Statistics

The number of students at the twenty-one German universities has increased during the summer semester and amounts to about 59,500, some 2,300 more than for the previous year. (Since the summer of 1896 the number has doubled.) There is an increase of about 1,480 among medical students, which is a doubling within the last five years. The Prussian universities have a larger increase in the number of students than those in

southern Germany. Berlin has the largest number of students, 8,200; Rostock, the smallest, 975.

A National Health Department in Saxony

June 1 the superior health magistracy of Saxony, the *Landes-medizinalkollegium*, was substantially extended and converted into a national health department. Its field includes the making of reports on matters of medical and veterinary interest, the advice of the government in the preparation and execution of sanitary laws, and the supervision and management of the scientific institutes subordinate to it.

Central Committee for Medical Postgraduate Instruction in Prussia

According to the annual report which was presented a short time ago in Berlin to the general meeting of the central committee (under the leadership of Waldeyer), there are at present in Prussia local associations in thirty-two cities (in the whole of Germany in sixty-seven cities) in which free medical postgraduate courses and lectures are regularly conducted. The international committee for medical postgraduate instruction will hold a conference in London next year, at which important questions with reference to medical education and postgraduate instruction will be discussed. Fifteen per cent. of Prussian physicians participate in the Prussian postgraduate courses. In order to afford more frequent opportunity for physicians in the smaller cities and in the country to secure postgraduate instruction, traveling lectures are to be arranged in groups, in which a number of privat-docents of a large city shall go alternately to the smaller places in their neighborhood at regular intervals and deliver instructive lectures and demonstrations.

Protest of Munich Students Against the Oversupply of Russian Students

In Munich, June 28, a meeting, attended by about 2,000 students mostly medical, entered an energetic protest against the displacement of German students by the favor shown to Russian students especially by the medical faculty. The abuses which exist in the Munich medical clinics were sharply criticized by the speakers. The second medical clinic (under the direction of Prof. F. von Müller) is generally designated as "the Russian casino." Of 876 foreign students of the university of Munich, 247 are Russians. In the discussion it was emphasized that this movement was conducted neither from chauvinistic nor sectarian motives, but was directed against those elements which are debarred from progress in their own country. At the close of the meeting the following resolutions were adopted: (1) The number of Russian students should be limited, not only for the university in general, but especially to a corresponding extent in relation to the medical school. (2) The further acceptance of Russians as matriculants should be made to depend on a certificate that the candidate is of age, which shall be presented in a German translation, officially certified, and shall correspond at least to the requirements of the German empire. The qualification is to be tested officially. (3) Admission to the university and the permission to take the examination for a doctor's degree are to depend on the presentation of an official German certificate of an examination passed in the German language. (4) Foreigners must, as is already the case in certain universities, pay a higher matriculation fee, and an addition to the fee payable by every student to the state. This amounts in Bavaria, if 50 per cent. of the state fee be added, to a tuition of \$125.00 (500 M) per semester. (5) The registration for all lectures and practical exercises must be made in the case of foreigners two weeks after the beginning of the semester, and only in a separate list. (6) In the case of lack of seats in the auditorium, it should be forbidden to the Russians to engage seats. The first four rows of every auditorium shall be reserved for students from the German empire. (7) Russians must be held strictly to the plan of courses of students given out by the medical faculty; especially, in order to avoid inconveniencing the German students, it shall be forbidden them to register for clinical lectures and practical exercises before their fifth semester. (8) The employment of Russian students as assistants and volunteer physicians is to be forbidden as long as German students who have taken the examination prescribed by the state apply in sufficient number for these places. Foreigners from localities where they speak German are preferred to other foreigners; especially if they are sons of German parents and in a foreign country, they are not to be regarded as foreigners. These resolutions are to be presented to the medical faculty and to the rectorate and senate of the university, to the two houses of parliament and to the national government for consideration.

Deaths

Maurice Howe Richardson, M.D., one of the foremost surgeons of the United States, was found dead in his bed in Boston, July 31, aged 60. He was born in Athol, Mass., Dec. 31, 1851, the son of Nathan Henry and Martha Ann (Barber) Richardson. He attended the public school of Athol and Fitchburg High School, and entered Harvard University in 1869 from which he graduated with the degree of A.B. in 1873. After a four-years course in Harvard Medical School he was graduated in 1877. During his last year in medical college, Dr. Richardson was assistant in anatomy under Dr. Oliver Wendell Holmes, occupying this position for two years. He was then made demonstrator of anatomy and served until 1887, and thereafter was assistant professor of anatomy until 1892. From 1883 to 1887 he was assistant in surgery; in 1895 he was made assistant professor of clinical surgery; in 1902 associate professor of clinical surgery and from 1903 until his death was Mosely professor of clinical surgery.

He had been a member of the staff of the Massachusetts General Hospital since 1881, and was made surgeon-in-chief in 1910. Among his other hospital appointments were those of district physician and physician to the Boston Dispensary; surgeon to the out-patient department of the Boston City Hospital and Carney Hospital, and physician to the House of the Good Samaritan.

His society membership included the American Medical Association; American Surgical Association, of which he was president in 1902; American Academy of Medicine; Southern Surgical and Gynecological Association and Boylston Medical Society, of which he was once president.

Dr. Richardson was a prolific contributor to the literature of surgery and contributed sections to Park's "Surgery by American Authors" and Dennis' "System of Surgery."

He was not only a great surgeon, but also a big, warm-hearted man, lovable and beloved. As a teacher he made anatomy interesting and attractive, illustrating his lectures by crayon pictures rapidly and artistically drawn. His knowledge of anatomy and his manual dexterity united to make him a great surgeon and he was one of the few who keep clinical records and keep them

well so that they may benefit others. He had a strong sense of his responsibility to and for his patients, and while conscious of his skill, he used it soberly and without self-assertion.

Dr. Richardson's funeral was held at King's Chapel. The honorary pallbearers included the president of Harvard University; Dr. H. P. Walcott, president of the Massachusetts General Hospital, and Drs. F. B. Harrington, S. J. Mixter, F. C. Shattock and W. F. Whitney of the staff of the hospital; Dr. Frederick S. Dennis, New York City, and Dr. George Ben Johnston, Richmond, Va. The ushers at the church were former assistants of Dr. Richardson and the acting pallbearers were Drs. John Bapst Blake, Arthur H. Crosbie, F. E. Garland, Howard A. Lathrop, Charles G. Mixter, William J. Mixter, Edward H. Risley and George M. Sheehan, all of whom had been closely associated with Dr. Richardson in his work.

James Anderson Exton, M.D. College of Physicians and Surgeons, New York City, 1866; a member of the American Med-

ical Association and American Public Health Association; a veteran of the Civil War; founder and president of the Hudson County (N. J.) Medical Milk Commission; consulting physician to St. James Hospital, Newark; health officer of the town of Kearny; local surgeon for the Erie railroad and secretary of the New Jersey Sanitary Association; died at his home in Arlington, N. J., July 25, from cerebral hemorrhage, aged 67.

Dwight Edward Burlingame, M.D. Chicago Medical College, 1869; a member of the American Medical Association, Elgin Physicians' Club and Fox River Medical Society; surgeon to St. Joseph's Hospital and Sherman Hospital, Elgin, Ill., and local surgeon of the Chicago and Northwestern Railway; died at his home in Elgin, August 4, from cerebral hemorrhage, aged 69.

Elnathan Kemper Westfall, M.D. Hahnemann Medical College, 1867; a veteran of the Civil War; since 1869 a practitioner of Bushnell; for three terms postmaster; once alderman and for several terms a member of the board of education; a member of the state legislature for two terms; died at his home, in Bushnell, July 20, from cerebral hemorrhage, aged 73.

James L. Lowrie, M.D. Jefferson Medical College, 1878; a member of the Illinois State Medical Society; president of the Logan County Medical Society; formerly president and secretary of the Brainard District Medical Society; city physician of Lincoln; died at his home in that city, July 23, from angina pectoris, aged 58.

Delos Burd Manchester, M.D. University of Buffalo (N. Y.) 1883; a member of the American Medical Association; for many years a practitioner of Oneonta, N. Y., but later a resident of Grant's Pass, Ore.; died at the home of his brother, near Schenectady, N. Y., July 21, aged 54.

John A. Armstrong, M.D. Jefferson Medical College, 1867; a member of the Medical Society of the State of Pennsylvania and a veteran of the Civil War; for forty-five years a practitioner of Leechburg; died at his home, July 24, from cerebral hemorrhage, aged 74.

J. Merrill Hamblin, M.D. American Medical College, Eclectic, St. Louis, 1875; formerly of Westboro, Mo., but later a practitioner of Shenandoah, Ia.; died at the Burlington Junction Mineral Springs Sanitarium, July 21, from heart disease, aged 61.

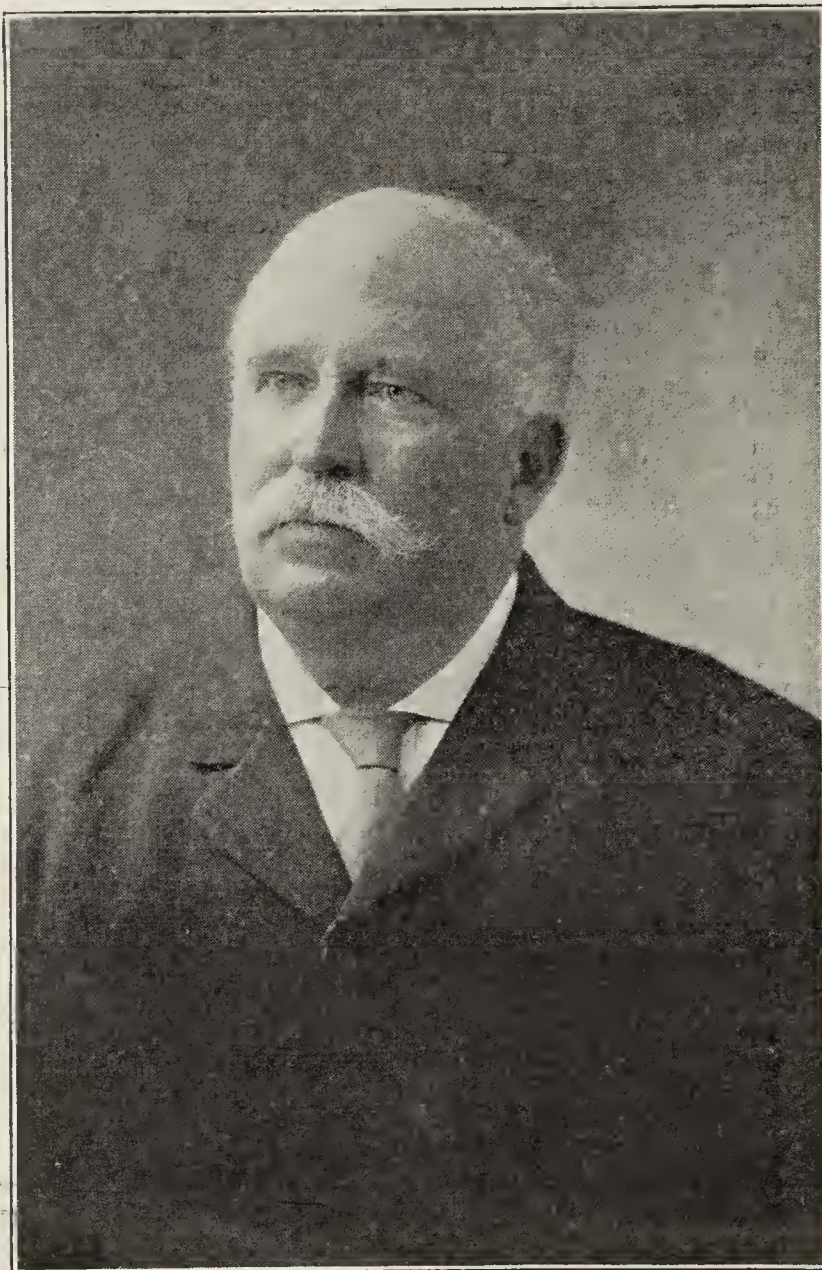
Harriet C. L. Hopkins, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1869; of Plainfield, N. J.; for about twenty-five years a practitioner of Philadelphia; died at Mount Vision, N. Y., July 24, from senile debility, aged 81.

Daniel A. Muirhead, M.D. McGill University, Montreal, 1889; of Carleton Place, Ont.; one of the best known practitioners of Ottawa Valley; aged 50; was killed, July 23, near North Gower by being crushed under an overturned automobile.

George M. Anderson, M.D. Atlanta (Ga.) Medical College, 1874; a member of the State Medical Association of Texas; surgeon in the Confederate service throughout the Civil War; died at his home, in Tanglewood, July 18, aged 75.

William Hopkins Prudden, M.D. University of Buffalo (N. Y.) 1905; of New York City; died in Roosevelt Hospital, July 24, several days after an operation for appendicitis, aged 30.

William E. Wood, M.D. Eclectic Medical Institute, Cincinnati, 1891; died suddenly at his home, in St. Louis, July 23, aged 49.



MAURICE HOWE RICHARDSON, 1851—1912

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

CERTIFIED PHARMACIES

As the demand for a high-grade milk has given us "certified" milk, so the demand for high-grade, competent and reliable pharmacies—pharmacies where a physician may send his prescriptions with the assurance that they will be compounded conscientiously—promises to lead to the establishment or recognition of "certified" pharmacies. The pharmaceutical profession no less than the medical profession has long recognized that many who are licensed to conduct a "drug-store" are not equipped to compound prescriptions. While it is generally conceded that the amount of real drug business is not sufficient to furnish a livelihood for more than an extremely small portion of those engaged in it, there is an opportunity for a limited number to conduct high-class pharmacies, and many schemes have been proposed for establishing some sort of dividing line between ordinary drug-stores and real pharmacies.

The plan of examining pharmacies and issuing licenses to those which meet the requirements, urged by M. I. Wilbert some ten years ago, was recently again proposed at a joint meeting of the Medical Society of the County of New York and the New York branch of the American Pharmaceutical Association, and it was decided that a committee to consist of ten members from each society should draw up regulations or requirements for the "certification" of pharmacies.

At this meeting one of the speakers made the point that a physician knows the reliable pharmacies in his own neighborhood but is entirely at sea when away from home, and that there should be some method of certifying to pharmacies at which physicians can have absolute confidence that their prescriptions will be compounded correctly and with the skill and care of the properly trained pharmacist whose business is conducted in accordance with medical and pharmaceutical ethics.

While the establishment of requirements for such certifications should be carefully considered, the need of a dividing line between the druggist whose energies are chiefly devoted to the sale of cigars, chewing-gum, soda-water and patent medicines, and the pharmacist to whom one may safely entrust the compounding of prescriptions is so urgent that we shall look forward to the outcome with much interest. We are reminded at this time that physicians have long attempted through consultations and discussions—generally informal—to gain information regarding the qualifications of pharmacists in the various parts of the town or city in which they practice.

MIDOL AND NURITO

Pyramidon Entering the Patent-Medicine Field

MIDOL

Repeated warnings to the public of the dangers of acetanilid, antipyrin and acetphenetidin and the requirement in the Food and Drugs Act which makes it obligatory to declare the presence of acetanilid and acetphenetidin on the labels of "patent medicines" have been responsible for the growing unpopularity of nostrums containing these drugs.

During the past few months advertisements have appeared in the newspapers of a new "headache cure," the advertising slogan of which is that it "contains no acetanilid or phenacetin."

The name of this preparation is Midol and it is sold under the following claims:

"Instantly relieves headache, neuralgia, toothache."

"Has no depressing effect."

"More effective than antipyrin, acetanilid, phenacetin or similar pain-relieving products."

"Midol is the one safe-to-take aid of sufferers of headache."

"Quickly relieves pain of whatever nature."

Marriages

PAUL HECTOR PROVANDIE, M.D., Melrose Highlands, Mass., to Miss Margaret Flora Bell of Collingwood, Ont., July 22.

PALMER EDMUND BRANDON, M.D., Sioux Falls, S. Dak., to Miss Fanny Elizabeth Marshall of Chicago, July 30.

JOHN SWIFT BAKER, JR., M.D., Boston, to Miss Anna Greenleaf Winsor of Chestnut Hill, Mass., June 20.

BERNARD PHILIP HERZOG, M.D., Baltimore, to Miss Lucille Doerner of Cumberland, Md., July 30.

MILO E. HARTMAN, M.D., to Miss Violet Davis, both of Kansas City, Mo., July 27.

WILLIAM A. KNELL, M.D., to Miss Lillian A. McKewen, both of Baltimore, July 23.

John Light Atlee, M.D. University of Pennsylvania, Philadelphia, 1853; since 1856 a practitioner of Tennessee; one of the most esteemed physicians of Chattanooga; died at his home, July 23, from senile debility, aged 80.

Joseph H. Clark, M.D. University of Louisville (Ky.) 1879; formerly a practitioner of Marion, Ky., but since 1898 a resident of Princeton, Ind.; died at his home in that city about July 22, from cerebral hemorrhage, aged 69.

John W. Aiken (license, Illinois, years of practice, 1878); for more than half a century a practitioner of Tennessee, Ill.; died in the Marietta Phelps Hospital, Macomb, Ill., July 25, from cerebral hemorrhage, aged about 80.

Otis C. Hollister, M.D. Chicago Medical College, 1885; of Portland, Ore.; a member of the American Medical Association; died in St. Vincent's Hospital, Portland, July 17, from nephritis, aged 49.

Martial A. Scharton, M.D. Yale University, New Haven, Conn., 1893; formerly a practitioner of Hartford, but later a resident of New York City; died July 18, in New York City, after a long illness.

Joseph Bozeman Letcher, M.D. Tulane University, New Orleans, 1891; a member of the American Medical Association; died at his home in Shorter's, Ala., July 19, from tuberculosis, aged 37.

James Murray Thompson, M.D. Baltimore, 1870; a Confederate veteran; and a member of the State Medical Association of Texas; died at his home in Cuero, June 5, from heart disease, aged 66.

James Walter Williams, M.D. Howard University, Washington, D. C., 1892; a colored practitioner; formerly of Savannah, Ga.; died in Chickasha, Okla., July 24, from cirrhosis of the liver, aged 44.

Edwin Ricker Freeman, M.D. Eclectic Medical Institute, Cincinnati, 1889; professor of dermatology in his alma mater; died in the Cincinnati City Hospital, July 26, from sarcoma, aged 46.

William W. Moore, M.D. Eclectic Medical Institute, Cincinnati, 1861; a Confederate veteran; president of the First National Bank of Summit, Miss.; died at his home, July 18, aged 74.

Heerke H. Viersen, M.D. State University of Iowa, Iowa City, 1873; of Pella, Ia.; a member of the American Medical Association; died in Mercy Hospital, Des Moines, July 28, aged 73.

Christian R. Ramsbrok, M.D. University of Louisville, Ky., 1892; a member of the American Medical Association; died at his home in Huntingburg, Ind., July 21, from pneumonia, aged 41.

Thomas Joel Smith, M.D. Medical College of Ohio, Cincinnati, 1872; a member of the Illinois State Medical Society; died at his home in Pleasant Hill, July 19, aged 67.

John Joseph Lawlor, M.D. Baltimore (Md.) Medical College, 1897; examining surgeon during the Spanish-American War; died at his home in Lawrence, Mass., July 8.

George S. Morris, M.D. Medical College of Ohio, Cincinnati, 1881; was found dead in his office in Arkansas City, Kan., July 26, from cerebral hemorrhage, aged 61.

Henry W. Moore, M.D. Columbus (O.) Medical College, 1885; of Milan, O.; died at the Winyah Sanatorium, Asheville, N. C., July 24, aged 50.

Minor S. Gray (license, Mississippi, 1903); of Cayce; died in St. Joseph's Hospital, Memphis, Tenn., July 23, aged 34.

"There is no cumulative action."
"No bad effect upon the heart or other organs."

An original package of Midol was purchased and examined in the Association's laboratory. The chemists' report follows:

"Midol is sold in the form of white tablets each weighing, on an average, 0.425 gm. or about six and one-half grains. The tablets are soluble in water, chloroform or benzene to the extent of about 80 per cent. The soluble portion appeared to be largely composed of starch, with about 4.5 per cent. of some inorganic matter, probably talc. The chloroform soluble portion was found to consist chiefly of pyramidon chemically known as dimethyl-dimethylamino-pyrazolon. Besides pyramidon, the chloroform soluble matter contained a small quantity of caffeine and may have contained small amounts of other substances.

"From examination it is concluded that Midol depends essentially on pyramidon for its therapeutic effect."

Pyramidon is a proprietary preparation derived from, and having the antipyretic and anodyne properties of, antipyrin. While some observers have asserted that it is more likely to cause collapse than are either antipyrin or acetphenetidin there is no positive evidence of this assertion. That the use of pyramidon has been until recently practically restricted to physicians may account for the fact that its toxic effects are not as well known as are those of antipyrin, acetphenetidin, acetanilid, etc., which for some years have been indiscriminately used by the public. As the use of pyramidon as a "patent medicine" now bids fair to become as general as the better known antipyretics, it is probable that its toxicology will become better known.

It is interesting to note that pyramidon in the form of Midol is put on the American market by the General Drug Company, which also acts as a distributor of salvarsan ("606"). The General Drug Company is said to have for its president, W. M. Hoge, who was formerly employed in the comptroller's office during the administration of Herman A. Metz. The vice-president and treasurer of the General Drug Company is Dr. Gustave P. Metz, brother of H. A. Metz, the latter being employed by the Consolidated Color and Chemical Works and being president of Victor Koechl & Co. The General Drug Company, in its price list to physicians, lists the "ethical proprietary" pyramidon, but contains no mention of its "patent medicine" Midol.

NURITO

Midol is not the only "patent medicine" in which pyramidon is the essential drug. Nurito, which is advertised as "not a patent medicine but a proprietary preparation" is a nostrum put on the market by the Magistral Chemical Co., New York. Here are some of the claims:

"Only U. S. P. ingredients are used in Nurito."
"Guaranteed to relieve or your money refunded, Rheumatism, Sciatica, Neuritis."
"There is no compound known in medicine that so rationally, scientifically and effectively removes waste and poisons from the human system as Nurito."

The Association's laboratory recently analyzed a specimen of Nurito. The report follows:

A dollar-size package of Nurito was purchased and found to contain seven powders. The powders ranged in weight from 9 to 12 grains, the average weight being nearly 11 grains. The presence of pyramidon, phenolphthalein and milk sugar was demonstrated. Alkaloids, acetanilid, acetphenetidin, chlorids, bromids, iodids, heavy metals, starch and sulphates were absent. Quantitative examination indicated that the composition of Nurito is essentially as follows:

Milk sugar	34 per cent.
Phenolphthalein	6 per cent.
Pyramidon	60 per cent.

Each powder, therefore, contains about $2\frac{2}{3}$ grains of milk sugar, $\frac{2}{3}$ of a grain of phenolphthalein and $6\frac{2}{3}$ grains of pyramidon.

What was said of pyramidon in the preceding article applies equally well here. The claim that Nurito is composed of "U. S. P. ingredients" is evidently a falsehood. The chief therapeutic ingredients are pyramidon and phenolphthalein, neither of which is described in the United States Pharmacopeia.

Correspondence

The Future Medical Journal

To the Editor:—*Vita brevis, ars longa*, and the disparity is constantly widening until time has become the most valuable factor in our undertakings. To adjust art to life, that is, to give the maximum of efficient, applicable instruction in the minimum quotient is the supreme desideratum to-day of all informatory literature. Preeminently does this apply to medical literature. To the general practitioner, whose work comprehends every angle of the circle of medicine, the task of keeping informed is an appalling one, and a crisis is before him. Manifestly the adjustment, or reformation, must come through the transformation of the medical journal. It must be condensed. It must be authoritative, abjuring theories and stating proved facts. Its nomenclature must be simplified, its terminology uniform. If these conditions are not met speedily the aspirations of high-class journals will be subverted and they will be supplanted by an inferior class. In part, this has already taken place. Inferior periodicals that aim to epitomize current progress in medicine are obtaining a wide distribution and some of them not only have a bona fide subscription list but have become the form of ethical teachers. The inauspicious fact cannot be overlooked that firms having proprietary preparations largely control these publications. Recently one of these firms has sent to the profession gratis an epitome of diseases of the heart, written by an ethical physician, which is a model of explicit, graphic and easily grasped grouping of those conditions, in a stiff-covered, neat little brochure of fifty pages. The last two pages are devoted to advertising the firm's heart remedies. With like ulterior aims other firms are supplying the profession with monographs on other topics.

The physician who cannot read the very latest word on the etiology, diagnosis and treatment of disease is behind the times and cannot give good service to his patients, but it has come to pass that he cannot practice medicine and make a living if he faithfully reviews current medical literature. He needs, therefore, (1) a brief and portable working library containing the latest information in regard to methods, etc., pictured, grouped, classified and diagramed so that he who runs may read; (2) periodicals that reflect vividly only vital, essential world-wide knowledge, in precise and concise language with a nomenclature conforming to a definite, fixed standard of uniformity, lucidity and facility of recollection.

Our medical books and periodicals exhibit a veritable Sahara of words—a waste of space and time—the very essence of life. One-half the words could be erased from any given book or journal without invalidating or obscuring the sense of its contents. Sonorous, classical, rounded paragraphs of the eighteenth century style must be abandoned. Theories, obsolete or novel, rehearsed and attenuated, diverting manifold allusions and references and confusing and conflicting views must be threshed out in special publications. Pictures—the briefest, simplest and most graphic adjustment of word and line—must fill the pages of our books and journals. Not rhetoric but the brief, cold words of science must prevail.

Here is a vast and fertile field for the proposed supplemental publication of the Association. A suggestion, with reference to its contents, may not be amiss. These should comprise:

1. A department of therapeutics and applied technic—everything within the means and capacity of the general physician, such as operative, mechanical, chemical, microscopic tests, the simpler laboratory operations for diagnosis, etc.
2. A wider review of the world's periodical literature.
3. A correspondence department confined to vital and obscure medical topics and limited in space.
4. Reviews of new medical books such as would afford a fair estimate of the worth of all new publications.
5. A brief summary of medical achievements, investigations and discoveries similar in scope to the editorials in THE JOURNAL, June 22, 1912.

6. Pertinent statistics and facts regarding the collective insane, epileptic, blind, crippled or deformed and criminals, such as would fairly reveal their present status, and the methods, means or modes of treatment and discipline with results. This department should include discussion of incipient insanity and the pathologic criminal and allied subjects which are particularly apropos to the general practitioner's everyday work.

7. Some sort of propaganda should be addressed to the physician himself and maintained for his personal reformation, for he needs it in several ways—personal, professional, business, social and others. To illustrate: More than half the prescriptions of physicians on file in the drug stores of the country call for proprietary preparations whose formulas are secret. The traits the doctor bewails in his patients are first cousins to his own. In other words, he is susceptible to the influence of advertisements and the alluring recommendations of fictitious notables with alphabetical titles. In passing the bureau of reform of the Association should send a few personal tracts to the doctors.

J. H. MACKAY, Francitas, Texas.

Beriberi Among the Filipinos

To the Editor:—It was my privilege to practice medicine for several years among the Filipinos before it had been demonstrated that beriberi was due primarily to highly polished rice, although natives and whites were agreed that Saigon rice was more conducive to the disease than any other. This is a grade imported from French China and greatly prized for its whiteness and large grains, and during my residence in the Philippines was extensively consumed.

As the real cause of beriberi was not known at that time and as my duties consisted chiefly in inspecting posts occupied by native troops, it became absolutely necessary to devise means whereby the spread of the disease could be checked. Close observation revealed the fact that the disease was more prevalent among those who were confined or housed in stone buildings that were more or less damp. One place where prisoners were kept was notorious; it was a stone compartment with an earth floor and nearly every person confined there was attacked. That was my first assignment and I did my best to clean the place up. I first removed every occupant and then fumigated, whitewashed and floored it with satisfactory but not absolute results, as other cases appeared from time to time until the place was abandoned. While the prisoners were confined in an upstairs room no further cases developed. One company of soldiers was quartered in an old Spanish fort and at least half of them had beriberi. The troops occupying wooden structures did not seem so susceptible. It appears now that these were simply predisposing causes, especially confinement and depression, which would naturally lead to intestinal disorders, thus paving the way for a prevalent disease; but at the time they strongly indicated an infectious nature.

Inspection of food also revealed the fact that the chief article of diet was white rice, and contrary to the rule the poor people in the immediate neighborhood, especially those in the provinces, were not affected. This is explained by the fact that the poor clean their rice in a crude fashion and are unable to destroy all of the pericarp, thus unwittingly protecting themselves from a serious disorder.

Three varieties, the acute, dry and wet, were encountered. The acute form had an abrupt onset with cardiac symptoms. One patient was attacked in the afternoon and died in great distress in less than twenty-four hours. There was loss of muscular power and reflexes and inspection of the heart indicated acute dilatation. Cases of the dry variety were of slower onset with weakness, generally beginning in the legs, more or less pain and progressive atrophy of the muscles. The moist variety was of even slower onset with first signs of edema in the legs. One patient I saw with extreme anasarca so that the skin broke in several places and serum exuded in great quantities. There is always a marked pallor that can be readily observed even in the darkest-skinned people. Nausea and vomiting are sometimes early symptoms.

The steps taken to eradicate the disease were segregation and dietary and medicinal treatment. Patients with beriberi were placed in floored tents and nurses were detailed to look after them and compel sanitation. The greatest difficulty encountered was in excluding rice from the diet. This was found to be impossible so that in the place of white rice, native cleaned rice was substituted and the quantity reduced. Vegetables of any obtainable variety were given with generous use of beans and a native pea (*Phaseolus mungo*), which acted almost as a specific in certain cases. Fresh meat was given whenever it could be had with eggs and chicken oftener. Eating of fruit was encouraged.

My first acute case ended fatally before I could determine a course of treatment, but in succeeding cases morphin and digitalis seemed to work to perfection. In the dry variety tonics and massage of the muscles were resorted to. Recovery was not complete in a great number of cases but under the circumstances even partial recovery was greatly appreciated. Most of the soldiers who had had the disease could be readily picked out by their peculiar walk.

In the wet form I always employed large doses of magnesium sulphate until pitting on pressure of the legs disappeared. This edema of the legs was one of the first signs always looked for. In some very severe cases it became necessary to drain off the serum on several occasions. A tonic of iron, quinin and strychnin was given as routine treatment.

With the establishment of hygienic quarters, compulsory bathing and the addition of vegetables, especially of beans and mungos to the diet, the number of cases in my district rapidly diminished and during my last year of service I saw but a few cases among the soldiers and prisoners under my care. There were a few instances, however, of a recurring form of the moist variety in certain soldiers that manifested itself after an expedition or a prolonged march, but were amenable to treatment and all symptoms would disappear in a few days after a rigorous course of magnesium sulphate and a proper diet.

C. E. LAWS, M.D., DuPont, Wash.

Beriberi and Beans

To the Editor:—I have followed with much interest your comments on beriberi in recent numbers of THE JOURNAL. My article in THE JOURNAL, May 30, 1908 (p. 1785), while it does not lay claim to laboratory accuracy, does chronicle eight patients with beriberi taken from a Dutch ship in San Francisco Bay, all of whom had been fed for several months previously on a diet of small white beans. If beans are the cure, will some member of the primary class explain to me how and why my Dutch sailors contracted beriberi?

J. N. FORCE, Berkeley, Cal.

Comment.—The present stage of our knowledge regarding the etiology of familiar types of peripheral neuritis, such as beriberi, will scarcely permit any final pronouncement. The important points to bear in mind are the fact that the bacterial origin of these maladies is at present discredited, and that the symptoms may be, and doubtless usually are, the result of a lack of some essential element in the dietary rather than the consequence of the presence of a toxic compound. In the cases reported by Dr. Force, the fact is brought out that the beans were moldy. It is accordingly quite conceivable that a toxic product was present in sufficient amount to overcome the beriberi-preventing action usually attributed to beans. However, it is also not at all unlikely that the long-continued use of a very limited, unvaried diet, such as that to which Dr. Force's patients had been subjected, may have ultimately depleted the store of some essential dietary constituent or may, by the inappropriate selection of the food materials, have induced trouble through an improper balance of accessory factors in the diet. An allusion to something of this sort will be found in editorials in THE JOURNAL on "The Effects of Exclusive Feeding—Experimental Scurvy" (July 20, 1912, p. 198) and "Acid-Forming

and Base-Forming Foods" (July 27, 1912, p. 278). It must not be assumed that polished rice affords the only illustration of a defective diet. The curious circumstance in the cases quoted by our correspondent lies in the presence of the supposedly remedial beans. The efficiency of the latter may, however, express itself only in the presence of inadequate food like milled rice, whereas there is no scientific inconsistency on the other hand in assuming a nutritive inappropriateness of a dietary largely made up of white beans. Unquestionably more than one factor is concerned in the maintenance of that nutritive equilibrium which is expressed in good health.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CHARGING A BROTHER PRACTITIONER FOR SERVICES

Correspondence, too extensive to print in full, has been submitted with the request that we comment on the ethics of the question presented. In brief, these letters show the following:

Dr. S, as consultant, was asked to visit the wife of Dr. B, "a total stranger" to S, living at some distance from the city where S is located. S, who "had a good deal of work laid out for that day," postponed this and responded to B's call; he left home "at 6:30 in the morning and did not get back until 10:30 at night." The call came to S through a third physician who after a telephone communication with "some one representing . . . [B's] family," advised S that B wished to compensate him for the consultation. Some time later B received a statement from S for services rendered, whereupon B wrote a letter to S in which he did not express any appreciation for what S had done for him, but spoke of the statement as a "dun" and asserted: "When you were at my house, I asked you what I owed you and you said 'Not a cent.'" S answered this letter: "When you mentioned the bill as we were leaving your house, I replied: 'Do not bother about that now' for I knew your distress of mind over the illness of your wife." B "always understood that it was not customary or professional ethics to charge a brother practitioner for services rendered to his family" and objected to the amount S asked: "He has charged me as much as any one outside the profession." To this S replied: "My charge to you did not compensate me for time lost here, and my charge for consultation at points as distant as X would be"—about three times the amount asked. S and B closed their letters each by commenting on the other's lack of kindness and courtesy.

ANSWER.—A physician has no intrinsic "right" to the service of another physician. Yet it is a fitting professional courtesy that a physician cheerfully and gratuitously render whatever professional service may be asked of him by a neighboring physician for the care of that physician or one of his family dependents. It must be remembered, however, that for a physician to examine and advise a patient at his office or while making a round of calls in his home town is very different from the physician foregoing a day's work, with its actual financial returns as well as its opportunities for future practice, and making a long journey at more or less expense. B might accept S's invitation to luncheon but would not be warranted, even as a "brother practitioner," in living at S's house, for say, a week as a guest, unless they were intimate friends. True, many physicians do graciously extend the courtesy of their services to all members of the profession, even to the extent of sacrificing a day or more, including traveling expenses, but the recipient is always debtor to the physician who renders the service. When B asked what he "owed," he not only acknowledged that he was indebted to S in a manner that required a money return, but gave S the privilege of fixing the sum—in fact, made it necessary for S to do this or to forego any return either for expenses or for service performed. A better course for B to follow would have been, after heartily thanking S, to proffer an honorarium which B knew would reimburse S for the expenses of the trip and if B's finances permitted it, which would meet, in part at least, any loss that S might have suffered because of absence from his accustomed field of professional work.

On the other hand, when B did ask how much he "owed," S should have named the amount at once. While service to humanity is the prime duty of every physician, the business of the physician has a legitimate place. This should be conducted in a proper manner. Physicians too frequently answer a request even from a patient for a statement of indebtedness with "Do not bother about that now." Good business requires

that a bill should be promptly rendered, especially when asked for.

Passing to B's action when S's statement was received, B should have paid the account. If B could not make the payment, he should have stated his financial condition and asked for terms of settlement. To discuss the "ethics" of an unpaid charge renders B liable to the suspicion of having been prompted by an unethical motive in opening the question.

"RHEUMATISM PHYLACOGEN"

To the Editor:—What do you know for or against Rheumatism Phylacogen, put up by Parke, Davis & Co.? Quite a number of my patients ask me about it, and I am unable to tell them anything, except that, as I know nothing of it, I will not use it.

J. FARRAGE, Deering, N. Dak.

ANSWER.—The resolution of our correspondent not to use this remedy, since he knows nothing of it except the information furnished by its promoters, is the proper one. Physicians have no moral right to employ remedies of whose nature they are ignorant, nor should they accept the statements of interested parties who fail to give them full scientific information. "Rheumatism Phylacogen" is one of a series of proprietaries now being put on the market, based on a theory of the originator that it is possible and necessary in every infection, not only to combat the action of the principal causative agent, but also to counteract the influence of other organisms, supposed to be always present, which produce a mixed infection. For meeting this supposed mixed infection, a mixture of the metabolic products of a large number of organisms is made the base of the remedy to be administered. For instance if the patient has pneumonia, the action of the pneumococcus may be aggravated by the streptococcus, and, therefore, a dose of streptococcus poison is added to the treatment. For fear the meningococcus may be overlooked, some of its metabolic products are added, and so forth. We have no definite information as to the particular organisms whose metabolic products enter into this "shotgun" base, so that the remedy is essentially a secret one. Moreover, as it is said to be produced by the action of pathogenic organisms, it must be of the nature of a toxin and presumably a dangerous one. In any event, until reliable, unbiased evidence as to its composition and action is available, it must be presumed that the injection of these toxins of unknown origin may have an injurious effect.

While it is recommended in the advertising circular to make an exact diagnosis, we do not understand that any provision is made for varying the constituents of the product to correspond with the diagnosis. On the principles of vaccine therapy, the rational treatment of a mixed infection, is, first of all, to determine what organisms produce the composite clinical picture, and then to prepare an autogenous vaccine to correspond to the organisms producing the disease, or to make an appropriate mixture of stock vaccines. Evidently Parke, Davis & Co. propose to save the doctor this trouble by making beforehand a mixture of all possible viruses, in the hope that some of them will hit the mark. The doctor must be painstaking in making his diagnosis; but after this is done he is invited to throw away his hard-earned knowledge and experiment with this "shotgun" nostrum—for it can be regarded as nothing else. The honest physician—one who is honest with himself and with his patients—will not lend himself to such experimentation. Let any one who undertakes the use of such a remedy remember that if bad results ensue, he, and not the manufacturer, will be held responsible.

PRESCRIPTION FOR PAIN

To the Editor:—Please criticize or approve the following:

Ferri pyrophos	gr.
Acetanilid	5i
Nucis vom. ext.	gr. ijss
Ac. arsen.	gr. ss
Caffein cit.	gr. viij.
Codeine	gr. ijss
Aspirin	5i
M. Pone in caps.	xij

Sig.: One every two hours for pain or until pain is relieved.

V. H. GWINN, M.D., Brooksville, Fla.

ANSWER.—It is not difficult to criticize this. A few itemized criticisms are:

1. The prescription is an example of unnecessary and objectionable polypharmacy—a typical "shotgun" mixture and a dangerous one at that.
2. We note that the quantity of the first ingredient is not given (probably an oversight in copying).

3. The dosage of acetanilid is 5 grains every two hours, without caution not to repeat it frequently. This is a dangerous dose.

4. The dose of extract of *nux vomica* is very near the full dose and should be repeated cautiously. Full doses of *nux vomica* should not be given so often as once in two hours, unless carefully watched.

5. The same applies, even with greater force, to the dose of arsenous acid. In this case the average dose is somewhat exceeded. It is well known that arsenic is not usually given so frequently as once in two hours. A half grain of arsenous acid might, according to this prescription, be taken in twenty-four hours, and such a dose might produce serious poisoning.

6. Considering the prescription from the standpoint of therapeutics, it is objectionable because there is no good reason for combining a compound of iron, a preparation of arsenic and one of *nux vomica* in a remedy intended to relieve pain. These medicines, if indicated, should be given in separate prescriptions.

7. There is no good reason for giving caffeine citrate.

8. A minor criticism might be based on the style of the prescription. Some of the ingredients are named in Latin, others in English. This also may be due to oversight in copying.

DIAGNOSIS OF FACIAL CONGESTION

To the Editor:—Please give me diagnosis and treatment of the following case:

While in New York City three years ago, a woman, aged 35, well-nourished and in good health, was hit on the left side of the face by a tack. Three days later her face was swollen and the eyes were closed; inside of a week the patient had chills and fever, and there were redness and swelling over the entire body which lasted for about two or three weeks and subsided, except in the face, the muscles of which were hard and congested. There was no expression at all; the muscles of the eyes and mouth could be outlined but were hard and congested.

The patient was treated in New York for one year for erysipelas without result on the facial condition. Since that time every two or three weeks she has had chills and fever which last twenty-four hours or more. During the last month she has shown recurrent edema of the limbs lasting a few days; during this edema the congestion of the face is much less, but after the edema has disappeared on administration of cathartics and through increase in the urine, the congestion of the face becomes hard again. The urine shows albumin casts at times but not constantly. Blood examinations which have been made are normal at times and at others show a slight increase in red cells. The Wassermann reaction is negative. While the facial swelling is not so bad as it was six months ago, improvement is slow. During the last year the patient has been given mercury, iodids, electric treatments and almost everything that can be thought of, but with no marked results. I should like to know what causes the congestion of the muscles of the face and should like advice as to treatment.

B. C. S.

ANSWER.—The history of the face trouble suggests a recurrent erysipelas which has been followed by solid edema of the skin. These cases are uncommon but are recognized. The evanescent swelling over various parts of the body can suggest only an angioneurotic edema or the edema of nephritis—very probably the former. It is impossible to speak very definitely at this distance, but, assuming that the condition is angioneurotic edema it is doubtless a toxic process of some sort, either from some article of food or more probably from some intoxication having its origin in the intestinal tract. The treatment for this would be the treatment of intestinal disturbances. If the face trouble is a recurrent erysipelas it probably originates from a focus of infection in the nose which should be taken care of.

RUSO REACTION

To the Editor:—Kindly give the method of Russo reaction in typhoid, time of appearance, relative value and the necessary reagents.

W. F. CURRAN, M.D., Waco, Tex.

ANSWER.—The method of Russo consists in mixing a solution of methylene-blue with the suspected urine. A green color is thereby produced in certain specimens of urine, more frequently in febrile affections, especially typhoid. It is said to appear early in the course of typhoid and the green color is observed to diminish or disappear at the beginning of convalescence.

The directions given for the performance of the test are as follows: To 4 or 5 c.c. of the patient's urine add 4 drops of a 0.1 per cent. aqueous solution of methylene-blue; mix well and examine against the light; a mint or emerald-green coloration is positive, whereas any bluish tinge renders the test negative. Russo reported the reaction as being unaffected by boiling or by the ingestion of such drugs as calomel, quinin, salol or caffeine, and also pointed out that the gradual resumption of

the bluish tinge, as the patient advanced in the disease, was a valuable and favorable prognostic sign.

This method was criticized soon after its first appearance, on the ground that a similar green can be produced by a mixture of blue and yellow, and consequently is likely to be seen in any mixture of methylene-blue with the urine. Several observers, however, seem to be convinced that the green produced is due to some specific substance.

The value of the reaction is differently estimated by observers, but we believe that it cannot be taken as of great diagnostic value, because it occurs in a considerable number of normal cases. Thus Grover (*Value of Russo's Typhoid Test*, *Boston Med. and Surg. Jour.*, May 9, 1912; abstr. in *THE JOURNAL*, May 25, 1912, p. 1641), concludes: "Although the test may be demonstrated in the urine of a large proportion of the typhoid cases, yet it may be demonstrated in such a large proportion of the urines of normal individuals that it is not a test that has any specific meaning or value as to the presence or absence of typhoid. When compared with the reliability of a blood-culture it is worthless."

The following articles may be referred to:

Rolph, F. W., and Nelson, W. H.: Some Experiences with "Russo's Typhoid Test," *Med. Record*, Aug. 19, 1911.
Cousin, E., and Costa, S.: *Presse méd.*, March 14, 1906.
Gandy, C.: *Presse méd.*, March 21, 1906.

HORMONAL

To the Editor:—Please give me your opinion of Hormonal, especially as to dangerous symptoms following its administration, and its value in constipation.

M. A. NEWELL, Sheridan, Wyo.

ANSWER.—Hormonal was accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies, in view of the favorable reports concerning its action which have been made in the literature (see N. N. R. 1912, p. 118). Since its acceptance, a number of cases have been reported in which more or less alarming collapse has occurred during or immediately following its administration. An abstract of an important article dealing with the subject appeared in *THE JOURNAL*, July 20, p. 236. Notices of several cases in which collapse has occurred have been published in previous numbers of *THE JOURNAL*. It is too early to estimate correctly the value of this preparation, but it is evident that it should be used with caution. The following articles may be referred to:

Hormonal in Pulmonary Tuberculosis, Therapeutic Department of *THE JOURNAL*, this issue, page 447.
Kretschmer, J.: Collapse After Intravenous Injection of Hormonal, *München. med. Wchnschr.*, Feb. 27, 1912; abstr. in *THE JOURNAL*, April 6, 1912, p. 1048.
Zuelzer, G.: Collapse Under Hormonal, *Deutsch. med. Wchnschr.*, June 27, 1912, abstr. in *THE JOURNAL*, Aug. 3, 1912, p. 408.
Zuelzer, G.: Action of Hormonal, *München. med. Wchnschr.*, March 26, 1912.
Hesse, F. A.: By-Effects of Hormonal, *Deutsch. med. Wchnschr.*, April 4, 1912; abstr. in *THE JOURNAL*, May 18, 1912, p. 1549.
Rosenkranz, E.: By-Effects of Hormonal, *München. med. Wchnschr.*, April 23, 1912; abstr. in *THE JOURNAL*, June 8, 1912, p. 1824.
Frischberg, D.: By-Effects of Hormonal, *München. med. Wchnschr.*, April 30, 1912; abstr. in *THE JOURNAL*, June 8, 1912, p. 1825.
Mohr, R.: Blood-Pressure Reducing Action of Hormonal, *Wien. klin. Wchnschr.*, May 16, 1912; abstr. in *THE JOURNAL*, June 22, 1912, p. 2008.
Mohr, R., and Dittler: *Ztschr. f. klin. Med.*, 1912, lxxv. 275; abstr. in *THE JOURNAL*, July 20, 1912, p. 236.
Mohr, R.: *Berl. klin. Wchnschr.*, June 24, 1912.

OPHTHALMIC TYPHOID REACTION

To the Editor:—Please advise me where I may get the antigen for ophthalmic reaction, for practical bedside use in typhoid, as employed by Austrian. Are the stock typhoid vaccines suitable to use? If so, describe exact amount, dilution, etc.

LOUIS J. SMITH, M.D., Percy, Ill.

ANSWER.—The technic of the ophthalmic reaction in typhoid was described in *THE JOURNAL*, July 20, p. 213. So far as we know, stock typhoid vaccines are not used in this test. If reference is made to the description it will be seen that the toxin is precipitated from a solution by absolute alcohol. No doubt, some of the stock vaccines might be taken as the starting-point for the preparation of this toxin.

INFORMATION ABOUT LECITHIN PREPARATIONS

To the Editor:—Can you tell me where I may find something about reliable lecithin preparations?

A. B., Chicago.

ANSWER.—See New and Nonofficial Remedies, 1912, p. 130.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

PUBLIC HEALTH COMMENTS IN THE NEWSPAPERS

If the editorial comments in the newspapers are any indication of public sentiment, the people are overwhelmingly in favor of all measures which will improve the health of the country. All that is necessary in any case is to let the public understand that the plans proposed will improve the public health.

The New Haven (Conn.) *Register* says: "The *Register* would advise that all thoughtful persons who are interested in the public health of the nation read Prof. Irving Fisher's comprehensive presentation of the status of the movement for a national Department of Health . . . This department of public health is to be their (the people's) agency for their own protection, not for their domination by any interest . . . It should protect the public health welfare against the greed or ignorance of forces which operate against the public good . . . Long ago it was time to correlate these forces and make them fully effective. This is a part of the proposed work of the department. With both leading parties pledged to advance it, another administration should see it in working order to the large good of the nation."

The Erie (Pa.) *Herald*, under the title "Keep Track of Disease," refers to the tenth annual conference of state health officers with the Public Health and Marine-Hospital Service at Washington and the adoption by this body of a plan by which the state health authorities can keep informed of the prevalence and geographic distribution of communicable diseases throughout the country, and by which they can also be notified of epidemics in other states. The *Herald* says, "The effect will be that the health departments of the states will make the public health service bureau a clearing-house for current information of the prevalence of communicable diseases. The advantage of such a plan is apparent when it is considered that by far the larger part of public health work consists in the control of these diseases, and that the first essential for the control or prevention of any disease is a knowledge of where and how frequently it occurs."

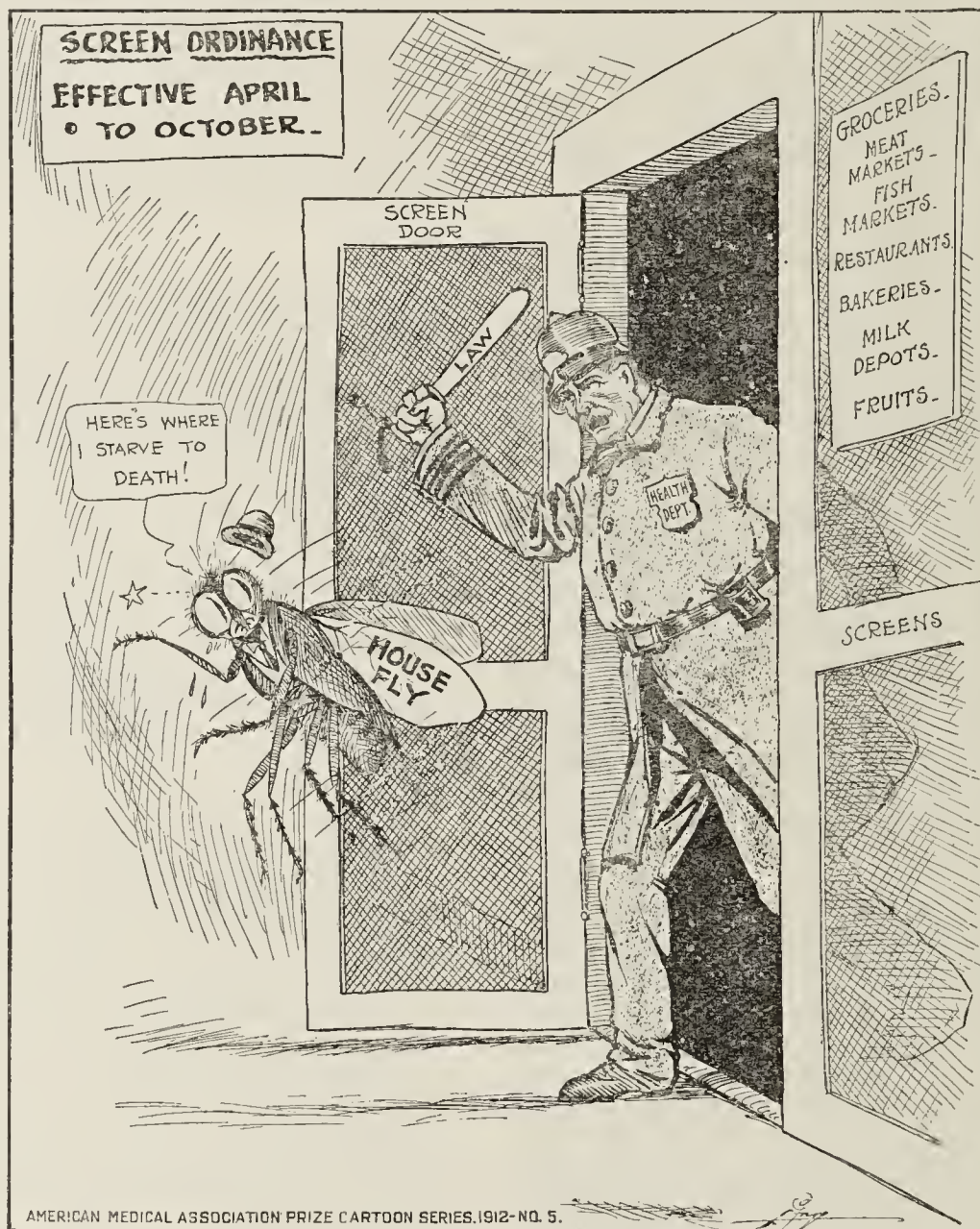
The Grand Rapids (Mich.) *News* says, "It is becoming manifest that the real foes opposed to the passage of the Owen bill are the same foes that hindered Dr. Wiley in the prosecution of his plans for pure food and pure drugs. These are

the food adulterators, the patent medicine manufacturers, and the numerous medical quacks and charlatans who had banded together to obstruct the passage of this bill in order that they might continue to make money at the expense of those who fall for their speciously worded advertisements."

The Louisville (Ky.) *Courier-Journal*, in a lengthy editorial on "The Filth of Civilization" quotes from the *Mindanao Herald* of Zamboanga, Philippine Islands, which says, "We have become a sewage-eating people. Rivers are polluted and we drink of them. Filth of various kinds is left where we pass it in walking about, and flies breeding in it carry it about on their feet and infect us. Germ-laden filth is conveyed to our food and to us with our food. The result is that persons who regard themselves as clean live in nearly continuous contact with filth, and disease is one of the results."

Commenting on this "voice crying out in the wilderness" the *Courier-Journal* says that stream pollution is a growing national evil. "Americans shudder at stories of the Hindoos bathing in the polluted waters of the Ganges, but India has no river so filthy as the Ohio." The *Courier-Journal* concludes "Legislation, national and state, is needed to prohibit the pollution of streams, and education will be required to bring legislation. In the meantime, a few individuals will take such sanitary precautions in their homes as all sanitarians agree should be taken and for their pains will be regarded by many as cranks. The majority will continue to tub vigorously and will consider themselves clean, while paying little attention to the requirements of actual cleanliness that are far more important to health than a daily bath."

Commenting on a recent decision of the attorney-general of Kentucky that a school-house is not a publicly frequented place and therefore not affected by the recent passed law forbidding common drinking-cups, the Louisville *Herald* says, "If this be law then it is law without sense. If public schools are not publicly frequented places then what are they? And if there are any institutions in which the anti-public drinking-cup law ought to be enforced with greater vigor than in these, will somebody please name them? We refuse to believe that Attorney-General Garnett has given any such fool opinion as this. It reads to us as a silly season joke. And while we are expressing our amazement, skepticism and eagerness for further information, we would like to ask why any school board should seek to obtain immunity from a law so salutary. Eagerness to insure its enforcement should be the attitude of the authorities responsible for the health of the children." The Louisville *Courier-Journal*, commenting on the same point, says that the attorney-general's opinion is not one with which the average individual would agree. "Enforce-



HIS DEATH OR YOURS!

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ment of the drinking-cup law (in public schools) would call constant attention to the fact that a common drinking-cup may cause infection. The effect would be highly educative. School children would carry home the news—and in many homes it would be news—of the modern method of attempting to prevent many communicable diseases. They would begin life informed as to the importance of taking precautions to avoid contracting tuberculosis and other diseases. To forbid the use of public drinking-cups in railroad stations, hotels, boarding-houses, and to allow their use in public schools would be to neglect the health of school children and to overlook an opportunity to begin, where it should begin, education in the importance of sanitary precautions. Of course, the framers of the law did not contemplate anything so absurd. It does not seem at all probable that any court would take the fantastic view that a public school is not a publicly frequented place."

A new medical practice act, substituting a single board for the four examining boards now in existence in the state, has been introduced into the Georgia legislature. Regarding this bill, the *Atlanta Constitution* says, "The house and senate joint committee on hygiene and sanitation has very wisely decided unanimously on a favorable report on the bill of Senator Douglas which seeks to regulate, standardize and reform the practice of medicine and surgery in this state. It (the bill) would protect the public from illegal and unqualified practitioners of medicine and surgery. . . . Every well-equipped doctor is a missionary for modern sanitation and hygiene. Had regulations in this state been tightened years ago, our death-rate from typhoid, tuberculosis and other diseases would have been held down to a minimum."

The *Constitution* is supporting this bill on the only grounds on which restrictive legislation of any occupation or profession can be endorsed, viz., that it is for the public good. The *Savannah Press* also endorses the bill saying, "It is on the right line and moreover it is both refreshing and encouraging to see that, amid all the hysterical interest in legislating morals into the people, there is yet room for guarding and protecting the physical welfare of our people."

A bill providing for a state system of sanitation has also been introduced into the Georgia legislature, regarding which the *Savannah News* says, "The bill of Representative Ellis would be a blessing to the people. Sanitary regulations such as the bill provides are greatly needed in both the city and the rural districts. But it seems to us that it would take a long time to educate the public to a point where there would be sufficient public sentiment." The *News* expresses the hope that if all the sanitary reforms provided for in this bill cannot be secured, at least provision will be made for systematic examination of school children.

The *Macon Telegram* summarizes the ten sections of the bill and shows that its enactment and enforcement would prove of great benefit to the people of the state. The *Telegram* says, "The bill may not receive the necessary approval of the legislators or the people, but it is a step in the right direction and should receive at least a careful consideration. It varies little from similar bills which have been passed by the legislators in other states and which in time will become imperative in Georgia."

Careful inspection of editorials clipped from newspapers in all parts of the country during the last three years leads one unavoidably to the conclusion that the press and the public are more interested, more enlightened and less prejudiced to-day on public health questions than ever before. The growing sentiment in favor of proper regulation of all matters affecting the health of the people is one of the most encouraging signs of the time.

Britain May Subsidize Motor Cars.—The British War Office is considering the subsidizing of heavy gasoline trucks owned by civilians. An owner would receive an initial subsidy of from \$39 to \$58, and an annual subsidy of \$73, in return for which he would agree to turn over his wagon to the government, in case of war, at a fixed price.

Medical Education and State Boards of Registration

COMING EXAMINATION

NEBRASKA: Capitol, Lincoln, August 14-15. Sec., Dr. C. P. Fall, Beatrice.

Oklahoma April Report

Dr. John W. Duke, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, April 9-11, 1912. The number of subjects examined in was 15; total number of questions asked, 100; percentage required to pass, 70. The total number of candidates examined was 15, of whom 10 passed and 5 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Illinois Medical College.....	(1910)		74.4
Louisville Medical College.....	(1886)		73.6
University Medical College, Kansas City.....	(1911)		78.4
Starling Medical College, Columbus.....	(1897)		78.6
Jefferson Medical College.....	(1906)		90.3
Moharry Med. College... (1898) 70.8; (1910) 78.5; (1911)			72.9
Memphis Hospital Medical College.....	(1909)		74.7
University of West Tennessee.....	(1911)		73.9
	FAILED		
College of Physicians and Surgeons, Little Rock..	(1911)		68.3
Howard University, Washington, D. C.....	(1891)		68.3
Flint Medical College.....	(1907)		68.3
Kansas City Hahnemann Medical College....	(1910)		64.7
University of West Tennessee.....	(1907)		67.8

The following questions were asked:

BACTERIOLOGY AND PATHOLOGY

1. What are leukocytes and how classified? 2. What are bacteria? Name four bacteria cultures. 3. Give process of staining and mounting tuberculous bacilli. Name the pathogenic coccil that produce yellow pus, white pus, lemon-colored pus. 5. Name three kinds of parasitic fungi. 6. Give the pathologic changes that take place in pericarditis. 7. Name and describe two forms of arteriosclerosis. 8. What is suppurative nephritis, and what part of the kidney is affected? 9. What is endarteritis obliterans and what part of the vessel is affected? 10. Give the pathology of perinephritis.

SURGERY

1. Give the etiology of inflammation. 2. Define acute and chronic abscess. 3. What are the most approved operative procedures in the treatment of varicose veins of the lower extremity? 4. What is shock, and how should it be treated? 5. What are methods of controlling hemorrhage? 6. What are the indications for trephining in fractures of the skull? 7. Define amputation in the continuity and amputation in the contiguity of a limb. 8. Describe the aseptic and the antiseptic methods of treatment of wounds. 9. Describe the operation of cholecystomy. 10. Mention the symptoms and signs of acute appendicitis.

OBSTETRICS AND HYGIENE

1. What do you understand by obstetrics, occiput, sinciput, vertex, bregma and presentation? 2. (a) What is accidental hemorrhage? (b) What are the causes and treatment? 3. (a) Name the bones of the pelvis. (b) How do those of the male differ from those of the female? 4. State the average size and weight of the multiparous uterus. (b) Name the ligaments that support the uterus. 5. What are the planes and axes of the pelvis? 6. What are the movements undergone by the fetal head during normal labor? 7. Describe the fetal circulation. 8. Define normal labor; cephalic, pelvic and podalic version. 9. Give instructions for ventilation of a three-story school building. 10. How would you control an epidemic of small-pox?

PHYSICAL DIAGNOSIS

1. Are the movements of the heart visible in insufficiency of the aortic valves? 2. Is there a precordial bulging in insufficiency of the aortic valves? 3. In what intercostal space can the heart-beat be located if heart's action is far out in above disease? 4. Describe the apex-beat and how to determine its location in above disease. 5. Where is a systolic thrill felt in above disease? 6. What characteristic sign do we find on auscultation in above disease? 7. What is discovered by percussion in above disease? 8. What rôle is always present in second and third stages of pulmonary tuberculosis? 9. Give physical signs of cavity in third stage of pulmonary tuberculosis. 10. Give physical signs of chronic pleuritis.

CHEMISTRY

1. What chemical changes take place after death? 2. What is the chemical antidote for poisoning from lead acetate? Explain the action of the antidote. 3. State the properties of nitric acid and what is the antidote for nitric acid poisoning? 4. Define element, atom, molecule. 5. What is a hydrocarbon? 6. What essential element is necessary in all acids? 7. What are aldehyds? 8. How does potassium permanganate act as a disinfectant? 9. Mention the important physical, physiologic and chemical properties of ptomaines. 10. State your procedure of examination of a specimen of urine of an applicant for life-insurance.

GYNECOLOGY

1. Give indications for curettage. 2. Describe the above operation in detail. 3. Treat a case of chronic retroversion of the uterus. 4. Describe the changes taking place in the uterine mucosa during menstruation. 5. What holds the uterus in its normal position?

6. Name the common causes of sterility. 7. Give etiology and treatment of pelvic abscess. 8. Describe technic of operation for cervical repair. 9. Give etiology and treatment of ulcer of cervix. 10. Give etiology and treatment of acute vaginitis.

TOXICOLOGY AND MEDICAL JURISPRUDENCE

1. What is toxicology? 2. What are the requirements and how would you qualify yourself to have a legal right to practice medicine in this state? 3. Give a medicolegal definition of insanity. 4. What is a delusion, a hallucination, an illusion? 5. Give a test for phosphorus when mixed with stomach contents. 6. Being called on in court to testify as to whether an adult person found dead in a pond or river came to his death or not before being placed in the water, what would be your mode of procedure? 7. What are the symptoms of poisoning by potassium iodid? 8. What are the post-mortem appearances of poisoning by mercury bichlorid? 9. How would you treat poisoning by potassium iodid? 10. Give the treatment of poisoning by aconite.

MATERIA MEDICA AND THERAPEUTICS

1. Name the preparations and doses of belladonna. 2. What is salol and what are its physiologic uses? 3. Name five alteratives and give their therapeutic properties. 4. Name two diuretics, two antipyretics and two cathartics, and give dose of each. 5. Name the drugs compatible with silver. Treat the following diseases, giving doses of drugs used and their therapeutic effect; also diet and prognosis: 6. Pneumonia. 7. Whooping-cough. 8. Typhoid fever. 9. Diabetes mellitus. 10. Tuberculosis.

ANATOMY AND HISTOLOGY

1. Origin and termination of the internal jugular vein. 2. Briefly describe the spinal cord, giving point of termination. 3. Describe the frontal sinus. 4. Give lateral boundaries of Scarpa's triangle. 5. Origin, point of termination and branches of the abdominal aorta. 6. Name the vessels forming the circle of Willis. 7. Briefly describe the fascia lata. 8. Name the ventricles of the brain. 9. Histologic structure of the mucous membrane of the stomach. 10. Histologic structure of the pancreas.

PHYSIOLOGY

1. Name the cranial nerves and give the function of two of them. 2. Give specific gravity and chemical reaction of urine and state normal amount voided in twenty-four hours. 3. What is the function of the ovum? 4. Name the chambers of the heart in their order as the blood passes from the venæ cavæ to the aorta and tell what causes the second sound of the heart. 5. Name the organs of digestion and tell what agent acts on starches. 6. What is osmosis? 7. Describe reflex action. 8. In what portion of the brain are most of the motor areas located? 9. Where does the secretion from the liver enter the alimentary tract? 10. What is the function of the pancreas?

Rhode Island May Report

Dr. Gardner T. Swarts, Secretary of the Rhode Island State Board of Health, reports the oral examination held at Providence, May 16, 1912. The percentage required to pass was 80. The total number of candidates examined was 2, both of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Harvard Medical School.....		(1908)	80.
McGill University, Quebec.....		(1873)	80.

Mississippi June Report

Dr. W. W. Smithson, secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, June 4-5, 1912. The number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 87 of whom 43 passed and 44 failed. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Examined.
University of Alabama.....		(1912)	3
Atlanta School of Medicine.....		(1912)	2
College of Physicians and Surgeons, Chicago.....		(1883)	1
Chicago College of Medicine and Surgery.....		(1912)	1
University of Louisville.....		(1911, 2) (1912, 1)	3
Kentucky School of Medicine.....		(1890)	1
Tulane University of Louisiana.....		(1912)	5
Mississippi Medical College.....		(1912)	7
Memphis Hospital Medical College (1911, 3) (1912, 11)			14
College of Physicians and Surgeons, Memphis.....		(1911)	1
Vanderbilt University.....		(1912)	1
University of Tennessee.....		(1910)	1
University of Nashville.....		(1911)	1
University of Virginia.....		(1910)	2
FAILED			
Atlanta School of Medicine.....		(1912)	1
Louisville National Medical College.....		(1910)	1
Tulane University of Louisiana.....		(1911)	1
Mississippi Medical College (1907) (1909, 2)			
(1910, 3) (1911, 4).....		(1912, 6)	16
Barnes Medical College.....		(1901)	1
Leonard Medical School.....		(1909)	1
Meharry Medical College.....		(1907, 2) (1911, 1)	3
Memphis Hospital Medical College (1909, 2)			
(1911, 4).....		(1912, 10)	16
University of Tennessee.....		(1912)	2
Gate City Medical College.....		(1906)	1
Selma University*.....		(1906)	1

* There is no record of a medical college by this name.

Book Notices

THE PHYSIOLOGY OF FAITH AND FEAR, OR THE MIND IN HEALTH AND DISEASE. By William S. Sadler, M.D., Professor of Physiologic Therapeutics, the Post-Graduate Medical School of Chicago. Cloth. Price, \$1.50 net. Pp. 580, with illustrations. Chicago: A. C. McClurg & Co., 1912.

Among the writers of medical books are (1) the original worker and (2) the text-book writer. The research worker, while constantly toiling in his laboratory, occasionally writes in order to apprise the medical profession of the results of his labors. He is often a poor stylist and not easily understood by his own colleagues, unless the latter because of their interest in the subject make especial efforts to get at the author's meaning. To the second type belongs the clinician and teacher who appropriates the choicest thoughts of the most advanced thinkers and then renders an account of his newly acquired knowledge in either text-book or medical journal articles. It thus happens that the research worker is often unable to tell all he knows, while the lucid teacher and writer occasionally tells more than he knows. Even of the last group there are but few who can popularize a medical subject so as to give the layman an intelligent idea of it. One reason for this deficiency may be found in the lack of practice in this line of endeavor, for the medical profession has until quite recently regarded with disfavor any attempt to teach the public medicine. The arguments advanced for this view were two; first, that a little knowledge is dangerous; second, that the teaching of popular medicine is usually done for the purpose of advertising the teacher, the public often taking the promulgator for the originator. And because of the inherent difficulties of translating into plain English abstruse technical matter, few medical men have become adepts in this kind of writing. In recent years the public has become insistent on knowing certain facts in medicine and the medical profession has slowly yielded to the public's demand, with the result that medical societies have inaugurated popular courses of lectures on hygiene and preventive medicine. The view now prevails that the public should know the truth about certain medical topics, so as to enable it to discriminate between truth and falsehood and to examine the claims of the numerous fads and cults of healing which have recently sprung up mushroom-like on our own soil. These growths are possible only because of the colossal ignorance prevailing among the people with reference to their minds and bodies. The book before us was written for the general reading public in simple, terse phraseology and with a thoroughness seldom surpassed or equaled even in strictly technical writing. The subject of "nerves" is treated in a sane and rational manner. In the 580 pages of this book there is not a paragraph to which serious objection is possible from the strictly medical point of view. The lengthy discussion of each subtopic is followed by a brief summary at the end of each chapter, a commendable feature in a popular work, written for people not accustomed to read many pages without forgetting the main issues involved. No hesitation need be felt in placing this volume in the hands of a patient, as reading it must make one a more intelligent, consequently a more appreciative, patient. We hope that this book which, being sold at novel price, will probably be widely read by the general public, will thus help to mold saner views with reference to so-called "mental healing."

DIE ARZNEIMITTEL-SYNTHESE AUF GRUNDLAGE DER BEZIEHUNGEN ZWISCHEN CHEMISCHEN AUFBAU UND WIRKUNG. Für Aerzte, Chemiker und Pharmazeuten. Von Dr. Sigmund Frankel, a. o. Professor für medizinische Chemie an der Wiener Universität. Third Edition. Paper. Price, 24 marks. Pp. 823. Berlin: Julius Springer, 1912.

The third edition of this valuable book appears in an enlarged form. It discusses systematically the relation between the physiologic and therapeutic effects of substances and their chemical composition, on which, of course, are based the entire subjects of synthetic pharmaceutical chemistry and chemotherapy. An exhaustive review of the literature and an extensive bibliography, which naturally includes particularly the records of the German patent office, make this a reference

work indispensable to those whose interests are along these lines, especially pharmacologists and pharmaceutical chemists. Most physicians, also, would be much enlightened by a study of the introductory chapters on the theory of the action of inorganic and organic substances, and the relation between chemical composition and physiologic effect. The author's ideas on this point may be quoted with emphatic approval: "The flood of new substances, which inventors and manufacturers wish to have investigated, must cause the question to arise as to how we are to prevent the entrance of these new agents into therapeutics without thorough testing. It has been frequently proposed that there should be government institutions with the function of testing and establishing the value of new therapeutic agents before they can be used in therapy. Although such testing would be very valuable, and might prevent the use of actually harmful substances by the practitioner, there is the difficulty that such an institution must recognize as new and active substances the enormous number of possible variations of well-known and proved substances. It is just such variations that constitute the great number of new drugs, while the discovery of new classes of active substances, or new fundamental substances, is much more rare. We must rest our hopes that a check will be placed on the production by the chemists of unnecessary variations of substances of known activity and value, through the increase in physician's knowledge of pharmacology, and it is to be hoped that physicians may learn how to distinguish between the production of new active fundamental substances and the innumerable variations of old and new active agents. At present, unfortunately, the only protection against the overwhelming of therapeutics by superfluous new substances lies in the resistance and conservatism of the medical profession, a conservatism which, however, opposes equally the new and good and the new but superfluous." To enlighten both the physician and the chemist as to what is old or new, desirable or superfluous, promising or hopeless, this book is well devised and well adapted.

THE PHYSIOLOGY OF THE SEMICIRCULAR CANALS AND THEIR RELATION TO SEASICKNESS. By Joseph Byrne, A.M., M.D., LL.B. Cloth. Price, \$3. Pp. 569. New York: J. T. Dougherty, 1912.

The first 336 pages of this interesting book are devoted to a discussion of the anatomy and physiology of the labyrinth with its incoming and outgoing tracts, inclusive of the sympathetic or autonomic nervous system. In the remainder of the volume the author explains in detail the mechanism and the rationale of the new tests of rotation, caloric and galvanic stimulation of the labyrinthine structures, all of which he utilized in order to produce experimentally a series of symptoms akin to seasickness. In addition he studied the effects of seasickness itself on circulation, respiration and digestion during several transatlantic voyages, of which he made careful daily records. Correlating his own experimental findings with the actual symptoms of seasickness as observed by himself and others, he concludes that their cause is to be found in the labyrinthine structures. He believes that seasickness in ordinary conditions of health is primarily the response of the organism to repeated and irregular forms of labyrinthine stimulation. Predisposition to seasickness, therefore, merely implies ready, alert reflex mechanisms, and is in no way directly related to the health or strength of the individual in so far as its primary causation is concerned. In fact, so common is seasickness among normal individuals that the burden of proof rests with those who are immune to prove that they are free from abnormality. The author is opposed to advising a sea-voyage to suffering individuals regardless of conditions of circulation and digestion. He further denounces the indiscriminate advice to travel, which is so often given to patients with symptoms of mental depression. Rightly does he refer to the many cases of suicide occurring at sea as a result merely of the psychic depression incidental to seasickness itself. It is manifest, says he, that a serious responsibility rests with the physician who recommends sea-voyages in conditions in which the "reserve-margin" of any of the organs is encroached on by disease or faulty habits of living. The number of suicides committed at sea, and the carelessness with

which unfortunates suffering from seasickness are treated, is a disgrace. The lonely individual suffering inner torments, as the result of repeated labyrinthine irritation, wanders about in a state of mental agony, not knowing what is the matter with him, nor how to orient himself properly in the whirl of his disordered imaginings. Instead of receiving proper medical treatment which would include close supervision, and a goodly amount of reassurance, such an individual is left severely alone, with the result that relief from mental distress of purely artificial origin is sought in self-destruction.

In the concluding chapter of the book the author recommends certain improvements in the hospital facilities of ships, better hygienic conditions generally and, last but not least, the employment of physicians scientifically trained to care for the health of passengers from every point of view.

This book is a veritable mine of information on its particular theme and those contemplating ocean-travel for themselves or their patients will find therein numerous valuable suggestions. Otolologists and neurologists will appreciate the complete summary of the anatomy and physiology of the vestibular structures, as well as the fine summary of the new aural tests and the adequate bibliography at the end of the book.

BRONCHIAL ASTHMA. Its Pathology and Treatment. By J. B. Berkart, M.D. Third Edition. Cloth. Price, 5 shillings. Pp. 150. New York: Oxford University Press, 1911.

The object of this monograph, which in its third edition is an abridgment, is to maintain the theory of the origin of asthma in an inflammation of the bronchioles and an endogenous obstruction of the larger bronchi. Asthma is a symptom of a fibrinous bronchitis of which latter a microorganism is the cause (p. 80). The organism is, Berkart believes, the streptococcus. Rickets is the basis for the development of the asthmatic paroxysm, and rickets he regards as very often inherited. This, in brief, is Berkart's theory as to asthma. His book has much of value as regards symptoms and the findings in the sputum, and some of his theoretical considerations are suggestive. The chapter on the diagnosis, though short, has many good points that help in differentiating the dyspnea of asthma from that of other obstructive lesions of the respiratory tract. Berkart's advice as to treatment is in general to be commended. The book as a whole, however, is not satisfactory. Conclusions are drawn that seem unwarranted by facts; vague statements are too numerous, and the author has a convenient way of getting rid of an opposing argument by declaring it evidently untenable. For instance, all reports of cases in which patients have been better in the city and worse in the country, he declares, are evidently incorrectly observed; such are but instances of hollow theory. The bronchial spasm origin of asthma is inveighed against rather than disproved. His chapter on treatment is too much taken up with telling of the futility of what other practitioners have done. His own directions are rather indefinite except as regards his advocacy of antitoxin, which is not convincing.

PHARMACEUTICAL BACTERIOLOGY. With Special Reference to Disinfection and Sterilization. By Albert Schneider, M.D., Ph.D., Professor of Pharmacognosy, Histology and Bacteriology, California College of Pharmacy. Cloth. Price, \$2 net. Pp. 238, with 86 illustrations. Philadelphia: P. Blakiston's Son & Co., 1912.

The publication of Dr. Schneider's book is one of the evidences of the high degree of excellence to which the profession of pharmacy is advancing. Pharmacy as a practical art may be thought to have little to do with bacteriology but, in fact, since the task of the pharmacist is the preparing of medicines his field can no more be limited to drugs and chemicals than that of the physician can be confined to the vegetable and mineral materia medica. The advance of science has introduced the vaccines into extensive use and it becomes the duty of the pharmacist to keep pace with the growth of medicine. Hence courses in bacteriology will become a necessity in colleges of pharmacy. Indeed, they have already been introduced into some schools. The bacteriologic course creates a demand for a text-book which shall deal particularly with the phases of the subject of special interest to the pharmacist. Professor Schneider's work is designed to answer this demand. He has given clearly the

elements of the science and has illustrated them by facts drawn from general science and industry as well as from medicine. The technic described is accurate and sufficient. The detailed knowledge of immunity, still a *terra incognita* to some physicians, may seem unnecessary and capable of little application in a drug-store. But the rôle of the pharmacist as an educator in sanitary matters may be indefinitely extended, since his opportunities for influencing public opinion certainly are not far behind those of the physician. In the practical application of bacteriology to disinfection, the author has recognized a legitimate field for the professional skill of the pharmacist. He must sell and sometimes prepare disinfectants. He ought to know and on occasion be able to apply the methods of estimating the strength of these agents. The sterilization of medicines is thoroughly dealt with. A chapter is devoted to a brief account of the various communicable diseases and a final chapter gives a brief description of the equipment of a microscopic and bacteriologic laboratory.

If pharmacy is to maintain its position as a sister profession to medicine, there need be no dispute regarding the propriety of the addition of bacteriology to pharmaceutical courses. If any one thinks otherwise we commend to him a perusal of Professor Schneider's book. The curriculums of the average pharmaceutical schools, however, are now constituted in such a way that there is no room for practical courses in bacteriology. The introduction of such courses will necessitate marked changes in the college programs and the emphasis placed on different phases of the instruction. But between a knowledge of the pharmacognosy of Cinchona bark and a knowledge of the bacteriology of diphtheria, the preference might well be given to the latter.

It is to be hoped that the changing conditions in the profession of pharmacy may make the pharmacist more competent to help physicians in making bacteriologic and other tests. If the book awakens the pharmacists of the country to a realization of their opportunities, it will have served a useful purpose.

OUTLINES OF APPLIED OPTICS. By P. G. Nutting, Associate Physicist Bureau of Standards, Washington, D. C. Cloth. Price, \$2 net. Pp. 234, with 73 illustrations. Philadelphia: P. Blakiston's Son & Company, 1912.

This book has been written for the practical worker in optics rather than for the student or general reader. It deals with optical instruments and optical measurements and "is intended for the man in the field designing instruments, measuring color, examining eyes, identifying illuminants, etc." It is essentially a manual of mathematical formulas for working out the problems indicated in the above quotation. Unfortunately, we are unable to criticize all portions of the work with equal assurance but would call attention to the following on page 115.

"The limits of accommodation are by no means the 25 cm. to infinity ordinarily taken as the limits of the normal visual distance. The normal eye, even at middle age, can easily accommodate itself to an object beyond infinity, i. e., a meter behind the eye, or as near as 10 cm. in front of the eye. The power of accommodation decreases considerably, in practically all cases, from childhood to old age."

The normal emmetropic eye cannot at any age accommodate itself to any point beyond infinity, and at middle life can not be accommodated to a point as near as 10 cm. in front of the eye. The last sentence quoted is quite true if the word "practically" be omitted.

FOOD FOR THE INVALID AND THE CONVALESCENT. By Winifred Stuart Gibbs, Dietitian for the New York Association for Improving the Condition of the Poor. Cloth. Price, \$0.75. New York: Macmillan Company, 1912.

The title of this book does not do justice to the text. Instead of being merely another of the many books on sick-room dietetics, it is also an excellent manual of domestic economy. There are directions for buying all kinds of food-supplies and for keeping them after they are purchased. A warning is issued against dirty stores. The necessity for good cooking is explained and the results of bad cooking are enumerated. The various terms used in cooking—boiling, stewing, etc.—are defined. The recipes are all good and practical. Under the title "Feeding the Healthy," bills of

fare are given showing how to plan meals for families of different size at low cost, and at the same time to have variety and proper proportions of foodstuffs. The cost of each item is given, the prices being those charged in New York. The book should be of great value not only to visiting nurses, sociologic workers and physicians in dispensary practice, but also to housekeepers.

LE LIQUIDE CÉPHALO-RACHIDIEN NORMAL ET PATHOLOGIQUE. Valeur Clinique de l'Examen Chimique. Syndromes Humoraux dans les Diverses Affections. Par W. Mestrezat, Docteur en Médecine, Licencié ès Sciences, Chef des Travaux de Chimie à la Faculté de Médecine de Montpellier. Paper. Price, 12 francs. Pp. 681. Paris: A. Maloine, 1912.

This extensive monograph on the cerebrospinal fluid is one of the most thorough and complete works on the subject. An enormous mass of detail, concerning the normal values for the chemical and physical properties of this fluid, has been arranged in a most serviceable and interesting manner. In the second portion of the work, the pathologic variations in these properties are so fully discussed that little is left to be desired.

The style of the book is clear and concise. The arrangement of the subject-matter is excellent. This book is one which should be in the library of every laboratory worker and should prove of great interest and value to the clinician.

ESSENTIALS OF SURFACE ANATOMY. By Charles R. Whittaker, F.R.C.S. (Ed.), F.R.S.E., Senior Demonstrator of Anatomy, Surgeons' Hall, Edinburgh. Second Edition. Cloth. Price, \$1.40. Pp. 59, with illustrations. Philadelphia: P. Blakiston's Son & Co., 1912.

This little manual, now appearing in its second edition, has the distinguishing merit of concise and accurate description. The illustrations are well executed and calculated to be useful by not attempting to show too much. In this edition several extra markings have been inserted and a few outline illustrations provided.

Medicolegal

Malpractice Suit Based on Failure of Operation for Tic Douloureux—Operating Without Consent or on Consent for Different Operation—Having Hospital and Another Surgeon Operate—Expert Testimony

(*Robinson vs. Crotwell (Ala.)*, 57 So. R. 23)

The Supreme Court of Alabama reverses a judgment rendered against the defendant for malpractice, remanding the case for a new trial, because it concludes that the jury was more moved by sympathy for plaintiff, who had undergone an unsuccessful operation, than by consideration of the law and the facts. There is no rule of responsibility which requires of the physician or surgeon infallibility in the diagnosis or treatment of diseases.

For some years the plaintiff, the court says, had been treated by the defendant and other medical men for tic douloureux, an exceedingly painful disease of the nerve which supplies the face with sensation. In keeping with the general, if not universal experience, medicaments had been of no avail. The defendant, who kept a hospital, advised an operation, and, after consulting with the plaintiff, procured his (defendant's) brother, who made a specialty of surgical cases, to perform the operation for a compensation agreed on, and to be paid by the plaintiff. The defendant's brother was not interested in the hospital and had no business connection with the defendant. The operation was not successful in relieving the suffering caused by the plaintiff's specific disease, and, besides, left him with some disfigurement, and without the protection afforded the brain by the hard plate of his skull over an area of 2½ by 1½ inches. Afterward this action for malpractice was brought.

In one aspect of his case, the plaintiff contended that the defendant caused a dangerous operation to be performed on him, after assuring him that the operation to be performed would be a mere trifle, as operations go, and would involve no serious consequences. If the plaintiff's contention in this regard was true, the defendant's conduct would seem to be indefensible. But the verdict, if rendered on this aspect of the case, ought

not to be permitted to stand. The defendant was a reputable physician. He had attended the plaintiff at intervals since the latter's childhood, and through many months he had treated him for the specific disease of which it was proposed to relieve him by the operation in question. The operation was performed in the presence of three other physicians, nurses, and three brothers of the plaintiff. The defendant and two of the other physicians swore that the plaintiff was specifically informed of the nature of the operation which it was proposed to perform. It was also an undisputed circumstance of great and peculiar weight in this case that nearly a year elapsed after the operation before the plaintiff, or any one for him, intimated that he had a grievance by bringing this suit or otherwise, and that in the meantime the plaintiff, without a word of complaint or reproach, returned to the defendant for treatment, and consulted with him about having the operation repeated. The wrong attributed to the defendant was so utterly without motive, so wide a departure from the principles and practices of an honorable profession, the complaint so long delayed, and the lack of general verisimilitude so great, that if the verdict in this case was to be referred to that theory of the plaintiff's case now under consideration, it ought to have been set aside on the defendant's motion. The plaintiff testified, as an alternative, that if he was informed of the character of the operation he was so informed after his faculties had been so benumbed by an opiate, administered by the defendant, that he could not and did not understand or consent. But on this point the evidence was equally clear, and the consideration referred to made this alternative as unworthy of belief, as the other.

But the plaintiff also complained that the defendant had unskillfully or negligently diagnosed or treated his case. But of error in diagnosis there was not a particle of evidence. As for any unskillfulness or negligence which may have characterized the operation and affected its results, assuming that the jury was authorized to find there was such, that operation was not performed by the defendant, but by another surgeon, who proceeded on his own judgment as to what ought to be done and how. The defendant took part to the extent only of administering the anesthetic, and advising that the effort to complete the operation be abandoned on account of the patient's ebbing vitality. There was no suggestion that in these things he showed any lack of skill or committed any error. Nor was there any suggestion that he negligently advised the employment of an unskilful or incompetent surgeon to perform the operation. Under such circumstances, the defendant was not responsible for any default on the part of the operating surgeon, who was practicing his profession as an independent agent. And the argument that the defendant contributed to the result of the operating surgeon's alleged negligence by furnishing an inadequately equipped place in which to perform the operation left the question at issue to depend on the defendant's responsibility for the operating surgeon; for, if the condition of the hospital and its equipment was such as, in itself, to import an element of negligence or unskillfulness into an operation performed there, the responsibility for that element of the operation rested on the surgeon whose judgment determined on and directed the operation.

With reference to the instruction of the jury, these charges given at the instance of the plaintiff assert principles of law which seem entirely plain: If a physician or surgeon has taken charge of a patient, and undertaken for reward to furnish hospital and apparatus for the operation, it is his duty to exercise proper care and diligence to furnish reasonably prudent and proper facilities, and he may be liable for any failure so to do, even though he is otherwise careful and competent. No matter how skilful or careful a physician or surgeon may be, he has no right to perform a dangerous operation on an adult person of sound mind without his consent, even if the patient has consented to another and different operation. Consent to the performance of one kind of operation would not be consent to the performance of another and different operation. The court does not, of course, intend to say that there may not arise grave emergencies in which a surgeon may operate on his patient without his knowledge and consent. This was

clearly not a case of that character. No matter how skilful a physician or surgeon may be, he is responsible for his negligence, if any.

But charges asked by the defendant were properly refused which maintained the proposition that a physician and surgeon is responsible civilly for gross negligence only. Such is the measure of his responsibility in criminal prosecutions, but a civil action may be sustained on proof of a failure to exercise such reasonable care and skill in respect to the duty assumed as physicians and surgeons in the same general neighborhood, in the same general line of practice, ordinarily have and exercise in like cases. And a requested charge that a physician or surgeon is bound to give his patient the benefit of his best judgment, but is not liable for a mere error of judgment, was defective in that it required of medical men no skill whatever, there being in it no requirement that the judgment brought by the professional man to the discharge of his duties should be informed and educated according to the standard of the time and general locality, as the law requires.

When There is Failure to Elect Superintendent of Health the Secretary of State Board May Appoint One—Constitutionality of Law

(*McCullers vs. Board of Commissioners of Wake County (N. C.), 73 S. E. R. 816*)

The Supreme Court of North Carolina reverses a judgment rendered against the plaintiff, who was appointed county superintendent of health by the secretary of the State Board of Health, under Section 9 of Chapter 62 of the Public Laws of North Carolina of 1911, which provides that, if the county board of health of any county shall fail to elect a county superintendent of health within two calendar months of the time fixed by the statute when such election shall take place, the secretary of the state board shall appoint one. The court says that the defendant board of commissioners passed a resolution undertaking to appoint a superintendent of health, and to fix his salary. In consequence of such conflict between the two boards and the failure to fix his compensation, the plaintiff appeared before the board of health at its next meeting, and declined to qualify as superintendent of health for Wake county. Then, the board of health having failed to elect a superintendent for more than two calendar months, the secretary of the state board appointed the plaintiff, fixing his fees and compensation, after which he qualified. The court holds that this gave the plaintiff the title to the office.

It was contended that the contingency had not arisen when the secretary could lawfully appoint a superintendent of health. But when a majority of the board of health voted for the plaintiff, and he refused to qualify, it was the duty of the board at once to elect another person. This it failed to do, so that the office remained vacant for more than two months up to the time the state secretary made the appointment. The court thinks the true intent and meaning of the statute is to give such appointment to the state secretary when the board of health for any reason permits the office to remain vacant for two calendar months from the date fixed by statute. The public interest requires that this particular office shall have an incumbent to discharge its duties. By the words "shall fail to elect," the general assembly meant the choosing and induction into office of a superintendent of health within two calendar months, otherwise a hostile board of health could keep the office vacant by electing a person who would not qualify.

Nor does the court consider that said Section 9 violates the provision of the state constitution forbidding the holding of two offices by one man at the same time in that it constitutes the county board of health of the chairman of the board of commissioners, the mayor of the county town, and the county superintendent of schools, together with two physicians to be elected by those three public officials. It is not a case in which one person holds two offices at the same time, but rather one in which the duties of a member of the county board of health are to be performed *ex officio* by the chairman of the board of commissioners, the mayor, and the superintendent of schools. These duties cannot be discharged by them any longer than they hold the offices mentioned.

Society Proceedings

COMING MEETINGS

Am. Acad. of Ophthal. and Oto-Laryngol., Niagara Falls, Aug. 20-22.
Amer. Assn. of Obstetricians and Gynecologists, Toledo, Sept. 17-19.
American Electro-Therapeutic Association, Richmond, Va., Sept. 3-5.
American Public Health Association, Washington, D. C., Sept. 18-20.
American Roentgen Ray Society, Niagara Falls, Sept. 11-14.
Colorado State Medical Society, Pueblo, Sept. 24-26.
Conf. State Bds. of Health of N. Am., Washington, D. C., Sept. 20-21.
Indiana State Medical Association, Indianapolis, Sept. 26-27.
Medical Society of the Missouri Valley, Council Bluffs, Ia., Sept. 5-6.
Minnesota State Medical Association, Duluth, Aug. 14-15.
Nevada State Medical Association, Reno, Sept. 10-12.
New Mexico Medical Society, Roswell, Sept. 12-14.
Pennsylvania State Medical Society, Scranton, Sept. 23-26.
Wyoming State Medical Society, Sheridan, Sept. 17.

AMERICAN CLIMATOLOGICAL ASSOCIATION

*Twenty-Ninth Annual Meeting held at Hartford, Conn.,
June 10-13, 1912*

The President, DR. A. D. BLACKADDER, Montreal, Canada,
in the Chair

Officers Elected

A list of the officers for the coming year was published in
THE JOURNAL, June 29, p. 2039.

Cold-Therapy

DR. A. D. BLACKADDER, Montreal, Canada: The effect of cold air on the body is twofold. First, there is an actual extraction of heat which is rarely desirable, and as far as possible should be prevented. The body loses the largest amount of heat through conduction and this should be prevented by proper clothing. Much more important than the abstraction of heat from the body is the stimulating action of the cold on the delicate sentient nerves of the periphery. Both respiration and circulation are strengthened, oxidation is increased, and nutrition becomes more active. There is also a powerful stimulation conveyed to the medullary centers by the effect of cold air on the nasal mucous membrane. Cold, provided it be not excessive, has a markedly stimulating action on the digestive system. Cold also seems to stimulate the blood-forming organs. As a result of these factors, the resisting powers of the body against toxins and its ability to respond protectively to the assault of infection is greatly increased. These benefits of cold depend, however, on the power of the individual to react and this varies greatly and seems to be dependent on the vasomotor tone. Those suffering from any interference with the free passage of air through the nostrils do not react well to cold air. Inflammatory conditions of the larynx and trachea may be subjected to additional irritation by cold air. To benefit from a winter in the north, the intestinal tract and the kidneys should be in good working order. Extreme cold is not desirable for those suffering from gout, arthritis or neuritis. For those suffering from advanced degeneration of any organ, for those advanced in years and for the very young extreme cold may be distinctly harmful. It cannot be too strongly emphasized that all the benefit to be derived from a residence in the north will depend on the completeness with which an outdoor life is lived.

Physiologic Observations on Pike's Peak, Colorado

PROF. YANDELL HENDERSON, New Haven, Conn.: The heart rate at this altitude is somewhat accelerated, even during rest, and greatly accelerated by exercise, but arterial pressure is not considerably changed. The hemorrhages formerly noted are a myth. Respiration is considerably increased, even during rest, and enormously augmented by even moderate exertion. The red corpuscles are increased 30 or 40 per cent.; the total volume of blood, however, is unchanged. The most important element of acclimatization to low barometric pressure is the development by the lungs of a capacity to secrete oxygen from the alveolar air into the blood, thus compensating in part for lessened diffusion because of the low oxygen pressure in the atmosphere at such an elevation (14,147 feet).

High Altitude and the Blood

DR. W. A. CAMPBELL, Colorado Springs, Colo.: The study of the blood has been a difficult one, subject to many corrections, owing to the variation in its component parts in the daily walks of life. The study of the blood changes at high altitudes is attended by many additional intricate problems owing to the changed climate environments and the inaccessibility of places of observation. Altitude increases the erythrocytes, hemoglobin and leukocytes, thereby furnishing three of the most important factors in the building up of a stronger resistance against infectious diseases. The heart acts faster and the pressure is lower, which tends to strengthen the cardiac muscles. Caution must be exercised in the beginning that the muscles be not overworked. The lack of oxygen and the consequent increased respiratory change cause a more rapid metamorphosis of tissue, thereby aiding in the throwing off of morbid processes. The same condition brings into action portions of the lung unused in lower altitudes. A study of blood conditions ought to convince any unprejudiced individual that altitude is not a fake, and that many clinical cases can be selected that will be materially benefited by change of altitude.

DISCUSSION

DR. JUDSON DALAND, Philadelphia: A few years ago the late Dr. Solly and I decided to go to Pike's Peak and do a little experimental work. Dr. Solly experienced no discomfort from dyspnea or cyanosis while my lips became cyanosed. We remained on the peak four hours. No especially bad effect was noticed during that time. Microscopically, it was shown that the number of red corpuscles was increased, but there was no morphologic change in the blood. There was no apparent leukocytosis. The changes in the readings of the hematometer were not great enough to be of any significance. My own pulse was 73, respirations, 34; volume from 94 to 99, and coloring matter 92. An intense headache, from which I suffered, disappeared when I arrived at Colorado Springs. I drew into my work two brothers, one aged 20, weighing 209 pounds, and 5 feet 8 inches in height, who had been a resident at Pike's Peak for some weeks. His volume per cent. was 102, hemoglobin 115. He had no leukocytosis. He was sufficiently strong to carry a child 1½ miles up the mountain. He had become accustomed to the altitude. The other brother was 29 years of age, and his volume was 104 and hemoglobin 110. In his case there was no manifest leukocytosis. It seems to me that my observations bring out two important points: first, the value of physiologic functioning on the part of the alveolar cells to secrete oxygen, and, second, the leukocytosis which is really a lymphocytosis. At an altitude of more than 2,000 feet, one experiences a most remarkable air-hunger.

DR. HOAGLAND, Colorado Springs, Colo.: I have experimented with the blood on Pike's Peak, and have time and again noticed that when the timber-line is passed, half a dozen persons in the ear will turn pale. Sometimes their color returns within two minutes and the individuals are able to eat sandwiches and drink coffee. Altitude seems to help certain persons with weakened heart muscles. When there is a defect in contractility, then any change in altitude is contra-indicated. In conditions of weak heart alone, patients do as well as anywhere. There is an impression in the United States that the mortality from pneumonia is higher in high altitudes than in lower ones. A comparison of statistics shows that there is no such difference. Living in a high altitude increases the capacity of the chest. When I first went to live at Colorado Springs my chest measured 35 inches; it now measures 41 inches.

DR. FOX C. GARDINER, Colorado Springs, Colo.: I agree with Dr. Hoagland in what he said regarding heart trouble. I know of one man who was told that he could not live on account of heart trouble; he went up 8,000 feet and lived for many years.

DR. DELANCEY ROCHESTER, Buffalo, N. Y.: Altitude causes an increase in hemoglobin and in the number of red and white blood-cells; there is a dilatation of the peripheral capillaries. There is an increase in the polymorphonuclears, but not in the lymphocytes.

DR. F. M. POTTENGER, Monrovia, Cal.: There is a possibility of our drawing wrong conclusions from these physiologic inquiries. The important point is that high altitude causes an increase in the components of the blood and this is necessary in order to maintain the individual. I practice at a low altitude and receive patients from higher altitudes and find that the patients are benefited both ways. Clinically, the best observations are those of Dr. Henderson, which refer to the development of the lung capacity to secrete oxygen from the alveolar air into the blood.

DR. A. J. RICHER, Montreal, Canada: There is no doubt but that the blood-changes occasioned by high altitudes are due to a struggle for adaptation. When sending a patient to a high altitude, we inflict an extra amount of effort in order to secure adaptation.

DR. CARROLL E. EDSON, Denver: When a splitting headache occurs it would be interesting to know whether it may not be due to an unrecognized collection which has drained from the frontal sinns. It is difficult to state whether these headaches are purely a circulatory phenomenon. In my opinion, the question of the secretion of oxygen from the alveolar air into the blood has not been proved. Cannot the balance of oxygen in the blood be maintained by quickening the power of the right side of the heart?

DR. A. W. JAYNE, Denver: The recent observations made on the blood explain many things that we were formerly unable to explain clinically. I went to Colorado in the early eighties and practiced medicine at an altitude of 9,000 feet or over. To my surprise, I found that surgical wounds healed with great ease and usually by first intention. Fractures got well promptly and patients made good recoveries in all acute diseases. Many cases of pneumonia are fatal in mining camps but this is because of the unrestrained lives of the men, and because they frequently come down with pneumonia after a period of intoxication.

DR. ROBERT H. BAECOCK, Chicago: When a patient with heart disease asks me if it is advisable to go to a high altitude, I confess that I do not know just what to answer. I usually tell him, even though he has a manifest cardiac lesion, that he may go if he keeps quiet. I even tell patients with dyspnea and tachycardia to go, but to keep quiet for a few days or a week, and that in all probability they will not suffer afterward.

PROF. YANDELL HENDERSON, New Haven, Conn.: I do not think that the headaches in these cases are due to sinus trouble. Dr. Webb is responsible for the term "lymphocytes;" it was his idea that lymphocytosis is a factor in combating tuberculosis. As to the respiratory change, one cannot get rid of any more carbon dioxide at a high altitude than at a lower one but the intake of oxygen is greater; to get rid of this oxygen the patient has to work harder.

Pneumonia in Open Air Sanatoriums

DR. HARRY LEE BARNES, Wallum Lake, R. I.: The reports from twenty-seven sanatoriums for tuberculosis, equivalent to observation on 13,582 patients for one year, showed eighteen cases of lobar pneumonia with seven deaths or a mortality rate of 53.99 per hundred thousand population. If allowance be made for a different age distribution in sanatoriums from that of the general population, the death-rate from lobar pneumonia in sanatoriums would be about 28.46 per hundred thousand population. After due allowances are made, it seems that the mortality rate of lobar pneumonia is about the same in sanatoriums as in the general community. The impression that lobar pneumonia is rare in sanatoriums for the tuberculous is due to the small population under observation, and to the fact that the age of the patients is such that it would normally furnish but 36.6 per cent. of the lobar pneumonia cases. This investigation furnished no evidence that the incidence of lobar pneumonia is influenced by the open-air life in sanatoriums. The death-rate from all forms of pneumonia in sanatoriums is 117.83 instead of 32.78 per hundred thousand as should be expected, the frequency being largely due to aspiration pneumonia.

DISCUSSION

DR. LAWRASON BROWN, Saranac Lake, N. Y.: It is not an easy thing to make a diagnosis of pneumonia when the patient is afflicted with pulmonary tuberculosis. The mere finding of the pneumococci does not prove anything. I question whether the diagnosis is ever made, except at autopsy. Following a hemoptysis, there sometimes is an involvement of an entire lobe, and occasionally this clears up but it is difficult to say that such a case is one of lobar pneumonia.

DR. HARRY LEE BARNES, Wallum Lake, R. I.: In every case it is difficult to make a diagnosis of pneumonia in a patient having pulmonary tuberculosis. One such case has been diagnosed by Dr. Trudeau, one by Dr. Baldwin, one by Dr. Griffith and one by Dr. Bowditch. I have seen one case in a woman who entered the hospital because of a slight tuberculous temperature. Suddenly, the temperature went up to 103 or 104 F. and stayed high for eight or nine days; it then went down with the typical crisis of pneumonia. The patient had typical rusty sputum, dyspnea and cyanosis. She presented every clinical symptom of pneumonia and there were an enormous number of pneumococci in the sputum.

Results of Dispensary Work in Control of Tuberculosis

DR. CLEVELAND FLOYD, Boston, Mass.: I have been making a statistical study in order to show as far as possible how well the dispensary meets the demands made on it among such patients as presented themselves at the clinic of the Boston Consumptives' Hospital. Five thousand patients were observed for an average period of two years and five months. Of this number 1,315 were lost to the clinic for various reasons. Among 1,707 cases which were considered negative at their first examination and which were examined recently, 604 patients were perfectly well and 528 reported themselves as well or had developed some other disease than pulmonary tuberculosis. In the group of negative cases, among 1,132 only twenty-four had developed phthisis during the period of observation of two and one-half years. In 748 suspected cases only sixty-two patients developed the active disease. Among a total of 1,130 suspected cases about 60 per cent. gave signs at the right apex. The other 40 per cent. were almost equally divided between questionable signs at the left apex and the base. Almost without exception these signs had cleared up or failed to develop. Where the right apex has shown questionable involvement, sixty-two patients developed phthisis.

DISCUSSION

DR. H. R. M. LANDIS, Philadelphia: The greatest drawback at present is the endeavor to recover too much territory. Out of 915 patients coming under my observation, who were treated on the basis that they were tuberculous, 410 died of the disease. Of 184 living, 107 were back at work. Patients discharged from the dispensary usually had the conviction that they were cured, and it was no longer necessary to pay any attention to the doctor's orders regarding their future care of themselves. They must be educated to keep up the method of living outlined for them.

DR. CHARLES L. MINOR, Asheville, N. C.: A doctor is derelict if he does not watch his patient closely after the latter is discharged as cured. The patient should be seen first every two weeks then every month and then every three months for three years.

DR. H. H. WHITCOMB, Norristown, Pa.: The great trouble we meet with is the ignorance of the patients who will not return to the dispensary unless they are receiving medicine. We are in the habit of giving them some placebo which they must return to have refilled.

The Rôle Played by Resistance in Pulmonary Tuberculosis

DR. A. J. RICHER, Montreal, Canada: During the last ten years there has been a growing tendency toward the belief that tuberculous infection occurs during the first years of life. The conclusions on this subject may be summed up as follows: 1. Almost 90 per cent. of children of school age

react to tuberculin (cutaneous). 2. The majority of implantations are of human origin. 3. With few exceptions the pathway of infection has been the digestive tract. 4. Infection in early life conveys a degree of immunity if the doses of infective material are not large or rapidly successive. The resistance offered by children suffering from pulmonary tuberculosis is an incontestable fact. Why, then, should this disease in adults so frequently terminate fatally? Has the immunity of childhood exhausted itself? Is it because the tissues of the adult differ from those of the child so materially? These questions must for the present remain unanswered. The system of Patterson and Frimley offered the advantages that the treatment required only about one-half the time that was needed for the continuous rest treatment. Relapses are almost *nil*. Employment during the treatment prevents discontent and apathy. Occupation of body and mind permits the patient to resume his work untainted by the malady which the reclining chair breeds, namely, disinclination for work. No special climate is required. The patient in the advanced stage of the disease has some chance of recovery. The work performed by the patients lessens their maintenance materially. The Frimley method is applicable to all cases of tuberculosis.

DISCUSSION

DR. HERBERT M. KING, Liberty, N. Y.: Exercise has been used as a method of treatment for tuberculosis for a long time. The time consumed in these exercises is too short to get the proper results. Whether the effects which result from the therapeutic employment of exercise are due to auto-inoculation or to tuberculin, I cannot say. Our experience with the opsonic index is not sufficient to prove anything. The point in the adoption of any therapeutic measure which makes it applicable is that we should have some criteria by which to regulate the dose. In my experience therapeutic exercises have not proved applicable to all patients. I am timorous regarding exercise when there are increasing areas of physical signs. This is not a method to be adopted immediately after the patient has been admitted to a sanatorium. All patients are required to have an initial period of rest. When there is a quiescent condition the patients are urged to do the walking exercises prescribed. With this class of patients the results have been good, and without this exercise I do not believe we would have been able to discharge so many patients. This method is useful in gauging the amount of work that the patient may safely do. The patient should be instructed to maintain the same conditions of rest and exercise outside the sanatorium as in it. One can never tell until after trying whether a patient will respond favorably or unfavorably to a given amount of exercise. If the temperature falls to normal within a half hour after he has completed his exercise, it is considered safe for him to continue it. If the temperature remains up longer than this, the exercise is stopped for a time.

DR. H. J. PRATT, Boston: Dr. Patterson deserves great credit for showing that patients with advanced tuberculosis can be put in good condition and do hard labor without any ill effects; he also deserves credit for the place he has given to rest. But he has done harm indirectly because people do not understand his methods correctly. It should be remembered that in the early days of this method patients were chosen from among those who had been three months in the hospital. They had all passed through three months of rest. What we need is statistics under different methods of treatment. I wonder if the advocates of the exercise treatment can offer statistics comparable with those we have obtained. During the active stage of the disease, I believe the proper treatment is rest, as absolute as possible. I have kept these patients at rest after the temperature was normal and the pulse-rate low, until immunity was established. Some I have kept quiet in bed four or five months or longer. Many have gone back to work at their original employment.

DR. HUGH M. KINGHORN, Saranac Lake, N. Y.: Exercise in the form of walking is employed by all lung specialists when, in the opinion of the physician, the patient is in condition to walk. This is a matter of judgment; it is also a matter of

judgment at what stage in the treatment a patient should begin to take exercise. When labor is combined with exercise there is a wide diversity of opinion among lung specialists. I am not aware that there is any proof that these auto-inoculations are of any value. Patterson used the opsonic test to prove auto-inoculation after exercise; this test has been proved to be of no value. The question of labor is one of considerable risk and a note of warning should be sounded against its general adoption. The object of the period of rest is to cause a disappearance of symptoms and the object of the exercise is to tone up the system. It is not a question of causing auto-inoculation or of seeing how much work the patient can do. The open-air plan of treatment, as practiced by Dr. Trudeau, has stood the test of time and given brilliant results.

DR. J. N. HALL, Denver: In Denver there are many physicians suffering from the disease, and it is striking how many of them make excellent recoveries. I have had over 100 physicians under my care; two of them have been there but two or three years, but the others have all been there five years or longer and all are free from symptoms of tuberculosis. I believe that being physicians they recognize their condition earlier and come early enough to be cared for properly.

DR. CLEVELAND FLOYD, Boston: Without doubt children have greater resistance to tuberculosis than adults. The two factors concerned are auto-inoculation and the activity of the lymph system. As to the question of rest and exercise, the important question is, when is rest needed and when is exercise needed? Better work could be done if we could obtain a better blood-picture. Exercise has been a great help to me in telling me whether a patient is getting too much tuberculin. The severity of the infection in individual cases would help us in judging of the cases. If we could isolate the tubercle bacilli from the patient and test their virulence on guinea-pigs we might learn how severe the infection is and get some idea of what the patient will do.

DR. LAWRASON BROWN, Saranac Lake, N. Y.: Too little time is given, as a rule, to raising the resistance of the patient. Giving rest to the individual will do more to stamp out tuberculosis than any attack on the tubercle bacillus. I doubt if graded exercise is better than tuberculin. As to Dr. Patterson's patients not relapsing, I believe they do relapse; they are not watched long enough. One cannot tell the results in one, two, or three years, but must wait longer. We do not use work for the purpose of getting auto-intoxication, but with the purpose of getting the patient ready to resume his occupation. The work-shop is a blessing, and patients are put to such work as will develop the muscles involved and those that they will use in their future work. I believe all patients are auto-inoculated. A wise plan to follow is to have the patient exercise one day, keep quiet the next, etc. If tuberculin is used, order "no exercise" until the day following.

DR. A. J. RICHER, Montreal, Canada: Patterson's treatment is based on resistance and this seems to have escaped the attention of most men.

Chronic Septic Endocarditis

DR. GLENTWORTH R. BUTLER, Brooklyn, N. Y.: About 250 cases of this class have been studied by Osler, Billings, Libman, and others, so that we are now in a position to define this type as a distinct entity among the endocardites. In the great majority of instances there is a bacteremia, and the organism most frequently found is a streptococcus. The pathologic anatomy is that of a vegetative rather than an ulcerative endocarditis. This form of endocarditis runs a course of from four to twelve months and even longer. From a clinical point of view its latency is remarkable. Commonly there is no leukocytosis, but after the disease has progressed for some time there is a progressive anemia. This form of endocarditis is almost always engrafted on an old mitral or aortic valvular lesion. Among other signs are enlargement of the spleen, digestive disturbances, pains in the joints, bones, muscles, or various nerves. The diagnosis during the early stages is nearly always difficult and the prognosis distinctly unfavorable.

DISCUSSION

DR. CHARLES L. MINOR, Asheville, N. C.: Some state that these cases are due to the influenza bacillus and not to the streptococcus. Dr. Rosenow says that many cases are due to the pneumococcus. The lesion in the heart is followed by definite lesions elsewhere. A lesion of the aortic valve may be followed by one of the mitral valve, then of the chordæ tendineæ, then of the columnæ carneæ, and possibly ulcerations occur.

DR. HERBERT MAXON KING, Liberty, N. Y.: During the past year I have seen two cases at the Loomis Sanitarium and in both instances a diagnosis of tuberculosis was made. In one case the blood-culture resulted in the recovery of the streptococcus; this patient did not develop petechial spots until two or three months before his death. In the second case there was an enormously enlarged spleen suggestive of Banti's disease. There were large areas of petechial spots over definitely separated parts of the body. There was no leukocytosis but a leukopenia. So far the organism has not been recovered from the blood.

DR. MORRIS MANGES, New York City: The picture is so characteristic that after seeing a number of these cases one cannot mistake them. One should inspect carefully the mucous membrane of the lower eyelid and the folds of the axilla as petechial spots are often found in these localities. Painful nodes may be found alongside the big toe or on the hand, the favorite place being about the finger-nails; these are absolutely characteristic of the disease. Blood-cultures, taken a dozen or more times, may give negative results, but with the presence of these swellings a diagnosis may safely be made. There may be enormous changes in the vegetations and yet the heart go on for months and no physical signs be manifested, except those due to failing circulation. Characteristic lesions are found in the kidneys, which occur only in ulcerative endocarditis. The vaccines, both stock and autogenous have thus far been useless. Remissions sometimes occur and last for months but the disease resumes its course and goes on to a fatal termination. Hemorrhage is a curious feature and gives a clue to those not familiar with this disease.

DR. J. H. ELLIOTT, Toronto, Canada: An interesting case occurred in a woman, aged 25, who had mitral stenosis. After an influenzal cold, she had fever, persistent cough, and changes in the lungs which suggested tuberculosis. Finally a diagnosis of septic endocarditis was made. Signs of mitral insufficiency developed, then embolism of the tibial artery, which was followed by dry gangrene of the lower extremities. A thrombus of the femoral artery followed. At autopsy the thrombus was found to extend to one-half inch through the iliac into the aorta.

DR. A. JACOBI, New York City: There may be an entire absence of symptoms in these cases. In every case coming under my observation in which there was an absence of symptoms at autopsy this was explained by the fact that the deposits were away from the edge of the valves and did not change the direction of the blood-current.

Primary Malignant Disease of the Lung

DR. ROLAND G. CURTIN, Philadelphia: The rarity of primary cancer of the lung is shown by the statistics of Dr. John A. McGinn of Philadelphia who in 8,515 consecutive autopsies found cancer in 457 bodies only four of which were primary cancer of the lung. In my own experience I have seen seven cases of primary cancer and sarcoma of the lung. Of these four cancers were in males and two in females. One sarcoma was in a male. The right side was involved in six cases and the left in one. Four cases were tapped and three were not. Tapping gave relief in two cases while in two it did not. There was marked dyspnea in six of the seven cases. The average age of the patients was 52 years. The most common complication was metastasis in the surrounding tissues; the pleura was almost always affected. The first symptom was often a gradual loss of flesh. Pain may be slight, at first, and is nearly always on the side affected. There is blood-spitting, so characteristic that a diagnosis may be made from that alone. There is a dark purple globule of blood encased in a

transparent glazed membrane about the size of the end of the little finger. The physical signs are those of a solid tumor or those of pleurisy.

DISCUSSION

DR. J. H. ELLIOTT, Toronto, Canada: A striking feature in cases of primary carcinoma of the lungs is that the expectoration is not purulent and hemoptysis occurs later than in cases of pulmonary tuberculosis. At no time will there be currant-jelly expectoration but a mucoid expectoration suggestive of malignant disease. Many cases that are regarded as primary are not such at all.

DR. MORRIS MANGES, New York: Two instances have come under my observation in which a new growth of the lungs was diagnosed by hardening the sputum and cutting it as one would a section. The presence of small thoracic glands is not infrequent. The amount of bloody fluid removed in these cases by aspiration is usually large. Cytology cannot be used because of the bloody mucus. The failure to relieve after aspiration is very often due to an enlarged bronchial gland which causes dyspnea.

DR. VINCENT Y. BOWDITCH, Boston: In a case which proved at autopsy to be a case of malignant disease of the lungs I was misled in making a diagnosis of tuberculosis by the presence of dulness at the right apex, fever, and bloody sputum.

DR. EDWARD B. BALDWIN, Saranac Lake, N. Y.: A case of sarcoma of the pleura came under my observation which presented all the cardinal symptoms of pulmonary tuberculosis. The polymorphonuclear leukocytosis could not be accounted for, but later, when the autopsy was made, sarcoma of the pleura was found which extended through the mediastinum and finally involved the abdomen and peritoneum.

DR. A. JACOBI, New York: I have seen a few cases of primary carcinoma of the lung. I have seen cases of mediastinal adenoma; in one instance the growth was very large and the glands were enlarged about the fourth and fifth ribs. It is my impression that a large number of these cases of carcinoma of the lungs are secondary and that the primary cases are very rare. It is a mistake to suppose that tuberculosis and carcinoma may not be found associated. Modern surgery of the chest, which has developed so rapidly during the past few years, may be of some service in these cases provided the diagnosis is made early enough.

Treatment of Arteriosclerosis

DR. T. D. COLEMAN, Atlanta, Ga.: While the blood-pressure apparatus is very valuable, there is no instrument that can take the place of the finger nor can any instrument teach as much about the pulse as can be learned by palpation. The widest field for good is in the prevention rather than the cure of arteriosclerosis. All causes which we know produce the condition should be eliminated. Excesses of all kinds, mental as well as physical, should be avoided. Alcohol, coffee, tea and tobacco should be used in moderation, if at all. The treatment of arteriosclerosis may conveniently be divided into hygienic, dietetic and medicinal. In advanced cases strictly restricted diet is at times imperative. Nitroglycerin may be employed for a long time; the objection to it, however, is its evanescence. The more lasting effects of the nitrites make them preferable.

DISCUSSION

DR. JAMES M. ANDERS, Philadelphia: After all, the instrumental measurement of blood-pressure is less valuable than careful palpation; the latter enables one to distinguish between actual arteriosclerosis and high tension, and this is important from the standpoint of treatment. One must search for the cause in each individual case and then attempt to remove it. In many cases due to high-tension living the rest cure together with vasodilators is highly successful. The prolonged use of sodium nitrite will benefit many patients if its use is continued over a sufficient length of time. It softens the vascular walls and reduces the viscosity of the blood. If this drug disagrees with the stomach function more may be lost than gained by its employment. In cases due to syphilis iodids should be given with a free hand. The

benefits of sodium nitrite are more lasting than those of nitroglycerin.

DR. A. JACOBI, New York: The only preventive of arteriosclerosis is to die in time. None of us can escape arteriosclerosis after we reach middle life. If one does not feel it or realize it, the reason is that it is less disseminated and more localized in certain parts. As to the treatment, we have been told that large meals should be avoided and food should be taken slowly. Few Americans know how to eat, and especially doctors. Do not drink much, remember that sipping water increases the amount circulating in the blood-vessels from 5 to 8 per cent. in a few minutes. Divide a glass of water into six parts and take one every ten minutes. In this way the stomach is not filled. The well-to-do can take their time in eating and drinking, but the majority of people cannot do this. These patients, like those with tuberculosis, should be watched with care. Iodin is useful in the treatment and many can take this who cannot take potassium iodid. Small doses of the alkalis, sulphates, phosphates, carbonates and some magnesium will be found useful. By taking these salts, some men 70 and 75 years of age are able to live comfortable lives and to attend to business. For the bad attacks of arteriosclerosis, particularly those caused by deposits in the coronary arteries, causing angina pectoris, with very severe pain, doses of nitrites with morphin may be given. My prescription is one-quarter grain of morphin and from one one-hundredth to one one-hundred and fiftieth of a grain of atropin having the patient place it on his tongue and suck it slowly.

DR. CHARLES L. MINOR, Asheville, N. C.: Many people lead such foolish lives that it is useless to speak of prophylaxis to them. As to the drug treatment, potassium iodid, in doses of 3 grains, is of considerable value, but a combination of dietetic and psychical treatment is better. Take two meals instead of three, avoid heating foods and cocktails. It is useless to attempt to undo what has already been done.

DR. THOMAS DARLINGTON, New York: I have always been interested in the question of longevity. In one family with which I am acquainted there were three members whose ages were respectively 100, 101 and 103 years. Four others are over 90 and five others over 86. In reply to inquiry as to how they lived to such an age they all gave the same experience, that is, they followed Dr. Jacobi's advice: "Eat sparingly and slowly; keep the bowels open."

DR. EDWARD R. BALDWIN, Saranac Lake, N. Y.: In institutions the inmates are very prone to overeat and my experience has proved that this is a large factor in the production of arteriosclerosis.

Recurrent Febrile Attacks in Chronic Tuberculosis

DR. CARROLL E. EDSON, Denver: There is danger of too close attention to the tubercular process in chronic phthisis. Patients have a tendency to attribute increased fever and cough to overdoing or to "taking cold." The physician is apt to attribute febrile recurrences to tuberculous activity when it is really due to other causes. Almost invariably new activity will show itself at the edge of previously unaffected tissue. Observations of patients having certain characteristics of recurrent periodic spells of fever with and without increase of cough, frequently without alteration in the physical signs in the chest, may seem to be due to inflammation or infection, but in reality they represent eliminative processes. Acting on this theory, I have found that the use of oxidizing aids, salicylates, potash and purgatives, shortened these attacks, and that by taking account of the periodicity of the attacks and instituting medication before the periods, the attacks may be avoided or mitigated. These attacks are apparently pulmonic in origin and due to accumulated unoxidized pyrogenous material as is indicated by the prompt and complete relief obtained when such an origin is made the point of therapeutic attack.

DISCUSSION

DR. DE LANCEY ROCHESTER, Buffalo, N. Y.: I had several cases of recurrent febrile attacks in tuberculous patients which seemed inexplicable. It was only by the most careful

examination that the cause of the trouble was found. The alkaline diuretics are of great value and tend to prevent the recurrence of these attacks.

DR. CHARLES L. MINOR, Asheville, N. C.: We have all blamed the general practitioner for ascribing to malaria fevers due to a beginning tuberculosis, and special workers in tuberculosis fail to ascribe to tuberculosis all the fevers they see. I am not prepared to give any theoretic explanation of these fevers; however, an exasperating and obstinate temperature may be kept up by this intestinal fermentation and cleared up only by calomel and antiseptic treatment. Some patients coming under my observation have stayed in bed weeks or months with fever and it disappeared only when they got up.

DR. EDWARD G. BALDWIN, Saranac Lake, N. Y.: The word "anaphylaxis" is now very common in literature; the Germans attribute all fevers to anaphylaxis and intestinal symptoms as well. A better term would be "sensitization to definite proteids." The mere fact that expectoration does not increase in some cases of tuberculosis with fever is not necessarily proof that there is no congestion in the focus of tuberculosis. There is a great deal of experimental proof to show that unstable condition of these tuberculous patients, and fever can be excited by slight changes in the tuberculous foci.

DR. LAWRASON BROWN, Saranac Lake, N. Y.: I have seen a number of these cases of recurrent febrile attacks in chronic tuberculosis cured by prolonged rest in bed. When these attacks come on one after another we keep the patient in bed sometimes two or three months, or until the attacks cease altogether. In studying the bacteriology of the blood of patients afflicted with pulmonary tuberculosis I have found secondary organisms circulating in the blood in a number of instances. Anaphylaxis may be due to a dissolution of these organisms. This is a factor that should be taken into consideration in our studies of these peculiar attacks of fever in patients with chronic tuberculosis.

DR. H. McL. KINGHORN, Saranac Lake, N. Y.: These febrile attacks occur in far-advanced cases of tuberculosis. If the patient has been running a normal temperature, he may be assured that he will get through the first attack quickly. If the attack lasts three or four days, he should be kept in bed three or four days and then allowed to get up and around slowly. Whatever may be the cause of the attack, the focus of the disease is easily disturbed and it is necessary to get the patient in a stable condition. Clinically, it has been noted that the next attack will not occur so soon as the last, and finally the patient is likely to outgrow them altogether. During these attacks exercise should be withheld.

The Influence of Carbonated Brine Baths on Blood-Pressure

DR. JOHN M. SWAN, Rochester, N. Y.: Carbonated brine baths have no constant effect on the blood-pressure in the human subject. In the cases under observation the systolic pressure was raised more frequently than it was lowered by these baths; the tendency of the baths is to raise the blood-pressure. There is no method of determining in advance whether a given treatment will be followed by an elevation or a fall of pressure. In a series of eighty-one cases, the systolic pressure was higher at the end of the course of treatment than at the beginning in thirty-nine instances, lower in thirty-four, and unchanged in eight. In cases of fibroid myocarditis the pressure effect is inconstant. It seems to me a dangerous proceeding to use a form of treatment in a case of cardiac fibrosis which may be followed by an increase of systolic pressure of 22 mm. or an increase of pulse-pressure of 32 mm. In cases of parenchymatous myocarditis, the effect of the baths on blood-pressure was usually to raise it, but in some cases the effect was to reduce both the systolic and the pulse-pressure. In cases of dilatation of the heart, hypertrophy and dilatation, mitral regurgitation, hypertrophy, tachycardia, and cases of aortic regurgitation, the same uncertainty of results was observed. The benefit in the subjective symptoms in cases of heart disease which follows a course of carbonated brine baths is not dependent on the influence of the treatment on blood-pressure.

MEDICAL SOCIETY OF NEW JERSEY

One Hundred and Forty-Sixth Annual Meeting, held at Spring Lake, N. J., June 11-13, 1912

Under the presidency of DR. DANIEL STROCK, Camden

Officers Elected

The following officers were elected for the ensuing year: president, Dr. Norton L. Wilson, Elizabeth; vice-presidents, Drs. Enoch Hollingshead, Pemberton; F. D. Gray, Jersey City; W. J. Chandler, South Orange; recording-secretary, Dr. T. N. Gray, East Orange; corresponding secretary, Dr. H. A. Stout, Wenonah; treasurer, Dr. Archibald Mercer, Newark.

The next meeting will take place at Spring Lake, N. J., June 17 to 19, 1913.

Vaccine Therapy

DR. GORDON K. DICKINSON, Jersey City: In order to have success in treatment, three conditions must obtain: first, the germs inducing the lesions should be discovered in the individual, from which an autogenous vaccine may be made; second, there must be sufficient arterial and lymph-supply to the affected tissue, in order that the serum and its contained phagocytes and antibodies may abundantly reach it; third, the lesion must not have exhausted the antibody-forming organs. In accurately measured doses, properly spaced as to time, we gain in opsonins and leukocytes. If the dose be too great, we have a diminution in the production, exhaustion of tissue and added danger.

DISCUSSION

DR. JOHN C. MCCOY, Paterson: In the use of vaccines in surgical conditions favorable results may be obtained in those patients whose general health was good at the time of the injury or infection. In patients whose vitality is at a low ebb and there is poor reacting ability, the results are either indifferent or *nil*. In surgical diseases, I have not seen results from the use of autogenous vaccines which would lead me to rely solely on this last method of combating infection. The indiscriminate use of stock vaccines should be mentioned only to be condemned.

DR. GEORGE E. McLAUGHLIN, Jersey City: One of the great points in vaccine therapy is the accurate standardization, and this cannot be made sure of with stock vaccines. The lower the degree of heat, the better the emulsion will be. We are experimenting along the lines of not using heat at all.

DR. I. H. HANCE, Lakewood: In a class of cases that used to be perfectly hopeless, the use of the immune blood-serum affords a prospect of success that we never had in the past. These are cases of hemophilia. I saw a child with hemophilia that would have bled to death had it not been for the injection of human blood-serum.

The Refracting Optician Evil

DR. LINN EMERSON, Orange: In spite of his claim to the contrary, the refracting optician is, as a rule, grossly incompetent; but he is making a strenuous fight for legal recognition. The general practitioner who permits his patients to go to the refracting optician is guilty of great folly; for he is sending away work that he should be doing himself. The use of drops by the general practitioner will enable him either to fit the patient with glasses himself, or to discover that it is a case for the ophthalmologist. The fitting of glasses is as much a branch of general medicine as is minor surgery.

Cyclic Vomiting in Children

DR. FRANK R. SANDT, Paterson: Our experience with such cases leads us to believe that cyclic vomiting is a disorder found only in children of the so-called nervous temperament, or in those who have inherited the neurotic tendency from their parents; that cyclic vomiting is primarily due to the effect of certain exhausting or depressing influences exerted on the nervous mechanism of digestion; that the intestinal toxemia is secondary, and only possible through the consequent perverted function of the digestive organs, especially the liver; and that the best lines of treatment are followed when attention is directed to the general physical well-being of the patient, rather than exclusively to the alimentary tract.

DISCUSSION

DR. CHARLES W. HARREYS, Ridgewood: I consider the headings under which cyclic vomiting is described as misleading. "Acetonemia" expresses the condition better. It is a well-defined process, and sharply separated from other intestinal toxemias of childhood. It is a chronic disease, and covers a period of life of from 2 to 12 years of age. Most patients recover eventually. I have detected the odor of acetone in two-thirds of thirty cases which I have seen before the onset of the vomiting and before the patient had been without food. The recent work in the use of normal serums and blood transfusion in the toxemias of pregnancy and uremia suggests a line of thought worthy of consideration. I am convinced that bicarbonate of soda is the most useful drug at our disposal for the control of the acute symptoms.

DR. ALEXANDER MARCY, JR., Riverton: Cyclic vomiting is a distinct form of disease. It is very often confused with other attacks of vomiting. There is always acetone in the breath and urine. There is always a preceding indicanuria. The symptoms of the disease are so characteristic that, having once observed a true case, one never can mistake it for anything else.

DR. PHILIP MARVEL, Atlantic City: I have no doubt that we shall find out sometime that there are relations in this disease that are very similar to the persistent pernicious vomiting in pregnancy. There is certainly a toxic state. It may be possible that we shall find that there is a specific history back of this condition, such as a chronic specific poison in the parents.

DR. HENRY CHAVANNE, Salem: I have had several cases of cyclic vomiting and handled them successfully. I used a tablet of codein in a specific quantity of water, and gave a teaspoonful every hour until the effect of the codein was evident and the child rested.

Diagnostic Pitfalls

DR. RICHARD C. CABOT, Boston: At the clinic at the Massachusetts General Hospital, where my work is done, we average six cases a week; and those who attend these exercises have in their hands the history sheet containing the results of the physical and laboratory examinations, as well as the history proper of each case. I am particular myself never to know or let anyone tell me the outcome of the case, as it has been shown at autopsy. I read the record aloud, discuss it with those present and commit myself as to what I think will have been found at autopsy. I also make them commit themselves, and then the pathologist demonstrates what actually was found. Three months ago we finished up our 3,000 autopsies; and although that is not a very large number of cases, the fact that they were studied both before and after death, gives one a basis of knowledge that, while not very wide, is very secure, so far as it goes. The percentages of success in diagnosis are as follows: Diabetes mellitus, 95 per cent.; typhoid, 92 per cent.; aortic regurgitation, 84 per cent.; cancer of colon, 74 per cent.; lobar pneumonia, 74 per cent.; chronic glomerulonephritis, 74 per cent.; cerebral tumor, 72.8 per cent.; tuberculous meningitis, 72 per cent.; gastric cancer, 72 per cent.; mitral stenosis, 69 per cent.; brain hemorrhage, 67 per cent.; septic meningitis, 64 per cent.; aortic stenosis, 61 per cent.; phthisis, active, 59 per cent.; miliary tuberculosis, 52 per cent.; chronic intestinal nephritis, 50 per cent.; thoracic aneurysm, 50 per cent.; hepatic cirrhosis, 39 per cent.; acute endocarditis, 39 per cent.; peptic ulcer, 36 per cent.; suppurative nephritis, 35 per cent.; renal tuberculosis, 33.3 per cent.; bronchopneumonia, 33 per cent.; vertebral tuberculosis, 23 per cent.; chronic myocarditis, 22 per cent.; hepatic abscess, 20 per cent.; acute pericarditis, 20 per cent.; acute nephritis, 16 per cent. Of all the various methods of general diagnosis, blood-pressure examinations are the most valuable.

Moving-Picture Illustrations of Nervous Diseases

DR. T. H. WEISENBURG, Philadelphia: These pictures represent the first systematic attempts ever made to show by moving pictures, not only the gait, reflexes and tremors that are common to nervous diseases, but also examples of the diseases themselves. Not only is it an excellent method of

teaching diseases of the nervous system, but it also furnishes a new method of scientific investigation; for many of the fleeting symptoms that cannot be detected by the eye are fully illustrated by the photographs.

Some Differences in the Surgery of Children and Adults

DR. E. W. HEDGES, Plainfield: Surgery is one of the many agencies for the betterment of child life. Appendicitis is harder to recognize in children than in adults; and there is need of earlier operation for this disease in them, because of the swollen omentum. There is much danger of infection of the fallopian tubes in young girls. In hernia there is a tendency to spontaneous cure in young children. Intra-abdominal pressure is the most frequent predisposing cause in the young. It should be treated by stopping coughs, relieving flatulence and preventing straining at stool or urination. The patient should be kept on his back, with the foot of the bed raised 20 degrees, for six weeks. One should operate only in strangulated or irreducible cases, or when the opening is unduly relaxed. Intussusception is more common in children, because of increased reflex irritability of the intestines. The intussusception is of varying types, and causes greater shock to the young than to adults. In operating one should use every precaution. The differences between the structure of the bone in children and in adults have a considerable influence in producing less tendency to fracture in the young and a quicker repair. Epiphyseal fractures are of the most frequent occurrence, and there is often an inherited tendency to fracture in rachitic children. Tuberculous glands of the neck are more common in children than in adults. The infecting agencies gain entrance through diseased structures in the nasopharynx.

DISCUSSION

DR. GORDON K. DICKINSON, Jersey City: I know of nothing more difficult than to make a diagnosis of acute appendicitis in childhood. If we make a diagnosis of appendicitis in these conditions, the appendicitis is simply the surgical technical end of a big lesion. If you have a case of cecocolitis in a woman or child, you must remember that the surgical portion of it may occur; and if you want to avoid appendicitis you must reach the cecocolitis. The great cause of cecocolitis is stuffing. I have seen more than one male child become sterilized through an operation for hernia, which might have been avoided. I do not believe it wise for even a careful man to operate on hernia in infancy. I feel that the tonsil is a very important organ to watch, because patients with infected tonsils so often go on to bacillema and death. The tonsil that does not functionate properly should be enucleated. We get excellent results from bone fractures in children because their muscles are soft.

DR. W. H. LAWRENCE, JR., Summit: I have seen several cases of appendicitis in children under 6 months of age. I do not believe that it is due to a disturbed condition in the large intestine so frequently in children as in adults. In childhood appendicitis is usually due to mechanical interference with the appendix itself. Most of these cases are due to congenital malformation. We get more prompt union of fractures in early childhood than later. Although we have apparently early solid union of certain fractures of the shaft, the splints should not be removed too early, as we frequently see angulations form at the seat of fracture some weeks after the splints have been removed in children.

DR. F. D. GRAY, Jersey City: A condition that is deplorable is that of intestinal obstruction. All cases of intestinal obstruction should receive prompt treatment. We see a thoracic condition, particularly in children, that will simulate appendicitis—appendicular pneumonia or appendicular pleurisy. We should be on our guard, when children have symptoms of acute appendicitis, to be sure that they have not a pneumonia or a pleurisy. It is a good routine treatment to investigate the pulmonary condition in every case.

DR. JOHN C. MCCOY, Paterson: I have seen a large number of cases of appendicitis in children in which, by waiting, the diagnosis has been cleared up. Nearly all cases of appendicitis in children start from an inflammatory condition of the

cecum. If you have the specimen examined toward the cecal end, you find the inflammation quite extensive in the area. In a series of 800 cases of appendicitis I have never had occasion to operate on a child under 6 months of age.

The Administration of Anesthetics to Children

DR. GEORGE E. TUERS, Paterson: There are practically but two anesthetics to be considered, chloroform and ether; and we should administer the least dangerous drug in the least dangerous way. Chloroform is the pleasanter of the two, but the more dangerous. I believe that ether may be used exclusively in all operations on children, without increasing the death-rate. The drop method with a simple inhaler should be employed, and the operation should preferably be performed in the early morning. Care should be taken to reassure the child and prevent its being frightened. One should begin by giving one drop to three respirations. As the feeling of fear or anxiety advances, gradually increase; and continue at the rate of one drop to two inspirations until complete narcosis is accomplished. Then return to the border line. There is no definite proportion between anesthetic and air, but be careful to keep the patient completely narcotized during the entire operation. The pupillary reflex is the most accurate index of the condition of the patient. If pneumonia follows an operation, it may as well be attributable to exposure as to the effects of the anesthetic.

DISCUSSION

DR. F. W. PINNEO, Newark: Ether is one of the best means we have of inducing anesthesia. Chloroform has been condemned. It is valuable under certain conditions and in certain cases. One of the recent advances has been the laboratory experiments of Henderson, showing the importance of acapnia and of carbon dioxide in the blood, as the best known stimulant to respiration, and how we have, with our methods, deprived the patients of this, many of the deaths being due to this fact. In regard to evenness in the administration of the anesthetic, its importance is well demonstrated by the fact that a subject who has been under chloroform cannot be again anesthetized within a few hours without great risk. The same danger is caused by allowing the depth of the anesthesia to vary during the operation.

DR. SAMUEL A. COSGROVE, Jersey City: The greater toxicity of chloroform as compared to ether is abundantly confirmed by experimental and clinical evidence. The sudden onset of symptoms has probably been observed by us all. Such a crisis is especially dangerous in the hands of the inexperienced. Whether this toxicity is greatly lessened by the plan of warming the vapor, or not, must remain for a wider use of this method to determine. In my own experience with it, I have never encountered any unpleasant reaction so far. Another most important phase of the action of chloroform is the delayed damage to various viscera. That the nitrous oxid-oxygen combination is not suitable to the needs of the general practitioner is proved. Many children are found in whom the fear of the anesthetic amounts to absolute terror. Deliberation in the induction under such circumstances is a cruel and needless prolongation of their suffering. The indicator of the extent of the reaction are the signs of the degree of narcosis. A priori, therefore, in a given patient, a definite reaction, as indicated by definite signs, must depend on the introduction into the circulation, or into contact with the susceptible cell-substances of a definite amount of the narcotic agent. Whether a narcotic agent be administered by a closed inhaler, by the open drop, or by one of the vapor methods, the amount actually absorbed must be constant, and the relative amount of the narcotic agent used out of the can has merely an economic, and no physiologic importance.

DR. PHILIP MARVEL, Atlantic City: There is no such thing as a traumatic pneumonia resulting from the irritation of the anesthetic. It is still a bacteriemic disease, as much as pneumonia without the presence of an anesthetic. To-day the tendency is to have some special person administer the anesthetic. The employment of women for this work is going to be one of the important advances—women who do not expect to be operators, and whose minds are not occupied by what the operator is doing.

DR. F. D. GRAY, Jersey City: There is just one matter of detail that is new. It is a suggestion recently made to combine with ether essence of orange. It masks the odor of the ether, so that the children are breathing something agreeable.

Blood-Pressure

DR. J. D. LIPPINCOTT, Newark: I wish to make a plea for a more general use of the sphygmomanometer, particularly in the diagnosis, prognosis and treatment of arteriosclerosis, acute and chronic nephritis and the toxemias of pregnancy. The routine use of this instrument I have found of inestimable value in my practice. In no other way can a physician judge the degree of hypertension accurately. The blood-pressure readings alone are worth more as a diagnostic aid than any other symptom. With reference to the blood-pressure of pregnant women, it has been found that a pressure below 125 mm. may be disregarded; while a pressure of from 125 to 150 mm. needs careful watching and moderate elimination treatment. A pressure of over 150 mm. requires unusually active elimination treatment and diet, and will, in all probability, especially if it shows a gradual tendency to rise, require the induction of labor. The abnormal urinary findings are of value only when qualified by blood-pressure readings. I would urge the regular taking of the blood-pressure every two weeks, as the urinalysis is made. If this is done, we may save such women from more than prodromal symptoms of toxemia.

DISCUSSION

DR. T. N. GRAY, East Orange: In the high blood-pressure we find the same form and degree of symptoms that we get from enlargement of the heart. There is a compensatory relation. The patient with 212 mm. did not have anything like the symptoms of the one with 194, with the threatening to life. We should be guided in our basal diagnosis by the general condition of the patient in connection with the reading of the instrument.

DR. FRANCIS R. HAUSSLING, Newark: The value of the sphygmomanometer as an aid to diagnosis in a few conditions is definitely demonstrated. It is easy of application, accurate, and cheap. I have collected 682 readings on 140 pregnant women, apparently in good health. In this series, the lowest systolic reading was 80 mm., the highest, 150 mm.—a difference of 70 mm. The average systolic reading was a trifle over 113 mm. The highest reading, 150 mm., occurred about six times; in less than 1 per cent. of the readings. In 91 per cent. of this series, the pressure fluctuated between 100 and 133 mm. The average reading in all normal antepartum cases was a little over 115 mm. We can recognize the presence of the eclamptic stage with the sphygmomanometer better than by any other means at our disposal. With or without symptoms, a blood-pressure of 150 mm. or over is a clear indication for the application of active treatment.

DR. JAMES G. PRENDERGAST, Philadelphia: In 85 per cent. of the cases in which hemorrhages have occurred after opening the eye, the taking of the blood-pressure has shown that arteriosclerosis and nephritis were back of them. All arteriosclerosis begins with toxemia. Every man when he reaches the age of forty should have a blood-pressure examination made every year from that time on.

DR. C. A. ROSENWASSER, Newark: Every man should have a sphygmomanometer. If you have none, however, you can tell the blood-pressure approximately in an easy way. The normal pulse is 72 sitting up; if the patient lies down, it drops six or eight. If it does not do so, something is wrong. If it goes up, you have increased blood-pressure. If you have a man in whom you have high blood-pressure and do not find the cause, look for tuberculous; but first be sure that the instrument is correct.

Opportunities

DR. WILLIAM A. WESTCOTT, Berlin, N. J.: The medical profession differs from all others in the following respects: first, that there is no such thing as cooperation among doctors; and second, that the medical man's task is always serious and often terrible. No other work in life speaks so little for itself. The very nature of his calling makes the doctor's own interests secondary to the needs of others. The state binds

him to maintain her rules for sanitation; but permits, through special privileges, a competition against the doctors greater than that endured by any other class of men. There are 1,100 drug stores doing business in New Jersey, doing a regular business of about \$6,700 a day, and an irregular, or proprietary, business of \$13,325 a day. The remedy for this great danger to the work of the physician and the general health of the state lies in better organization. The physicians of the state should perfect a system of quick communication, so that information regarding questions concerning them could be put into their possession within twenty-four hours; and they should endeavor to elect, irrespective of party lines, two or three good doctors in each branch of the legislature. By such means, ultimately, no medicine will be permitted to be practiced by any other than a well trained and competent man. The sale of proprietary medicines is the practice of medicine, and the maker of proprietary compounds should be required to conform to the same high standard as is now required of the regular physician.

DISCUSSION

DR. HOWARD F. PALM, Camden: The high plane of professional altruism is ever evident to the casual observer, in the conservation of the health and happiness of the public, especially so in preventive medicine, which is a direct blow at the legitimate income of the physician. One of the chief deleterious factors is the enormous traffic of free prescribing through the United States mail, which should receive serious attention at the hands of the medical profession. I was amazed to learn that the chief stumbling-block in the way of establishing a National Bureau of Health was the claim of 17,000,000 inhabitants of the United States who are clamoring for freedom from the medical profession. Here is another golden opportunity to start a professional missionary crusade. The only means of lessening unjust competition consists in protective legislation, with due consideration for legitimate commerce. Medical men usually make very poor politicians, which fact possibly accounts for our lack of proper representation within our legislative halls. In my opinion, the fight against osteopathy dwindles into the pale of insignificance, when compared with the gigantic task of combating this drug evil.

DR. LINN EMERSON, Orange: Although we have laws, it is difficult to get them enforced. There is in the *Orange Chronicle* an advertisement by a Dr. Mandeville, who guarantees to cure all chronic diseases of all sorts. I complained to the Orange postmaster. He said that my report had been forwarded to Washington. Nothing was heard from it. I have written three separate times to the fourth assistant postmaster, yet I have never received a reply from the Post-Office Department.

DR. C. A. ROSENWASSER, Newark: It is against the law of this state to advertise to cure incurable diseases; and if the doctors would proceed against Dr. Mandeville, his license could be revoked without the intervention of the postal authorities.

DR. R. C. NEWTON, Montclair: The first thing is to clean our own skirts. I have prescribed patent medicine, and have been taken to task for it. Our druggist does not put up salves and ointments that are nearly so smooth and pleasant as the patent medicines are. It is our business to educate the public, not in order to protect ourselves against fraud, but in order to protect the public against it.

Premature Arterial Senility

DR. W. BLAIR STEWART, Atlantic City: An excess of proteids or sugars will not be completely digested and will give rise to intestinal fermentation and the formation of toxic substances that are absorbed by the circulatory system. They act as irritants and increase the activity of the heart and blood-vessels, and must be eliminated by the kidneys, skin, or liver. Blood-pressure should be very carefully watched and held within safe limits. In early cases the removal of the cause will suffice. Many atheroma patients live for years with little or no discomfort, provided rational methods are exercised. If we physicians will regulate dietetics and exercise and break up the sedentary, lazy habits of our patients there will be less atheroma, greater longevity and increased happiness.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Internal Medicine, Chicago

July 15, X, No. 1, pp. 1-70

- 1 *Case of Diabetes Insipidus with Marked Reduction in Amount of Urine Following Rachiocentesis. J. B. Herrick, Chicago.
- 2 *Cobra Venom Hemolysis Test in Syphilis, with Report of 130 Reactions. W. J. Stone and R. Schottstaedt, Toledo, Ohio.
- 3 *Influence of Theophyllin on Nitrogenous Excretion and Partition. C. B. Farr and W. H. Welker, Philadelphia.
- 4 *Some Unfamiliar and Some New Periosteal Reflexes. A. Myerson, St. Louis.
- 5 Pancreas and Its Ducts in Congenital Obliteration of Bile-Ducts. A. F. Hess, New York.
- 6 *Comparison of Physical Signs and Skiagrams of Chest in Early Stages of Tuberculosis. H. Sewall and S. B. Childs, Denver.
- 7 Selective Relation of Certain Vital Stains to Tubercle. P. A. Lewis, Philadelphia.

1. **Diabetes Insipidus.**—This case of diabetes insipidus is reported by Herrick because of the remarkable effect of lumbar puncture in diminishing the amount of urine and raising its specific gravity. A man of 43 had for four years the typical manifestations of diabetes insipidus. The urine varied in amount from 7,500 to 11,000 c.c., and was always of low specific gravity (1.001). Lumbar puncture was made and less than 5 c.c. of fluid withdrawn, the fluid escaping slowly under low pressure. Within forty-eight hours the daily amount of urine had dropped to 660 c.c. Headache, pain in the back of the neck, anorexia and vomiting, with a feeling of general weakness, followed the puncture. Morphine was given for pain. Almost no fluid or food was taken for three or four days. But after the prostration following the puncture had disappeared, when morphine was stopped, and when food and water were freely taken, there was no thirst as before, the amount of urine for a period of four weeks, during which he was under observation, never exceeded 1,800 c.c. for twenty-four hours, and the specific gravity averaged 1.015, ranging from 1.005 (one record) to 1.031 (single specimen). It was for the purpose of obtaining the cerebrospinal fluid for investigation that the lumbar puncture was made. The result of the puncture suggests a certain relation between some cerebral condition and the polyuria. It also has a bearing on the theory of diabetes insipidus, which makes the disease largely dependent on the inability of the kidney to secrete a concentrated urine. A case like this would seem to show that under certain conditions the kidney of diabetes insipidus can, at least temporarily, pass a concentrated urine. The possible origin of the disease in this patient in a lesion of the brain, as in the hypophysis, and the very remarkable diminution in the amount of urine following lumbar puncture, which urine was of high specific gravity, with the bearing of this clinical experiment on questions of the pathogenesis of diabetes insipidus, are Herrick's reasons for making the report.

2. **Cobra Venom Reactions in Syphilis.**—In four patients with primary syphilis the authors found the cobra reaction positive in only one, or 25 per cent. In twenty-two cases of active secondary and tertiary syphilis the cobra venom reaction of Weil was positive in twenty, or 90.9 per cent. Of the two which did not give positive reactions, one was negative, while the other gave a "suspicious" reaction. The latter patient had been on mixed treatment for five years with two recent injections of salvarsan. If the test had been made two months, instead of two weeks, subsequent to the last injection of salvarsan the test would, in all probability, have been negative and he would have been classed with the "clinically cured."

In thirty-three cases of latent secondary and tertiary syphilis the cobra venom reaction of Weil was positive in twenty-nine, or 87.8 per cent. Of the four which did not give positive reactions, two were negative and two gave "suspicious" reactions. Both of the latter had had mixed treatment for more than one and one-half years with no recent active clinical signs of the disease. They would, under ordinary conditions, have been classed with the "clinically cured." In twenty clinically cured patients the cobra reaction was negative in all.

3. **Influence of Theophyllin on Nitrogenous Excretion.**—Theophyllin was found by the authors to promote the excretion of fluid in two cases but apparently did not affect, or even slightly diminished, the excretion of nitrogen. In a case of diffuse nephritis diuresis failed to develop and the nitrogen elimination was sharply reduced. In a case of chronic interstitial nephritis the urinary partition was apparently changed by the drug so that it approached more nearly the normal. This may have been due to natural causes incident to convalescence. The slight or doubtful influence of theophyllin on nitrogen excretion and its pronounced influence on the excretion of water and sodium chlorid suggests to the authors that this substance may act principally on the capsule of Bowman and little if at all on the tubules (Bowman-Heidenhain theory). Its failure to act in one case might then be attributed to extensive involvement of the glomeruli.

4. **New Periosteal Reflexes.**—The reflexes described by Myerson are as follows: 1. One, or rather a series, obtained by tapping with the ordinary reflex hammer and with moderate force the ulnar styloid process. This is best obtained with the patient lying on his back, his elbow flexed at an obtuse angle and resting on his body. Following this stimulation there results: (a) a contraction of the triceps described by Bechterew, a quick sharp contraction often unattended by movement of the arm; (b) a contraction of the posterior fibers of the deltoid, which occurs about as often as Type A; (c) a combination of both these; (d) when the response is very active the reflex spreads to the supraspinati and infraspinati, the rhomboids, the trapezius and the biceps. In general this reflex is an extensor response and may well be contrasted with that obtained from stimulation of the radial styloid which is a flexor response with contraction either of the supinator or biceps, or both, and in some cases spreading to pectoralis, anterior fibers of the deltoid—the well known and routine radial reflex. The ulnar styloid reflex may be elicited from any part of the ulna and even from the carpus and metacarpus. However, it is best elicited from the styloid, and as one goes up the forearm the type of reflex changes somewhat.

2. A series of homolateral and contralateral adductions or responses obtained from different bony points of the lower limb. Percussion of certain areas gives the following responses: (a) a homolateral adductor obtained from the internal condyle, the most common response; (b) a contralateral adductor, obtained from the same spot, always accompanied by the homolateral, much less common and generally less lively; (c) a homolateral obtained from the anterior surface of the tibia, best elicited from the middle of the shaft, somewhat sharper than the internal condylar response and nearly as frequent; (d) a contralateral from this area generally accompanied by the homolateral and less active than it; (e) a homolateral obtained from the external condyle; (f) a contralateral from the same area, more common and generally more lively than the homolateral, thus reversing the rule of the previous reflexes; (g) a homolateral from the sole of the foot, always accompanied by (h) a contralateral from the sole much livelier and of more frequent occurrence than the homolateral. That is, in Myerson's observation the contralateral often exists alone but never the homolateral. The anterior superior spine gives a contralateral adductor response as well as a homolateral, the first being generally livelier. These periosteal reflexes are best elicited from the areas mentioned.

6. **Early Stages of Tuberculosis.**—The authors venture the opinion that in tuberculosis of the lungs the earliest pathognomonic skiagraphic sign is the representation of comparatively isolated areas of vascular congestion, which increase independently of their connections with the central root. This peripheral focalization of the congestive process and its severance from the main system of vascular radiations are apt to become more and more prominent as the disease progresses and shadow-creating deposits are formed. They agree in the view that in the roentgen-ray negative of the normal chest the opaque arborizations of the "bronchial tree" are almost wholly composed of shadows cast by blood-vessels. In non-infected subjects the bronchial tree has a typical symmetry and regularity of distribution. It is very suggestive of the

shadow of a leafless tree cast by the sun on an asphalt pavement. In practically all their cases of unproved but suspected tuberculosis the skiagraphic negatives exhibited more or less extensive areas of pulmonary congestion, denoted by thicker branches and denser arborizations of the "bronchial tree." As pointed out in the text, such congestion may possibly be recognized clinically by a "ringing" quality of the bronchophony which persists under stethoscopic pressure. They believe that the recognition of abnormal congestion has great importance in the early diagnosis of pulmonary tuberculosis. Moreover, since Levy-Dorn and Cornet, Dunham and his co-workers, have independently recognized a peculiar vascularization of the lungs in association with tuberculosis, it seems probable that herein exists a specific diagnostic property of the x-ray plate.

Washington Medical Annals

July, XI, No. 3, pp. 135-188

- 8 Medicine in Lay Literature. B. M. Randolph, Washington, D. C.
- 9 Contagiousness of Diseases that Affect the Skin. J. C. McGuire, Washington, D. C.
- 10 Case of Hirschsprung's Disease (Megacolon). H. H. Kerr, Washington, D. C.

Journal of the Indiana State Medical Association, Fort Wayne

July 15, V, No. 7, pp. 291-334

- 11 Crisis of the Nervous System. C. E. Cottingham, Indianapolis.
- 12 What the General Practitioner Should Know Concerning Infection of the Kidney. D. N. Eisendrath, Chicago.
- 13 The Excretory Ducts of the Liver and Pancreas and Their Relation to Diseases of These Organs. M. N. Hadley, Indianapolis.
- 14 Safety Elements in Modern Surgery. S. J. Young, Valparaiso, Ind.
- 15 The Question of a Liberal Diet in Disease. D. A. Bethea, Terre Haute, Ind.
- 16 Bacillary Dysentery in Children; Report of an Epidemic. J. P. Simonds, Indianapolis.

Annals of Surgery, Philadelphia

July, LVI, No. 1, pp. 1-200

- 17 Nephrectomy. A. G. Gerster, New York.
- 18 *End-Results in Sixty-Three Cases of Operation for Brain Tumor. W. J. Taylor, Philadelphia.
- 19 Bullet Wound of Spinal Cord Between First and Second Dorsal Vertebrae; Laminectomy; Removal of Bullet; Complete Recovery. W. B. Coley, New York.
- 20 Treatment of Defect Occasioned by Partial Excision of Inferior Maxilla. S. Stillman, San Francisco.
- 21 Surgery of Thymus. C. H. Mayo, Rochester, Minn.
- 22 Treatment of Subclavian Aneurysm. E. Eliot, New York.
- 23 Drainage After Intrathoracic Operations, with Special Reference to Esophagus. W. Meyer, New York.
- 24 *Acute Pancreatitis with Very Extensive Fat Necrosis. L. W. Hotchkiss, New York.
- 25 *Acute Diverticulitis of Sigmoid Flexure of Colon. C. A. Powers, Denver.
- 26 *Hemorrhage Into Peritoneal Cavity Caused by Accidental Rupture of Ovary. A. Primrose, Toronto.
- 27 Tuberculosis of Bladder, Ureter and Kidney. A. Maclaren, St. Paul.
- 28 *Tomato Joint. R. W. Johnson, Baltimore.
- 29 *Acute Inflammation of Long Bones. R. G. Le Conte, Philadelphia.
- 30 *Surgery of Long Bones. J. E. Moore, Minneapolis.
- 31 End-Results of Fracture of Shaft of Femur. W. L. Estes, South Bethlehem, Pa.
- 32 *Safety in Operative Fixation of Infected Fractures of Long Bones. H. Lillenthal, New York.
- 33 *Intratracheal Insufflation Anesthesia (Meltzer-Auer). C. H. Peck, New York.

18. Brain-Tumor Operations.—The total number of cases analyzed by Taylor was sixty-three. In thirty-three the tumor could not be found at operation and a decompression gave more or less relief to the patient. In thirty cases the tumor was found and removed at operation. In fourteen of these the new growth was completely gotten away. In nine the growth was only removed in part, owing to its infiltrating character. In eight, cysts were found and drained. Six patients died within the first five days, four of these within twenty-four hours, when the skull had been opened and no tumor found. One of these died of pneumonia in five days and one of edema of the lungs in seventeen hours. Thirteen died within ten days of the operation, of those in whom a tumor was found and removed; eight of these died within thirty-six hours, and one from chloroform. One patient with cerebellar cyst died in five days, as a direct result of operation. Nineteen deaths, all told, as a direct result of operation, that is within ten days, in sixty-three cases is a very high percentage of mortality (30 per cent.).

The final or end results in all of these sixty-three cases are very bad indeed. One patient with cyst of the cerebellum is

alive and well at this time, five and a half years from the date of the first operation and three years from the date of the second operation of draining the cyst. One patient with glioma of the brain is living and comparatively comfortable, three years since the first operation and eighteen months since the second operation. This patient has a recurrence of his growth and must soon go. There are three others now living, but three years have not yet passed since they were operated on.

24. Abstracted in THE JOURNAL, July 20, p. 217.

25 and 26. Abstracted in THE JOURNAL, July 27, p. 300.

28. **Tomato Joint.**—Frequently, especially in the autumn, Johnson says, physicians are called to see cases of joint involvement that have all the earmarks of surgical trouble. As in the life history of hip-joint disease, there has been a fall, a twist, or bruise at some time or other, so with this joint affection and with the pertinacity of those who use psychic analysis for "psychic trauma" one can generally bring out by careful and positive (possibly leading) questioning a history of sprain or strain about the time of joint discomfort. If the knee, a favorite joint, be involved, it is enlarged, swollen, tense, or with marked effusion but not red, painful especially on motion but the pain of rather a subacute condition, with slight increase of local heat. The floating patella can be made to strike the condyles and occasionally the joint is caught in extension and with difficulty flexed, due to the displacement of its constituents by the effused fluid. The urine is hyperacid with marked evidence of urates in the brick-dust deposit, nor are the other signs of uric acid diathesis, as we used to call it, absent-depression, acid, dyspepsia, occasionally pruritus, and even eczema. Nor is the pain limited to joints alone, for it simulates intercostal neuralgia, gall-stone, podalgia, or severe pain in the fibrous tissue about the os calcis. The cause of all this trouble, Johnson says, is eating tomatoes. In nine cases out of ten on taking the history of the patient, or treating obscure indefinable aches, the tomato is the basis for the acid condition.

29, 30 and 32. Abstracted in THE JOURNAL, July 27, p. 301.

33. **Intratracheal Insufflation Anesthesia.**—As the result of his observation in 216 cases Peck regards insufflation anesthesia as safe if certain cardinal principles are observed in its administration, i. e., one must guard against over-pressure, spraying of liquid either through tube, introduction of tube into esophagus, introduction of tube beyond bifurcation of trachea and trauma to pharynx or larynx in intubation. A proper apparatus and ordinary caution should absolutely prevent the accidents which have been responsible for the few reported deaths from the method. The uniformly sufficient aeration of the lungs, with the even administration of well-diluted ether vapor, relieves the respiratory apparatus and central nervous system of much strain, and overetherization is impossible. The prevention of the inhalation of blood, mucus or vomitus, especially in operations about the mouth and pharynx, is an important feature in preventing inhalation pneumonia or bronchitis, and in making such operations easier and more rapid.

Monthly Cyclopedia and Medical Bulletin, Philadelphia

June, XV, No. 6, pp. 321-384

- 34 Relation of Diseases of the Upper Respiratory Tract and General Systematic Conditions. D. B. Kyle, Philadelphia.
- 35 Treatment of Psoriasis. A. Bernheim, Philadelphia.
- 36 Mental and Physical Peculiarities of the Hindoo Ascetic. F. S. Mason, New York.
- 37 Case in Which Epilepsy in Adult Life Developed After the Over-Use of Thyroid Extract. M. K. Myers, Philadelphia.
- 38 Amputation of the Thigh for Gangrene. J. H. Branth, New York.

Journal of Infectious Diseases, Chicago

July, II, No. 1, pp. 1-139

- 39 Bacteriologic and Sanitary Condition of Milk-Supply of New York City. M. C. Schroeder, New York.
- 40 Rockford (Ill.) Typhoid Epidemic. E. O. Jordan and E. E. Irons, Rockford, Ill.
- 41 *Diphtheria Bacilli, with Special Reference to Complement-Fixation Reactions. J. A. Kolmer, Philadelphia.
- 42 Contribution to Bacteriology of Diphtheria. J. A. Kolmer, Philadelphia.
- 43 Method of Obtaining Cultures from Duodenum of Infants. A. F. Hess, New York.
- 44 *Cutaneous Allergy in Gonococcal Infections. E. E. Irons, Chicago.

- 45 Toxic Substances Obtainable from Pneumococci. E. C. Rose-nov, Chicago.
46 Endo's Medium, with Observations on Differentiation of Bacilli of Paratyphoid Group. E. R. Harding and Z. Ostenberg, San Francisco.

41. **Diphtheria Bacilli.**—Complement-fixation reactions with homologous antigens and immune serums of different types of diphtheria bacilli from a variety of clinical conditions, including a true Hofmann's bacillus, observed by Kolmer, tended to show that these organisms are all related. The true Hofmann's bacillus, he believes, is probably an example of "mutation" and is able to transmit its new qualities from generation to generation. There is no relation between the occurrence or degree of complement-fixation and antitoxic strength of diphtheria immune sera. It seems that complement is fixed by a "body" separate from the true immune body representing the antitoxic content of sera.

44. **Cutaneous Allergy in Gonococcal Infections.**—Irons found that the cutaneous inoculation of glycerin extracts of autolyzed gonococci in patients infected by the gonococcus produces a well defined reaction. This reaction is not usually obtained in normal persons, nor in those suffering from other infectious diseases. In persons recently infected, the reaction is negative and increases gradually during the course of the disease. In the more chronic forms of gonococcal infection, such as arthritis, the degree of the cutaneous reactivity varies from day to day, and these variations may be correlated with the changes in the clinical course of the disease. Cases of severe infection, such as extensive arthritis, may give negative reactions. Later, when improvement has occurred, the reaction becomes positive. In general, a positive reaction is obtained in patients with gonococcal infection at some time during the course of the disease. In normal persons the gonococci prepared in the manner described gives a cutaneous reaction rarely more than 2 to 3 mm. in diameter. Occasionally in adults and somewhat more frequently in children fairly marked reactions are met with where previous gonococcal infection can be excluded. In these cases the normal antibodies may be increased to an unusual degree. It is possible that normal individuals may be found who will give reactions to antigens prepared from many pathogenic organisms. The possibility must also be borne in mind that infection by one organism may give rise to an increase in the proteolytic power of the serum for other organisms. The cutaneous reactions obtained with meningococcal and gonococcal antigens suggest that we are dealing with a group reaction. In diagnosis, a positive reaction is to be regarded as confirmatory evidence of gonococcal infection. Other infections, such as those by the meningococcus or *M. catarrhalis*, which may give rise to a group reaction, must be excluded. The clinical value of the reaction must be determined by further tests and its limitations defined by a study of many groups of cases.

Western Medical Review, Omaha

July, XVII, No. 7, pp. 357-408

- 47 Preventable Insanity. W. B. Kern, Hastings.

Northwest Medicine, Seattle, Wash.

July, IV, No. 7, pp. 197-226

- 48 Education of Public Regarding Cancer. A. A. Matthews, Spokane, Wash.
49 Present Status of Salvarsan. G. S. Peterkin, Seattle, Wash.
50 Expert Testimony. J. A. Kellogg, Bellingham, Wash.
51 Systemic Diseases Arising from Errors of Refraction. D. H. Lewis, Salt Lake City, Utah.
52 Foreign Bodies in Orbit. L. W. Snow, Salt Lake City, Utah.
53 General Rest in Tuberculous Joint Disease. J. C. Schapps, Butte, Mont.
54 Primary Malignancy of Tonsil. C. G. French, Portland, Ore.
55 Impressions of Some Surgical Clinics of Europe and America. R. C. Coffey, Portland, Ore.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

July, LXVI, No. 415, pp. 1-168

- 56 *Use of Fetal Serum to Cause Onset of Labor. A. J. Rongy, New York.
57 Modern Methods in Cesarean Section. A. B. Davis, New York.
58 Indications for Abdominal Cesarean Section with Technic of Operation and Analysis of 352 Cases. R. McPherson, New York.
59 *Menstruation Without Ovaries. P. Findley, Omaha.
60 *Eclampsia Complicating Delivery of Monstrosity. L. J. Ladinski and I. Seff, New York.
61 Some Seventeenth Century Obstetricians and Their Books. W. H. Allport, Chicago.

- 62 Umbilical Clamp. B. B. Wechsler, Pittsburgh.
63 Diagnosis of Fractures About Elbow-Joint in Children. J. G. Williams, Brooklyn.
64 Case of Acute Dilatation of Stomach Complicating Pneumonia in Child. L. Louria, Brooklyn.

56. **Use of Fetal Serum.**—Rongy carried out Heide's experiments on nineteen pregnant women. Heide's serum was used in six patients, one or more injections induced labor pains which led to the expulsion of the child. These patients were at least from ten to eighteen days before term. Two women were admitted to the hospital at term but there were no signs of labor. Both were injected after they were observed for a few hours to ascertain if they had pain; in both, uterine contractions not painful were observed after the first injection. Rongy noted during his investigations that uterine contractions, however strong they may be, do not cause pain. The patient begins to suffer pain when the presenting part or the water bag commences to press on the cervix or the neighboring structures in the pelvis. He observed strong uterine contractions taking place, and the patient was not aware of it. He feels justified in concluding from his observations that uterine contractions by themselves are not painful. On close questioning of the patient during many uterine contractions as to whether she suffered from any discomfort, the answer was usually in the negative. In inertia he found the serum to be effectual. Seven of the experiments proved negative. No reaction, as a rule, took place. Rongy found that the most frequent symptoms after the first injection were chills lasting from two to thirty minutes, nausea and vomiting. Preeordial pain or oppression was present in four cases. In nearly all of these cases very little reaction took place. Two women had uterine contractions and pains, but were transient in character and subsided quickly. The other five women had no reaction whatsoever except for a slight nausea. Rongy says that since it has been demonstrated that fetal serum will cause the onset of labor, further investigations must be made to ascertain the actual origin of these substances.

59. Abstracted in THE JOURNAL, July 6, p. 57.

60. **Eclampsia Complicating Delivery of Monstrosity.**—In addition to the fact of pregnancy occurring after plastic surgery on the adnexa, the authors claim that this case presents the interesting question as to whether or not the previous operations on the tubes and ovaries had any bearing on the abnormal development of the fetus and whether the latter was a causative factor in the eclampsia, especially as the patient failed to show any affection of the kidneys, or any other organ, previously.

Denver Medical Times and Utah Medical Journal

July, XXXII, No. 1, pp. 1-46

- 65 Xeroderma Pigmentosum. W. H. Davis, Denver.
66 A Few Nerve Conditions Based on London Clinics. R. H. Finney, Pueblo, Colo.
67 Need of a Clinical and Pathological Department at Insane Institutions. H. G. Maul, Denver.
68 Rhus Toxicodendron. H. H. Redfield, Chicago.
69 Pictures from the Philippines. J. M. Brown, Surigao, Mind.
70 Latitudes. E. S. Goodhue, Hawaii.
71 Adulterated Air. J. N. Hurty, Indianapolis.
72 Requisites for Confinement Cases. M. J. Krohn, Denver.

Yale Medical Journal, New Haven, Conn.

April, XVIII, No. 8, pp. 325-356

- 73 Medical Report of Yale Peruvian Expedition. W. G. Erving, Washington, D. C.
74 *Medical Treatment of Acute Gastric and Duodenal Ulcer. H. F. Stall, Hartford, Conn.
75 Roentgenoscopy as Applied to Diseases of Thorax and Abdomen. A. C. Heublein, Hartford, Conn.

74. **Acute Gastric and Duodenal Ulcers.**—Stall is of the opinion that erosions of the gastric mucosa occur much more frequently than is at present generally believed. He says that fewer diagnoses of "dyspepsia" and "chronic gastritis" should be made and more of acute peptic ulcer. Symptoms of hyperchlorhydria that are not promptly relieved by diet and alkaline treatment signify pyloric ulcer or chronic appendicitis. When the former, the patient should be put on a strict ulcer regimen and not be allowed to continue at his work, munching soda mints, while his chances for a medical cure slip from him as his ulcer becomes hard, indurated and possibly malignant. The failure to obtain a cure in gastric or duodenal ulcer of a few weeks' or months' duration by medical treatment usually

means a failure in the management. He cites one case, a man of thirty-five, who has been in excellent health, except for stomach trouble of two years' duration. This was chiefly manifest by pain in the stomach, usually most marked in the mid-afternoon and in the early morning hours. Food did not relieve it. There was no vomiting, but occasional sour regurgitation. Pain has recently become worse and now recurs each night. Three physicians had been consulted, one giving pills, another a powder. The patient stated he was on a "diet;" inquiry developed he was not allowed any fried food. He now has a hard, indurated ulcer which cannot be affected by any medical treatment.

Journal of the Medical Association of Georgia, Augusta

July, II, No. 3, pp. 65-96

- 76 Conservative Treatment of Gunshot Wounds of the Extremities. C. L. Ridley, Hillsboro.
- 77 Typhoid Vaccine. J. W. Palmer, Alley.
- 78 Intestinal Sand. N. M. Moore, Augusta.
- 79 Flotsam and Jetsam from a Medical Standpoint. B. P. Oliveros, Savannah.
- 80 Ligation of the Thyroid Vessels in Exophthalmic Goiter. W. S. Goldsmith, Atlanta.
- 81 Goiter, with Special Reference to Surgical Treatment. E. G. Jones, Atlanta.

Journal of Nervous and Mental Disease, Lancaster

July, XXXIX, No. 7, pp. 433-502

- 82 New Era in Neurology. W. N. Bullard, Boston.
- 83 Alzheimer's Disease. S. C. Fuller, Westborough, Mass.
- 84 *Angioneurotic Edema Cured by Salvarsan. C. W. Burr, Philadelphia.

84. Angioneurotic Edema Cured by Salvarsan.—While arsenic is a recognized treatment for angioneurotic edema, in Burr's case, given by mouth, it did no good. The Wassermann and Noguchi tests were positive. The ordinary treatment for angioneurotic edema did no good. The attacks of local edema were as frequent when not taking as when taking mercury and the drug whether given by injection or by mouth did not help his head pain nor decrease the size of a periosteal swelling in the head or tibia. Finally he was given an intravenous injection of salvarsan. That night he slept well and without morphia. Within a week all head pain ceased, but it recurred, though only for about a week, and in not severe degree. He was given a second injection and has had no head pain since. The periosteal swelling on head and tibia began to decrease a few days after the first injection and now is practically all gone. He has had no edema anywhere since the first injection.

Texas State Journal of Medicine, Fort Worth

July, VIII, No. 3, pp. 77-106

- 85 Tuberculous Cow. R. F. Eagle, Fort Worth.
- 86 Pellagra in Texas. K. H. Beall, Fort Worth.
- 87 Pellagra. M. M. Smith, Dallas, Tex.
- 88 Dissemination of Hygienic and Sanitary Knowledge by the Medical Profession. A. S. Garrett, Springtown, Tex.
- 89 An Interesting Case of Cerebrospinal Meningitis. W. Allison, Fort Worth.

Journal of Cutaneous Diseases, New York

July, XXX, No. 7, pp. 389-460

- 90 *Critical Study of the Organisms Cultivated from the Lesions of Human Leprosy, with a Consideration of Their Etiologic Significance. C. W. Duval and C. Wells, New Orleans.
- 91 *Diagnostic Value of the Noguchi Luetin Reaction in Dermatology. D. O. Robinson, New York.
- 92 Salvarsan. E. L. Keyes, Jr., New York.
- 93 Id. F. E. Gardner. Continued.

90. Study of Leprosy.—From a bacteriologic study of twenty-nine cases of leprosy the authors have cultivated an acid-fast bacillus from twenty-two. A chromogenic strain similar in all essentials to that described by Clegg was recovered in fourteen cases, which under certain conditions grows as (a) non-acid-fast streptothrix, (b) non-acid-fast diphtheroid and (c), an acid-fast bacillus. Eight cases yielded an organism which thus far is distinctly different from Clegg's bacillus in its biologic character, growing only on a special medium and not producing pigment. Animal experiments undertaken for the purpose of differentiating the two types recovered from the human leprosy lesion and to fix their etiologic status are not regarded as conclusive. Serologic tests, especially those performed with highly immune serums, suggest that the bacillus of Clegg is not related to Duval's non-chromogenic, slow-growing culture of leprosy. The rôle played by the chromogenic bacillus of Clegg in the production of leprosy is as yet an unsettled question. The non-chromogenic strain, while

behaving according to most notions of a pathogenic organism, has likewise not up to the present been proved to be the cause of leprosy, although the authors are impressed with the probability of such a rôle being eventually attributed to it, and consider that it deserves more serious attention than any strain so far cultivated from the human leprosy lesion. The wide variation in morphology and staining reaction for certain cultures which subsequently become rapid growers and chromogenic, explains the interpretations of European writers that *Bacillus lepra* is a bacterium of such pleomorphism that it can be recognized as a diphtheroid, a streptothrix and an acid-fast bacillus.

91. Diagnostic Value of the Noguchi Luetin Reaction in Dermatology.—Observations were made on 183 cases, including sixty-nine cases of various stages of syphilis by Robinson, 108 control cases and six cases in which syphilis was previously overlooked but discovered after the tests were made. He is convinced that the luetin reaction is specific for syphilis and affords a means of diagnosis in certain cases. It was absent in his primary and secondary untreated cases. It was present in all cases of tertiary, latent and late hereditary syphilis. In secondary treated cases the reaction may be positive. The luetin was more constant in tertiary, latent and late hereditary syphilis than the Wassermann reaction.

Journal of the Medical Society of New Jersey, Orange

July, IX, No. 2, pp. 55-108

- 94 Problems Confronting the Medical Society of New Jersey. D. Strock, Camden, N. J.
- 95 Evolution of Abdominal Surgery with Recommendations as to Technique. F. D. Gray, Jersey City, N. J.
- 96 Surgical Diseases of the Kidneys. J. F. Hagerly, Newark, N. J.
- 97 Local Societies of the Past. W. S. Disbrow, Newark, N. J.
- 98 Some Essentials to Be Remembered in the Treatment of Bites of Dogs, Cats and Other Animals. H. A. Tarbell, Newark, N. J.

Medical Record, New York

July 27, LXXXII, No. 4, pp. 139-184

- 99 External Use of Water for Enhancing Resistance in Tuberculosis. S. Baruch, New York.
- 100 *Treatment of Habits. C. E. Atwood, New York.
- 101 Preliminary Report on Neosalvarsan, with Particular Reference to Its Employment as Intramuscular Injection. A. L. Wolbarst, New York.
- 102 Bedbugs and Bubonic Plague. J. C. Manning, Brooklyn.
- 103 Error of College Criticism. O. L. Mulot, Brooklyn.
- 104 *Abdominal Tumors of Tuberculous Origin. A. C. Wiener, Chicago.
- 105 Sunstroke and Heat Prostration. I. Bram, Philadelphia.

100. Treatment of Habits.—An undesirable habit cannot be inhibited any more than an undesirable disposition, says Atwood, but if a patient can be induced voluntarily to substitute desirable responses for the undesirable, a new habit may become automatic after a sufficient number of repetitions. A voluntary surrender of the will, however, is not only highly desirable, but apparently absolutely necessary in order to gain the ascendancy. The tendency is ever to fall back to the old adjustment. The old sensorimotor paths are open and a very few impulses only are needed to make them as permeable as ever. In the presence of actual nervous or mental complications, Atwood cautions not to meddle except under the intelligent direction of some one who thoroughly understands the nervous system.

104. Abdominal Tumors of Tuberculous Origin.—Tuberculous toxemia, as well as the tubercle bacillus itself, are regarded by Wiener as being factors in the etiology of clinically malignant tumors. He reports two cases. In both these cases the primary tuberculous focus could not be found. In both the clinical diagnosis was malignant growth. In the first case a diagnosis was made of retracted gall-bladder with infection and adhesions to the duodenum or transverse colon, with a possible carcinomatous degeneration of the gall-bladder. The liver was found to be enlarged, of a light yellow color like that in phosphorus poisoning, and studded with innumerable tumors of a gray color, the largest not larger than a pea. Peritoneum normal, smooth, and glossy. Gall-bladder normal, no adhesions. The patient's condition prohibited exploration of the abdominal cavity for primary carcinoma and the abdominal cavity had to be hurriedly closed. A week after the operation 0.0005 of tuberculin T. R. was injected in the arm. A typical local reaction with rise of temperature,

nausea and general prostration followed. This result encouraged Wiener to continue treatment with tuberculin for six months, at intervals of six days to two weeks, with the result that the patient now regards herself as well and able to work. Although the liver has not perceptibly decreased in size, the pains are gone.

In the second case the rise of temperature, the history, which showed a longer duration than could be the case in malignant growths, suggested the possibility of a tumor of inflammatory origin in the right inguinal region. Injection of tuberculin T. R., 0.0001 was followed by a typical local reaction and increased pain in the abdomen. There were further injections with the typical local reaction. One day there came with the stools a large amount of glassy mucus and shreds of mucous membrane. Later large tubular pieces of mucous membrane were expelled on several occasions, preceded by slight colicky pains on the right side. Simultaneously the tumor decreased in size and gradually Wiener was able to differentiate the intestine from the underlying tumor. The wall of the intestine, which felt like a rigid tube, gradually became more pliable and less sensitive to the touch. It could be felt that the part of the tumor which extended over to the rim of the os ilium was in reality an interstitial inflammation of the iliopsoas muscle, for gradually more fibers of the muscle could be felt to emerge from the tumorous mass. About eight months after the first injection the patient was doing well.

New York Medical Journal

July 27, XCVI, No. 4, pp. 157-204

- 106 Tissue Density Factor. H. Wakefield, New York.
- 107 Newer Teachings of Diseases of Alimentary Canal. M. I. Knapp, New York.
- 108 Insanity and Heredity. J. B. Macdonald, Concord, N. H.
- 109 Ten Sex Talks to Girls. I. D. Steinhardt, New York.
- 110 Mercure Salicylate Intramuscular Injections in Syphilis. J. L. Wollheim, New York.
- 111 Corporation of Barber Surgeons in England and Holbein's Painting. C. G. Cumston, Boston.
- 112 Tincture of Iodin the Best Surgical Disinfectant. F. T. Woodbury, Fort Sereven, Ga.
- 113 Physician as Investor. D. Fenwick, New York.
- 114 Neuralgia of Testicle Caused by Adhesions. E. G. Ballenger and O. F. Elder, Atlanta, Ga.

Boston Medical and Surgical Journal

July 25, CLXVII, No. 4, pp. 109-144

- 115 *Bacterial Invasion of Blood and Cerebrospinal Fluid by Way of Lymph-Nodes; Findings in Bronchial and Retroperitoneal Lymph-Nodes. E. E. Southard and M. M. Canavan, Boston.
- 116 *Immigration and Midwife Problem. I. S. Wile, New York.
- 117 Efficiency of Operative Population of Textile City as Viewed from Surgical Standpoint. M. B. Swift, Fall River, Mass.
- 118 Institutional Dentistry; Methods; Results. F. A. Keyes, Boston.
- 119 Massachusetts Reformatory Method of Differentiating Defective Delinquents. G. G. Fernald, Concord, Mass.

115. Bacterial Invasion of Blood and Cerebrospinal Fluid by Way of Lymph-Nodes.—Following the same technic adopted by Gay and Southard in their study of the post-mortem bacteriology of the blood and cerebrospinal fluid (100 cases) and that of Southard and Canavan in their study of the blood, cerebrospinal fluid and mesenteric lymph-nodes (fifty cases), the authors have studied the post-mortem bacteriology of fifty additional cases, replacing mesenteric by bronchial lymph-nodes, and thirty cases adding retroperitoneal lymph-nodes. The conclusion of two former papers is further established, viz., that post-mortem cultures from the cerebrospinal fluid are more likely to yield growths than cultures from the blood. Just as the cerebrospinal fluid proved more frequently positive than did the mesenteric lymph-nodes, so, too, the fluid remains more frequently positive than the bronchial lymph-nodes (*nota bene*, the difficulty of taking cultures from the usually small available amount of lymph-node material); retroperitoneal lymph-nodes, however, are found more frequently invaded than either blood or cerebrospinal fluid in our series. The 84 per cent. positive retroperitoneal nodes (1912) are only exceeded by the 85 per cent. positive cerebrospinal fluid series of Southard and Canavan (1910). Both bronchial and retroperitoneal lymph-nodes exceed the blood in frequency of positive cultures; the excess is, however, slight.

The most frequent two-out-of-three-positive combination, found in 1910, was the combination of positive cerebrospinal

fluid and positive mesenteric lymph-node. This led to the hypothesis of a lymphogenous blood-borne invasion of organisms lodging in the meninges and later killed out in the blood by bacteriolytic substances. This condition is reversed in the present series, in which the combination of positive cerebrospinal fluid and positive bronchial lymph-node is very rare.

The retroperitoneal nodes are on a different footing from the bronchial nodes in that they more frequently contain organisms (84 per cent. vs. 64 per cent.). The combination of positive retroperitoneal node and positive cerebrospinal fluid is the most frequent two-out-of-three-combination (recalling in this respect the mesenteric series). Positive growths from all three loci were found in (a) mesenteric node combination, 55 per cent.; (b) retroperitoneal node combination, 52 per cent.; (c) bronchial node combination, 35 per cent.

Tables are presented showing the main types of organism cultivated. Special remark is made of a protracted period in which an anthrax-like organism kept appearing in certain autopsies.

116. Immigration and Midwife Problem.—In order to appreciate the relation of immigration to midwifery, Wile says it is necessary to ascertain how many midwives are admitted to this country. In order to protect the country from the unscrupulous midwife, it is essential that a system of education, supervision and control be established throughout the various states of the Union. Only by education, standardizing, legislating and controlling the immigrant midwife will it be possible to prevent an increase of the dangers now attributed to midwifery as it at present exists among constantly increasing immigrant population. The increase in midwives depends on the increase of female immigration. Wile urges that the standards of midwifery in this country be raised at least to the standards-existent in the countries from which the immigrant midwife comes. By the further control of immigration and the securing of information relating to the educational, professional and legal status of midwives, it will be possible to place the midwife problem in an intelligent manner before the American public.

American Journal of Gastro-Enterology, Philadelphia

July, II, No. 1, pp. 1-48

- 120 Mobile-Dilated Cecum; Diagnosis and Treatment; Case Reports. G. R. Satterlee, New York.
- 121 Nutrient Feeding per Rectum by the Drop Method. H. M. Eberhard, Philadelphia.
- 122 Bad-Breath Signal; What It Portends. G. M. Niles, Atlanta, Ga.
- 123 Abdominal Surprises. W. Freile, Jersey City.
- 124 Surgical Measures for the Relief of Abdominal Symptoms Due to Ptosis of the Stomach and Colon. J. C. Bloodgood, Baltimore.
- 125 Relation of Laboratory Findings to Gastro-Intestinal Disease. E. J. Asnis, Philadelphia.
- 126 Diseases of the Stomach and Intestines. L. Brinton, Philadelphia.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

July 13, No. 2689, pp. 53-104

- 1 *The State, the Poor and Our Profession. G. E. Haslip.
- 2 Modern Social Changes and Legislation as They Affect the Medical Profession. E. N. Nason.
- 3 A Plea for Harrogate and Other English Health Resorts. C. Gibson.
- 4 *Parotitis Associated with Glycosuria and Acidosis. L. M. Routh.
- 5 *Electrocardiography and Its Importance in the Clinical Examination of Heart Affections. T. Lewis.
- 6 Subperiosteal Hematoma. P. C. Cole.

1. The State, the Poor and Our Profession.—From the insidious manner in which the state is slowly and surely taking into its charge various classes of patients, with the monopoly of the care of many diseases, Haslip says it must follow that in the future Great Britain shall have three different classes of hospitals: 1. The state-rated hospitals would be the hospitals to receive causal cases of urgency accidents, etc., and the severe cases sent by the district medical officer. They would be used by the teaching medical schools for students, and the increased clinical field opened by the larger

number of cases would be advantageous for instruction. They would have the same kind of staff as the present voluntary hospitals, but it would be considerably increased or diminished according to the necessity of each institution. They would be under the management of either the County Council or the Local Government Board, with an advisory medical board, but every member of the staff and visiting staff would receive remuneration for his services. 2. State Insurance Hospitals. They would be under the management of the local insurance medical committees, and the cases would be attended by the medical attendants to the insured patient. 3. Paying Hospitals for Various Classes of Patients. This will be the true charitable institution of the future, and will still require the energies of those good hospital workers who have done so much in the past and for whom greater work will be open in the future. And if it is the duty of the state to do all this for the individual, then, Haslip maintains it is the duty of the individual to do something for the state. If the state makes the individual healthy and strong to maintain his vitality, then it is the duty of the individual to give some portion of his health and strength to maintain the vitality of the state, and the individual must be trained and taught in such a manner that he is able to assist the state. By this he will show discipline and unselfishness.

4. **Parotitis Associated with Glycosuria and Acidosis.**—Routh asks: Did the parotid inflammation cause some auto-intoxication with secondary effect on the metabolism of the pancreas as a cause of the glycosuria? There is, of course, some functional correlation between the parotid gland and pancreas, in that they both secrete a juice materially aiding in the digestive processes. Or is it that the parotid and submaxillary also secrete some internal secretion, the temporary disorganization of which may cause glycosuria? The fact that the left parotid and submaxillary glands were not involved, and that their internal secretions were therefore intact, would perhaps favor the former view.

5. **Electrocardiography and Its Importance in the Clinical Examination of Heart Affections.**—Galvanometric examination of the heart is regarded by Lewis as being important from many points of view. It may give indications of enlargement of the walls of one or other cardiac chamber; it may accurately locate small lesions in the musculature. It informs us when the heart-beat starts at the normal impulse center or away from it; in the last named condition it tells us that the rhythm is no longer under the normal nervous control—a fact which is of fundamental importance in the management of our case, it tells us within certain limits where new beats have their origin. It gives us a separate record of contraction in auricle and in ventricle, and accurately defines the time relation of contraction in one chamber and the other; thereby it frequently elucidates physical signs which otherwise remain obscure. It provides us with a perfect means of ascertaining the functional efficiency of the auriculo-ventricular bundle, the sole conducting tract on which the ventricle depends for the reception of impulses which start its contractions. It allows us to differentiate between separate forms of slow and rapid heart action, which are of totally different significance. It provides us with an analysis of every form of cardiac irregularity an analysis which is unrivaled in its precision by any other method. While the information derived from it relates essentially to the condition of the muscle, the method is often helpful in the diagnosis of lesions of the valves. It brings us into nearer contact with the functions of the heart muscle than does any other clinical method; it is a precise means of studying the heart as a living and moving organ. The information obtained by electrocardiography is not, as commonly thought of purely scientific interest in the analysis of discovered heart action. It has a great and growing value in the practical management of patients. There are a few heart cases in which our knowledge is not added to by its employment, and in a steadily increasing percentage facts which are essential if sound prognosis and treatment are to be attempted are elicited. The time is at hand, if it has not already come, when an examination of the heart is incomplete if this new method is neglected.

Lancet, London

July 19, CLXXVIII, No. 4637, pp. 67-134

- 7 Acute Duodenal Perforation. D'A. Power.
- 8 *High Blood-Pressure and the Commoner Affections of Arteries. H. French.
- 9 *Case of Tubal Pregnancy. R. L. Knaggs and W. W. Walker.
- 10 *Treatment of Chronic Ulcer of the Stomach and Duodenum by Gastrojejunostomy. J. Sherren.
- 11 Use of Celluloid Splints in the Treatment of Cases of Poliomyelitis. F. E. Batten.
- 12 Neosalvarsan. J. McIntosh, P. Fildes and H. B. Parker.
- 13 Observations on the Neuron. H. Campbell.

8. **High Blood-Pressure and the Commoner Affections of Arteries.**—French is certain that the pressure can only be reduced safely when the muscle of the arterial coats is still muscle, though it may be out of training and stiff. So long as it is muscle it may be rendered lissom again by arterial gymnastics, and so brought back under the control of the vasomotor system, to the great relief of the heart. When, however, the tunica media of most of the arteries, particularly those of the splanchnic area, is fibrous and no longer muscle, a high blood-pressure becomes a necessity if the patient is not to be permanently invalided. If, French says, one relies solely on the "toxic" and the "increased peripheral resistance" theories of arteriosclerosis and high blood-pressure, one may often treat the patient on the wrong lines; the correct lines of treatment being, he says, (1) prevention by moderation in eating and drinking, a due alternation of brain work with physical exertion daily; not too long sustained a sameness of arterial caliber, whether in the limbs, the splanchnic area, or the brain. (2) Relief in the earlier stages, by carefully considered steps that may be classed together under the heading of "arterial gymnastics." (3) Recognition of the fact that when the stiffening stage has passed and fibrosis is already established a high blood-pressure is to a greater or less extent a necessity; that it has to be maintained by the heart; that it could be lessened by lessening the work of the heart, as by invaliding the patient or putting him to bed; but that if the patient is to continue life in anything like its full activity the heart must be enabled to maintain a high blood-pressure, for which purpose iodids, nitrites, etc., are relatively useless; cardiac "training" by regulated massage, exercises being far more important, and the chief drugs to rely on when the heart symptoms are well developed being those which increase the force of the heart-beat, especially full doses of tincture of digitalis.

9. **Tubal Pregnancy.**—One of the most striking features of this case is the association of tubal pregnancy of unusual character with a uterine pregnancy of a later date. The development of the intra-uterine pregnancy followed closely on the onset of degenerative changes in the tubal fetus, and the nature of the case was made clear at an early stage in consequence of an enforced abdominal exploration. It was evident, even from a cursory examination of the specimen, that the pregnancy had reached the highest point of its development without rupture of the tube. The last stage of the tubal pregnancy in this case was also unusual. A lithopedion is rarely completely intratubal, but more commonly is contained in a sac which is formed by peritoneal adhesions and false membrane. In this sac it may lie harmless for years. But where suppuration occurs the pus may open in various directions and the fetal bones be discharged through the skin, the bowel, the bladder, or the vagina. The peritonitis is local and limiting. In this case a small perforation resulted evidently from ulceration of a sharp edge of bone and a general peritonitis of a not very virulent type resulted from the flooding of the general peritoneal cavity with escaping adipocere.

10. **Treatment of Chronic Ulcer of the Stomach and Duodenum by Gastrojejunostomy.**—Up to the end of March, 1912, Sherren operated on eighty-two patients with chronic duodenal ulcer: among these were two deaths, both from bronchopneumonia, one in a male, aged 59, ten days, the other in a male, aged 63, thirty-six hours after operation. The first was a large man, the second a thin, wasted patient, with a very dilated stomach, who had had symptoms for over thirty years. Up to March 1912, he performed gastrojejunostomy for

chronic ulcer of the stomach on 109 patients. In one of these that died, a woman on whom he operated when she was almost *in extremis* for hour-glass stomach, leakage occurred on the twelfth day. At the post-mortem examination there was no attempt at union. Two other deaths occurred.

No case of gastrojejunal ulceration has occurred, but two of jejunal ulcer, both after posterior no-loop gastrojejunostomy, one six months after operation for chronic duodenal ulcer, the other three months after operation for chronic gastric ulcer. Both were successfully excised. In neither had the appendix been removed at the first operation. One other patient developed regurgitant vomiting and was successfully treated by lateral anastomosis. Sherren is at the present time directly treating the ulcer in addition in most cases. When possible duodenal ulcers are invaginated and gastric ulcers treated in the same way, or, if at all suspicious, excised. He has so far excised fifteen; serial sections have been cut of them all, but no trace of malignant change has been discovered. The appendix is always removed if the condition of the patient permits, and the gall-bladder is examined. In four of the cases of duodenal ulcer French had to remove gall-stones at the same time; one patient died after this operation had been performed elsewhere five years later. Two of the cases of chronic gastric ulcer were complicated by gall-stone. All septic teeth are dealt with before operation and all the patients warned to be careful in their diet for the three months following operation, and instructed to take an alkaline powder between meals for the same time. Sherren says that operation in unselected cases of gastric and duodenal ulcer can be carried out with a death-rate of less than 3 per cent., and carries with it relief in certainly 96 per cent. of the cases, and the probability of cure in over 80 per cent.

Medical Press and Circular, London

June 19, XCIII, No. 3815, pp. 663-658

- 14 Avoidance of After-Effects from Anesthesia. J. Blumfeld.
- 15 Treatment of Syphilis. D. Power.
- 16 *Certain Reactions of Blood in Carcinoma (and Other Conditions), with Suggestions on Treatment. J. A. Shaw-Mackenzie.
- 17 Meningitis Due to Bacillus Typhosus. J. F. O'Carroll and F. C. Purser.

June 26, XCIII, No. 3816, pp. 659-686

- 18 Appendicitis in Children. H. A. T. Fairbank.
- 19 Salvarsan in Treatment of Anthrax. A. S. Gubb.
- 20 Vaccine Therapy. S. J. Ross.
- 21 Pancreatitis, Acute and Chronic, and Its Surgical Treatment. W. S. Handley.

July 3, XCIV, No. 3817, pp. 1-24

- 22 Decancerization. J. G. de Gers.
- 23 Place of x-Ray in Modern Diagnostic Methods. W. Steuart.
- 24 Case of Intussusception in an Infant; Resection and Recovery. H. F. Woollenden.
- 25 Puerperal Fever. J. F. Jordan.

July 10, XCIV, No. 3818, pp. 25-48

- 26 *Treatment of Dyspepsia. W. H. Wilcox.
- 27 Erythema Nodosum and Tuberculous Meningitis. A. Sezary.
- 28 Extra-Uterine Pregnancy, with Special Reference to Its Diagnosis After Rupture or Abortion. J. N. Stark.

16. **Certain Reactions of the Blood in Carcinoma, with Suggestions on Treatment.**—Shaw-Mackenzie believes that it has been proved that the serum of the blood taken from cases of carcinoma manifests two important properties: (1) an increased antitryptic value; (2) a power to accelerate the action of pancreatic lipase which is far in excess of what is found in normal serum. These two reactions when present together furnish a valuable aid in the diagnosis of malignant disease and their absence excludes the diagnosis of cancer. After recovery or improvement, or during a period of quiescence, the accelerating power of the serum on lipase remains high, or may be even higher than when the disease is manifest. But under the same conditions the antitryptic value falls to normal. Such reactions serve, therefore, to control treatment and to indicate progress toward recovery or otherwise. The lipoclastic acceleration is a possible and natural factor in resistance to disease, in carcinoma and in other conditions. If this suggestion is admitted, serum and substances which increase this action or protective mechanism are indicated in treatment. Already, although the cases in mice and men are too few to yield decisive results, Shaw-Mackenzie has observed a beneficial influence on malignant disease treated on these lines.

26. **Treatment of Dyspepsia.**—The following lines of treatment are given by Wilcox: The gastric crises of tabes or angioneurotic edema require treatment by local applications, such as warmth, sinapism, etc. Food by the mouth should be withheld. Acetphenetidin may be given for two or three doses, or a dose of some powerful carminative mixture may be given—e. g.:

R	Gm. or c.c.	
Tincturæ cardamomi compositus....	6	3jss
Tincturæ zingiberis	2	3ss
Tincturæ capsici	66	m x
Spiritus ætheris	2	or 3ss
Spiritus chloroformi	1	m xv
Aquæ menthæ piperitæ.....ad 30		3j

Every two hours.

If the pain continues morphia must be given hypodermically—e. g., 1/5 grain, repeated if necessary. In chlorosis, dyspepsia is an almost constant symptom. It must be remembered that chlorosis is usually associated with hyperchlorhydria; therefore, alkalies with the bland preparations of iron are indicated—e. g.:

R	Gm. or c.c.	
Sodii bicarbonatis	1	33 gr. xx
Ferri ammoniæ citratis.....	33	gr. v
Spiritus chloroformi	66	or m x
Infusi aurantii	30	3j

T.d.s.

To this may be added, liquor arsenicalis, 3 m.

Nourishing, easily digestible diet—e. g., milk, fish, eggs, chicken, etc.—and aperient medicines may be taken. General hygienic conditions are most important.

In pernicious anemia the gastric secretion is almost entirely free of hydrochloric acid and ferments. The best result in this condition will be obtained by giving after food, pepsin and hydrochloric acid—e. g.:

R	Gm. or c.c.	
Liquoris arsenici hydrochlorici.....	2	miii
Glyceritus pepsinæ	4	3j
Acidi hydrochlorici dil.....	1	or m xv
Tincturæ cardamomi compositus....	4	3j
Aquæ chloroformi	ad 30	3j

T.d.s., p.c.

The pain in acute gastritis may be relieved by hot applications to the epigastrium; the application of a mustard leaf, or mustard poultice, or the ice-bag. Food should be withheld for twenty-four hours. The stomach should be emptied either by the induction of vomiting after drinking warm water, or by the giving of a simple emetic, or by washing out with a soft tube. Calomel, 2 gr., with bicarbonate of soda, 5 gr., should be given after the stomach is emptied. Nausea may be relieved by giving a mixture of:

R	Gm. or c.c.	
Bismuthi carbonatis	1	
Sodii bicarbonatis	aa	1 gr. xv
Acidi hydrocyanici dil.....	2	or miii
Aquæ menthæ piperitæ.....ad 30		3j

Four t*is* horis.

In cases in which the pain is very severe, it may be necessary to give a hypodermic injection of morphin, 1/5 gr.

Journal of Tropical Medicine and Hygiene, London

June 1, XV, No. 11, pp. 161-176

- 29 Cell Inclusions in Blood of Blackwater Fever and Other Tropical Diseases. G. C. Low.
- 30 Severe Case of Uncinariasis Showing Entire Absence of Eosinophilia. L. J. Coppedge.
- 31 Cases of Fever Probably Due to Bacillus Asiaticus. A. Castellani.

Clinical Journal, London

June 19, XL, No. 11, pp. 161-176

- 32 Demonstration of Surgical Cases. A. H. Tubby.
- 33 Alcoholic Drinks. F. M. Sandwith.
- 34 Treatment of Traumatic Neurasthenia. H. C. Thomson.
- 35 Clinical Demonstration. A. J. Jex-Blake.

June 26, XL, No. 12, pp. 177-192

- 36 *Pruritus Ani. J. P. L. Mummery.
- 37 *Some Practical Points Relating to Causation and Treatment of Pruritus Vulvæ. J. H. Evans.
- 38 Pre-Victorian Liquor Laws and Temperance Movement. F. M. Sandwith.

July 3, XL, No. 13, pp. 193-208

- 39 Case of Sarcoma Causing Chronic Intussusception. D'A. Power.
- 40 Points of Practical Importance in Some Common Affections of the Nose and Throat. H. J. Davis.
- 41 Modern Liquor Laws and Alcoholic Habits. F. M. Sandwith.

July 10, XL, No. 14, pp. 209-224

- 42 Hyperthyroidism. W. S. Handley.
- 43 Medical Aspect of Alcoholism. F. M. Sandwith.

36. **Pruritus Ani.**—Mummery is a believer in the use of powders in preference to ointment for pruritus, because damp-

ness of the skin is one of the chief factors in producing the condition. A good powder is starch and boracic acid in equal parts. The powder should be put on thickly so as to keep the parts dry, and after exertion or anything which is likely to cause the dampness to reappear the powder should be reapplied. Bathing the parts with weak phenol solution is often extremely effectual; that is to say, phenol solution 1 in 60 or 1 in 40 dabbed on with a sponge or with cotton-wool. Another very useful method of treating the condition is by using a paint. There are several different paints which are good. One which Mummery has used and found very satisfactory is the following:

R	Gm. or c.c.	
Picis carbonis	4	3j
Benzolis	16	or 5iv
Acetone	60	3ij

Painted on with a brush, one or two coats, and allowed to dry. The idea in using a paint is to allow it just to form a slight protection over the skin. Ointments should not be used if one can avoid them, but in very severe cases they are useful to tide over a bad period. In some cases they are more effectual than anything else. An ointment which can generally be depended on to temporarily alleviate irritation is one of chloroform, which is made by rubbing as much chloroform as possible into one ounce of lanolin. Another very useful ointment is the following:

R	Gm. or c.c.	
Bismuthi subnitratiss	3	3ij
Cocainæ hydrochloratis	66	or gr. x
Hydrargyri subchloridi	1	gr. xv
Petrolati	30	3j

37. Causation and Treatment of Pruritus Vulvæ.—The following prescriptions are given by Evans for the treatment of this condition:

R	Gm. or c.c.	
Bismuth carbonate	3	3ij
Zinc oxid	66	or gr. x
Lanolin	30	3j
P.a.a.		
Subgallate of bismuth p.a.a.		

R	Gm. or c.c.	
Ungt picis	8	or 3ij
Ungt belladonnæ	2	5ss
Tr. aconiti	2	5j
Aquæ rosæ	30	
P.a.a.		

For application to the vaginal wall so as to allow of contact to every part of the mucous membrane, the following solutions or pastes are best applied per speculum or as a tampon:

- Glycerin and bismuth carbonate made up into a paste.
- Argentæ nitratis
- Aquam
- Liq. carbonis detergens
- Glycerini
- Zinci oxidi
- Pulv. calaminæ (prep)
- Aq.

Archives Générales de Médecine, Paris

June, XCI, No. 6, pp. 485-568

- 44 *The Respiration in Orthopedic Treatment of Spinal Disease. (La respiration en orthopédie vertébrale.) R. Mesnard.
- 45 Histology of Emphysema. Milian.
- 46 Foreign Bodies in the Air-Passages. (Les corps étrangers des voies aériennes.) A. Schwartz.

44. Influencing the Spine by Breathing Exercises.—Mesnard says that the tonic effect of breathing exercises is an important factor in treatment of a spinal affection, but that the direct mechanical effect is even more important. Adenoids or pleural or pulmonary lesions, by obstructing the functioning of the air passages, are liable to induce deformity of the chest and spine. On the other hand, deformity of the latter may interfere with the respiration. Few physicians, he remarks, realize the danger of loss of balance in the trunk as a remote effect of pleurisy in a child, and few appreciate the importance of systematic breathing exercises to restore normal balance after removal of adenoids. The breathing is generally defective with scoliosis, and asymmetrical, and breathing exercises adapted to correct the asymmetry are often surprisingly useful in aiding in the straightening of the spine. The breathing exercises also help to loosen up the vertebral articulations and restore the normal shape to the chest. The respiration should be of the costal type, and the patient should be trained to this preliminary to the wearing of an orthopedic corset.

Bulletin de l'Académie de Médecine, Paris

June 25, LXXVI, No. 26, pp. 481-552

- 47 Discussion of Hospital Construction. (Construction d'un nouvel hôpital à Lyon.) E. Mosny and others.
- 48 Multiple Deformities in a Young Woman with Congenital Cyanosis. (Maladie bleue.) E. Boinet.

Grèce Médicale, Syra, Greece

June 1-15, XIV, Nos. 11-12, pp. 21-24

- 49 Traumatic Appendicitis. P. N. Divaris.

Journal d'Urologie Médicale et Chirurgicale, Paris

April, I, No. 4

- 50 Antimeningococcus Serum in Treatment of Joint Complications in Gonorrhea. (Traitement des complications articulaires de la blennorrhagie par des injections de sérum antiméningococcique.) P. Héreseo and M. Cealic.
- 51 Cancer in Exstrophy of the Bladder. (Les cancers développés sur la vessie exstrophée.) P. Lecène and A. Hovelacque.
- 52 Plastic Operation on the Urethra. (De la reconstitution de l'urètre par urétrographie circulaire avec dérivation de l'urine.) G. Marion.

Presse Médicale, Paris

April 6, XX, No. 28, pp. 277-288

- 53 Prophylaxis of Tuberculosis. (Hygiène et prophylaxie anti-tuberculeuse.) N. G. Mangin.

Revue Mens. de Gynécologie d'Obstétrique et de Pédiatrie, Paris.

May, VII, No. 5, pp. 305-352

- 54 *Metrorrhagia in Virgins. P. Dalché.
- 55 Peritonitis Consecutive to Conservative Cesarean Section; Recovery. R. Riss.
- 56 Repeated Cesarean Section. (Césarienne itérative conservatrice.) R. Gilles.

54. Excessive Uterine Hemorrhage in Girls and Unmarried Women.—Dalché discusses the causes and treatment of vaginal metrorrhagia with or without pain and with or without anatomic lesions in the genital apparatus. Nothing is more variable than the origin, the intensity and the course of excessive uterine hemorrhage in girls and unmarried women, and yet there are five principal types which require special measures. 1. When the hemorrhage is so profuse as to be immediately threatening, he has the patient lie flat, the head low and the pelvis slightly raised; very hot vaginal douches are given and an ice-bag is kept constantly on the hypogastric region. Ergot should then be injected and repeated, in large doses, with injections of caffeine, camphorated oil and artificial serum or animal serum. If the hemorrhage persists, he tampons, using either gelatin, animal serum or pengawar fibers. 2. When the menstrual discharge is alarmingly profuse, the first measure is absolute repose; constipation must be cured, supplemented by hemostatic drugs, such as ergot, hemp, quinin sulphate and gelatin internally. 5 gm. of the latter morning and night in bouillon, chocolate or hot milk. Very hot or cold vaginal douches should also be given, with tamponing as a last resort. Cold sitz baths also often prove useful in arresting the hemorrhage and short cold douches to the soles of the feet. Repeatedly dipping the hands into very hot water may aid, repeating this during three or five minutes several times a day. Organotherapy may also be given a trial, and Dalché has sometimes succeeded with thyroid extract, mamma or hypophysis extracts or epinephrin. In some cases the best results were attained with ice-bags, in others with injections of animal serum, hot enemata and certain gymnastic exercises. 3. When the trouble is from the too rapid or intensive onset of puberty, the girls should lead a quiet, hygienic life, no dancing, horseback riding or sea bathing. Long full tepid baths may prove useful, and hemostatic medication, calcium chlorid and gelatin, possibly supplemented by tentative organotherapy. In these cases tonics like iron and quinin should be carefully avoided. 4. In case of a tuberculous taint, ovarian extract will often serve to regulate the menstrual functioning. Suspicion of syphilis suggests specific treatment. 5. In metrorrhagia from some general cause, repose, hygiene and the tampon are the main reliances as adjuvants to the treatment of the constitutional cause. When the metrorrhagia is accompanied with pain there is often abnormal congestion in the ovaries and ovarian treatment may restore conditions to normal. In chlorosis there may be excessively severe menstrual hemorrhages without much pain; they are probably the result of vasomotor disturbances and

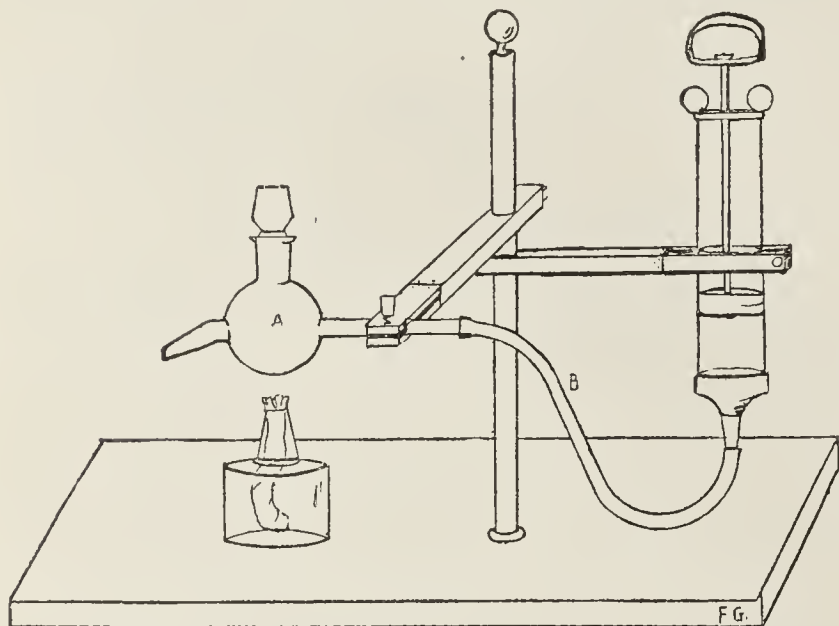
chlorotic changes in the composition of the blood. On the other hand, the chlorosis in many cases is merely a manifestation of some constitutional taint, such as tuberculosis or syphilis.

Semaine Médicale, Paris

July 10, XXXII, No. 28, pp. 325-336

- 57 *Iodin Vapors in Treatment of Cystitis. (Les vapeurs d'iode à l'état naissant dans le traitement des cystites.) G. Farnarier.

57. **Iodin Vapors in Treatment of Cystitis.**—Farnarier has been applying to the treatment of cystitis Louge's method of nascent iodine vapors, *enfumage*, and reports very encouraging results. He gives an illustration of the apparatus he has devised for the purpose: The patient reclines with the pelvis slightly raised and the capacity of the bladder is ascertained with tepid boiled water. Then a catheter is introduced connected with a spherical flask of a capacity of 30 c.c., containing from 0.05 to 0.1 gm. of iodoform. The flask has two tubular arms. The rear one is connected with a syringe mounted on the same standard. An alcohol lamp is lighted under the iodoform ampulla and violet iodine vapors are generated as the iodoform decomposes under the influence of the heat. The piston of the syringe is then pushed in to the mark corresponding to the capacity of the bladder and the nascent iodine vapors are thus forced into the bladder to this amount. The tube is then clamped for about five minutes to



Apparatus for generating iodine vapors for local application.

prevent the reflux of the vapors, after which the apparatus is set aside. He has applied the measure to twelve men and five women and in two cases the cure was prompt and complete and all the other patients—still under treatment—were materially improved. One of the patients was a man of 33 with an acute post-gonorrheal cystitis, and seven insufflations at intervals of four or five days cured him completely. In another case the cystitis had persisted for a year and a half absolutely rebellious to all methods of treatment, while rapid improvement followed the *enfumage*. The bladder at first was so irritable that morphin had to be given before the catheter could be introduced, but now the patient is very much improved and the capacity of her bladder has increased from 5 to 100 c.c. Cystoscopy was rendered possible by this improvement, and it revealed for the first time that the primary trouble was a tuberculous kidney, thus pointing the way to radical treatment.

Beiträge zur klinischen Chirurgie, Tübingen

June, LXXIX, No. 1, pp. 1-232

- 58 *Determination of Tubercle Bacilli in the Blood and Lesion with Surgical Tuberculosis. (Nachweis von Tuberkelbacillen im Blute und in den lokalen Entzündungsherden bei chirurgischer Tuberkulose.) S. Duchinoff.
59 *Means to Locate the Thrombus with Gangrene of the Leg. (Ortsbestimmung des Thrombus bei Gangrän der unteren Extremitäten nach der Methode von Moszkowicz.) M. Magula.
60 Rupture of Intestines from Contusion; Fifty-Two Cases. (Zur Frage der traumatischen subkutanen Darmruptur.) W. Tschistossersoff.

- 61 *Causes of Postoperative Fatalities. (Ursachen der postoperativen Todesfälle.) G. Petren.
62 Lymphosarcomatosis. (Zur Diagnostik der aleukämischen Lymphomatosen.) F. A. Hesse.
63 *Dangers of Exploratory Incision of the Kidney. (Beitrag zu den Gefahren der Nephrotomie.) H. v. Haberer.
64 Mastix Dressing for Wounds. (Ueber Wundbehandlung mit dem Mastixverband.) Krebser.
65 *Operative Treatment of Exstrophy of the Bladder. (Zur Operation der Blasenektomie.) P. Janssen.
66 Osteoplastic Operation for Old Dislocation of the Cervical Vertebrae. (Zur Behandlung veralteter Wirbelfluxationen mittelst Osteoplastik.) F. de Quervain.
67 *Circulation and Respiration During Mixed General Anesthesia. (Untersuchungen über Kreislauf und Atmung in der Skopolamin-Morphin-Aether-Narkose.) P. Müller.
68 Restoration of Urethra After Prostatectomy. (Herstellung des Harnweges nach der Prostatektomie samt Excision der Urethra prostatica.) Licini.
69 *Influence of Calcium Lactate on Hemorrhages. (Ueber den Einfluss von milchsaurem Calcium auf Blutungen.) E. H. van Lier.
70 Bone Cysts. (Ueber Knochencysten.) Saxinger.

58. **Tubercle Bacilli in the Blood with Surgical Tuberculosis.**—Duchinoff examined the blood and the local inflammatory secretions, making ninety-eight examinations, in various forms of surgical tuberculosis. He found tubercle bacilli in the local lesion in every case and in the blood in 78 per cent. of the cases. He tabulates under various headings this entire material; it establishes beyond question, he reiterates, that a surgical tuberculosis cannot be regarded as a local affection.

59. **Localization of the Thrombus with Gangrene.**—Magula has been applying Moszkowicz' method to determine the point where a gangrenous limb could safely be amputated. When the tourniquet is removed from a healthy limb the blood rushes back down to the toes in a few seconds, but in the diseased limb the hyperemia spreads very slowly or only to a certain point, the limbs beneath persisting still blanched. The returning blood is arrested at the point where the lumen of the vessel is closed; if only partly closed the blood works its way slowly into the regions below. Magula has found this method extremely useful during the last eighteen months, and here summarizes his sixteen cases. In every instance the extent of the hyperemia corresponded with the localization of the thrombus, as ascertained by the following operation. The method is simple and harmless, and besides localizing the thrombus, throws light on the indications for the operation.

61. **Postoperative Fatalities.**—Petren analyzes the postoperative fatalities in 8,444 operative cases, a total of 304, that is, 3.66 mortality. Nearly 10 per cent. of the postoperative deaths occurred after cancer operations; 50 per cent. of the postoperative fatalities were the result of complications on the part of the lungs, and 25 per cent. of debility or constitutional disease and only 25 of infection. He emphasizes the necessity for improvements in the technic so as to ward off complications on the part of the lungs.

63. **Nephrotomy.**—Haberer urges all to publish without discrimination their mishaps after exploratory nephrotomy, and reports a case of the kind in which the diagnostic incision in the kidney entailed the loss of the organ; the exploratory nephrotomy was followed by severe hemorrhage which compelled secondary nephrectomy.

65. **Operative Treatment of Exstrophy of the Bladder.**—Janssen gives an illustrated description of what he regards as a very successful technic as applied in Witzel's service. The vertex of the bladder is fastened in the laparotomy incision and all abdominal straining is averted by section of the rectus muscles and the position in which the patient is placed. The urine is temporarily diverted by two tubes and the defect in the abdominal walls is closed with a plastic operation. The bladder thus formed cannot hold more than 30 or 50 c.c. of urine, but it may grow larger in functioning. In from four to six weeks, with this technic, the ectopic bladder is corrected, the normal shape of the abdomen restored, without danger of later ascending affection, and although the children have to void their urine every hour, it is under their control and all are satisfied with the outcome.

67. **Mixed General Anesthesia.**—Müller reports extensive research on the respiration and circulation during general anesthesia with various combinations of scopolamin, morphin

and ether. The combined action of the different drugs is by no means the sum of their separate actions, but he says that the changes noticed in the circulation and respiration with the three combined are not pronounced enough to discredit the method. He reviews sixty-one articles on blood-pressure measurement and 137 on the scopolamin-morphin method.

69. **Calcium Lactate in Hemorrhage.**—Van Lier tabulates the coagulating time in forty persons before and after administration of calcium lactate and also in healthy controls. His conclusions are negative as to the value of calcium lactate in prevention or treatment of hemorrhage.

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 1, XLIII, No. 7, pp. 225-272

- 71 *Surgical Treatment of Pulmonary Tuberculosis. F. Sauerbruch and T. Kocher.
72 Necessity for Caution in Prescribing Alcohol in Heart Disease. (Vorsicht in der Verordnung von Alkoholis bei Herzfehler.) C. Schmeiter.

71. **Surgical Treatment of Pulmonary Tuberculosis.**—Sauerbruch reviews the history of operative measures in pulmonary tuberculosis and reports fifty operations on the wall of the thorax, done on thirty-two patients, including eight with only bronchiectasia. This material is tabulated for comparison under various headings. Two of the twenty-four tuberculous patients are now entirely well and two others are nearly well, while four have improved remarkably and five considerably. Moderate improvement is recorded in two others. The operation is recent in four other cases. One patient died the day after the operation and two others from aspiration pneumonia four and nine months afterward. These results show that operative measures offer a chance for marked improvement and possibly may cure extensive tuberculous pulmonary processes predominating on one side, which have proved rebellious to climatic and dietetic measures. The expectoration declines, the bacilli drop off or disappear entirely from the sputum, the temperature subsides while the general condition and the weight improve. Sauerbruch advocates two or three sittings for the thoracoplastic operation and working rapidly, with as little loss of blood as possible. In his last nineteen cases he operated exclusively under local anesthesia. The after-care is extremely important; every change of dressings, every position and the patient's getting up—every step is of the gravest importance. Kocher emphasizes the fact that surgical treatment of lung processes does not aim so much to attack the lesion directly as to modify conditions in regard to the blood and lymph circulation through the region and keep the lung in repose. Rollier has carried this principle into the treatment of bone and joint tuberculous lesions and has realized a complete cure with them, supplemented by direct sunlight, even when there were ten or twenty tuberculous foci. Kocher compares the different methods realizing differential atmospheric pressure for operations on the chest, saying that Meltzer's method of intratracheal insufflation has introduced an entirely new principle which seems to promise unusually well.

Deutsche medizinische Wochenschrift, Berlin

July 4, XXXVIII, No. 27, pp. 1265-1312

- 73 *Tardy Neuralgia After Amputation of the Thigh. B. Riedel.
74 Eosinophilia of the Urinary Passages During Asthma. (Eosinophilie der Harnwege im Verlaufe von Asthma bronchiale nebst einen Beitrag zur Farbmethode der Harnsedimente.) A. Edelmann and L. Karpel.
75 Acute Psychosis with Acute Pemphigus. (Foudroyant verlaufende Psychose mit Pemphigus acutus.) F. Landsbergen.
76 *Carbohydrate Days in Diabetes. (Von der Wirkung der "Kohlenhydrattage" in der Diabetesbehandlung.) O. V. C. E. Petersen.
77 Cancer of the Pleura. (Zur klinischen und pathologisch-anatomischen Diagnose maligner Pleuratumoren.) L. Huisman.
78 The Coin Sign of Pleurisy with Effusion. (Ueber die diagnostische Bedeutung des "Signe du sou" bei pleuritischen Exsudaten.) B. M. Slatowichownikow.
79 Muscular Rigidity Over Pulmonary Lesions. (Ueber die von Pottenger beschriebenen Phänomene des Muskelspasmus und der Muskelrigidität.) F. Raether.
80 Therapeutic Positive Ionization. (Ueber Anionentherapie.) G. Kaestner.
81 Paradoxical Serodiagnosis. (Bedeutung der paradoxen Sera bei der Wa. R.) E. Meirowsky.
82 Woman in Medicine. (Der weibliche Arzt.) H. Stelzner.

73. **Tardy Neuralgia After Amputation of the Femur.**—In the case reported, the patient suffered no pain from his

amputated limb until after twenty-four years, when neuralgia developed and became intolerable. Riedel has observed recently a similar case in a physician, and Deutsch has published another case under the heading "Endarteritis with Intermittent Limping." In all these cases the development of arteriosclerosis, especially in the stump region, is probably responsible for the tardy neuralgia. The insufficient blood-supply to the nerves explains the pains. Riedel urges others to examine stumps when the patients have reached the arteriosclerosis age, and see if some of them do not complain of similar tardy pains. They may ascribe them to the "change in the weather," but in the cases he reports no influence from this could be detected. If the pain becomes unbearable he will propose to his patient resection of the old cicatrix and of the sciatic nerve.

76. **Carbohydrate Days in Diabetes.**—Petersen thinks that the benefit from the interposition of days of restriction to carbohydrates is merely that the actual nourishment is reduced. The benefit is from the comparative inanition.

Deutsche Zeitschrift für Chirurgie, Leipsic

June, CXVII, Nos. 1-2, pp. 1-206

- 83 *Section of Posterior Spinal Nerve-Roots in Tréatment of Gastric Crises. (Die operative Behandlung gastrischer Krisen nach Foerster.) G. Lotheissen.
84 *Snapping Hip-Joint. (Ueber den heutigen Stand der Lehre von der schnellenden Hüfte.) A. Ebner.
85 *Perforated Gastric and Duodenal Ulcer. (Zur Klinik und Pathologie des perforierten Magen- und Duodenalgeschwürs.) A. Citronblatt.
86 Hip-Joint Disease in Children. (Ueber Osteoarthritis deformans coxae juvenilis.) R. Eden.
87 Technic for Counting Blood-Platelets. (Neues Verfahren der Blutplättchenzählung.) A. Fonio.
88 Primary Actinomycosis of the Stomach. (Kasuistischer Beitrag zur Frage der primären Magenaktinomykose.) W. Pohl.

83. **Operative Treatment of Gastric Crises.**—Lotheissen reports three cases and summarizes the literature on this subject to date, his article filling sixty-two pages. American literature is only scantily represented in his review. As the vagus is evidently responsible for the crises in a certain proportion of cases, the Foerster technic should be applied only when there is a zone of decided hyperesthesia in the stomach region and the epigastric reflex is exaggerated. He advises not to wait too long before doing the resection; a tuberculous process of the lungs would have better chances of healing if the gastric crises, preventing proper nourishment, could be cured. His review includes thirty-nine cases in which the dorsal spinal roots were resected for gastric crises and twenty-nine in which the operation was done for neuralgia. The total mortality was 14.7 per cent, but as three of the patients were operated on twice, the operative mortality was in reality only 14 per cent, in seventy-one operations. This is remarkably low as the patients were all extremely debilitated from their long sufferings. The immediate outcome was favorable in nearly every case. The increased nourishment improved the general health and arrested the progress of the tabes in one of Lotheissen's cases. Others had advised against the operation in this case as the tabes had showed a rapidly progressive course, but the benefit from the rhizectomy was marked and even the ataxia seems less pronounced to date, eighteen months since the operation, as in another case on record, the subsidence of ataxia persisting to date, seven months after the operation. The results of the rhizectomy may be regarded as very favorable; over half of the patients were cured and a number of others so much improved that it is almost equivalent to a cure. Only one failure is on record, and this was the first patient operated on, and probably not enough roots had been resected. It is generally necessary to resect from the sixth dorsal root downward to include the first lumbar root; the technic is applicable also to abdominal tabetic crises, and inoperable uterine cancer. The various operations that have been proposed in place of Foerster's technic by Frauke, Hanel, Exner and Schmiller do not promise as well, and the low mortality and good results of the Foerster operation render a substitute for it unnecessary.

84. **Snapping Hip-Joint.**—Ebner's attention was called to this anomaly by a personal case, and he has studied its history to date; twenty-eight cases are compiled, of which 64.3

per cent. were of traumatic origin. The prognosis is invariably favorable provided proper treatment is applied in time, namely, myotomy of the anterior bundle of the gluteus maximus in connection with fixation of the slipping part; he describes the technic for this as done by Payr with complete success.

85. Perforated Gastric and Duodenal Ulcer.—Citronblatt reports from Moscow that in the last ten years at the Katharina Hospital 1 per cent. of the necropsies revealed a perforated ulcer as the cause of death, a total of fifty in the 5,320 necropsies. During this period operative treatment of a perforated ulcer was applied in only twelve cases. None of the patients felt the onset of the pain so intensely as to prostrate them; there was no collapse in any of his cases and the onset was only relatively acute, and the trouble did not seem to be of a threatening nature. There was no stiffening of the abdominal walls in six of the twelve cases, and the liver dulness disappeared in only three. In some cases the intense pain was referred to below the umbilicus or to the inguinal region. Vomiting occurred in six cases, and the clinical picture as a whole was vague. In none had the condition been correctly diagnosed before the patient was sent to the hospital; the interval after the first symptoms ranged from sixteen hours to six days. Only two of the patients recovered; the interval in both these cases was thirty-six hours.

Medizinische Klinik, Berlin

July 7, VIII, No. 27, pp. 1097-1138

- 89 Senile Cataract. (Der gegenwärtige Standpunkt in der Therapie des Altersstars.) A. Elschsig.
- 90 Advantages of Massage in Certain Skin Diseases. (Die Massage der Hautkrankheiten.) O. Rosenthal.
- 91 *Roentgenotherapy of Uterine Myoma. (Konservative Behandlung der Uterusmyome mittels Röntgenstrahlen.) E. Runge.
- 92 Wassermann Reaction and Treatment of Old Syphilis. (Wassermann und Therapie der Spätluës.) W. Krebs.
- 93 Balneology and Gynecology. (Ueber konservative und operative Behandlung der Frauenkrankheiten im Bade.) O. Daude.
- 94 Balneology and Diabetes. (Einwirkung von Thermalbedekuren auf den Diabetes mellitus.) E. Pfeiffer.
- 95 Biologic Status of the Thymus. (Die biologische Bedeutung der Thymusdrüse auf Grund neuerer Experimentalstudien.) A. E. Lampé.

91. Conservative Treatment of Uterine Myoma With the Roentgen Rays.—Runge states that this method has been applied in his service in ninety-three cases for uterine myomas, in twenty-six for climacteric hemorrhage, in six for dysmenorrhea, in seven for pruritus of the vulva, twice for kraurosis and twice for eczema of the vulva, and once for vulvar cancer. No injury of the skin was observed in the more than 1,000 exposures. The advantages of the method, he says, are its absolute harmlessness and the possibility of its application with complications which prevent an operation. The older the woman the more quickly the desired result is obtained. A favorable effect on the hemorrhages was realized in 83.5 per cent., and in 22.6 per cent. the myoma became demonstrably smaller. Suspicion of cancer of course excludes this method of treatment, and it is not advisable for women still in the child-bearing age. He describes the technic in detail; the rays are applied in turn at four different points for the ovaries and six for the uterus at each sitting, but the sitting is not completed in less than three days as only two points are exposed in one day. He uses a very hard tube and a 2 mm. thick aluminum filter. The total unfiltered dose is about 66.6 Holzknicht units, equivalent to 133.2 Kienböck units or 13.3 erythema doses. The intervals between the sittings have been three weeks but in future he intends to shorten them to two weeks. The menstrual period is not allowed to interfere with the sittings as a rule.

Monatsschrift für Geburtshilfe und Gynäkologie

June, XXV, No. 6, pp. 671-790

- 96 *Treatment for Retention of Fetal Membranes. (Zur Behandlung der Eihautretention.) B. Roeder.
- 97 *Aortitis in Children with Inherited Syphilis. S. Rebaudi.
- 98 *Uterine Myoma and Child-Bearing. (Uterusmyom, Sterilität und Fertilität.) A. Troell. Commenced in No. 5.
- 99 Ultimate Results of Operative Treatment of Cancer of the Uterine Cervix. (Wert der Radikaloperation der Kollumkreise nach den letzten Wertheim'schen Angaben im Lichte der Kritik.) A. Markowsky.
- 100 Technic for Examination of Genital Secretions. (Ueber den Wert des Ausstrichpräparates für die Untersuchung der Genitalsekrete.) M. Traugott and O. M. Küster.

96. Retention of Secundines.—Roeder found records of retention of secundines in 1,476 cases among the 13,986 deliveries at the St. Petersburg Alexandra maternity in the fifteen years ending with 1910. The proportion of retention was thus 10.55 per cent., and over half of the women with retention were multiparæ. In 169 of the total 1,476 cases the membranes had to be artificially removed; in the others they were spontaneously expelled from the uterus sooner or later. There was fever in 21.4 per cent. of the 1,307 expectant and in 42 per cent. of the active cases, and the mortality was 0.23 in the former and 3 per cent. in the latter group. Sifting the cases further shows that with conservative treatment only 1.1 per cent. of the patients had severe complications while this occurred in 26.5 per cent. of the active cases; in 20 per cent. of the cases in which the uterus was artificially evacuated immediately after delivery, and in 78 per cent. when this was not done until after the onset of fever. The lesson taught by his figures is that any intra-uterine measures for retention of secundines are useless and dangerous. The only certain indication for them is a serious hemorrhage and this only exceptionally occurs in consequence of retention of fetal membranes. The main point is in prophylaxis; not to be unduly hasty in trying to promote the separation of the placenta, that is, not to apply pressure or massage the uterus immediately after delivery, and, above all, to act aseptically.

97. Aortitis with Inherited Syphilis.—Rebaudi reviews what has been written to date on the subject and reports findings in the cadavers of seventeen new-born children with spirochetes in the principal organs. In thirteen of the cadavers the aorta was abnormal; the changes in it were similar to those of the aortitis of acquired syphilis in adults.

98. Uterine Myoma and Child-Bearing.—Troell's conclusions from his extensive experience and research are that the uterus is more inclined to develop myomas in the unmarried and the sterile than in child-bearing women. The normal tendency to proliferation possessed by the uterus finds its normal expression in a pregnancy; when there is no pregnancy, this tendency manifests itself in a pathologic way, by myoma formation. This view is sustained by various data and the fact that the myoma develops as a rule when the uterus has given up the hope of a pregnancy, namely, in the forties and after fifty. The old idea that a myoma prevents conception, he thinks, is no longer tenable. In one of his cases a woman married at 41 had had two abortions in the first year and a large myoma was found in the rear wall of the uterus, but it was left undisturbed. At 43 she was spontaneously delivered of a child at term.

Münchener medizinische Wochenschrift

July 2, LIX, No. 27, pp. 1473-1528

- 101 Rhythmic Contraction of Living Heart-Muscle Outside of the Organism. (Rhythmische Kontraktionen der isolierten Herzmuskelzelle ausserhalb des Organismus.) M. T. Burrows (New York).
- 102 The Agglutinins and Transplanted Arteries. (Bedeutung der Isoagglutinine für die Schicksale homoplastisch transplanterter Arterien.) R. Ingebrigtsen.
- 103 Influence of the Vagus on the Large Intestine. (Einfluss des Nervus vagus auf den Dickdarm.) G. Boehm.
- 104 *Banti's Disease. (Zur Pathologie der Bantischen Milzkrankheit.) F. Umber.
- 105 Salvarsan in Splenic Anemia. (Fall von "Anaemia splenica" der Erwachsenen mit Salvarsan behandelt.) F. Perussia. (Splen-anämische Syndrome und Salvarsanbehandlung.) C. Vallardi.
- 106 Serodiagnosis of Echinococcus Disease. B. Hahn.
- 107 Apparatus for Chronologic Recording of the Circulation. (Eine klinische Methode zur Schätzung der Kreislaufzeit.) A. Bornstein.
- 108 *Ambulatory Extension in Treatment of Fractures. (Zur ambulanten Behandlung von Knochenbrüchen mittels Distractionsklammern.) P. T. L. Hackenbruch.
- 109 *Operations on Tendons and Nerves for Spastic Paralysis. (Sehnenoperationen und Nervenoperationen bei spastischen Lähmungen.) O. Vulpius.
- 110 Benedict's Test for Sugar. (Zur Benedictschen Zuckerprobe.) V. C. Myers.
- 111 Lipomatosis. (Zur Kasustik und Aetiologie der multiplen symmetrischen Lipomatosis.) W. Schemensky.
- 112 Treatment of Habitual Defective Attitude. (Ueber die Behandlung von Haltungsanomalien.) N. Oettli.

104. Banti's Disease.—Umber has found that the liver is seriously injured secondarily in this syndrome which is char-

acterized by primary changes in the spleen causing toxic anemia and injury of the liver. The patients are generally young and the disease is inevitably fatal unless the spleen is removed, but this cures at one stroke if done in time. He reports two cases, one patient a boy of 10, the other a young bank clerk, both apparently cured by splenectomy. The cirrhosis of the liver subsides in the Banti syndrome after splenectomy if not too far advanced, while this does not occur with ordinary cirrhosis of the liver. A special feature of the Banti syndrome is, further, that the splenomegaly is not accompanied by enlargement of lymph glands or nodes. Umber gives the metabolic findings in his cases and compares them with a previous case published in 1904.

108. **Ambulatory Extension in Treatment of Fractures.**—The experiences with the extension appliance devised by Hackenbruch are proving extremely promising. The fragments are held in place by a plaster-of-Paris bandage in which is set the extension brace, *Distractionsklammer*, just as the plaster hardens. The plaster is cut out around the limb, leaving a narrow space free, encircling the limb, and in this space fits the nut in the center of the long narrow brace. By turning the nut, the two ends are screwed apart, widening the gap in the plaster. The brace is held firm by a broad foot-piece on each end, mounted with a ball-bearing joint which permits traction to be exerted from any direction. The principle is the same as in von Eiselsberg's brace (1893), but it avoids the drawbacks of the latter. He gives radiographs of some fractures before, during and after application of the brace. It permits effectual extension and prevents shortening of the limb while the patient can be up and about with the use of a crutch or other support. He describes the exact technic in detail, with favorable comment on "factis" as an elastic filling for the pads to relieve the pressure on prominent portions beneath the cast. (Factis is ground rubber; its use in pads was mentioned in these columns March 16, 1912, p. 827.)

109. **Tendon Versus Nerve Operations in Spastic Paralysis.**—Vulpius compares the technic and outcome of tendon transplantation operations and section of the posterior spinal nerve roots, endeavoring to outline the indications presented by individual cases of spastic paralysis. He says that in many cases as favorable results have been obtained with the former as with the latter operation. If the after-care of the cases is supervised with as much solicitude as Foerster has applied in his rhizectomy cases, Vulpius is convinced that the ultimate results of tendon transplantation would be still better. He agrees with Foerster that in only the severest cases of spastic paralysis is rhizectomy indicated. The intelligence of the children frequently shows a decided change for the better after either operation as the children have so much more attention paid to them instead of the neglect which is generally their lot otherwise. The exact technic for the various tendons is reviewed and orthopedists are encouraged to undertake the treatment of all forms of spastic paralysis, with greater confidence.

Wiener klinische Wochenschrift, Vienna

April 11, XXV, No. 15, pp. 551-582

- 113 Toxicity of the Urine in Various Diseases. I. (Zur Kenntnis der Harntoxizität des Menschen bei verschiedenen Krankheiten.) H. Pfeiffer and O. Albrecht.
114 *Early Diagnosis of Gastric Cancer. (Weitere Beobachtungen über meine Methode der Erkennung des Charakters der Pylorusstenose bezw. des Ueberganges des runden Magengeschwürs in Krebs.) A. Gluzinski.
115 Lymphatic Pseudo-Appendicitis. V. Lieblein.
116 Prostatectomy. Favento.
117 Sarcoma of the Prostate. H. G. Pleschmer.
118 Ulcerations in the Intestines with Pernicious Anemia. (Darmgeschwüre bei perniziöser Anämie.) O. Schweeger.

114. **Early Diagnosis of Gastric Cancer.**—Gluzinski's method of differentiating cancer by the absence of hydrochloric acid in the stomach content was recently described with favorable comment in these columns August 3, abstract 112, p. 409. He here tabulates the details of seventeen cases in which by this means he was able to determine the existence of malignant disease although there was no palpable tumor. In nine of the cases this diagnosis was confirmed at the following operation and in the others by the course of the disease.

Zentralblatt für Chirurgie, Leipsic

July 6, XXXIX, No. 27, pp. 905-944

- 119 *Improved Technic for Saline Infusion. (Injektion mit Salzlösung.) D. Schoute.
120 Experimental Exophthalmic Goiter. (Zur experimentellen Erzeugung des Morbus Basedowii.) M. Baruch.
121 Recurring Thyroiditis. (Fall von rezidivierender Strumitis mit Bildung eines Kropfsteines mit Durchbruch in den Sinus pyriformis und oesophagus.) R. Vogel.

119. **Saline Infusion.**—The various inconveniences of saline infusion by the usual routes, namely, injection into the subcutaneous tissue, rectum, abdominal cavity or into a vein, impelled Schoute to seek a better technic for routine use in general practice. By the technics in vogue absorption is slow and the procedure painful, but these drawbacks are avoided by injecting the solution directly into the prevesical space, the triangular interval occupied by more or less fatty tissue, known as the pubovesical space of Retzius. By pushing the needle along the rear wall of the symphysis it enters the space in question without fail, and the fluid runs out of the needle into this space so freely that a liter can be thus infused in less than ten minutes. The tissue here is so loose that the fluid finds its way in without effort and thus the procedure is free from pain. This need not cause surprise as we know that this prevesical space serves only as a reserve space for the bladder to stretch into as it fills. The patients feel sometimes a little pressure on the bladder when the saline solution fills the space of Retzius, but the sensation is never enough to complain of. An area of dullness shows where the salt solution lies; a few hours later not a trace of it can be detected by auscultation or palpation. He has applied this method in a large number of cases and has never noted any by-effects or complications. Even if the bladder or peritoneum should happen to be pierced by the needle this would do no harm. He found the procedure extremely useful and harmless in a case of compound fracture of the pelvis and severe peritonitis in a child who had been run over by a wagon. Schoute injected the salt solution in this way for several days, until the constant vomiting could be controlled. The special advantages of this technic are thus the lack of pain or discomfort, the rapidity of the infusion and absorption, the simplicity of the procedure, and the fact that the fluid never seeps out again.

Zentralblatt für Gynäkologie, Leipsic

July 6, XXXVI, No. 27, pp. 881-912

- 122 Silver Acetate in Prophylaxis of Ophthalmia Neonatorum. (Zur Verhütung der Augenerkrankung der Neugeborenen.) P. Zweifel.
123 Technic for Vesicoventral Fixation of the Uterus. G. Walcher.
124 *Vacuum Cap for Artificial Delivery. (Ueber geburtshilfliche Extraktionen mit meinem Vakuumhelm.) Kuntsch.

124. **Obstetric Vacuum Cap.**—Kuntsch has devised a soft, suction apparatus which can be introduced folded into the vagina and applied to the presenting head of the fetus. It fits to the head and it is then pumped empty of air. The vacuum thus induced permits a firm grip of the fetal head sufficient for traction of 1 kilogram per square centimeter. This proved amply sufficient for seizing the fetus in a recent obstetric case and enabling it to be delivered by the suction traction from the vacuum helmet. In this case there was left breech presentation. In eight seconds after application of the suction apparatus the breech was safely delivered. The child weighed 7.25 pounds and its left buttock looked bluish red for a few hours but otherwise there were no signs of injury. The mother was a primipara of 32, with slightly contracted pelvis. In a second case the vacuum helmet was applied to the head and the child was delivered in ten seconds without any straining on the part of the mother and no signs of injury of the child. There was slight laceration of the perineum in this case; the patient was a woman of 21. Kuntsch deprecates any attempt to advise general adoption of this method, but he urges discussion of the principle and its possible application in the clinic if it proves as harmless as it now seems to be.

Zentralblatt für innere Medizin, Leipsic

July 6, XXXIII, No. 27, pp. 669-692

- 125 Reform in Advertising of Medicinal Articles. (Erklärung des Verbandes der chemisch-pharmaz. Grossindustrie Antwort.) F. Penzoldt and others.

Gazzetta degli Ospedali e delle Cliniche, Milan*July 2, XXXIII, No. 79, pp. 817-824*

- 126 *Artificial Pneumothorax Most Effectual Means to Arrest Tendency to Hemoptysis in Tuberculosis. (Il pneumotorace artificiale come mezzo di arresto delle emottisi tubercolari.) G. Finzi.

126. Artificial Pneumothorax as Means to Arrest Hemoptysis.—Finzi reports three cases in men between 20 and 40 and cites a few others to confirm the effectual action of the artificial pneumothorax, when conditions permit its application, in the cure of a tendency to hemoptysis in a tuberculous lung.

Revista de Medicina y Cirugia, Havana*July 10, XVI, No. 13, pp. 359-390*

- 127 Caisson Disease. (Caisson disease o paralisis de los buzos.) A. G. Dominguez.
- 128 "Infection Houses." (Casas infecciosas.) L. M. Cowley.

Hospitalstidende, Copenhagen*July 3, LV, No. 27, pp. 761-784*

- 129 *Sulphur Reaction in the Urine in Diagnosis of Cancer. (Under-søgelse over Værdien af Saxl's Svovlreaktion ved Carcinom i Fordøjelsesorganerne.) O. V. C. E. Petersen.

129. Sulphur Reaction in the Urine as Sign of Cancer.—THE JOURNAL, Feb. 17, 1912, p. 522, mentioned the sulphur reaction in the urine to which Saxl and Salomon called attention as practically specific for cancer. The technic was described in these columns Oct. 28, 1911, p. 1496. Petersen here reports his experiences with it, confirming the reliability of this method for diagnosis of cancer. He describes his technic which differs slightly from that of the originators of the method. In a group of twenty-seven persons supposedly free from cancer the findings were constantly negative in all but five; in three of these three out of five tests gave negative findings and the others only a slight indication of positive findings. In one patient with advanced cirrhosis of the liver, the findings were markedly positive on seven repetitions of the test during six weeks, as also in a fifth, although nothing was found at necropsy in either case to suggest cancer. In twenty patients with suspected cancer the reaction was positive in thirteen, variable in two, and negative in five. In nineteen cases of certain cancer the reaction was negative in only two instances, and both of these patients had intense jaundice and cachexia.

Norsk Magazin for Lægevidenskaben, Christiania*July, LXXIII, No. 7, pp. 961-1108 and Supplement*

- 130 Conception and Classification of Mental Diseases. (Om sygdomsbegrepet i psykiatrien og sindssygdomsdiagnoserne. Med et forslag til en fælles skandinavisk diagnoseliste.) H. Evensen.
- 131 Case of Sclerosis of the Brain with Myxoliposarcomas in the Kidneys and Adenoma Sebaceum. (Et tilfælde av tuberøs hjernesklerose med samtidig forekomst av nyresvulster og av en hudsygdom.) F. Harbitz.
- 132 Operative Reduction and Nail Fixation for Fracture of the Tubercle of the Tibia. (Fractura tuberositatis tibiae.) P. Bull.
- 133 Case of Addison's Disease Without Pigmentation. K. Andersen.
- 134 Case of Syphilitic Periostitis with Remittent Fever. G. Gjestland.
- 135 Case of Paralysis Agitans with Enlargement of Parathyroids. G. Gjestland.
- 136 *Duodenal Ulcer. (Statistiske data om peptiske ulcerationer, samt nogen bemerkninger om ulcus duodeni.) N. Paus.
- 137 *Thrombosis and Embolism After Operations for Appendicitis. P. Bull.

136. Duodenal Ulcers.—Paus states that in 3,000 necropsies, 1898-1911, duodenal ulcer was found sixteen times, gastric ulcer seventy-seven, and both coexisted in five cases; an ulcer in the esophagus was found but once. The frequency was thus 2.77 per cent. for the gastric and 0.73 for the duodenal in the Christiania material. The percentage of ulcer patients who succumbed to the affection was much larger in the duodenal than the gastric cases, perforation being more common with the former. He cites the details of seven typical cases, two of sudden fatal hemorrhage in the midst of comparative health. The first patient, a man of 34, had had dyspeptic symptoms for ten years, especially pain between meals. After slight hematemesis on a few occasions, he died from sudden severe hemorrhage; the stomach was found much dilated, but the ulceration was in the duodenum. The second patient was a man of 71 who for a few years had complained of cardialgic pains at times and had hematemesis on one

occasion before the fulminating hemorrhage from erosion of a vessel by his duodenal ulcer. The other Damocles sword hanging over duodenal ulcer subjects is perforation; in a case of this kind a man of 50 had had occasional abdominal pains for ten years, increasing in frequency and severity, until he suddenly collapsed, and necropsy revealed perforation of a duodenal ulcer. In all the cases summarized there had been dyspeptic symptoms for one to ten years; one patient had syphilitic changes in the arteries, especially in the aorta; one had multiple duodenal ulcers. One of the fatal cases was in a boy and one in a girl between 10 and 20, two in men between 20 and 30, four in men between 30 and 40 and one in a woman of this age. Signs of a duodenal ulcer were found in nearly three times as many men as women, while gastric ulcer was found in nearly as many women as men.

137. Thrombosis and Embolism After Appendicitis Operations.—Bull's article fills a supplement of ninety-two pages and gives a detailed analysis of the twenty-two cases of thrombosis and embolism which have occurred among his 188 laparotomies for appendicitis. In seventy-three cases the appendicitis was chronic. Palpable thrombosis did not develop until the fifth, tenth, sixteenth and thirty-fourth days, but pulmonary embolism developed the second, fourth, up to the seventh day in nine cases and in the second or third week in six. Nine of the fifteen patients with pulmonary embolism had more than one attack, thirteen attacks occurring in the first week among the nine patients and twenty-two in the second or third week among the six others. The longest interval between two attacks of embolism was twenty-one days and the shortest a few hours. The percentage of embolism cases among the eighty-eight women patients was 15 per cent. and among the 100 men only 9 per cent. Among the facts brought out by his analysis is that thrombosis and embolism do not occur after appendicectomies on children; the conclusion seems inevitable that this should turn the scale in favor of operative treatment of appendicitis in the young. They will not require an appendicectomy at the dangerous age if their appendix has already been removed. Another fact is that thrombosis does not develop in appendicitis given exclusively internal treatment; the predisposition and infection are on hand, but the supplementary factors provided by the operation are what bring on the thrombosis. Still another point brought out is that the thrombosis seems to follow the clean laparotomies just as often as the infected; also that the thrombosis may develop remote from the field of operation; the left femoral vein is affected more frequently than the right. In the two fatal embolism cases there were no signs of palpable thrombosis, but necropsy revealed the thrombosis in the pelvic veins. He emphasizes the mechanical factors in the etiology of thrombosis, and the special composition of the blood, citing O. Hanssen's experience that thrombosis never followed in any of his twenty-six patients treated by infusion of defibrinated blood for anemia, a total of sixty-one infusions. The occurrence of embolism the second, third and fourth days shows that early rising after a laparotomy will not always ward it off. One of the patients who got up the sixth day had slight embolism two days later. It is remarkable, Bull says, that all the progress realized in aseptic surgery has not reduced the proportion of cases of post-operative thrombosis and embolism. In treatment he advocates morphin as the urgent indication in an acute attack of pulmonary embolism; this helps to ensure the needed repose. Stimulants are not necessary, as death is not due to the heart but to the lungs, and the heart may continue to contract for an hour after cessation of respiration (Wolf). Gerhardt used to teach that 0.02 gm. morphin could be given in the acute attack without hesitation, even if the pulse is bad and cyanosis pronounced. Bull has followed this advice in the last few years and has had no cause to regret it. If the pulse keeps bad after the first alarming symptoms have subsided, stimulants then are in order but not saline infusion, as this imposes extra work on the already hampered right heart. The necropsy findings of multiple thrombi in one case showed that there could have been no chance recovery even if the plug in the pulmonary artery could have been removed at once.

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A BROADER VIEW OF PITYRIASIS ROSEA *

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NEW YORK

The text of my brief remarks may be found on the first page of a carefully written and valuable paper read before the Section on Dermatology, nine years ago, by Dr. Ludwig Weiss.¹ In reference to Gibert, Dr. Weiss says, "His classical description is recognized as the standard by which the affection which bears his name is diagnosed." This is an accurate statement of a fact, and against this fact or condition of affairs I would like to protest. This classical description of what is now a well-known, if not a common, affection, reads as follows:

Small furfuraceous spots, very lightly colored, irregular, hardly larger than the nail, numerous and near each other though always separated by an interval of healthy skin, pruriginous, spreading on the upper portion of the body, especially the neck, chest and upper portion of the arms, and extending in succession downward to the thighs, so that the total duration of the eruption, which disappears gradually from the parts first affected while extending downward, generally lasts six or eight weeks. The eruption, more common in women than in men, is seen more frequently during the summer season. It is chiefly seen in childhood and in individuals with delicate white skin.

After years of clinical study of this disease by competent observers both in Europe and America, is it incumbent on us still to recognize this description as our standard in the determination of what constitutes pityriasis rosea? By no means! Dr. Weiss expresses surprise that Gibert failed to describe the circinate form of lesions and adds, "As the disease, in almost every instance, occurs in the maculo-annular form we must infer that Gibert has seen a peculiar macular form of it or that there may be two forms of pityriasis rosea." I am willing to join heartily with Dr. Weiss in shouting, "Glory to Gibert!" for his early though incomplete description of the disease but must remain of the opinion that he knew far less about it than you or I and that he selected for it a rather poor name.

The name "pityriasis," meaning a bran-like desquamation of the skin, is as old as Hippocrates and most appropriate to the condition of skin to which it has so long been applied. The name "pityriasis rosea" has now been in use for fifty years and one would be rash to suggest a change even though he might regard the term "pityriasis circinata," used later by Hardy, Horand and other French writers, as a much better one. The roseate tint, seen only in the developing lesions, is by no means a

striking feature of the picture which the disease usually presents and does not compare in diagnostic importance with the peculiar outline of the lesions.

Bazin, Duhring and others have described cases of this disease under the title of "pityriasis maculata et circinata," which is unnecessarily long. While the adjective "circinata" is admirably adapted to many, if not to most cases, objection might be justly raised to the use of the term "maculata." A macule, by common consent, has long been defined as a smooth cutaneous lesion. In this strict use of the word a squamous macule is an absurdity. The lesions in the disease under discussion may be discrete and disseminate and even maculiform, but they cannot properly be termed "macular," "maculons" or "maculate." In some cases of psoriasis, the desquamation is fine and bran-like and we might as well speak of "psoriasis maculata" as of "pityriasis maculata."

But let us pass to the symptomatology of the disease which is far more important than its nomenclature. Gibert states, and so does nearly every modern text-book writer, that the lesions are isolated and of finger-nail size. This size may be a fair average in many cases but the lesions are often much larger. Sometimes they become confluent and extensive marginate patches may result, which, if the eruption has not been observed from the outset, are commonly regarded as seborrheic dermatitis.

In many cases, the lesions are punctate or guttate in size, as well as nummular, and may remain so during the course of the eruption. In most cases, a considerable variation is found in the size of the lesions as may be noted in the accompanying illustrations. The punctate and guttate varieties of the eruption are not uncommon, but the confluent and diffuse variety with a marginate border is rare, generally unrecognized and rarely mentioned in text-book descriptions. These diffuse and marginate patches may occur on both trunk and extremities, but manifest a predilection for the axilla and groin. Considering its multiform lesions the descriptive adjectives, "punctata," "guttata," "nummulata" and "diffusa" are quite as applicable to cases of pityriasis rosea as they are to cases of psoriasis.

It is indeed strange that Gibert failed to mention the circinate lesions of this disease observed by all later writers. Erasmus Wilson had previously described a circinate eruption under the name of "lichen annulatus serpiginosus," which we now occasionally see and which I believe is a circinate form of pityriasis rosea with a follicular or papular border. I present an excellent illustration (Fig. 2) of this eruption and imagine that many of you will shake your heads ominously and say that it is not a case of true pityriasis rosea. But a precisely similar lichenoid ring is seen on the thigh in the adjoining illustration (Fig. 5), and this was an almost typical case of Gibert's disease, even if it did not correspond

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Weiss, L.: THE JOURNAL A. M. A., July 4, 1903, p. 20.

with his imperfect description. The serpiginous tendency of many circinate lesions is not mentioned in the descriptions of this affection and may be well studied in the two illustrations representing the back of the same patient taken at an interval of two weeks (Figs. 3-4).

Indeed, our text-book descriptions of pityriasis rosea need many additions and corrections. In one of the best, contributed by Thibierge to "*La Pratique Dermatologique*," the writer speaks of clinical forms and mentions a superior cervical localization which never extends beyond the submaxillary region. In the last case I saw, three days ago, a woman presented elongated lesions on the neck, typical medallions on the shoulder and a fading primitive plaque on the cheek just above the angle of

tion of the inguinal region (Figs. 11-13), the first may or may not be accepted as a case of pityriasis rosea. The second would be less likely to be accepted as such were it not for the typical "primitive plaque" on the abdomen. When such an eruption becomes gradually transformed into the one seen in the next illustration (Fig. 13), which frequently happens, the disease usually changes its name as well as its character. In the illustrations showing eruption of the axilla various gradations



Fig. 1.—Pityriasis rosea of the circinate type, confluent, on chest, showing tendency to invade the axillary region.



Fig. 2.—Back of same patient.

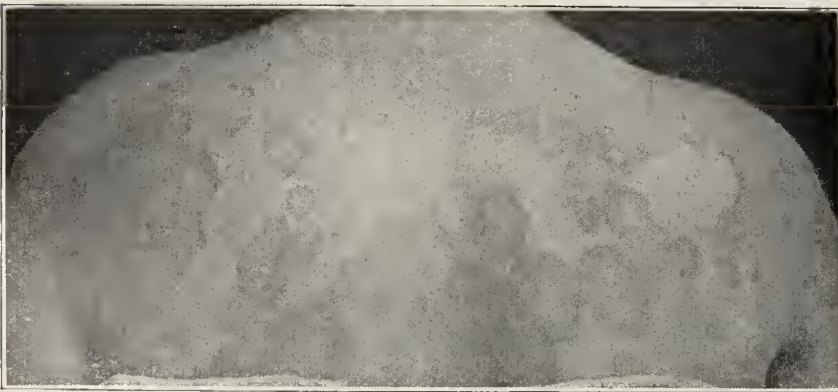


Fig. 3.—Showing serpiginous development of lesions on back of same patient.

the jaw where, as she stated, the eruption had begun three weeks before.

In speaking of pityriasis rosea of the axilla and groin I realize that I am treading on dangerous ground, and will certainly be accused of confounding diseases which are distinct clinical entities. If I were to assert that Hebra's eczema marginatum is a form of pityriasis rosea, it would doubtless suggest a commission *de lunatico inquirendo*. But I will make bold to offer the suggestion that there exists a clinical kinship and that for every step of the long distance between them a case in the clinic may be found. In the illustrations showing erup-

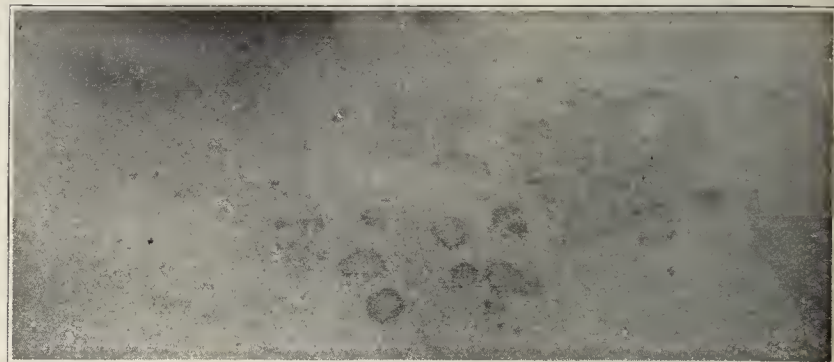


Fig. 4.—Lichen annulatus serpiginosus of Wilson (lesions on chest). Some will regard this as distinct from pityriasis rosea because it is limited in extent and runs a chronic course, but according to high authority and clinical study pityriasis rosea may be chronic and occupy a limited area.

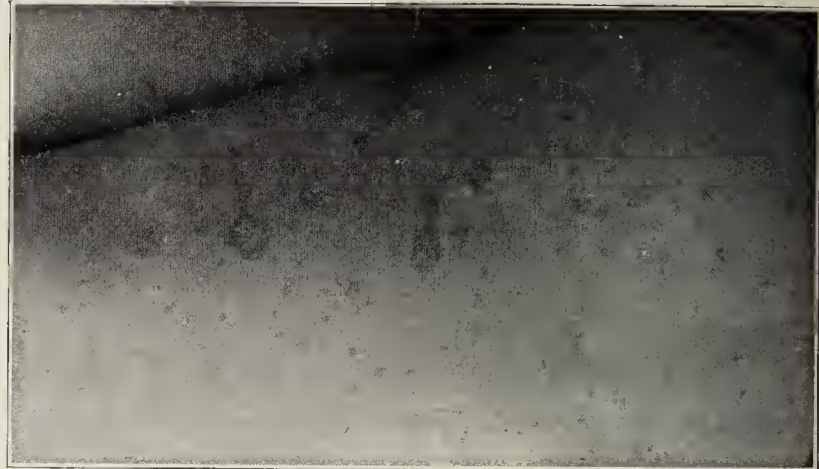


Fig. 5.—Punctate and circinate lesions on buttock and thigh. The latter are clinically identical with those seen on the chest in Case 4.



Fig. 6.—Confluent circinate lesions on arm and forearm.

between disseminate and superficial scaly patches and the large single marginate patch may be seen.

Vidal, in describing pityriasis circinata et marginata which is generally conceded to have been nothing other than Gibert's disease and not due as he claimed to a special microsporon, says that in certain regions, as the axilla and groin, the lesions may become confluent and form marginate patches and that when this affection has existed several months in the axilla or groin it may provoke an intertrigo or even an eczema, a form of Hebra's eczema marginatum. That pityriasis rosea may become irritated and eczematous, especially on the legs,

is shown by cases in which the acute inflammatory symptoms have almost obscured the original circinate eruption.

Wilson, in his description of lichen annulatus which included many features of pityriasis rosea, mentions one form occurring about the perineum which he termed lichen marginatus and points out its resemblance to eczema marginatum. Stelwagon, in discussing eczema seborrhoicum, speaks of cases in which patches in the axillæ and about the genitalia appear as flat scaly spots or papules often disk-like or circinate with but a slight or

an acute and a chronic form. It is true that the chronic form is an exception to the rule, while in lichen planus it is the acute form which is exceptional. I will not take up time by argument on this question but will merely say that in a recent glance at the literature of this subject I have found that Fournier reports a case characterized by persistence and confluence of lesions on the trunk. Hallopeau mentions a case lasting four years and Besnier claims to have seen many cases of prolonged pityriasis rosea. Men of such great experience and competence, fellow-countrymen and possibly students of Gibert, ought

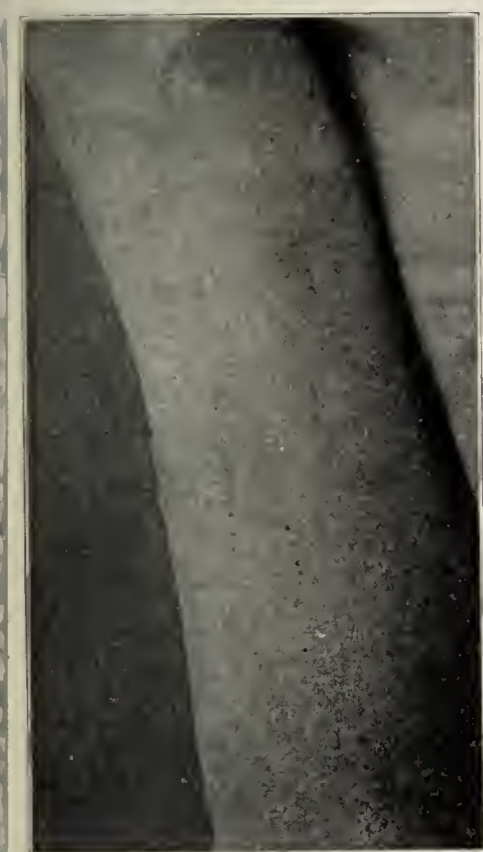


Fig. 7.—Pityriasis rosea diffusa of flexor surface of the forearm, a condition not described in text-books.

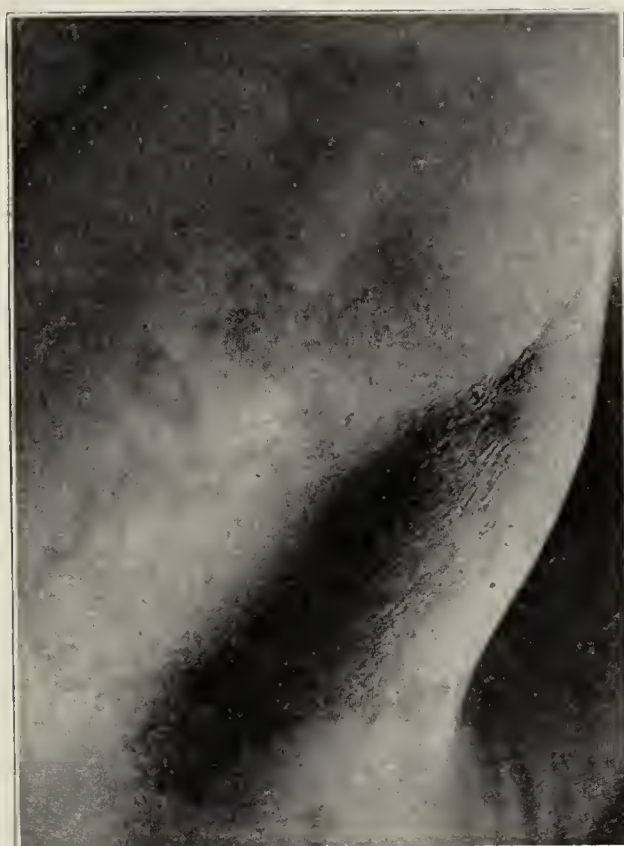


Fig. 9.—“A case for diagnosis.” Pityriasis rosea vel eczema marginatum? Lesion in axilla.

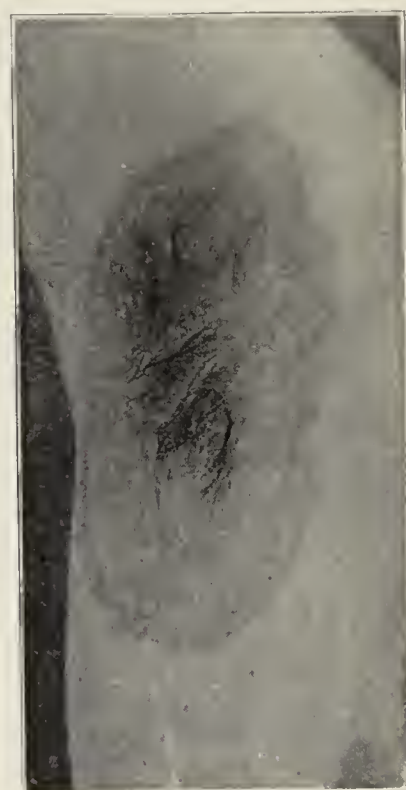


Fig. 10.—Eczema marginatum, so-called, in axilla.

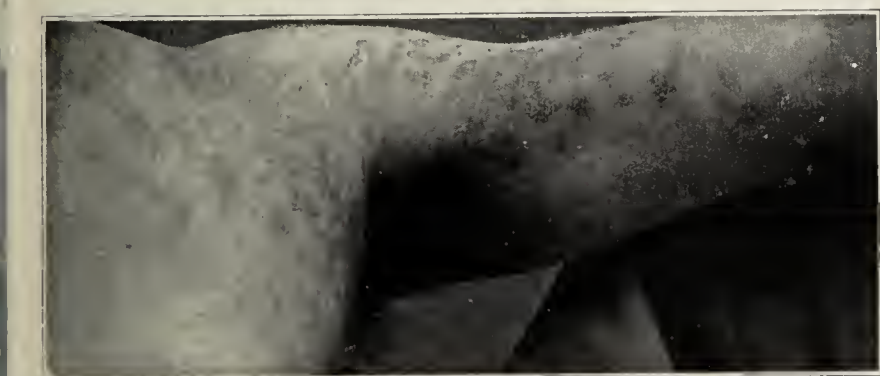


Fig. 8.—Pityriasis rosea of chest, arm and axilla.

moderate scaliness. When we consider the great similarity if not identity of these scaly rings, have we not as much reason for associating such cases with pityriasis rosea as with eczema, which is notably a disease manifesting no tendency whatever to circinate arrangement? But some one will say that these lesions, like circinate scaly lesions on the chest and elsewhere, are often persistent and do not run a definite course. This naturally raises the question whether pityriasis rosea is always an acute affection.

If we follow Gibert's definition as subserviently as many do, a case ought not to last longer than eight weeks. Should it happen to do so, it must be at once transferred to that clinical catch-all, seborrhoic dermatitis. For many years I have been convinced that pityriasis rosea, like eczema, psoriasis and lichen planus, occurs in both



Fig. 11.—Pityriasis rosea of inguinal region.

surely to know a case of pityriasis rosea when they see it.

In conclusion, I must confess my inability to state precisely what pityriasis rosea is. I have tried to show that it is not the restricted disease which is commonly portrayed in our text-books and would urge on my colleagues who are younger and more ambitious than I to write an accurate description of the disease in all its clinical phases, based on clinical study and unhampered

by the moss-grown misstatements of dermatologic literature. To the neophyte, the text-book offers a fruitful field for the study of skin diseases serving as a guide and interpreter. But for the experienced student of dermatology, versed in the literature of his subject and with eyes sharpened by years of careful observation, the clinic should take the place of the text-book as the basis of dermatologic knowledge. Unfortunately it often fails to do this. A profound respect for tradition and a slavish adherence to the views which our predecessors have expressed lead many of us to accept statements and opinions which are controverted by the facts of every-day experience. To Gibert, who first used the name "pityri-



Fig. 12.—An eruption in inguinal regions which few would admit to be pityriasis rosea were it not for the unmistakable "primitive plaque" seen on the abdomen.

asis rosea" and who accurately described some of its clinical features, great credit is certainly due. But he did not claim to say the last word respecting this disease and it is a pity that so many of us who have had equal opportunities for clinical study are so inclined to base our opinions on what Gibert and others have said instead of on what we ourselves have seen or may see in any large dermatologic clinic.

616 Madison Avenue.

ABSTRACT OF DISCUSSION

DR. A. RAVOGLI, Cincinnati: I remember that in the Vienna school, the elder Hebra called an eruption of this kind herpes tonsurans maculosus corporis, and Kaposi formerly believed that it was the same disease as that described by Gibert. I have seen several cases with peculiar, reddish-brown patches distributed all over the body, more prominent at the edges, accompanied by much itching and sometimes by scaling. In some of these lesions, at times, I have found tiny spores, probably of the herpes tonsurans; for this reason I still believe that the disease of Gibert is nothing more than a generalized herpes tonsurans maculosus corporis, which affects only the very superficial layers of the epidermis, and which disappears under proper applications.

DR. JOSEPH ZEISLER, Chicago: There is really a great deal more to this subject than is generally accepted by those who judge this disease only by what they read in text-books. I have carefully listened to what Dr. Ravogli said, because I was raised in the same dermatologic atmosphere, and I did not know what pityriasis rosea was until after I had left Vienna, although I did know what herpes tonsurans maculosus was. Since then I have learned to identify the typical cases of pityriasis rosea, those showing oval rings which run in a horizontal direction on the covered portions of the body, of a

salmon-red color and corresponding to the original description of Gibert. But occasionally I see a case about which I am in doubt, and which I would rather designate as herpes tonsurans maculosus. To illustrate the diagnostic difficulties in connection with this subject I might mention a case under my observation for several years which began apparently as a typical pityriasis rosea, but which gradually developed into a classical case of pemphigus foliaceus.

DR. H. H. HAZEN, Washington, D. C.: In my clinical work among the negroes I have seen a type of eruption that comes on either abruptly or slowly, or with dry, scaly, whitish, well-defined macules ranging in number from perhaps one to fifty or a hundred distributed over trunk and limbs, and resembling more or less a seborrheal condition. These lesions last from two weeks to several years. I have never succeeded in finding ringworm spores, and the histologic examination reveals practically nothing. Whether this is an unusual form of pityriasis rosea or not I do not know.

DR. RICHARD L. SUTTON, Kansas City, Mo.: I think we have three separate and distinct affections, acute seborrheic dermatitis, pityriasis rosea and tinea corporis. In some of these, as Dr. Zeisler has said, we occasionally have borderline cases which even an expert sometimes fails to diagnose correctly. I have no doubt regarding the clinical identity of pityriasis rosea. The cases to which Dr. Hazen has referred, I would consider as examples of seborrheic dermatitis, and some of the cases reported by Dr. Fox were undoubtedly seborrheic at base. While some of the borderline cases are not sharply demarcated, that is not a sufficient excuse for



Fig. 13.—An eruption over pubes, inguinal regions and inner surface of thighs of practically similar nature which one might justly call pityriasis rosea diffusa, but which many would call eczema seborrhoicum despite the facts that the eruption is neither eczematous nor due to a flow of sebum.

denying the existence of pityriasis rosea as a distinct clinical entity.

DR. WILLIAM S. GOTTHEIL, New York: I agree with Dr. Zeisler that the older we grow, the less can we regard the diagnosis in some of these cases as easy, yet we can recognize two distinct types of this eruption, namely, eczema marginatum and pityriasis rosea. In the first, we have a recognized parasite; not so in the latter. Pityriasis rosea runs a definite course, whether short or long, while eczema marginatum may last forever.

DR. WILLIAM B. TRIMBLE, New York: I agree with Dr. Fox, in that we should take a broader view of this condition.

These cases of pityriasis rosea are not always the same clinically. The lesions are sometimes punctate, sometimes guttate, and again annular, and they are not always confined to the trunk. I have seen them on the face and also as far down on the upper extremity as the wrist. Cases in which there are numerous small disseminated papules have frequently been called pityriasis rosea, and one such case was shown at a recent meeting of the New York Dermatological Society. I did not think the case was one of pityriasis rosea, and am still skeptical about accepting a distinct papular variety of the disease. The papular cases, I believe, belong to some other affection, which we do not as yet fully understand.

DR. HENRY C. BAUM, Syracuse: I had rather definite ideas of pityriasis rosea until two years ago, when I ran across a case which developed in a most typical manner and which has persisted. A recent photograph shows as clear and distinct a picture of pityriasis rosea to-day as it was two years ago. I have done all I could for the patient, but in spite of everything the eruption remains unchanged. This has naturally tended to shake my confidence in the correctness of my diagnosis, as I cannot explain why the eruption should persist, in spite of prolonged baths, x-ray treatment, etc.

DR. H. J. F. WALLHAUSER, Newark, N. J.: I agree with Dr. Gottheil that pityriasis rosea is really a clinical entity and quite distinct from the other varieties of pityriasis. The fact that it appears in a definite way, runs a course of several weeks and disappears spontaneously, would seem sufficient evidence to bear out this contention. I have at present, under my observation, a case very similar to the one mentioned by Dr. Baum. In this case I first made a diagnosis of pityriasis rosea, but as the eruption failed to improve I was inclined to regard it as syphilitic. I next thought of a beginning psoriasis, but it failed to respond to treatment, and after six or eight months, as no change occurred in the character of the eruption, the diagnosis was changed to erythrodermie pityriasique en plaques disséminées, which diagnosis has since been verified.

DR. GEORGE H. FOX, New York: It is easy to say that we have three distinct varieties of this form of eruption, but as long as we have confused ideas of what these diseases are, are we any better off? I think it is generally agreed that pityriasis rosea is not parasitic, but I agree that from the clinical standpoint there are some cases in which the lesions are almost indistinguishable from parasitic cases without the aid of microscopic or without long-continued observation. The borderline cases to which Dr. Zeisler referred, which we see in the clinic and do not read about in the text-books, are apt to give us a good deal of trouble. If we say that pityriasis rosea runs its course in six or eight weeks, that would settle it, but frequently it does not. We must take things as they are—not as we would like to have them—and I would suggest that some of my younger colleagues study their cases of pityriasis rosea carefully and describe them accurately, for it is only by such work that we can be delivered from many of the inaccurate statements with which dermatologic literature is filled.

Artificial Rubber.—The announcement is made by Prof. W. H. Perkin, son of the illustrious Sir William Perkin, founder of the coal tar dye industry, that synthetic rubber can now be made on a commercial basis. It has been known since 1875, says the *Scientific American*, that a certain hydrocarbon called isoprene may be obtained from rubber which can under certain conditions be reconverted into rubber. A body of chemists, including Professor Perkin, Sir William Ramsay, Professor Fernbach of Paris, and Dr. F. E. Matthews have finally perfected a fermentation process by which starchy materials made from Indian corn or potatoes and water are converted into fusel oil. The higher alcohols are separated from this by fractional distillation and are then converted into isoprene by successive treatments with hydrochloric acid, chlorine and soda lime. Polymerization is then brought about by contact with metallic sodium, forming the rubber. This latter reaction was discovered accidentally by Dr. Matthews. It is his belief that the rubber can be made for about 60 cents a pound; natural Para rubber sells at \$1.35 a pound.

AN EXPERIMENTAL STUDY OF THE TREATMENT OF CANCER WITH THE BODY FLUIDS

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AND

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On Dec. 5, 1906, we operated on Mrs. L. B., aged 43, for carcinoma of the right breast. The operation performed was a typical Halsted. The patient remained well until August, 1908, when she noticed a gradual enlarging of the abdomen accompanied by a feeling of weight and soreness, increasing difficulty with breathing, rapid heart action and occasional attacks of nausea and vomiting.

In October, 1908, her abdomen had enlarged to such an extent that her physician, Dr. Lippincott, tapped her for the first time. Dr. Charles L. Ill saw her at this time and discovered a very much enlarged and nodular liver nearly filling the entire abdomen. It was his opinion that the woman could live but a short time. Five weeks after the October tapping, she was tapped a second time. The intervals of tapping were gradually decreased until she was tapped every six days.

In January, 1910, when our attention was directed to her she had been tapped sixty-four times. At this time she was fairly well nourished and was by no means cachectic. The lips were slightly cyanosed. The breast scar was normal and showed no recurrence. Her heart, lungs and kidneys were apparently normal. No liver tumor could be made out. She was quite comfortable except when the abdomen distended with fluid. During the day she was up and about, spent much of her time sewing or reading and took her meals with the rest of the family at the table. She was tapped for the ninety-sixth time on July 7, 1910. The average amount obtained at each tapping was 10 liters.

When first seen by us a urinary analysis showed the following: turbid from amorphous urates; specific gravity, 1.026; reaction, acid; no albumin, sugar, bile pigment or blood; indican, moderate amount; urea, $3\frac{1}{2}$ per cent.; microscopically—few hyaline casts, large number calcium oxalate crystals, many vaginal and bladder epithelial cells. Repeated examinations did not differ materially from the above.

From 8 to 16 ounces was the usual quantity passed daily. On Feb. 21, 1910, an examination of the blood showed the following: hemoglobin, 70 per cent.; red blood-cells, 4,220,000; leukocytes, 4,480. The differential count was polynuclears, 76 per cent.; lymphocytes, 23 per cent.; eosinophils, 1 per cent.

The fluid removed from the abdomen was always the same in character.

Thus it presented itself to us: light milky opalescent in color; after twenty-four hours a thin layer of fat forms on the top; specific gravity, 1.006; reaction, strongly alkaline; taste, salty; albumin, 0.6 per cent.; sugar, trace; microscopically, centrifuged sediment contains red blood-cells, small lymphocytes and swollen endothelial cells.

No mitotic cell changes were discovered at any time, as is usual with fluid from carcinomatous degeneration of the peritoneum. As a culture medium it was fairly good. The fluid has remained sterile for months when kept on ice; we have used some four months old with no untoward effects—local or general.

It was our opinion that our patient had had carcinoma of the liver, but was gradually throwing the disease off and that the liver changes were due to a cicatrization producing an obstruction to the portal circulation and consequently ascites. If this patient was producing antibodies in her system, we had a chance to carry them to other patients and thus possibly produce a cure.

We knew that Dr. Hodenpyl was injecting a fluid into patients, but was keeping the matter a secret for obvious and wise reasons. It was not until the end of February, 1910, that we learned from Dr. Hodenpyl, at

a personal interview, that the fluid which he used was almost identical with the fluid we were using and that the previous histories of both patients were practically the same. The large amounts of fluid he had injected proved an encouragement to us to increase our doses, which up to that time had but in one case reached 500 c.c. This patient received this dose five times. This was, we believe, the maximum dose reached by Dr. Hodenpyl.

The fluid was drawn under the most painstaking aseptic precautions into large bottles which had been sterilized fractionally for three successive days. The fluid was then immediately placed in the refrigerator and when prepared for use was transferred to small flasks holding 250 c.c. These flasks were thoroughly sterilized before filling. It was thus that we never in our own hands had any reaction in 560 injections given, except in a couple of cases in which we allowed an intern to use the fluid. We never used any preservative since we considered our method of aseptic handling perfectly safe. All injections were given hypodermically except in Case 19, in which four injections were given per rectum, rather as an experiment than otherwise and because the patient complained of pain caused by the needle.

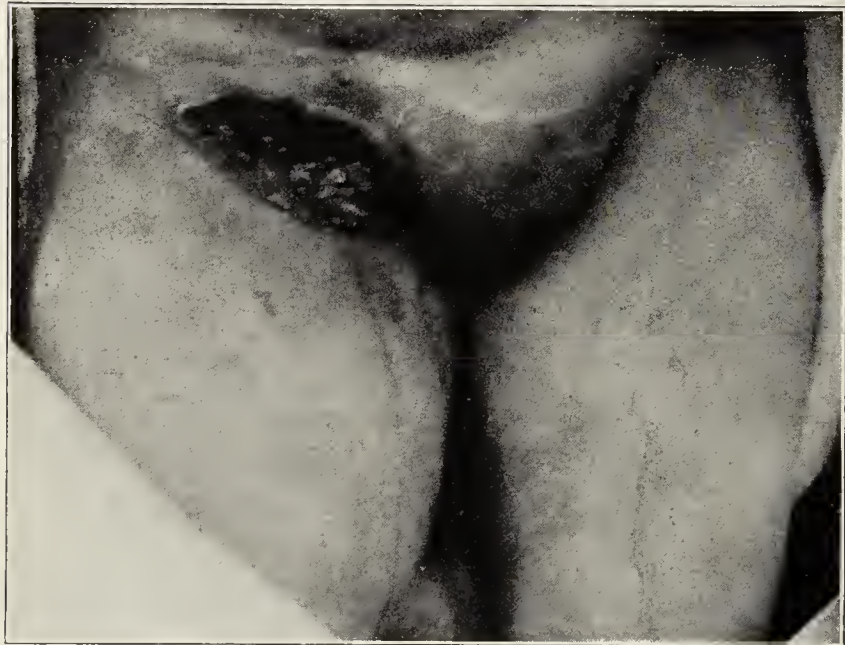


Fig. 1.—Mrs. H. G. (Case 2). Deep cavity remaining after sloughing of cancerous growth.

All injections were given by siphoning the fluid directly from the container through a sterile rubber tube, to the lower end of which the needle was attached. The container was usually held about 20 inches above the patient. The siphoning was started by the water which remained in the rubber tube as it was taken from the sterilizer. The greatest care was exercised throughout the whole process of injection to prevent any contamination. When the fluid was used as prepared by us in small flasks, we never saw any adverse symptoms as seen in other hands.

We sometimes wondered whether cancerous fluid, for such we must now consider it after the post-mortem showing of our donor, would not produce cancerous disease in the patients into whom the fluid was injected. In no instance was a tumor of any kind, except an abscess or two already spoken of, the result. What might have occurred in patients not suffering from cancer we are unable to say, for we were exceedingly careful not to use the fluid in any case of doubtful diagnosis.

The experiences observed by this treatment were very remarkable and unique in many instances—so much so

that we think the experience should not be lost and may be of use to others studying similar conditions.

We have not cured a patient and in that regard were ill paid for our very great labor. The improvement in the subjective feelings of the patients was so great that we think our efforts were not entirely lost. For instance, the pain in nearly all cases rapidly decreased. In the cases that were subject to hemorrhages, it was noted that the bleeding lessened markedly or stopped entirely. The patients usually gained flesh for a while.

In Case 2, the glycosuria disappeared entirely, though she was under a general diet. When she refused further injections, her urine promptly showed sugar again. In Case 5, there was no disappearance of sugar in the urine. When a carcinoma sloughed, as it often did very rapidly under the influence of the serum, there appeared a bright red tissue, which in macroscopic appearance simulated that of healthy granulations. Under the microscope, however, this tissue proved to be carcinomatous with large cells crowding each other closely and of remarkable arrangement. Figure 1 shows a case in question and Figure 2 the microscopic appearance of the growth which is typical of all cases we examined. Often an increased mobility was noted in the tumor. Thus in Case 3, the mobility was quite marked, so much so that we began to think of a possible extirpation. The

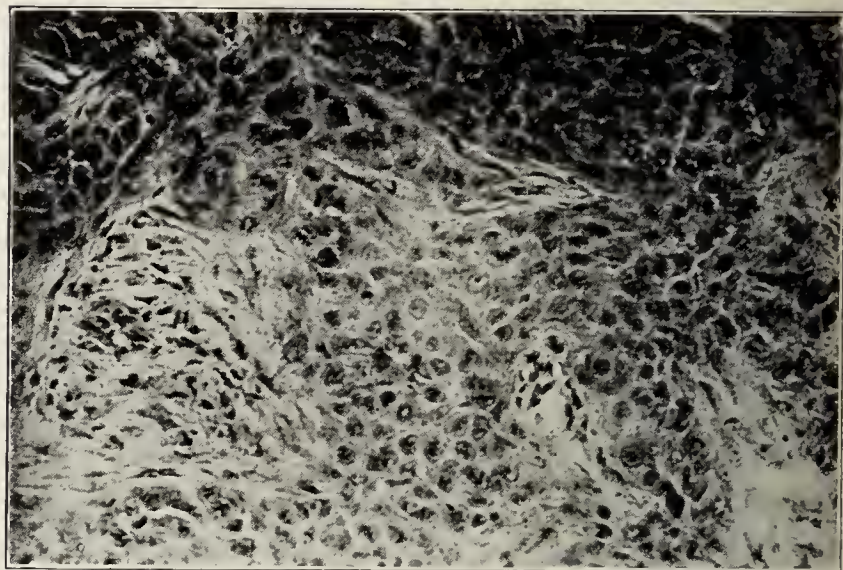


Fig. 2.—Microscopic appearance of tissue lining cavity shown in Figure 1.

diarrhea of Case 3 also became less so that he had but two to four movements a day. Some of our patients had albuminuria, but in no case did we see albuminuria as a result of the injections. None of our patients knew the character of the disease they were suffering from except one, the first case on the list. It is thus the psychic element was eliminated.

The serum was used only in cases of inoperable carcinoma. We did, however, use it in three cases of recurrent sarcoma to a certain extent for experimental purposes and comparison. In two sarcomatous cases the relief from pain was marked. In the third case of sarcoma treated by Dr. Charles L. Ill, there was no relief, possibly because at this time we feared to give large doses. We were surprised at the relief it gave to a patient with recurrent sarcoma of the vagina and scapula, which made us strongly suspect that the original cause of both sarcoma and carcinoma were the same.

When we first started the work we did so with great trepidation. Our first dose of the serum was given on Jan. 12, 1910.

CASE 1.—*Carcinoma of the Cervix*.—M. W., a widow, aged 52, mother of five children, was referred to us by Dr. C. Twitchell.

She had been sick for three years with carcinoma of the cervix, which had involved the whole roof of the vagina and pelvis. She weighed but 78 pounds. Her hemoglobin percentage was 20. A drawn specimen of urine contained a trace of albumin. This poor creature had been in bed for a long time and we expected her death almost daily. A timid dose of 5 c.c. was first injected which produced no reaction. In three days we injected a larger dose of 10 c.c. The doses were gradually increased, so that within three weeks the average dose was 500 c.c. The total number of injections given was thirty-five.

This case was one of the most promising. A steady improvement had taken place throughout the treatment. Whereas the patient was bedridden and practically moribund before the injections were given, in two months she was sitting up every day with comfort, her appetite was good, and she gained three pounds in weight and 10 per cent. hemoglobin. She was entirely free from pain, slept well and felt well otherwise. She died suddenly on March 30, 1910, from a severe hemorrhage.

Autopsy showed the uterus small and deeply excavated. The excavation was lined with what appeared on gross inspection to be granulation tissue. Microscopically, however, it proved to be carcinomatous. No cervix was present. The mass which filled the pelvis when the patient first came to us had entirely disappeared.

CASE 2.—*Epithelioma of Vulva and Inguinal Glands.*—The patient, Mrs. H. G., was 52 years old. Her urine contained a moderate amount of albumin and 2.5 per cent sugar, also many hyaline and granular casts. On Feb. 5, 1910, she received

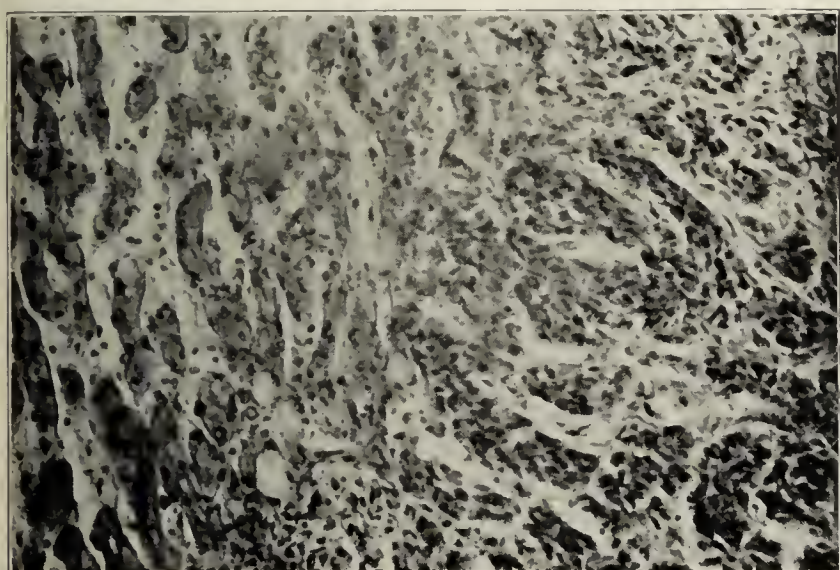


Fig. 3.—Microscopic appearance of liver from donor, showing cancerous involvement.

her first injection. By Feb. 14, seven injections had been given, two of which were given close to the inguinal glands. The glands had now begun to break down. On February 16 and 19, 500 c.c. each were given. The most prominent part of the glands had now broken down, from which there oozed a pale yellowish fluid. Microscopically, no formed elements were present in this discharge. The specific gravity of the urine at this time was 1.012; it contained no sugar notwithstanding a general diet. By March 23, she had twelve more injections ranging from 250 to 500 c.c. The sloughing of the growth had now left a deep cavity lined with what appeared grossly to be granulation tissue, but microscopically it proved to be carcinomatous. The patient's attendance now became very irregular and sugar again appeared in the urine.

She died in August, 1910, five months after the injections were discontinued.

CASE 3.—*Carcinoma of the Sigmoid.*—Mr. B. B., aged 55 (referred by Dr. H. P. Roden), for four months had had severe pain in the lower abdomen, considerable loss of flesh and much diarrhea. He presented himself on Feb. 10, 1910, with a large mass in the left iliac fossa, which could be felt through the rectum. He had from eight to ten very foul fecal and bloody discharges daily. By March 10, he had received ten injections beginning with 60 c.c. and ending with 400 c.c. The improvement was very marked. By April 16, he had received twelve more injections of 250 c.c. each. The mass was now very much

more movable. By May 16 he had received eight more injections of about the same dose and still said he felt well, but it was evident that he had lost some flesh. Seven more injections of 125 c.c. each were given by June 14.

The patient's attendance became exceedingly irregular and his general health now rapidly deteriorated. He died on July 21, from an almost continuous diarrhea. The movements were often streaked with blood.

This was one of our very hopeful cases in the beginning. The patient's improvement during the early treatment was very remarkable.

CASE 4.—*Carcinoma of the Cervix.*—Mrs. S. J., aged 50 (referred by Dr. Rogers), had a large friable mass involving the cervix and broad ligaments. Her chief complaint was frequent hemorrhages. During the treatment which extended from Feb. 14, 1910, to July 21, 1910, she had but three hemorrhages. In all she received fifty-five injections in doses varying from 60 c.c. to 500 c.c. The treatments were discontinued because our serum gave out. The patient had improved very much and gained 4 pounds. At the time of discharge the growth was much smaller and showed a deep central excavation. An examination on Oct. 17, 1911 (fifteen months after the last injection), showed an ulcerating mass nearly filling the vagina and extending out to the vulva.

CASE 5.—*Carcinoma of the Urethra.*—Mrs. Z. K., aged 53, for three years had had frequent and painful micturition and constant hematuria. She had lost 30 pounds in weight. Her urine contained 3 per cent. sugar. The entire length of the

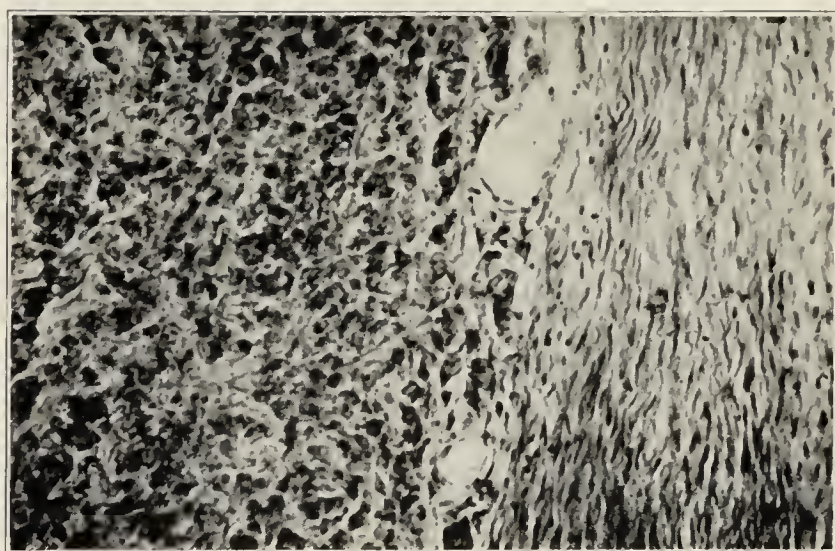


Fig. 4.—Microscopic appearance of ovarian tumor from donor, showing cancer tissue and a relatively large amount of fibrous tissue.

urethra was involved by an epitheliomatous growth which would not admit the smallest catheter. Nine injections of about 250 c.c. were given between Feb. 14, 1910, and March 15, 1910. The relief was so great that the patient left the hospital against our advice, insisting that she was well. When the patient was discharged the urine contained about 1 per cent. sugar but no blood. She states in her letter of Oct. 11, 1911 (nineteen months later). "I can say that I am feeling very well. Your treatment helped me very much."

CASE 6.—*Epithelioma of Lower Jaw.*—Mrs. M. C., aged 64 (referred by Dr. Carl Sutphen), came to us on Feb. 16, 1910, with a large mass involving the entire left side of the lower jaw. She had considerable difficulty in taking food and suffered severely from pain. In all this patient received thirty-eight injections from Feb. 16, 1910, to July 6, 1910, in doses of from 100 c.c. to 500 c.c.

Until early in June she was quite free from pain but since the serum gave out the pain recurred and the tumor took on a rapid growth. From indirect sources we have learned that this woman died in December, 1910.

CASE 7.—*Carcinoma of the Cervix.*—Mrs. J. S., aged 44 (referred by Dr. F. R. Bailey), was seen on Jan. 11, 1910, with a cauliflower growth of the cervix. The uterus was fixed and the broad ligaments invaded on both sides. In all forty injections were given, the last on July 7, 1910, when it was noted that the tumor was somewhat smaller. During the treat-

ment the patient suffered no pain whatever. Dr. Bailey reports that she died on July 27, 1911 (one year later). He remarks that he had never seen a case progress so slowly and require so little in the way of opiates.

CASE 8.—*Carcinoma of the Cervix*.—Mrs. R. H., aged 58 (referred by Dr. Charles L. Ill.), for three months had had backache and recurring hemorrhages. The growth extended deeply into the left broad ligament and culdesac of Douglas. From March 4 to March 29, 1910, she received seven injections. She refused further injections because of the soreness produced from the treatments which interfered with her work. We learned that she died one year later.

CASE 9.—*Carcinoma of Stomach*.—Mr. T. M., aged 48 (referred by Dr. Eugene Hodenpyl), for five months had had frequent attacks of vomiting and rapid loss of weight. Examination showed carcinoma of the stomach with metastases in the right lung and in an old appendectomy scar. The patient was very weak and emaciated and had moderate ascites. From March 7 to March 21, 1910, he was given eight injections in doses of from 120 c.c. to 400 c.c. He failed rapidly and died on March 24, 1910. This patient was practically moribund when admitted to the hospital, and was treated only out of respect to the physician who sent him to us.

CASE 10.—*Recurring Carcinoma of Breast*.—Mrs. F. D. W., aged 36 (referred by Dr. Livengood), had, at the time of our examination, three tumors, each about the size of a pigeon's egg, in the right supraclavicular region, a tumor in the right breast and evidence of cancer in the old scar. Her father had been operated on the year previous for cancer of the breast.

The patient received her first injection on March 8, 1910, of 120 c.c. On April 6, it was noted that the supraclavicular tumors were more freely movable and smaller. During this time she received fifteen injections, three of which were given between the clavicle and the breast. On April 22, however, it was apparent that the tumors were growing larger. In all she received 25 injections of our own serum in doses ranging from 125 c.c. to 250 c.c. On May 6, we made an exchange of our serum with that from Dr. Hodenpyl's laboratory. From this date to May 29, the patient was given eleven injections of the Hodenpyl serum in doses of 125 c.c. to 250 c.c. We noted that on May 11, the tumors were still enlarging. On May 13, she began to complain of pain in the right arm. She died several months later after the supraclavicular glands had broken down.

CASE 11.—*Carcinoma of the Cervix*.—Mrs. M. C., aged 52 (referred by Dr. H. B. Kessler), two months previously had been curetted for inoperable carcinoma of the cervix extending well out into the broad ligaments. She was subject to severe and prolonged hemorrhages which recurred one month after the curetting. At the time of our first visit her hemoglobin was but 15 per cent. The first injection was given on March 13 and the last on March 24. She received six injections in doses of from 120 c.c. to 250 c.c. While there were no more hemorrhages after the first injection, the patient died about April 1, probably from her extreme anemia.

This case showed a very marked effect the serum had on the hemorrhages for during the month prior to the first injection she flowed more or less continuously.

CASE 12.—*Carcinoma of the Cervix*.—Mrs. M. B., aged 44 (referred by Dr. Charles L. Ill.), on examination, proved to have a large cauliflower mass, very friable and extending well out into the broad ligaments. She received her first injection on March 17, 1910, and in three days reported that her pain was relieved. On March 31, she had but very slight pain. On April 6, she reported the first flow which continued for two weeks. Injections were discontinued until May 14, when it was noted the growth had severely sloughed. A deep ulcer in the center of the growth was apparent on May 21. On June 30, she received the last injection. The total number of injections was twenty-four, given in doses of from 120 c.c. to 250 c.c. The last examination showed a complete disappearance of the cauliflower mass and a deep excavation lined by bright red carcinomatous tissue.

She felt so well that she left the hospital on June 30. She died on December 4, 1910.

CASE 13.—*Carcinoma of the Cervix*.—Mrs. B., aged 42, for four months had had constant pains in the lower part of the

back and pelvis, also small but often repeated hemorrhages. Examination showed a carcinoma involving the whole cervical canal and extending somewhat into the vagina. The first injection was given March 22, 1910. At the time of the third injection, March 26, the pain was much relieved. On April 7, she reported herself quite well with a better appetite and entire freedom from pain. In all she received twenty-six injections, our serum now having given out. There were no hemorrhages during the treatment and it was quite evident the growth was held in check. She died about nine months later.

CASE 14.—*Carcinoma of the Cervix, Urethra and Bladder*.—Mrs. M. F., aged 70, for five months had had pain in the back, painful and frequent micturition and frequent hemorrhages. This patient received but four injections, the first on March 23, 1910. Three days later she reported herself much relieved and having less difficulty in urination. The treatments were stopped because the patient felt that she could not come a long distance to the hospital for them.

CASE 15.—*Carcinoma of the Cervix*.—Mrs. A. P., aged 48 (referred by Dr. Silk, Perth Amboy), for eighteen months had had small but frequent hemorrhages, pain in the lower abdomen and much loss of flesh. Examination showed a large mass involving the cervix and extending well out into the broad ligaments. She received her first injection on May 14, 1910. Three days later she stated that the pain was much relieved. She continued to come for treatment until Aug. 13, 1910, receiving a total of twenty-six injections in doses of from 120 c.c. to 250 c.c. On August 13, it was noted that the mass had apparently not changed.

There have been no hemorrhages since she came to us and relatively little pain as compared with that prior to treatments.

On Sept. 28, 1911, Dr. Silk reported that the patient was still living, that she had secondary deposits in her liver and much vomiting.

CASE 16.—*Carcinoma of the Liver*.—Mrs. M. M., aged 43, for three months had had pain in the abdomen and gradually increasing ascites, also much loss in weight. Palpable masses were easily located in the liver region. Between April 21 and April 29, 1910, four injections were given. After the last injection it was noted that she was very cheerful and thought she had not felt so well in months. Her family insisted on taking her home and she was allowed to go, treatments being discontinued.

CASE 17.—*Carcinoma of the Cervix*.—Mrs. F. K., aged 50, had been flowing almost continuously for one year. During the past month she had had severe constant pain in the back. Examination showed a large cancerous mass involving the cervix and broad ligaments. The first injection was given on June 1, 1910. One week later she reported herself as very well. On July 15, we noted that the mass had broken down and showed a deep central excavation. The patient received in all twenty-one injections of 125 c.c. each, the last on July 20 when our serum gave out. This patient was doing very well and was entirely free from pain. We were unable to learn of her subsequent history.

CASE 18.—*Recurring Carcinoma of Vagina and Pelvis*.—Mrs. E. A., aged 40, presented herself about the middle of January, 1910, with pain in the lower abdomen and back. The uterus was extirpated under the diagnosis of a cervical carcinoma, microscopic examination at that time showing a squamous-celled carcinoma. The patient returned on May 1, 1910, because of severe backache and pain in the pelvis. Examination now showed a large recurrence in the scar and in the pelvic cellular tissues. She received her first injection on May 3, the dose being 120 c.c. On May 7, she reported less pain and that she slept much better. On June 9, her general condition was much better and she had had but slight backache. The same was noted on June 18. On July 7 the mass was apparently growing and she complained of backache again. On August 9, her pains were increasing, no serum being given for two weeks. The last injection was given on August 16, our serum now having given out.

Throughout the treatment the patient's weight remained about the same. The pain was much relieved. During the latter part of the treatment, however, it was evident that the mass was enlarging. The patient died in December, 1910.

CASE 19.—*Carcinoma of the Stomach*.—Mr. L. B., aged 48 (referred by Dr. A. B. Nash), on June 4, 1907, had a posterior gastro-enterostomy and on Jan. 7, 1909, an anterior gastro-enterostomy performed by us, to relieve obstruction, in both instances. He made good recoveries after both operations and was comparatively well for a length of time. He entered the hospital again on May 5, 1910, suffering from persistent vomiting and extreme weakness. Between May 5 and May 10, he received three injections in doses of from 60 c.c. to 240 c.c. His stomach could now retain some liquid food. On May 12 and 14 he received two doses of serum from a patient suffering from cardiac ascites. From May 21 to June 13 he continued to receive the original cancer serum in doses of from 125 c.c. to 250 c.c., during which time he was able to take and retain more liquid food than formerly. He died on June 15.

An autopsy showed a very large irregular carcinomatous mass involving the pylorus and greater curvature of the stomach. The pylorus was entirely closed. A probe could be passed through the openings remaining from the anterior and posterior gastro-enterostomies. He had as little reaction from the cancer serum as he did from the cardiac serum.

CASE 20.—*Carcinoma of the Stomach*.—Mrs. M. E. M., aged 56, had pain in the epigastric region for ten years with frequent attacks of nausea and vomiting. In May, 1910, an exploratory operation by Dr. Brown showed a carcinoma involving the anterior wall of the stomach. She was admitted to the hospital where an examination showed a large mass in the epigastrium, fixed and painful. She vomited at least once every day. She left the hospital on July 23, having received twenty injections of 125 c.c. each. This patient improved very considerably under the treatment. She no longer had pain, nausea or vomiting. If anything at all, the tumor seemed smaller.

Her husband wrote us under date Aug. 4, 1910: "I take pleasure in advising you that Mrs. M. suffers no pain, eats fairly well, enjoys her food, digests it, has no vomiting spells and is quite a little stronger. She attends to her household duties, is up and about all day and every day."

CASE 21.—*Carcinoma of Vulva and Inguinal Glands*.—Mrs. E. R., aged 65, for six months had a growing tumor of the right labium accompanied by severe pain. The first injection was given on April 13, 1910. At the time of the fourth injection, great relief from pain was noted. On April 26, at the time of the sixth injection, sloughing of the entire right labium was noticed. On May 12 and May 14 she received two injections of 60 c.c. and 240 c.c. of cardiac ascitic fluid with no local or general reaction. On April 26 the patient complained of some pain again. On May 30 it was evident that she was growing weaker and on June 27 she died.

The entire right labium had completely sloughed. In this case no injections were given within 6 inches of the growth, thus no mechanical action of the fluid could have caused the sloughing. In all she received twenty-six injections of from 30 c.c. to 250 c.c.

CASE 22.—*Sarcoma of Vagina*.—Mrs. A., aged 53, was operated on by us eight years ago for sarcoma of the uterus. For the past three years she had had a profuse vaginal discharge with painful and frequent micturition, the urine being often tinged with blood, also severe pain in the lower abdomen. An examination showed a large globular mass about 18 cm. in diameter, easily made out and having its origin in the pelvis. A specimen removed from the vagina proved it to be a small round-celled sarcoma. The first injection was given on May 20, 1910. One week later the patient reported an entire absence of pain. On June 13 she informed us that she felt quite well and had a much better appetite. The freedom from pain continued until the time our serum gave out (July 16).

This case was remarkable for the entire relief from pain. The urinary symptoms were markedly benefited and the patient increased in both weight and strength. For a time the vaginal discharge ceased entirely. Notwithstanding all this the tumor continued to grow.

In all she received twenty-one injections in doses of from 125 c.c. to 250 c.c.

We could not learn of her further history.

CASE 23.—*Recurrent Carcinoma of Breast, Lung and Spine*.—Mrs. P., aged 31 (referred by Dr. Sarah Mead), was operated on elsewhere three months before coming to us. In a communication from her doctor the diagnosis was given as adenocarcinoma of the right breast.

For a few weeks the patient had complained of agonizing pain in the spine at the level of the eighth dorsal vertebra. She was unable to sit up in bed and suffered severely from pain when she attempted to turn on either side. When assisted to a sitting posture, she was unable to remain there owing to the same pain. She had perfect control over the bladder and rectum, but only partial control of the lower limbs.

An examination showed carcinomatous involvement of the old breast scar and left breast, dullness over the apex of the right lung and exquisite sensitiveness over the eighth dorsal vertebra.

The first injection was given on June 21, 1910. On June 29 she sat up of her own accord and with apparent comfort. On July 6 she had no pain, felt fairly well, but was weak. On August 10 it was noted that the increase in growth of the tumor in left breast and scar of right breast was tremendous. The patient died on August 23. The remarkable freedom from pain for the first three weeks was astonishing. In all she received fifteen doses of about 150 c.c. each.

CASE 24.—*Carcinoma of Uterus*.—Mrs. F., aged 48 (referred by Dr. J. Haydon), for six months had had pain in the lower abdomen and pelvis. Examination showed a large, hard irregular friable mass involving the cervix and both broad ligaments. The first injection was given on June 23, 1910. On June 30, she felt much better, but still had some backache which persisted throughout the treatment. The last injection was given on July 22 when the serum gave out. There was no apparent change in the tumor during the month's treatment. The patient received in all fourteen injections of 150 c.c. each.

This was the only case in which there was no marked relief from pain. She died during the summer of 1911.

CASE 25.—*Carcinoma of Stomach and Liver*.—Mrs. H., aged 60 (referred by Dr. Roden), for ten months had had pain in the liver region. She was deeply jaundiced and had a large nodular mass in the right hypochondrium. On June 24, 1910, she was given the first injection and on July 5, the last—four in all. No change in the tumors was recorded. An exploratory incision by Dr. Charles III on August 4 showed extensive cancerous involvement of the stomach and liver. This was done more to end a dispute as to the diagnosis than with any hope of a curative effect.

CASE 26.—*Recurring Sarcoma of Spine*.—Mr. E. R. C., aged 20, was operated on by Dr. Charles III, Nov. 30, 1909, for sarcoma of the coccyx. There was almost immediate return both locally and generally, accompanied by severe pain. The patient was given large doses of the serum without the slightest relief from pain, nor did a dram of morphin given during the day have much effect on him. He died in a short time.

CASE 27.—*Recurring Sarcoma of Scapula and Lung*.—Y. M., female, aged 12 (referred by Dr. M. Seidman), was operated on Dec. 12, 1909. We did a total extirpation of the uterus, ovaries and tubes for sarcoma of the uterus, which proved to be of the small spindle-celled variety. On June 12, 1910, she came to us with a recurrence in the right infraspinatus muscle which gave her severe pain on motion of the arm. The tumor was the size of a hen's egg. There was also an involvement of the upper lobe of the left lung. The first injection was given on June 12, 1910, which gave immediate relief from pain. On June 20 the patient's mother reported great improvement. The pain in the arm had entirely disappeared; the patient slept better and felt better otherwise. On June 29, and subsequently, a rapid growth of the tumor is noted. On July 6 the pain recurred and anodynes had to be given. She died on August 2, 1910.

We feel that the psychic effect can be excluded in this case, the patient being a mere child and certainly not aware of the nature of her illness.

In all, twenty-seven patients were treated by us, some to the fatal end of their illness or else to the time the serum gave out. Besides this number of cases treated,

others were treated by the late Dr. Samuel Alexander of New York, Dr. James Ewing of Cornell, Dr. F. R. Bailey of Columbia University, Dr. William T. Cladek of Rahway, N. J., Dr. Bancroft of Orange and Dr. Charles L. Ill, of Newark. Some of the fluid was also used by Dr. Eugene Hodenpyl's assistants at Roosevelt Hospital, New York.

We wish to thank Dr. Ewing for the very great interest he took in the fluid and for its experimental use.

Dr. Samuel Alexander kindly consented to use the serum on six of his patients for inoperable cancer of the bladder and prostate. All of his patients knew the character of their disease. In none of these cases was the growth arrested. In two of the bladder cases there was marked local reaction, pain and hemorrhage with a discharge of cancerous material in the urine. They all claimed to have received benefit immediately following the injections; that is, they had less pain and less frequency in urinating. Dr. Alexander says in his letter of Oct. 30, 1910, "I am convinced that except for the moral effect of the treatment, I have seen no improvement." In an earlier letter, however, dated June 11, 1910, he says, "I cannot report any cures, but I can certainly interest you in telling of the improvement which has occurred in these cases of cancer of the bladder."

The patient from whom we obtained the fluid died suddenly on July 12, 1910.

An autopsy five hours after death showed that the peritoneal cavity contained 12 liters of the milky fluid already described. The peritoneum was everywhere much thickened. The intestines were studded with small yellowish-white bodies raised from the surface and ranging in size from a pin-head to split pea. Many translucent vesicles filled with a viscid straw-colored fluid were scattered over the inferior surfaces of the liver, spleen, transverse colon and mesentery. The intestines were adherent in many places to adjacent organs and to the parietal peritoneum. The pelvis was occupied by two nodular ovarian tumors connected by a third intervening tumor. The liver was but two-thirds the normal size; its surface was smooth and borders rounded. The gall-bladder was contracted. On section, the liver presented a nutmeg appearance, with many white areas of fibrous tissue projecting inward from the surface in a branch-like manner. The spleen was moderately enlarged and dark red in color. The kidneys were very pale in color but otherwise looked normal. Sections from the liver, ovarian tumors and intestinal nodules were all carcinomatous. Fibrous tissue was very much in evidence surrounding the cancer cells. In addition the liver showed extensive fatty degeneration. By request the thorax was not opened.

The accompanying microphotographs were made by Dr. H. S. Martland.

1002 Broad Street—448 High Street.

THE STATE INSTITUTIONS AND SOME OF THEIR PROBLEMS WHICH MEDICAL MEN MAY HELP TO SOLVE *

A. L. BOWEN

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From a position of obscurity in the field of public charity, Illinois has within recent years bounded into one of prominence in the nation and the world. As a result of improvements in the service and physical plant of our institutions amounting almost to a revolution, during which the entire system of administration has

been transformed to comply with more modern thought and demands, Illinois to-day is considered one of the leaders in the new movement.

A formal catalogue of all that has been done or is in process to make the physical property efficient and the medical and nursing service comply with modern ideals is an array too long for publication here. It represents that which can be done with money and brains, properly combined and mixed with good business judgment and honesty of purpose and intent. All these things were necessary preliminaries to the greater and more difficult problems which progress encounters. We had to have these things and we had to do these things to furnish us the facilities and the means with which to solve these problems.

There are now two questions of great moment: first, the practical one of financial burden which the growing class of mental defectives and moral delinquents is piling up on the taxpayer; and second, that of our moral responsibility toward this burden, involving the query, What are we going to do about it? It is with the second question that this paper will deal primarily.

MEDICAL MEN AND PUBLIC OPINION

We have had the support and sympathy of men of medicine all through this period of rehabilitation and improvement. What the state has been doing has appealed to you as right, just, humane and necessary. Some have complained that progress has not been fast enough. Some eminent physicians to-day are criticizing the state for defects in the system which are admitted to exist. And they must exist for a long time to come; for it is easier to point out defects than it is to repair them—easier to advocate reforms than it is to put them into effect. The charity authorities of the state cannot move faster than public sentiment will warrant.

After all, improvements in the service and progress in lessening this burden depend on an enlightenment of public opinion. The people must understand these questions better; they must know what is responsible for mental breakdown; they must know what they must do to prevent that portion which we know can be prevented; they must know what is the correct attitude toward the acutely insane patient both before he enters the state hospital and after he leaves it, marked either "recovered" or "improved." It is necessary that the people learn to accept the correct idea of insanity and view from a different point the state institutions and the public agencies at work within them.

The county medical society is a center of information on questions of public health. It is daily disseminating knowledge on this subject. The relation of private and public health to mental defectiveness or mental breakdown is fairly well understood by the profession but not by men and women in the average walks of life. There is no one who can tell these people so well as the county medical society what are the rules of good health, physical and mental hygiene and sanitary environment, how necessary it is to observe them, and what their violation or neglect entails. The relation between so many of the bodily ills and mental and nervous diseases is so pronounced that physicians and laymen alike cannot know too much about it.

IMPORTANCE OF CHILD WELFARE

The child is the seed from which grows up the sound, self-supporting citizen or the mental defective, the insane, the delinquent. We have been paying all attention to the treatment and care of the finished product

* Abstract of a paper read before the Williamson County, Ill., Medical Society, April 23, 1912. A copy of the complete paper may be had on application to the State Charities Commission.

of unwholesome living and none to the potential elements which are forming in the child at our feet.

The demand to-day is for child welfare. The hope of the student in mental and nervous diseases with all their involvements of moral delinquency, racial degeneracy, public burden and the like is the child. The salvation of the child depends on home environment and school training, in both of which the physician in the community has a right to exert the great power of his influence and knowledge.

Unclean physical environment is the soil of unclean moral health. Unclean physical and moral environment of the child means an enfeebled adult mind and body. It germinates the unclean mind and the unclean act follows, from which to the moral obliquity which produces the degenerate, the delinquent and the criminal or what is equally as bad, the feeble-minded youth or the insane adult, there is only one short step. In either case the child has become a menace to society or a charge on the state.

DUTY OF THE PHYSICIAN

There is no man in the community so well equipped as the physician to carry to the fireside the truths of physical and moral health, or tell the parent his duty and responsibility to the young child. He can instruct in the simple principles of hygiene and sanitation. He can impart to the parent the truths of heredity and its influence on the mind and future conduct of the child. He knows and can tell some of the sure and certain ingredients of an unstable and broken-down mind. He knows the effect of the excessive use of alcohol. He knows what venereal disease will do for the nervous and mental system. He knows what the toxins of internal secretion, stimulated by improper living and violation of health laws, will do. He knows, too, what injury stress, so often preventable, leaves on the mind.

The medical society in each county should never yield one inch in the fight on the advertising quack and advertised cure-all. These two sinister agents are shaping the material for the asylums and colonies. Their lying advertisements in glaring type in newspaper and on bill-board are carrying to the public false information about health and living. They are doing more to counteract the efforts of the state and science than any other dozen influences combined. Their attitude toward life and the public is vicious. They have masked themselves behind an honorable profession for the purpose of plundering and robbing the innocent and unsuspecting. With fiendish cunning they employ the arts of psychology to ensnare their victims. It is a remarkable fact that the majority of the public will believe and act on the statement of the quack or the nostrum-maker and turn a deaf ear to the advice of the honorable practitioner.

These men are contributing to the nervous and mental wrecks of our country at a frightful rate. They are laying the foundation of public health degeneration, carrying with it all that goes with enfeeblement of body and mind. They deserve the scourging of society. No more important work confronts the practicing physician than that of exterminating by force of public opinion and the act of wholesome legislation the quack and the nostrum.

TREATMENT OF THE INSANE

The public must learn that insanity is no more a disgrace than is typhoid fever or diphtheria, and not so much so as those diseases which spring from insanitary surroundings. They must know that it is a disease

or a symptom of disease or diseases. It must be treated as diseases are treated, skilfully, scientifically and sympathetically. The patient must not be feared. He should not be tied up because he acts queerly. He should not be hurled into a dirty, filthy jail among a crowd of drunken sots or petty offenders.

More damage is done to the acutely insane patient during the first few days of the manifestations of his trouble than can possibly be estimated. Patients come to the state hospitals in a frightful condition, run down in physical health, probably through the fault of an advertising quack or the evils of a nostrum. They have broken bones and scarred limbs. They are tied hand and foot and strapped to the conveyance.

I cannot describe to you adequately in this short time the cruelties and inhumanities which are practiced on the insane during the interim between the first onset and their admission. Many families foolishly attempt to keep their friends at home. The disorder or disease is all this time rapidly growing worse. The time for treatment is in the early days of the disease. The sooner the mentally afflicted reach the receiving ward of the state hospital, the greater their chances of recovery. It seems to me that the physician's duty in this matter is to recommend early transfer to the state hospital. I believe you realize this, but you hesitate sometimes because of the prejudice and stigma attached to hospitals for the insane.

PSYCHOPATHIC WARDS AND PSYCHOPATHIC HOSPITALS

Along this line of early treatment various ideas have been advanced. One is that psychopathic wards should be attached to general hospitals. In some places this experiment is being tried. The results are not definite enough to warrant a judgment.

Claims of cures which sound extravagant are made by some. The statistics may be correct so far as they go, but they do not indicate what class of patients have been under treatment. Such wards usually take only hopeful cases. They are located in the great cities and receive a great many alcoholics. The victims of dissipation, either in strong drink or the frivolities of high-strung social life, are not averse to entering such wards. All these classes are hopeful and the recoveries, of course, form a large percentage of the admissions.

There are arguments both for and against the psychopathic ward of the general hospital, but I shall not undertake at this time to discuss them.

Another plan is for the state to establish psychopathic hospitals in various parts of the state for the reception of nervous and mental cases in their incipency, such admissions to be purely voluntary and without court proceedings.

If the public abhorrence of the state hospitals could be removed, the number of voluntary admissions into them would greatly increase and it would be possible to establish in them such strictly psychopathic wards.

Under the improvement which has taken place in recent years in public sentiment and in the greater confidence the people are learning to have in our state hospitals, the number of voluntary admissions has been steadily increasing; they average one a week at Kankakee, and the psychopathic ward problem will probably solve itself.

It is evident that the public attitude toward these hospitals and toward the insane man and his affliction can be radically changed; for in the last twenty-five years it has been radically changed for the better. We must keep hammering away at the unjust barriers.

Until the public has shifted its view of the state hospital and has come to regard it as a real hospital for the treatment and possible cure of an affliction that is not a disgrace and should not carry any stigma after recovery, the disposition will be strong to avoid the hospital until the last minute, when perhaps the chance of hope has departed. It becomes necessary that the medical society give its aid and assistance in thus changing the attitude of the public toward these institutions.

Treatment of the patient after he reaches the institution depends, of course, on the diagnosis. The diagnosis depends in large part on the history of the patient. This history the members of the family are frequently unable to give. They do not understand the necessity of many of the questions. Some of the queries are offensive, such as, for instance, whether or not the patient has ever had a venereal disease, and whether or not there is any trace of syphilis in his ancestry. On the intelligence and fulness of the history which family and physician can give depends the character of the early treatment.

If the patient recovers or improves and is able to return home, there should be in the community welcoming hands to support him. He is still a sick man in need of encouragement, sympathy, help and nursing. In his case the community as a whole must be nurse and support.

In some states, throughout the cities and towns, societies have been formed whose duty it is to look after the paroled, improved or restored insane patient. They are doing good work and accomplishing results. These societies aid the hospital in collecting a patient's history. They assist in changing a hostile into a sympathetic public. They are bringing about a revolution in the public attitude toward these institutions and the insane. They are likewise spreading the known facts about insanity, its causes and its prevention, and the manner of treating the patient in the early days of his affliction.

PSYCHIATRY IN MEDICAL COLLEGES

Physicians can give to this campaign a force and directness that no other single class in society can furnish. But while we speak of the duty of society and the problems of educating the public to new views, we must not forget the training and education of the physician himself. Every medical school should have a course in psychiatry, and no medical education should be considered complete that lacks training in this branch. It should not consist of perfunctory lectures and abbreviated instruction, made to satisfy the form rather than the spirit of the demand of the day.

Few colleges have adequate courses in psychiatry. Medical students seem to shun what there is. The courses as designed are inefficient in most cases because they lack the clinical facilities. These faults may now be removed by cooperation and coordination with the state institutions, and by the organization of psychopathic wards in the general hospitals. Psychiatry should be made necessary to graduation. It is unnecessary to dilate on this subject. It must be apparent to every intelligent man that a medical education which does not provide the young practitioner with the latest knowledge in mental and nervous diseases and how to treat them is woefully deficient. Every medical society in the state might well lend its support to this movement. You all are interested in higher standards of medical education. You desire that those who come into the profession shall be as fully equipped to meet the medical problems of the

day as it is possible to equip them. Why neglect psychiatry?

I have mentioned in passing the psychopathic ward in the general hospital and have observed that some success has followed efforts along this line in the larger cities. These could afford the medical student the clinic he so much needs in the study of nervous and mental affliction. There is a demand in Illinois that the state create a distinctly psychopathic hospital in Chicago, to be followed later by similar hospitals at several centrally located cities down the state. The sentiment of the medical profession, I believe, will sustain the general assembly in voting the money for such institutions.

Meanwhile our state authorities would welcome a closer union between practitioners and the state institutions. These hospitals are open to your inspection and examination, and it is the desire to make the service within them such as will attract the very brightest of the intern class and the most ambitious of the younger practitioners.

THE BACTERIAL ETIOLOGY OF ACNE VULGARIS *

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A critical review of the literature on the etiologic significance of certain organisms found in acne causes one to wonder if we all mean the same disease when we say "acne vulgaris;" and the numerous opinions on the efficacy of bacterins as a therapeutic agent increase the confusion of a very perplexing question.

That there are three forms of microorganisms constantly present in the comedo is accepted by all investigators of the subject: a small bacillus, a coccus, and that yet mysterious thing known as the bottle bacillus. The last-named, because of its presence in larger numbers and its more fully developed forms in other regions than that occupied by acne, is discarded as having no influence on the disease. The second, the coccus, until recently was classed as one of the staphylococcus group; and while some believed it to be the cause of suppuration, all were agreed that it took no part in the production of the comedo. The first, the bacillus, since it was first discovered by Unna, has been the bone of contention; and the conclusions reported by the various students of the subject as to its morphology, its cultural characteristics, its response to serologic tests and the result in inoculation experiments on animals create a doubt in the mind of the reader as to whether they were all dealing with the same organism.

LABORATORY RESEARCH

Unna¹ in 1893, while making a histologic study of the comedo, discovered a bacillus which he believed to be the causative factor, not only of the comedo but also of the acne pustule. He named it the acne bacillus and described it as being from 0.6 to 0.75 micron long by 0.33 to 0.5 micron broad surrounded by gloea with deeply staining points. He did not cultivate the organism, but Engman working in his laboratory at that time succeeded in obtaining growths, but always in the presence of other organisms. On leaving Hamburg, Engman turned his

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Unna: Histopathology of the Diseases of the Skin, 1894.

preparations over to Hodara who continued the work and published his findings and conclusions in 1894.

Hodara² worked entirely with the comedo and not the acne pustule. His description of the location of the different bacteria in the comedo agrees with that of Unna—the bacillus was always found at the bottom or fundus, the others being more superficial—while he noted a coccus which in culture gave a “milk-white growth” and whose characters were not like the staphylococcus. He concluded that it and the bottle bacillus were saprophytes. His description of the bacillus was that the average size was 0.7 micron long by 0.3 micron broad, surrounded by glæa, curved or bent, the larger having transparent centers with deeply staining ends. Because of its position in the comedo he thought it an anaerobe and attempted that method of culture without success. He succeeded, however, in obtaining poorly nourished cultures by placing the comedo in absolute alcohol for from two to four days and then planting it on agar plates. The organism began to develop in forty-eight hours. He believed it to be the cause both of the comedo and of acne pustule.

Two years later, in 1896, Lomry³ made what seems to have been an exhaustive study on acne and its bacterial flora. He found numerous organisms both in the comedo and in acne pustule, but the most constant inhabitant of these lesions was a coccus which developed as a white colony on agar. This coccus would not liquefy gelatin or kill rabbits in large doses and he began to doubt his first opinion, that it was a staphylococcus. But by increasing the dose to three full cultures the animal died and he regained the organism, and by passing it through numerous animals it increased in virulence until 0.025 c.c. was sufficient to kill. In the same degree that the virulence increased the growth changed color until it became a distinct yellow. He denies Unna's bacillus any part in the production of either the comedo or pustule. From its morphology and cultural characters he considered it a member of the colon group, but it would not grow on potato, produce gas in presence of sugar, or coagulate milk. By subjecting it, however, to the same conditions that he had the coccus, the passing of it through several animals, it conformed to all the usual tests for the colon bacillus. Finding the same organism on apparently healthy skin that he had observed in the comedo he drew the conclusion that the latter was not of bacterial but mechanical origin in a susceptible individual.

This was followed in 1897 by the work of Sabouraud⁴ on seborrhea. In his opinion seborrhea is the primary condition and is due to a microbacillus which is identical with Unna's. He describes it as follows: “The young forms are point-like and comparable to a coccus; the full-grown microbe is 1 micron in length by 0.5 micron broad, and has a capsule which is easily stained with gentian-violet.” Cultures which he made on a special acid glycerin agar were never free from a white coccus until he adopted the plan of placing them in an autoclave for ten hours at a temperature of 65 C., the thermal death-point for the bacillus being 70 C. According to Sabouraud, the initial stage is the oily seborrhea; this is followed by the cocoon, and the comedo is not only the highest anatomic and microbic expression of seborrhea, but also the degenerated form. He classes the coccus he found in the staphylococcus group, although it preferred an acid medium and the cultures had a butyric

acid odor, and he ascribes the suppuration in the pustule to its presence.

In the same year Beck,⁵ working in Unna's laboratory on resorcin-peeling paste, from the peeling of which he made bacteriologic and histologic studies, found even from the faces of those who had neither seborrhea nor acne and on whom he had applied the paste seven or eight times, a bacillus which he identified as Unna's acne bacillus and Sabouraud's microbacillus. He concluded that it was always present in the sebaceous follicles of adults and therefore a saprophyte, but might under certain conditions become pathogenic. Unna in a personal letter, dated April, 1912, says that after carefully reviewing Beck's work he abandoned the bacillus as a causative agent in seborrhea or acne and considered it a fat saprophyte.

Gilchrist⁶ in 1899 found a special bacillus in smears from ninety-six pustules from fifty-six patients which he named *Bacillus acne*; fifty-four out of ninety-six cultures were sterile on agar, eleven gave a culture of the special bacillus on glycerin agar and thirty-four gave growths of staphylococcus on slant agar. The pure cultures were obtained from pus from nodules transplanted *en masse* on glycerin agar. He describes the bacillus as short and thick in smears, longer, thicker and branched in cultures. No capsule could be demonstrated. Inoculations in mice and guinea-pigs were successful, the animals dying in about a week; pure cultures were obtained from the different organs. In 1903 he confirmed his previous work. Cultures were taken from 145 lesions from thirty-one patients with the following results: Fifty-two gave pure cultures of the bacillus, twenty-eight were sterile, forty-four gave mixed growths and twenty-one *Staphylococcus albus* only. In histologic specimens from nodules he found the bacillus deep in the corium beneath the follicle, and many of the giant cells found contained the same organism. Agglutination tests in the dilution of from 1:10 to 1:100 gave positive reaction.

In 1900 Bollack⁷ was unable to obtain culture by Hodara's method. Even after placing the comedo in absolute alcohol for four days and transferring it to mediums it yielded growths of staphylococcus, but he succeeded when Sabouraud's technic was used and identified it as Unna and Sabouraud's. Inoculations were negative and he concluded that the comedo was not of bacterial origin and the pustule was due to ordinary staphylococcus.

In 1902 Schamberg⁸ found a bacillus in the sebaceous follicles of 90 per cent. of fifty individuals which was apparently identical with that described by Unna and Sabouraud. He describes the organism as 1.25 to 1.5 microns long by 0.33 to 0.5 micron broad surrounded by a capsule that stains with gentian-violet. He was unable to obtain cultures, and questions it as an etiologic factor in comedo or acne.

Söllner⁹ in 1904 tested for their hemolytic and agglutination properties several cultures of cocci from comedones and acne pustules against the blood of rabbits injected with a 14-day-old culture of various pus-producing cocci, and in nearly all of these experiments his results were negative. He concluded that the pus formation in acne could not be due to staphylococcus, and from his researches, while not denying it an etiologic

2. Hodara: Monatsh. f. prakt. Dermat., 1894, p. 573.

3. Lomry: Dermat. Ztschr., 1896, p. 446.

4. Sabouraud: Ann. de l'Inst. Pasteur, 1897, p. 134.

5. Beck: Monatsh. f. Prakt. Dermat., 1897, p. 601.

6. Gilchrist: Tr. Am. Dermat. Soc., 1899; Jour. Cutan. Dis., 1903, p. 107; Jour. Cutan. Dis., 1910, p. 568.

7. Bollack: Inaug. diss. d. med. Facult. Kaiser-Wilhelm's Universität, Strassburg, 1900.

8. Schamberg: Jour. Cutan. and Gen.-Urin. Dis., 1902, p. 99.

9. Söllner: München. med. Wchnschr., 1904, p. 1680.

significance, he was unwilling to ascribe the suppuration to a constantly occurring coccus that gave a white culture. Söllner says that not one but several bacilli can be obtained from the comedo and acne pustule. Using Hodara's method he obtained five strains which formed spores. They were larger than Unna's, motile, produced no gas or indol, coagulated milk and were Gram-negative. Agglutination tests were negative. He questions Lomry's statement that Unna's bacillus belongs to the colon group.

Hallé and Civatte,¹⁰ working in Darier's laboratory in the Broca Hospital in 1907, found a strictly anaerobic bacillus in the sebaceous follicles on the face of all skins examined, as well as in the comedones. They identified it as Unna's bacillus but not Sabouraud's. They succeeded in cultivating it anaerobically in various mediums, but all attempts to obtain primary growths or subcultures aerobically proved unsuccessful. They describe it as a non-motile, Gram-positive organism. The young form is short and stumpy, the older about the length of a tubercle bacillus, but thicker. They found an aerobic bacillus which was not constant and which they recognized as the common, pseudodiphtheritic bacillus. The coccus that was constantly present in their aerobic cultures they class as the polymorphic staphylococcus of Cedercreutz.

Unna¹¹ in an article on acne in 1908 ascribes to the coccus that "always gives a milk-white culture" and which is found "constantly in the outer horny layer of the comedo," not only the hyperkeratosis found in the comedo, but the suppuration and granuloma formation.

In 1909 Flemming's first work¹² on the etiology and treatment of acne appeared. In his opinion the comedo and pustule are due to a bacillus which he describes as from 1 to 3 or 4 microns long and 0.5 micron broad. It is weakly Gram-positive, the older forms showing one or more evenly stained dots which may be situated at the poles or distributed along the whole length. The arrangement of the organism is irregular, as it appears singly, in pairs or in large irregular groups.

The microscopic characters of the bacillus in pus films and smears from cultures were similar to the diphtheroid bacillus, and in his opinion it probably belongs to this group. Flemming found it in the pus cells. In 44 per cent. of the pus films examined the bacillus alone was found and in 53 per cent. both bacillus and staphylococcus were observed. On a special acid-serum agar he obtained pure cultures. His agglutination tests were positive in some cases. Inoculation tests with guinea-pigs were negative but he transferred a pure culture to an arm and produced pustules from which he recovered pure cultures. He also noted a coccus which would not liquefy gelatin.

In the same year Südmersen and Thompson,¹³ working with two strains, one obtained from Dr. Spetta of St. George Hospital, found that the bacillus showed different forms according to the medium used for its cultivation; in one of their photomicrographs distinct branching forms are observed. Anaerobic cultures were uniformly successful and after a few generations of anaerobic cultivation on acid-serum agar it would grow equally well aerobically. Six-day cultures of their own strain on acid blood agar were not pathogenic to rabbits or guinea-pigs but were fatal to mice; the organism was

regained from the spleen. Südmersen and Thompson suggested a probable relationship of their organism to the *B. diphtheriae*.

In the same year Hartwell and Streeter¹⁴ worked with the organism and asserted that it was strictly anaerobic.

In January, 1910, Western¹⁵ in an article on "The Vaccine Treatment of Acne Vulgaris" accepts the acne bacillus as the cause of the comedo and pustule.

Molesworth¹⁶ also in 1910 describes the cultural characteristics of the microbacillus. He cultivated it in 2 per cent. glucose agar but always anaerobically either in deep shake tubes or stabs or slopes incubated anaerobically. It would never grow aerobically. He obtained a culture from Sabouraud from which he made cultures in a similar manner, but cultures obtained from Flemming of his bacillus would not develop under anaerobic conditions. These cultures were all shown to Sabouraud, who accepted Molesworth's as identical with the organism described by him, but a culture of Flemming's organism was rejected as not being the microbacillus. Inoculations made with the microbacillus on guinea-pigs were always negative and no result was obtained by rubbing in large quantities of the culture in human subjects. From its morphology and cultural characters and its marked pathogenicity for guinea-pigs and white mice, he concluded that Gilchrist's organism was a form of streptothrix.

In 1910 Whitfield,¹⁷ who controlled Molesworth's work, believes that the microbacillus cultivated by him is the organism found in the comedo, but questions if Flemming's is the same microbe. Whitfield accepts the bacillus as the cause of the comedo but not the pustule, its presence in the pustule being due to the breaking up of the comedo which process releases into the cavity beneath myriads of the organisms. In his opinion the pustule is due to secondary infection by the staphylococcus. Flemming, in defending his work against the criticism of Molesworth, states that he transferred the pus *en masse* on the mediums, making it to some extent an anaerobic culture, but insists that it grew aerobically in subcultures.

In December, 1910, Engman¹⁸ published his article on "Treatment of Acne Vulgaris with Acne-Bacillus Suspensions." In this he reviews his work in Unna's laboratory and his later efforts to cultivate the bacillus which he believes to be the causative agent both in the comedo and in some forms of suppurative acne. He succeeded in obtaining growths in 1902, 1904 and 1908, which he identified as the organism with which he had worked in Unna's laboratory. The cultures he obtained in 1908 he took to Johns Hopkins Hospital to compare with Gilchrist's. On examining Engman's organism, Gilchrist said he thought it was identical with the one with which he had been working. They were then submitted for comparison to Professor Welch, who also thought they were identical. Engman used nutrient agar either neutral or slightly acid as his medium. His organism was fatal to rabbits and guinea-pigs and it was recovered post mortem. His agglutination tests were negative.

Lovejoy and Hastings¹⁹ in 1911 described the bacillus as being from 1 to 4 microns long and 0.5 micron in width, arranged singly or in pairs. The older forms

10. Hallé and Civatte: Ann. de dermat. et de syph., 1907, p. 184.

11. Unna: Med. Klin., 1908, p. 1747.

12. Flemming: Lancet, London, 1909, i, 1035; Brit. Med. Jour., 1910, i, 1382.

13. Südmersen and Thompson: Jour. Path. and Bacteriol., 1909, p. 224.

14. Hartwell and Streeter: Boston Med. and Surg. Jour., 1909, p. 882.

15. Western: Brit. Jour. Dermat., 1910, p. 6.

16. Molesworth: Brit. Med. Jour., 1910, i, 1227.

17. Whitfield: Internat. Clin., 1909, xi, 183.

18. Engman: Jour. Cutan. Dis., 1910, p. 553; Interstate Med. Jour., December, 1910.

19. Lovejoy and Hastings: Jour. Cutan. Dis., February, 1911.

show dark staining spots usually at the extremity, but some may appear along the organism, giving it a chain-like appearance. They found the organism in sebaceous secretions in apparently healthy skin, as well as in the comedo and pustule. They succeeded in cultivating the bacillus anaerobically on various mediums, but it grew best on plain agar or 2 per cent. glucose agar.

Morris and Doré²⁰ accept the acne bacillus as the cause of the comedo and in many instances as the factor in suppuration.

Last year Schwenter-Trachsler's work²¹ appeared, in which she denies the bacillus any part in the production of either comedo or pustule. She accepts Unna's later opinion that a coccus which yields a white growth, and which she is satisfied is not *Staphylococcus albus*, is the cause of the hyperkeratosis, comedo and pustule as well as all pathologic changes that take place in the corium. She succeeded in isolating it from a single organism by Burri's method and transferred it to the face of an acne-free girl aged 14 years and produced comedones, from which she recovered the coccus.

Varney and Clark,²² working independently of Schwenter-Trachsler, obtained from acne-like lesions, which persisted beyond the usual acne age, a diplococcus which gave a white culture. Morphologically it was unlike *Staphylococcus albus*, and agglutination reaction proved it not to be this organism. In a personal letter which I received recently, Dr. Schwenter-Trachsler states that she has twice produced comedones on normal skin since her article was published.

DIFFERENT FINDINGS

From the foregoing it will be seen that a diversity of opinion exists at the present time as to the bacterial etiology of acne, even among those who have had the benefits of extensive laboratory facilities. Among those who believe that a bacillus is the cause of both comedo and pustule are Engman, Hodara, Gilchrist, Flemming, Western, Molesworth, Lovejoy and Hastings, Hartwell and Streeter, Südmersen and Thompson and Morris and Doré. Those who accept the bacillus as the cause of the comedo but maintain that a secondary infection is necessary for the production of suppuration are Sabouraud and Whitfield. Unna, Lomry, Bollack, Schamberg and Hallé and Civatte question its having any etiologic significance whatever. Unna and Schwenter-Trachsler hold that both comedo and pustule are due to a special coccus that produces a white growth on culture mediums. This is such a new theory and so at variance with that of all other observers that it should be confirmed by other workers in the field before it is accepted. Söllner's coccus and Varney and Clark's diplococcus may be similar to the one of which Unna speaks and with which Schwenter-Trachsler produced comedones, but it will take much work to prove it. Although eighteen years have passed since Lomry did his work, there has been no confirmation of it by other workers, while many observers have taken issue with him.

That there is a bacillus constantly present in at least all enlarged sebaceous follicles after the age of puberty, as shown by Beck, Schamberg and Hallé and Civatte, which may under normal conditions remain harmless, is no doubt accepted at present by all dermatologists. But the preponderance of opinion is decidedly in favor of the pathogenicity of the organism in susceptible individuals; and why Unna abandoned this theory after

Beck's work and accepted a peculiar coccus as the causative agent before any experimental work had been done with this organism is to me incomprehensible, especially since Beck himself leaves the impression that he believes the bacillus might under certain conditions become pathogenic.

Among those who agree that a bacillus is the etiologic factor in both the comedo and pustule, there is considerable difference of opinion as to its morphology, cultural characters, pathogenicity for animals, and its response to serologic tests. Some describe it as being as short as 0.6 micron and others as long as 4 microns; some could demonstrate a capsule, others could not; some found branching forms, others deny their existence; some cultured it aerobically and others have been unable to obtain cultures except under strict anaerobic conditions, while still others have cultured it anaerobically and subcultured it aerobically. In the hands of some it has been found pathogenic for mice, guinea-pigs and rabbits, while in the hands of others it has been fatal to mice only, while still others consider it non-pathogenic for all animals. Agglutination tests have been reported as positive by some and negative by others.

ONE ORGANISM UNDER DIFFERENT PHASES

The differences have been so marked that one would be justified in believing that all or nearly all were dealing with different organisms, and for some time I thought this was true until I observed it in my own laboratory and saw it appear and act differently under differing conditions and had again reviewed Südmersen and Thompson's article of three years ago. I am now convinced that at least a majority are observing simply different phases of the same organism. These different phases and the assertions of the various authors that the bacillus they observed in smears and cultivated was the true etiologic factor in acne is not only little short of ridiculous, but is the cause of all the confusion that has arisen on the subject. Fortunately for American dermatology this condition does not exist on this side of the Atlantic, but has been confined to England, Germany and France.

Engman, who observed the bacillus first in Unna's laboratory nineteen years ago and assisted him in the preparation of his work on pathology of the skin, continued his work in this country and has to date found no reason to change his opinion as to the etiologic significance of the organism.

The first work done in this country was by Gilchrist in 1899, which he confirmed and elaborated in 1903; and it remains to-day, especially since controlled by Engman, as the most convincing argument in favor of the theory that acne in all of its various clinical manifestations is due to the *Bacillus acne*.

Molesworth's statement that Gilchrist's bacillus is a form of streptothrix was due, no doubt, to the latter finding branching forms of the organism and their pathogenicity for mice and guinea-pigs; but his position seems hardly tenable since he accepts the work of Südmersen and Thompson, who found branching forms cultures of which were fatal to mice and who apparently were not aware of Gilchrist's work, as they do not quote him.

I have observed branching forms in a 4-weeks-old culture on Sabouraud's medium.

Hallé and Civatte question Gilchrist's bacillus because they could not obtain growths aerobically. Their position is also refuted by Südmersen and Thompson, who, with their wonderful laboratory facilities, working with

20. Morris and Doré: Brit. Jour. Dermat., October, 1911.

21. Schwenter-Trachsler: Dermatol. Studien (Unna Festschrift) 1911, p. 311.

22. Varney and Clark: Jour. Cutan. Dis., February, 1912.

only two strains, obtained aerobic cultures and demonstrated the branching form occurring under these conditions.

Except to report my results from cultures obtained from Parke, Davis & Co. and Mulford, from which they prepare stock bacterins, I shall offer nothing further from my own work as it confirms only in part the work done by Engman, Gilchrist and Südmersen and Thompson and in no way refutes any of the observations made by them, and dermatologic literature is already too crowded with the other sort. Morphologically and culturally these bacilli appear as different organisms. I was able to obtain subcultures of Parke, Davis & Co.'s culture both aerobically and anaerobically, but I have so far been unsuccessful in subculturing the strains sent me by Mulford. Regardless of the failures, I am unwilling with my present knowledge of the organism to believe that either or both are not cultures of the original bacillus seen by Unna in the comedo. I am more inclined at present to accept both as pure cultures of the acne bacillus existing under different conditions.

DIRECTION OF FURTHER RESEARCH

Further work along this line should be done with one of two aims in view: that of confirming or refuting the etiologic significance of the bacillus in all its various manifestations as exemplified by the work of Engman, Gilchrist and Südmersen and Thompson, or confirming or refuting the assertions made by Unna and Schwenker-Traebler in regard to the rôle played by the "milk-white coccus." It is along these lines that I shall continue my work in this field.

The first report on the use of vaccines of the acne bacillus as a therapeutic measure were to some extent disappointing, no doubt because of improper technique in the administration. Gilchrist gave doses of 100 million which were followed by a markedly negative phase; this also occurred in Flemming's case in which only 10 million were administered. In three of my own cases an alarming increase in the number of lesions followed doses of 25 million, 30 million and 35 million, respectively, of a stock vaccine. When doses of much smaller proportions were used the results were decidedly more encouraging. Engman, the most enthusiastic of all observers, rarely gives over 5 million and his usual dose is 3 million at from five-day to seven-day intervals. He regards it as one of the most brilliant therapeutic agents he has yet seen in dermatology.

Western used either the stock or autogenous vaccine in doses of 5 to 10 million at seven-day to ten-day intervals with marked beneficial results, and Flemming has reduced his dose to 6 to 10 million given weekly.

Gilchrist finding doses of 100 million too large, recommends weekly doses, the initial amount being 5 million increased each week to 30 million, being governed by the clinical condition.

Morris and Doré, the least enthusiastic of all reporters, using a stock vaccine, admit that it is a useful addition to our therapeutic agents.

Lovejoy²³ obtained brilliant results from doses of 3 million at five-day intervals, this amount being practically continued throughout the course of treatment, no patient receiving a larger amount than 5 million. He considers that the results obtained from polyvalent stock were fully as satisfactory as those obtained from an autogenous vaccine.

I have used none other than stock vaccine from various sources, and while I cannot as yet claim for it the

brilliant results observed by others the beneficial effect obtained in a number of cases has been so marked that I would be loath to treat a patient without its assistance.

These happy results could not have been obtained if we were all using a vaccine from a different organism. If there were no other reason presented for believing that the different findings over which so much confusion has arisen were simply different phases of the same microbe, I am convinced that these results are conclusive.

I wish to offer my thanks to Parke, Davis & Co., and Mulford for cultures of the acne bacillus, to Drs. Sabouraud, Whitfield and Paul Unna, Jr., for directing my attention to certain literature on the subject and to Dr. Varney for the cultures of the Varney and Clark diplococcus.

ABSTRACT OF DISCUSSION

DR. M. L. RAVITCH, Louisville: I cannot agree that the acne bacillus or any other bacillus is the real cause of acne. To my mind, the bacillus is incidental or secondary. All who have followed the etiology of acne will agree that the *prima causa* of this affection is that rather critical or transitory stage when the girl passes into womanhood and the boy into manhood. To my mind, anaphylactic reaction is the real cause of acne. The hyperactivities and hypersecretive power of the generative organs during this period is apparent. The absorption of the secretions of the ovaries and the seminal vesicles produces a foreign protein in the system, the patient becomes sensitized, and we have a reaction that produces a symptom-complex called acne. The duration of the disease and the mode of treatment substantiate my theory. I believe that the acne bacillus is only incidental or secondary to the reaction produced by a foreign protein.

DR. H. R. VARNEY, Detroit: I feel inclined to ally myself with the group of investigators who believe that the acne bacillus is the etiologic factor of the comedo. According to Dr. Haase's conclusions, we have arrived at the stage where acne must be allied either with a bacillus or a coccus. In the cases reported a year ago, I succeeded in isolating a diplococcus, and I repeated my experiments several times before I could actually believe that fact. This finding I verified in six cases, which were seen by Dr. George T. Jackson and others, in which the clinical picture of acne was unmistakable. We were obliged to classify the cases as acne vulgaris. There were no comedones, the lesions were located deep in the true skin and there was very little tendency to rupture. The amount of pus contained in the lesions was very small, and they were very chronic in their nature. After observing the course of this organism in two cases, it recalled to my mind a like clinical picture in four other cases of acne that had been under my care and had not been cured. On reexamining these cases I found the same diplococcus, which from animal experimentation and from agglutination tests is a distinct organism which is found in the contents of these lesions, and which has been isolated a number of times. In the group of cases which I saw, the average duration of the disease was more than seventeen years; one had lasted for twenty-four years. Inoculation of autogenous suspensions brought about cure, which was not accomplished by repeated inoculations of confined staphylococcus stock suspensions.

DR. E. S. LAIN, Oklahoma City: Dr. Haase's conclusions are justifiable in a sense, and yet I have been favoring the idea presented by Dr. Varney a few months ago, that we had a separate organism to deal with in many cases. I would ask Dr. Haase to give us the percentage of recoveries or improvement with his vaccine, and the class of cases in which he employed it.

DR. MARCUS HAASE, Memphis: The acne bacterin to which Dr. Lain referred is used only for diagnostic purposes and not for treatment. It was used to demonstrate the fact that these bacilli were identical. The bacterins simply verified the fact that they were all of one variety—that all these cultures were the same. Dr. Ravitch misunderstood me. In this experimental work, which is only preliminary and will serve only as a basis for future work, I had no definite scheme in view.

23. Lovejoy: Am. Jour. Med. Sc., May, 1912, p. 693.

SARCOMA OF THE VAGINA*

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Tumors of the vagina are comparatively infrequent. New growths of all varieties, however, both cystic and solid, occasionally originate in the structures of this organ.

Cystic tumors form a goodly percentage of all vaginal growths, although they are not common. Of the solid tumors arising in this canal, the fibromyomas are the most common, but these are not frequent. Malignant tumors of both epithelial and connective-tissue origin do occur, and these, too, are unusual.

Rarely cases of primary chorio-epithelioma and endo-
thelioma are reported and it is said that carcinoma of this organ forms less than 1 per cent of all types of epithelial malignant disease developing in women. It has been estimated, according to one author, that only about 0.02 per cent. of all carcinomas of the genital tract arise primarily in the vagina. Primary sarcoma, too, of this canal is a rare formation and the literature, dating back to an early period, contains but a total of 104 cases. Two of these were reported before the last (May) meeting of the Philadelphia County Obstetrical Society by Tracy. This number, to which I add two new ones, brings the total of cases reported to date to 106.

This variety of malignant disease may arise in any portion of the female genital tract, from the vulva to the pelvic peritonemum. In the vagina it has been found at all ages. It is, however, most common in the first, fourth and sixth decades of life. In McFarland's¹ collection of 102 cases there was one instance of the tumor being congenital, though six so-called congenital cases have been described. The only case in which it is positively known, however, that the tumor was present at birth was the instance described by Granicher. The tumor may also arise very late in life and one case is recorded in McFarland's series, in which the patient came to operation when 82 years of age. All cellular types of this tumor have been reported to develop in the vagina, including the small and large round-cell, small and large spindle-cell, mixed cell, alveolar and melanotic, but the mixed type is the most common.

Sarcoma of the vagina might be divided clinically into two varieties: (1) that occurring rather characteristically in early life as a more or less grape-like or polypoid tumor with tendency to early degeneration; and (2) that occurring late in life and characteristically as a firm, more or less circumscribed tumor.

The grape-like growth or the so-called sarcoma botryoides occurs very early in life and the thirty-four cases recorded by McFarland, with my own, making thirty-five, appeared within the first half of the first decade and twenty-nine of these occurred before the third year of life. This does not mean that the circumscribed form is limited to the adult and that it never appears in infancy, for McFarland's report shows that eight cases out of sixty-eight of the adult type recorded developed in children from 8 to 31 months old. From this period, however, there was a gap until the first half of the second decade, 14 years. This shows a marked infrequency of the adult form in infant life.

The occurrence of this special form of infantile sarcoma — sarcoma botryoides — the grape-like sarcoma —

of which thirty-five cases, including my own, are now on record, makes it decidedly more frequent in infancy than in any other period of life. The first case of this character, according to McFarland's paper, appears to have been described and reported by Guersant in 1854, though McFarland says that "It is difficult to decide what would have been the true histologic nature of many other tumors recorded earlier, or about the same time, as malignant polypi of the vagina." McFarland carefully reviewed a number of such cases, but they were rejected and the policy was adopted of following the example of the earlier compilers, who accept Guersant's case as the first to be reported.

It appears that the first careful pathologic study of this peculiar tumor was conducted by Kaschewarowa-Rudwena, who reported three cases, one of which occurred in a bitch. While this tumor is characterized clinically by its development in very early or infantile life and by its peculiar macroscopic formation into polypoid or grape-like nodules, yet it cannot be placed histologically in a separate or distinct class, because the cellular architecture of this growth is as varied as the adult type and as varied as sarcoma developing in other parts of the body. In other words, the histologic picture of sarcoma botryoides does not differ from the common type of sarcoma occurring elsewhere. This feature is well shown in the following table:

McFARLAND'S TABLE SHOWING AGE INCIDENCE, HISTOLOGIC CHARACTER AND TERMINATION OF REPORTED CASES OF GRAPE-LIKE SARCOMA OF INFANCY, OR SARCOMA BOTRYOIDES VAGINÆ

Age of Patient	Nature of the Tumor	Termination
Not given. ?	? .
Congenital.	..... ? .....	Died.
3 months.	Spindle-cell sarcoma	Died.
6 months.	Spindle-cell sarcoma	Died (of broncho-pneumonia).
6 months.	Round- and spindle-cell sarcoma	Died.
7 months.	Round- and spindle-cell sarcoma	Died.
8 months.	..... ? .....	Died.
9 months.	..... ? .....	No return in two months.
12 months.	Myosarcoma	Died.
18 months.	..... ? .....	Died.
18 months.	Myofibrosarcoma	Died.
18 months.	Round- and spindle-cell sarcoma	Died.
18 months.	Spindle-cell sarcoma	Died.
21 months.	..... ? .....	Died.
24 months.	..... ? .....	Died.
24 months. ?	?
24 months.	Myxosarcoma	Died.
28 months.	Fibrosarcoma	Died.
28 months.	Myosarcoma	Died.
30 months.	Round- and spindle-cell sarcoma	Recovered; no return in three years.
30 months.	..... ? .....	Died.
30 months.	..... ? .....	Died.
30 months.	Fibrosarcoma	?
30 months.	..... ? .....	Died.
32 months. ?	?
36 months.	Spindle-cell sarcoma	?
36 months.	..... ? .....	Died.
36 months.	Small round-cell sarcoma	Died.
40 months.	Fibrosarcoma	Died.
42 months.	Myosarcoma	Died.
44 months.	..... ? .....	Died.
48 months. ?	?
53 months.	Round- and spindle-cell sarcoma	Died.
60 months.	Round- and spindle-cell sarcoma	Died.
My case		
54 months.	Round-cell sarcoma	Died.

The etiology of this peculiar growth is not known, but three views have been advanced to explain its origin. 1. Some authors believe that it is congenital and that it arises from the papillæ so numerous in the vaginal wall during the first five months of intra-uterine life. No less an authority than Ahlfeld is convinced of this origin, and he is supported in this view by many eminent men. 2. The view accepted by others is that of Cohnheim's theory of embryonal remains. The advocates of this

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.
1. McFarland: Am. Jour. Med. Sc., April, 1911.

view advance striking arguments to establish their belief: (a) that recurrent masses maintain the polypoid or grape-like form; (b) that projections into the bladder from the original site of the disease assume the grape-like character in a structure in which papillæ are not normally found, and (c) the irregular or varied cellular construction of the tumor, they believe, supports the view of Cohnheim. 3. The third view was that held by Pfannenstiel, who believed that the tumor arose from the endothelium of the lymph and blood-capillaries.

The clinical study of sarcoma botryoides shows that the symptoms are generally the same in all cases. The first manifestation of local disturbance is the appearance of a thin, watery, pinkish, serous discharge. This early becomes bloody and later, as necrotic changes take place, the discharge becomes offensive. This feature was, at times, very marked in the case reported in this paper. It was quite noticeable when the little patient appeared at the hospital dispensary. Later, if the condition is not recognized and removed, a reddish or reddish-purple, grape-like tumor appears at the vulvar orifice. As a rule, the true nature of these tumors is not at first recognized and they are regarded as simple inoffensive polypi and are simply removed. Early recurrence takes place and the patient succumbs.

In one case in McFarland's series, however, in which an early radical operation was performed, including the entire removal of the genital structures, the patient is reported to have recovered and no return was noticed after a lapse of three years. In all the other cases of this series, the tumor recurred; many patients were subjected to repeated operation, with repeated recurrence. Finally they became inoperable, the tumor rapidly filling the vagina, distending the pelvis, invading the bladder and bringing death to the patient either by exhaustion or uremia. The tumor seems to be progressively extending, for in no case was metastasis observed.

Sarcoma of the vagina in the adult runs a clinical course very similar to sarcoma occurring in the vagina of the infant. In the adult the tumor tends to remain localized and while metastasis does occur, it is not the rule. Sarcoma, on the other hand, developing in the vaginal septa does tend to invade the surrounding structures and to early dissemination. This feature was very pronounced in the second case coming under my observation. The latter was an instance of sarcoma developing probably in the vesicovaginal septum.

Concerning the treatment of sarcoma of the vagina, early and radical operation offers the only hope of relief. Even this, in the cases reported, has not been attended with happy results. Only one case of the thirty-five thus far reported was free from a recurrence after a period of three years. In the cases in which x-ray has been employed, the condition appears to have been aggravated and, therefore, its use in the treatment of the malady is of doubtful value. The x-ray was used in the case reported by Tracy and the early recurrence of the disease he felt was hastened by its employment. It is hard to say whether he was justified in this conclusion, because surprisingly early recurrence is characteristic of practically all vaginal sarcomas.

CASE 1.—*Patient*.—E. C., aged 2 years and 5 months, was born of English parents. There is no history of hereditary disease in the family. Patient had pneumonia and was sick for two weeks when 15 months old. She never had any other illness. She was breast-fed until the fifteenth month, the breast-feeding being occasionally alternated with bottle-feeding. When 4 weeks old, the child had a slight vaginal discharge, which was thin and of a blood-color. It lasted

for one week and appeared as small stained spots on the napkins.

When the child was 23 months old, a vaginal discharge appeared, similar to that when the patient was 4 weeks old. When the symptom appeared the second time, however, it never ceased. At times the discharge was scanty, but always blood-tinged. At other times quite free bleeding occurred, though, as a rule, the discharge was small in amount. Occasionally, it had a very offensive odor and the mother ascribed this feature by saying that "the odor made her sick in the stomach." Immediately after the discharge appeared, the family physician was consulted, who had the patient under his care for one week, directing that the parts should be irrigated every day with a weak solution of liquor cresolis compositus.

After a week's treatment, the patient was taken to one of the large hospitals in Philadelphia, where she was examined without anesthesia. Cover-glass smears were collected by the physician in this institution and the mother was instructed to return with the patient in two days. She did this and the physician told her the smears taken were unsatisfactory. She returned to the hospital after a few days when an examination was made and the physician informed the mother that a growth was present in the vagina. The child, however, could not be admitted to the institution at that time, because the children's department was under quarantine on account of diphtheria. She was at that time referred to another hospital, which she visited and here cover-glass smears were again collected and the physician in charge stated that the child was suffering from a transmissible disease and could not be admitted to the wards. The mother was given a dark solution with instructions to irrigate the vagina twice daily and return later.

After ten days of this treatment, the child was admitted to this institution. She was kept in the hospital for three days when the mother was advised to take the child home, because the patient had a contagious disease and could not be treated in the hospital.

Five days later, the mother took the child to the pediatric department of another institution in Philadelphia, where she was kept under observation, receiving vaginal douches, for a period of four weeks, or longer, when she was brought to the Gynecological Department of Jefferson Medical College Hospital. With this history, we determined that the only satisfactory manner to examine the child was under anesthesia. Chloroform was, therefore, administered and a local examination made with a small urethral speculum. As soon as the vaginal walls were separated, a small grape-sized, bilobulated, reddish-purple tumor was found, originating from the left anterior vaginal wall. It was freely movable and rather elastic in consistency. It was attached to the wall of the vagina by a fairly wide base.

Operation.—On April 12, the patient was chloroformed and the tumor with the subjacent vaginal wall was removed by Dr. E. E. Montgomery. There was very little bleeding from the operative field. The vaginal wall was packed lightly with iodoform gauze and the patient was taken home in the afternoon.

On May 10 the symptoms reappeared and examination under anesthesia revealed a recurrence of the tumor at the site of the previous operation. The patient was reoperated on on May 13 and all visible abnormal tissue was removed. She was discharged from the hospital on May 30 and all symptoms at this time had apparently subsided. She was returned to the hospital on September 1 when examination revealed a large suprapubic abdominal distention with a history of incontinence of urine. The tumor was extremely hard and tender and we, at first glance, concluded that she had a recurrence of the tumor in the abdominal cavity. After a careful examination, however, we found the trouble was due to over-distention of the bladder as the result of a stricture of the urethra. This condition resulted from contraction of the scar at the site of operation. The patient never regained control of her bladder and was catheterized three times every day until she died.

About the middle of September a dark, blood-colored, or purple tumor appeared in the left groin. This increased quite rapidly in size, but did not seem to cause any local trouble. About a week later a similar nodule appeared in the region of the navel and about this time, the patient was seized with more or less constant vomiting and was not able to retain any nourishment whatever. She vomited several times each day and night for eleven days. Her death occurred on Nov. 2, 1911. After the second operation she never had any sign of a recurrence of the disease in the vagina. Her age at death was 2 years, 10 months and 9 days.

Pathologic Report (Dr. A. G. Ellis).—The specimen consists of several small pieces of reddish-purple tissue, extremely soft in consistency. This was fixed in alcoholic solution of bichlorid and embedded in paraffin. Microscopic study of stained sections of the specimen shows the tissue to be composed of masses of round cells. These have very prominent nuclei, and very scanty intercellular material is present. Fibrous tissue is not prominent. Blood-vessels are seen among the masses of cells and their walls appear to be extremely thin. The diagnosis is large round-cell sarcoma of the vagina.

CASE 2.—*Patient*.—A. W., aged 45, married, of Hebrew parentage, was operated on Aug. 3, 1911. She had never been pregnant. The growth in this patient had its origin in the anterior vaginal wall and was about the size of an egg. It was more or less soft and elastic in consistency and attached to the vaginal wall by a broad base. The superficial portion of the tumor was of a reddish-purple color, while the interior was of a grayish hue. The central portion of the mass was soft and friable. This patient also had a large mass immediately above Poupart's ligament, which extended to the crest of the ilium and into the pelvis. This enlargement was more or less uniform and firm in consistency. The vaginal tumor and also the masses in the right iliac fossa and pelvis were removed. The patient made an uninterrupted recovery, but died suddenly three months after the operation.

Pathologic Report (Dr. A. G. Ellis).—The microscope reveals stained sections of the primary growth to be composed largely of round and oval cells. They vary considerably in size, but none are what one would call large. The protoplasm of the cells is indistinct, though the nuclei are fairly well stained. These cells are arranged in irregular masses, due to the presence of an ill-defined stroma of connective tissue. Blood-vessels are not numerous, but are occasionally seen within the cell masses and their walls are thin. At numerous points, areas of hemorrhage are noticed, some being accompanied by necrosis of the tissue. In other places, inflammatory processes are manifested by the presence of collections of polymuclear cells. The diagnosis is alveolar sarcoma of vaginal wall with secondary involvement of the glands and structures of the right inguinal region.

CONCLUSIONS

1. All genital discharges in infants should be regarded with grave suspicion and careful search should be instituted for its cause.
2. The examination of infants exhibiting a vaginal discharge should include more than simply the collection of cover-glass smears and their examination with the microscope to determine the presence or absence of gonococci.
3. All vaginal examination of infants should include inspection of the vaginal canal through a speculum and this is best accomplished under chloroform anesthesia.
4. All tumors of the vagina in infants should be regarded with suspicion and fear, and a haphazard diagnosis should never be made. The diagnosis of vaginal tumors should be established by the microscope.
5. Sarcoma botryoides vaginae is most deadly and what little hope is offered can only be given after early radical extirpation.

Finally, in concluding this report, I wish to state that I have quoted freely from the excellent paper of Dr. Joseph McFarland (*Am. Jour. Med. Sc.*, April, 1911).

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ABSTRACT OF DISCUSSION

DR. C. O. KEPLER, Boston: Should the so-called precocious menstruation of infants, occurring as it does in the first few days of life, also be regarded with suspicion? A number of such cases have come under my observation.

DR. P. B. BLAND, Philadelphia: The patient had a bloody discharge at the fourth week, but I do not feel like saying that it had any connection with the development of this tumor; still I believe that we should regard hemorrhage in infants just as seriously as we regard hemorrhage in advanced life. Hemorrhage calls for a vaginal examination whether in adults or in children.

THE PATHOLOGY AND CLASSIFICATION OF CHRONIC JOINT DISEASE*

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Last year it was my privilege to address this Section on the subject of the pathology of joint tuberculosis, and I made the statement that until the pathologist should lay down an exact pathology of the disease, it would be futile to expect its rational treatment. The same may be said of all chronic joint diseases. The multiplicity of names and of classifications makes their study extremely difficult, and in the end we shall probably be obliged to discard much that has been put forward.

Take the name "arthritis deformans," for instance — a hybrid term signifying a deforming inflammation of a joint. Any joint inflammation, acute or chronic, may be deforming. Tuberculosis would certainly fall under this head. The term is an unfortunate one, inexact, meaningless and confusing. It adopts for the designation of a special class of disease a symptom common to many diseases not intended for inclusion in this class, and not possessed by some that, as we shall see, should really be included in it.

CONFUSION IN CLASSIFICATION

Again, as to classification: when to one type of chronic arthritis Goldthwait gives the name "atrophic"; Nichols and Richardson "proliferative"; the English writers "rheumatoid"; and others "metabolic," it is evident that not all have succeeded in grasping the essential feature of the disease, but that some at least have based their classification on non-essential features. We are directing our attack not on a united army but on a house divided against itself, most of the members of which acknowledge the inadequacy of their scheme of pathology and eagerly await a better. Much of the structure has been built on clinical experience, and this will be easy to overturn. Some is the result of careful pathologic work, and with this we may have more difficulty. In spite of its established place in medical writings, and in spite of the eminence of its originator, we shall do well for the reasons stated above to avoid the use of the term "arthritis deformans."

We cannot classify these chronic joint diseases on the basis of their cause, for the cause of many of them is

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* From the Laboratory of the University of Colorado.

not definitely known. I believe that they are all infectious in their origin, but the infectious nature of some of them has not been proved. It is certain that those whose cause we know, like syphilis, tuberculosis and gonorrhea, are infectious. If we study the history of the subject we shall find that the infectious theory has often made slow headway. Less than two decades ago gonorrheal arthritis was held by some eminent authorities to be due to reflex irritation from the urethral mucous membrane.

Again, we must not fall into the error of classifying the cases by the results of a morbid process rather than by the morbid process itself, and I believe that all classifications based on changes in the bone itself or in the cartilage are open to this objection. My examination of many joints in the laboratory forces me to believe that neither of these tissues plays an active part in any chronic joint disease, but that both merely show the results of disease. The changes in the cartilage may be manifold; it may be thickened or thinned, smooth and homogeneous or rough and fibrillated. It may be broken up, or divided into layers more or less distinct. Finally, its structure may be so fantastic as to defy description. Thus the cartilage gives no basis for classification.

As to the bone itself: the trabeculae may be thinned or thickened or dead. Sometimes in one part of a joint they may be thinned, in another thickened, in another dead, so that it is manifestly impossible to classify joint diseases on the state of the bone trabeculae.

A SOUND BASIS FOR CLASSIFICATION

When we come to a study of the bone-marrow and of the synovia we find a different state of affairs, and on the behavior of these two tissues we can apparently base a classification that is comprehensive and sufficient. We include with the marrow the inner layer of the periosteum, the reaction of which to disease is usually similar to that of the subjacent marrow.

As far as I have been able to trace the matter out, all chronic joint diseases fall into two main classes:

1. Cases characterized by proliferation of the synovia and of the lymphoid marrow or of both. As a result of the proliferation of these two tissues, which might be termed the parenchyma of the joint, the cartilage and bone — the stroma, so to speak — atrophy.

2. Cases characterized by a degeneration of the synovia and of the lymphoid marrow. As a result of this, the bone and cartilage show a distinct tendency to hypertrophy.

Under the first class would come tuberculosis, ordinary syphilitic synovitis, "chronic" synovitis of obscure causation, intermittent synovitis, and the infectious and atrophic arthritis of Goldthwait and others — the proliferative type of Nichols and Richardson, the metabolic osteo-arthritis of Nathan, and the rheumatoid arthritis of the English writers. All cases of "villous arthritis" belong under this heading.

In the second class are included the cases variously denominated as osteo-arthritis by the English writers, hypertrophic arthritis by Goldthwait, and the degenerative type by Nichols and Richardson. Heberden's nodes and morbus coxae senilis are members of this class, as are probably also Charcot's joints.

Let me briefly sketch the main pathologic changes found in the two types.

TYPE I

The disease may begin in the synovia and spread to the lymphoid marrow, it may begin in the marrow and spread to the synovia, or it may remain indefinitely in

its original host. It never involves any other tissues except indirectly by disturbing their nutrition. Tuberculosis forms an apparent exception to this, but as long as no secondary infection has taken place the exception is only apparent. The synovia proliferates, thickens and shows a tendency to villous formation. Under the microscope the thickening and hypertrophy are more apparent, reaching down to the fibrous layer of the capsule — the ligament or fascia. Signs of general inflammation are present, and the membrane is packed with lymphoid cells and is wont to encroach on the joint cartilage. The whole morbid process can be interpreted as a proliferation of the active constituents of the joint at the expense of the passive. In the later stages of the disease the synovia may undergo a fibrous change.

The marrow shows changes similar to those found in the synovia. Foci of active inflammation are found in it,¹ and in most varieties of the process a proliferation of its connective-tissue elements.² In tuberculosis the characteristic tubercles are seen in the marrow as well as in the synovia.

As the result of these changes in the marrow the bone trabeculae, drawing their nutrition from the marrow, undergo atrophy. If the process be an intense one (as in tuberculosis) the trabeculae may be killed. As a result of the changes in the marrow and in the synovia, the cartilage, deriving its nutrition probably from them both, also degenerates and atrophies. The proliferating granulation tissue from the marrow bursts through it, invades the joint, and may form adhesions with the proliferating synovia and with the proliferating marrow of the other articulating bone. In this way the cartilage, encroached on at the sides by the synovia and attacked below by the granulations in the marrow, may disappear entirely, or may remain as thin islands between layers of fibrous tissue.

The result of this process is an ankylosis more or less complete. Usually the ankylosis is fibrous, occasionally bony. When a complete bony ankylosis takes place the disease ceases.

Pathologic identity entails identity of symptoms and of physical signs; hence we are not surprised to learn that the differential diagnosis of the various forms of chronic synovitis cannot be made from the examination of a single joint. It is only from the history of the case, from its course, from its complications, from the state of the rest of the body, and possibly from a laboratory examination of the synovia that we can arrive at a definite conclusion.

The same may be said of those cases with bony involvement. Skiagrams, the physical signs and the symptoms may be practically identical in all the diseases of this type, and if we would differentiate them we must avail ourselves of other aids. Thus, the clinical picture of a tuberculous joint may be identical with that of an "atrophic" (or "proliferative") arthritis,³ but tuberculosis is almost invariably uni-articular, the other multi-articular. Tuberculosis is often accompanied by abscess formation and by secondary infection; the other is never accompanied by them. Again, the microscope or the animal test or a tuberculin reaction may be needed to decide.

1. White, W. Hale: Guy's Hospital Reports, 1902; Nathan: Am. Jour. Med. Sc., 1909, cxxxvii, 817.

2. Nichols and Richardson: Jour. Med. Research, 1909, xxi, pp. 149-221.

3. In Hale White's article appears an enlarged drawing of a section of a joint afflicted with "atrophic" arthritis (rheumatoid), that needs only the insertion of a few tubercles to make it characteristic of tuberculosis.

Now there may be variations from this pathologic process in diseases of this type, but they are of minor significance. It may be said that the various diseases which comprise it do not differ among themselves more than do the various cases of the same disease. Thus, the fundamental principles of the pathology of joint tuberculosis are always the same, but some cases are accompanied by an exudate in the joint (of various kinds), others are not; in some the synovia is soft and "fungous," in others it is fibrous; in parts of one joint the bone may be thickened, in others thinned. Macroscopic tubercles may be present or absent, the constitution may be affected or it may not, the temperature may be normal or fever may be present, the onset may be fairly acute or distinctly slow and chronic, abscesses and secondary infections may be present or absent.

TYPE II

Roughly speaking, the changes observed in this type are just the reverse of those noted in the first type. As a result of a well-marked degenerative process in the bone-marrow, in the deeper layer of the periosteum and in the synovia, the bone and cartilage hypertrophy. Hence, instead of the synovia and the marrow encroaching on the bone and the cartilage, the cartilage and bone may almost be regarded as encroaching on the bone-marrow and on the synovia. This is the same process that is often observed in other organs of the body. As their essential elements, their parenchyma, degenerate, the connective-tissue stroma proliferates, so that degeneration and proliferation go hand in hand.

The articular cartilage thickens throughout its entire extent. At the same time there is a production of new cartilage and bone underneath the articular cartilage, diminishing the space for the marrow. Now, the articular cartilage derives its nutrition from the subjacent marrow, and when this marrow is replaced by bone, the cartilage fibrillates, degenerates and wears away, leaving the thickened bone bare and grooved in the line of joint motion. The cartilage near the periphery, however, deriving its nutrition largely from the synovia and from the periosteum, does not undergo so soon this degeneration and wearing away, but, maintaining its irregularity, hypertrophies and causes the joint to become flattened and distorted. The hypertrophied masses of cartilage may persist as such, or they may be transformed into bone, causing spurs and exostoses, which interfere with motion. In ball-and-socket joints the new bone formations render the head of the bone too large for its socket, and subluxations may occur. In the hinge joints the irregularity of the bone formation results in lateral distortions as well as in flexions. These lateral distortions are characteristic of the disease.

Portions of proliferated cartilage may be torn loose and form foreign bodies in the joint.

The synovia in this type may appear comparatively normal, or it may proliferate in spots. According to Nichols and Richardson, the localized proliferation may result in the formation of papillary masses, composed of granulation or dense connective tissue. These masses also may later be torn loose and form "joint mice."

Adhesions never form between the opposing joint surfaces, and ankylosis never takes place. We have seen that in the first type adhesions between the bone-ends are due to the proliferation of the synovia and of the granulation tissue in the marrow through the gaps in the cartilage, but in the second type the proliferation is not present. The obstruction to motion is purely

mechanical. It will be remembered that in old fractures, where eburnation of the bone-ends has taken place, union is impossible.

HISTOLOGIC PATHOLOGY

The changes in the bone and cartilage have hitherto been regarded as the essential lesions of this disease, and to the naked eye they appear to be most important, but their study has been almost devoid of results. If we carefully examine the behavior of the bone-marrow from which they draw their nutrition, and of the synovia, we shall immediately detect significant alterations in structure, and possibly in the end we may come to regard the bone and cartilage changes as merely the results of these alterations.

If the synovia be examined under the microscope, areas of round-cell infiltration will be seen, especially in the neighborhood of the blood-vessels. The arteries are often thickened and the veins widened. On the surface of the membrane there may be a slight increase of the lymphoid elements, but the membrane itself, while often thickened, cannot be said to be proliferated, but rather degenerated. One sees areas of fat-cells scattered through it and much new fibrous tissue. In some instances also cartilage cells can be distinguished in their capsules, in the new fibrous connective tissue. The pathologic process in the synovia may be interpreted as localized inflammation followed by degeneration. Possibly the signs of inflammation may disappear in the late stages of the disease, but they are certainly present in the active period.

Of the changes one meets in the marrow it is hard to say which are characteristic. Perhaps a fibrous change is met most frequently. The normal marrow may be replaced by new fibrous tissue in whose meshes the marrow-cells may be distinguished. In certain situations the normal reticulum cannot be made out, and the marrow-cells, seen with some difficulty, lie embedded in coarse granular material. Again, the marrow is packed with cells; in spots it appears practically normal. The marrow spaces are less capacious than normal, on account of the production of new bone. Islands of cartilage in the marrow probably represent the early stages of new bone trabeculae cut across. Occasionally one sees evidences of a productive osteitis. Cysts are sometimes present. The arteries show thickened walls.

The bone is decidedly increased in amount. The trabeculae are thicker than normal, and in larger numbers. Some of them are composed partially of osteoid tissue. Often one finds a solid layer of bone underneath the cartilage, instead of the normal buttresses. The production of new bone dominates the picture.

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ABSTRACT OF DISCUSSION

DR. THOMAS STOTESBURY GITHEES, New York: It is strange, considering the importance and frequency of chronic joint disease, that so little scientific study of the subject has been made. I think that Dr. Ely is correct in saying that the solution of the question must come largely from the pathologist. In making a study of the literature, some years ago, it seemed to me that the cases fell more or less sharply into two classes, as he suggests: a class that apparently begins as an infection, and in which any degenerative changes that follow are due to inflammation; and a class that apparently begins without infection, from some trophic, nervous or metabolic condition (in which, also, the true gout should be included and the joint disease that accompanies syringomyelia and tabes) and is characterized primarily by atrophy, the inflammatory reaction, if any occurs, being secondary.

SOME RECENT ADVANCES IN OUR KNOWLEDGE OF TYPHUS*

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Up to three years ago our knowledge of typhus stood almost exactly where it was at the time Gerhard and Pennock first convincingly laid down the difference between it and typhoid. Greater advances have been made in the last three years than in all of the immediately preceding three-quarters of a century. These advances are the direct outcome of the discovery that the disease may be inoculated in the monkey. This discovery was made independently first by Nicolle working in Tunis¹ and a few months later by Anderson and Goldberger² working in Mexico.

SUSCEPTIBILITY OF THE MONKEY

In July, 1909, Nicolle reported the first successful inoculation in an ape (anthropoid). A few months later by successfully inoculating the rhesus and the capuchin monkey, and showing that these were thereafter immune, Anderson and Goldberger not only confirmed this report, but also proved that the fever induced in the monkey was typhus. Following this in rapid succession came reports of success from Ricketts and Wilder,³ Gaviño and Girard⁴ and others.

Nicolle on account of his previous failures believed at first that the lower apes were not susceptible to inoculation directly from man; he believed that to inoculate these it was necessary to prepare the virus by previous passage through an anthropoid (chimpanzee). This has been shown by all other workers not to be the case, and more recently Nicolle himself has successfully inoculated the rhesus and the bonnet monkey with human blood.

Besides the chimpanzee, four species of monkeys of the genus *Macacus*, two of the genus *Cebus* and one of each of the genera *Cercopithecus*, *Ateles* and *Myctes*

have been found to be susceptible and to react in essentially the same way to an inoculation with virulent blood.

A successful inoculation whether by intravenous, intraperitoneal or subcutaneous injection manifests itself by a fever which develops more or less abruptly after a quiescent period of variable duration, and terminates almost as abruptly as it begins. The incubation period has been found to vary between five and twenty-four days; as a rule, however, the fever begins between six and twelve days after the inoculation. As in man, the temperature of the monkey rises fairly rapidly, at times very abruptly, commonly reaching its fastigium in thirty-six to forty-eight or seventy-two hours. It then continues at, or near, the maximum for a variable period of one or two to five or more days, after which it declines. The defervescence like the onset is much like that in man; it is usually gradual, but frequently it is quite rapid, or even critical. The fever may be accompanied by loss of appetite, thirst, a ruffling of the fur and a drooping posture; more commonly, however, the animal, except for some slight listlessness, manifests hardly any outward signs of illness. Occasionally after the temperature has been normal for three or four days, it goes up a second time and a relapse lasting five to seven or more days develops. Although it is in appearance a very mild disease, we have nevertheless had a typhus mortality in our monkeys of about 2 per cent.

A monkey that has presented a reaction such as just described will be found refractory to a subsequent inoculation and therefore such a reaction is ordinarily a sufficient basis for a diagnosis of typhus. When the fever is so slight as to be doubtful or its course atypical, a definite interpretation cannot be made without the immunity test. Should the test in such instances show that resistance had not been conferred, a diagnosis of typhus is not permissible. A fever that does not immunize cannot in the present state of our knowledge be considered typhus. On the other hand, as we have elsewhere pointed out, resistance to an immunity test cannot in the absence of a previous febrile reaction be construed to mean that the resistance is the result of a vaccination with the virus previously introduced. For we have found that some normal individuals may be transiently or, more rarely, permanently resistant. Failure to recognize these limitations in the interpretation of experimental results has led one notable group of workers to some curious and contradictory conclusions.

Another point of considerable practical importance that is of interest in this connection is the relation of dosage to the character of the reaction. Nicolle and his colleagues are inclined to regard the severity of the febrile reaction as directly related to the dosage of the virus. Our recent studies have served to convince us that this is not a necessary relation, for we have found that of two monkeys inoculated simultaneously with different volumes of the same virulent blood or blood-serum, the one receiving the larger dose may not only present the milder reaction, but, indeed, may altogether fail to become infected.

INFECTIVE PERIOD OF THE BLOOD

The experimental work of Anderson and Goldberger, of Ricketts and Wilder, of Gaviño and Girard, but more particularly that of Nicolle and Conseil has developed a solid basis for the conclusion that the virus of typhus is present in the blood at least throughout the febrile period.

Nicolle and Conseil were the first to try to determine whether the virus is present in the blood either before

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Nicolle, C.: Reproduction expérimentale du typhus exanthématique chez le singe, *Compt. rend. Acad. d. Sc.*, July 12, 1909, p. 157; Recherches expérimentales sur le typhus exanthématique entreprises à l'Institut Pasteur de Tunis, *Ann. de l'Inst. Pasteur*, April, 1910; January, 1911; April 25, 1912.

2. Anderson, J. F., and Goldberger, J.: The Relation of Rocky Mountain Spotted Fever to the Typhus Fever of Mexico; a Preliminary Note, *Public Health Reports*, Washington, Dec. 10, 1909, p. 1861; A Note on the Etiology of "Tabardillo," the Typhus Fever of Mexico, *ibid.*, Dec. 24, 1909, p. 1941; The Infectivity of Tabardillo or Mexican Typhus for Monkeys and Studies on Its Mode of Transmission, *ibid.*, Feb. 18, 1910, p. 177; The Relation of So-Called Brill's Disease to Typhus Fever; an Experimental Demonstration of Their Identity, *ibid.*, Feb. 2, 1912, p. 49; The Etiology of Tabardillo, or Mexican Typhus; an Experimental Investigation, *Jour. Med. Research*, June, 1910, p. 469; The Experimental Proof of the Identity of Brill's Disease and Typhus Fever, *New York Med. Jour.*, March 11, 1912, p. 976.

3. Ricketts, H. T., and Wilder, R. M.: The Typhus Fever of Mexico (Tabardillo), *THE JOURNAL A. M. A.*, Feb. 5, 1910, p. 463; The Transmission of the Typhus Fever of Mexico (Tabardillo) by Means of the Louse (*Pediculus vestimenti*), *ibid.*, April 16, 1910, p. 1304; The Etiology of the Typhus Fever (Tabardillo) of Mexico City, *ibid.*, April 23, 1910, p. 1373; Further Investigations Regarding the Etiology of Tabardillo (Mexican Typhus Fever), *ibid.*, July 23, 1910, p. 309.

4. Gaviño, A., and Girard, J.: El tifo experimental en los monos inferiores, *Pub. d. Inst. Bacteriol. Nacional, Mexico*, May and June, 1910; Tercera nota sobre el tifo experimental en los monos inferiores, *ibid.*, Aug. 23, 1910; Cuarta nota sobre el tifo experimental en los monos inferiores, *ibid.*, Nov. 9, 1910; Estudio experimental sobre el tifo exantemático, *ibid.*, Nov. 12, 1911.

the beginning of the fever or after its defervescence. On the basis of one experiment they concluded that the virus is present in the blood before the beginning of the fever and on the basis of another that it is still there early in convalescence. A critical examination of these experiments satisfied us that, while the blood may be infective both before and after the fever, the experiments themselves did not justify this conclusion; for in one of these their interpretation is based solely on the negative result of the immunity test, the monkey having previously presented no febrile reaction; in another, on a fever of not more than twenty-four to thirty-six hours duration which was not followed by resistance to the immunity test.

As the point in question has important bearings, we thought it desirable to test it further. We therefore tried to infect one monkey with blood obtained from an animal thirty-two hours before the beginning of its fever and another with blood obtained twenty-four to thirty-two hours after the return of its temperature to normal; the former monkey was neither infected nor immunized, but the latter responded with a clearly defined, though mild, febrile reaction of seven days' duration, showing that the blood with which it was inoculated was infective. We conclude, therefore, (1) that satisfactory evidence has not yet been adduced that the blood of the monkey infected with typhus is virulent in the prefebrile stage, and (2) that the blood of the monkey may still be virulent twenty-four to thirty-two hours after the return of the temperature to normal.

SEAT OF THE VIRUS

Recognition of the infectivity of the blood naturally leads to the search for the element or elements of the blood in which the virus is localized.

Nicolle and Jaeggy were the first to consider the problem, and on the basis of a peculiar necrosis of the polynuclears, described by them, suggested that the virus is localized in the white blood-cells. Nicolle, Conor and Conseil⁵ have argued in favor of this hypothesis.

Their argument is based chiefly on two series of experiments which they interpret as showing that, of the various elements of the blood separated by centrifugation and washed, the white cells are the most virulent, the plasma is less active and the red corpuscles are deprived of all virulence. Accepting their interpretation it is impossible to see how this points to an intraleukocytic localization of the virus; in order to support their hypothesis the virulence of the various elements of the blood should be in proportion to their richness in leukocytes, and therefore the red corpuscles instead of being avirulent, as Nicolle, Conor and Conseil report, should be, at least, as virulent if not more virulent than the plasma. For it must be borne in mind that separation of the elements of the blood by centrifugation is not absolute: the red corpuscles, as they go to the bottom of the tube, carry with them a not inconsiderable number of leukocytes so that after the separation is completed a leukocyte count will show a vastly greater number of white cells in a given volume of red corpuscles than in the plasma. But even if we assume that the virulence of the various elements of the blood, as given by Nicolle, Conor and Conseil, is proportionate to their richness in leukocytes, this would not, of itself, mean that the parasite is intraleukocytic. All that it would be permissible to

infer is that there is a similarity in the behavior of parasite and leukocyte when subjected to centrifugation and this may be equally true of a parasite free in the plasma as of one in the leukocytes.

The fact that the plasma of the centrifugated blood was found by Nicolle, Conor and Conseil to be infective in both series of their experiments as well as the fact that we have found the blood-serum obtained from centrifugated clotted blood infective must, on the whole, be considered as pointing to the existence of an extracellular organism.

As has already been stated, Nicolle, Conor and Conseil believe that the red corpuscles after one washing are no longer infective (or only inconstantly so). We believe this is an error of interpretation, due to a disregard of the possibility that the monkey is not at all times susceptible to infection. In a single experiment made to test this point we found that the corpuscles were infective after three washings. This would appear to suggest that the virus adheres rather closely to the blood-cells. We believe, however, that the real explanation is to be found, at least in large part, in the inherent defect of the method (centrifugation) employed for the separation of the virus and the corpuscles. Just as a considerable number of leukocytes are entangled and carried down by the reds in centrifugating blood so, we believe, is the virus carried down by the precipitated blood-cells.

FILTERABILITY OF THE VIRUS

The question of the filterability of the virus as it exists in the blood has been the subject of considerable research, but the results recorded do not appear to be altogether harmonious.

The first filtration experiments, almost simultaneously reported by Ricketts and Wilder and by Anderson and Goldberger, pointed to the non-filterability of the virus. Later, however, Wilder reported the result of a second filtration experiment made by him in collaboration with Ricketts, which seemed to indicate that the monkey inoculated with the filtrate had been made refractory. A similar result was recorded by Nicolle, Conor and Conseil, who interpreted it as indicating the filterability of the virus.

In our recent work we have met two instances of resistance to the immunity test apparently conferred by an inoculation with filtered serum. In one of these, the monkey successfully resisted two immunity tests, but responded promptly and sharply to the third; in the other, the monkey resisted one immunity test, but yielded when this was repeated. It is clear that in these two cases the resistance could not have been due to vaccination with the filtrate; if such had been the case, the repeated immunity tests should have strengthened this resistance. We believe that the apparent immunity of our two monkeys was simply a transient natural insusceptibility and that this phenomenon explains the results reported by Wilder and by Nicolle, Conor and Conseil. There is therefore no evidence to show that the virus as it exists in the blood is capable of passing through the Berkefeld filter.

This fact, however, does not necessarily mean that it may not be capable of passing in the form in which it exists in the body of the louse. We have tested this by inoculating a monkey with a filtered suspension of crushed body lice. The animal developed no fever, but has resisted several successive immunity tests. This, while it seems to point to the existence of a filterable phase in the body of the louse, being based on a single

5. Nicolle, C., Conor, A., and Conseil, E.: Sur la nature et la siège de l'agent pathogène du typhus exanthématique, *Compt. rend. Acad. d. sc.*, Sept. 18, 1911

experiment in an animal not necessarily very sensitive, cannot be regarded as conclusive without further corroborative work.

VIABILITY OF THE VIRUS

The virus in the blood is not very highly resistant. We have found that drying for twenty-four hours and heating at 55 C. (131 F.) for five minutes deprives it of infectivity; it may resist freezing, however, for at least eight days.

Gaviño and Girard report that the infectivity of the blood is lost after an hour's contact with phenol in 0.5 per cent. solution, but that it is retained after an hour's contact with saponin in a solution of like strength. They also found that a mixture of 6 c.c. of virulent defibrinated blood and 2 c.c. of ox-bile was infective after an hour's contact at room temperature. These authors point out that the resistance of the exanthematic virus to bile and to saponin, without permitting definite conclusions, is in favor of the bacterial nature of the virus.

TRANSMISSION

To the modern student the epidemiology of typhus at once suggests an insect intermediary. Of the insects that occur to one as possibly playing this rôle, the louse best explains all of the important features of the epidemiology of typhus. Transmission by the louse explains why typhus has been a disease peculiarly associated with misery and poverty, why it has been a vagabond's disease, a disease of jails and army camps—in brief, a disease of filth and overcrowding. This hypothesis was first tested by Nicolle, Comte and Conseil,⁶ who were able to report the successful transmission of the disease by means of the bites of body lice (*P. vestimenti*) early in September, 1909. Since then this finding has been confirmed by Ricketts and Wilder,⁷ and by ourselves,⁸ so that it may be considered as established that typhus fever is transmissible by the bite of this insect.

PERIOD OF INFECTIVITY OF THE LOUSE

Nicolle and Conseil believe that the infectivity of the body louse is limited to the period between the fifth and the seventh day after the infecting feed. They base this opinion on the result of a single experiment. Wilder reports an experiment that seems to indicate that the louse is not infective until the fifth or sixth day after its last contact with the infecting host, but he very correctly points out that it is not justifiable to conclude from a single negative experiment on a single animal, as Nicolle does, that the louse is not infective after the seventh day.

TRANSMISSION BY THE HEAD LOUSE

The possibility of transmission by means of insects other than the body louse was first studied by Ricketts and Wilder, who reported against the flea and the bed-bug. On epidemiologic grounds it seems highly probable that neither of these insects plays a part. It occurred to us that the head louse, on account of its close biologic relation to the body louse, might perhaps be capable of transmitting this disease. Putting this idea to the test, we have been able to infect a monkey by the subcutaneous injection of a number of crushed

head lice, and in one of three experiments apparently to vaccinate by their bites. This evidence, while highly suggestive, cannot, without confirmation, be considered as proving conclusively that the disease is transmissible by the bite of the head louse (*Pediculus capitis*).

IDENTITY OF BRILL'S DISEASE

One of the most notable recent advances in our knowledge of typhus is the demonstration that this disease, instead of being the exotic plague that it has almost universally been considered, has actually been endemic in this country for many years. Brill,⁹ in a series of papers dating from 1898, called attention to a fever prevailing in New York that was generally regarded as an atypical typhoid or paratyphoid, but which he showed could be satisfactorily distinguished from these infections. He pointed out its close clinical resemblance to typhus, from which he differentiated it, however, on certain epidemiologic grounds. Brill's contributions attracted considerable attention and the nature of the disease described by him aroused not a little discussion, opinion being divided as to whether it was an atypical typhoid paratyphoid or typhus, on the one hand, or "a disease of unknown origin," on the other.

In the fall of 1911 we obtained access to a typical case of this fever and, unlike Brill, succeeded in infecting the monkey with it. Following this we tested its relationship to Mexican typhus by a series of cross-immunity tests, and found that monkeys that had recovered from Brill's disease could not be infected with Mexican typhus, and, conversely, that monkeys that we had reason to believe were resistant to Mexican typhus could not be infected with Brill's disease. This reciprocal immunity shows conclusively that the New York (Brill's) disease and Mexican typhus are identical. As the New York disease, or perhaps better, American disease, for it has now been reported, not only from New York, but also from Brooklyn, Philadelphia, Washington and Chicago, is undoubtedly of European origin, we have in this demonstration proof of the identity of the European and the Mexican disease.

This demonstration obliges the American sanitarian to recognize the existence of a problem of which he has heretofore been unaware; it also makes it necessary for the clinician to revise the classical conception of typhus, just as he has had to revise his conceptions of small-pox and yellow fever.

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NOTE.—In addition to the authorities already cited, the following may be consulted:

Fuerth: Die Fleckfiebererkrankungen des Frühjahres, 1911, in Tsingtau und Untersuchungen über den Erreger des Fleckfiebers. Ztschr. f. Hyg. u. Infektionskrankh., 1912, lxx, No. 3, p. 333.

Lewis, Morris J.: So-Called Brill's Disease, Tr. Assn. Am. Phys., 1911, xxvi.

Louria, Leon: Brill's Disease, Med. Rec., New York, Aug. 26, 1911.

McCampbell: Observations on Typhus Exanthematicus (Tabardillo) in Mexico, Jour. Med. Research, August, 1910, xxiii, 71.

ABSTRACT OF DISCUSSION

DR. G. A. FRIEDMAN, New York City: I am glad to hear experimental proof of the identity of the so-called Brill's disease and typhus fever. Such evidence, however, is nothing more than a single link, and we must not lose sight of the clinical picture in our enthusiasm over experimental findings. The clinical picture of Brill's disease is the clinical picture of typhus, as I have seen it in Russia, in three epidemics and in many sporadic cases. It is a typhus of a modern American city, and a modern American hospital. Ever since

6. Nicolle, C., Comte, C., and Conseil, E.: Transmission expérimentale du typhus exanthématique par le pou de corps, Compt. rend. Acad. d. sc., Sept. 9, 1909, p. 486.

7. Wilder, R. M.: The Problem of Transmission in Typhus Fever, Jour. Infect. Dis., July, 1911, p. 9.

8. Goldberger, J., and Anderson, J. F.: The Transmission of Typhus Fever, with Special Reference to Transmission by the Head-Louse (*Pediculus capitis*), Pub. Health. Rep., Washington, March 1, 1912; Studies on the Virus of Typhus, *ibid.*, May 31, 1912.

9. Brill, N. E.: Pathologic and Experimental Data Derived from a Further Study of an Acute Infectious Disease of Unknown Origin, Am. Jour. Med. Sc., August, 1911.

the first time I heard Dr. Brill, over two years ago, I have believed this disease in New York to be nothing more than typhus fever. My paper, read before the Academy of Medicine in New York, in 1911, and published in the *Archives of Internal Medicine*, showed that typhus fever had lost much of its virulence; that it was constantly present in many communities; that it is not easily communicable under good hygienic and sanitary conditions; and that where sporadic cases are present, an epidemic may at any time break out; that in New York City and all over this country, cases of typhus must have been constantly present, but not recognized; and that the mortality among certain races may be a little over 5 per cent. I always thought that to admit that typhus fever is as dreadful now as it was considered by the masters of medicine in their time would be to reflect on the science of medicine; it is equivalent to admitting that our modern hygiene and sanitation have been of no use.

Drs. Anderson and Goldberger did not obtain a rash in their monkeys; but this is of no importance. When one has seen many cases of typhus one will note that the rash is frequently absent, especially in children. A few weeks ago, through the kindness of Dr. Bullowa, I saw three typhus patients in one family—a father and two children. The father had a pronounced maculopapular rash. The older child had a rash, but not so pronounced; and the younger child had no rash at all. Yet all had typhus fever.

It has been asked why Mt. Sinai Hospital sees cases mostly in summer. Epidemics of typhus are usually at an end before summer. In the winter, cases of typhus are taken for influenza, because accompanied by coryza and bronchitis, and to the layman this diagnosis seems very plausible. But in the summer, it is entirely different. When the physician makes such a diagnosis, the people do not agree with him, for they do not believe in influenza in summer, and are alarmed. Therefore, they send the patient to the hospital; and the physician himself probably wavers a little about his diagnosis of influenza.

DR. V. C. VAUGHAN, Ann Arbor, Mich.: I think that Dr. Goldberger stated that Cole had said that the temperature was in direct proportion to the amount of blood injected, but that he had proved otherwise. That is an interesting point. You can inject the whites of three eggs into a rabbit, and get no elevation of temperature. I have done that every two hours for six weeks, and failed to get a rise of temperature. If, however, you inject one-twentieth of a drop of a dilution of egg-white with an equal portion of salt-solution, you can get a fever. There is a relation between the amount of protein material going into the animal and the height of the fever. The explanation of this, I do not know. I have a theory, but it is not satisfactory; and that is, that the fever results from the cleavage of the protein. The rapidity of cleavage is due to the surface exposure of the protein that is injected. If you inject a large amount of any protein into an animal, you get no fever; but a small amount causes fever. When a large amount is injected, it disappears from the blood in a very short time. We can demonstrate this by taking some blood from the heart of an animal and injecting it into the guinea-pig, sensitizing it against that protein. It is a very interesting thing, but I do not understand it.

Another very interesting thing is the following: You can take an animal and give it a sudden lethal dose of the protein poison, and get all the symptoms characteristic of that poison; yet, while the animal is suffering from this dose, you can give it two or three times a fatal dose, and it will not kill him. There seems to be a point beyond which the effect will not go, unless it is given at one dose. One man at work on that subject says that this is an evidence that the protein poison is not a chemical poison, because no chemical poison would act in that way; but I find that Gebbert, working with hydrocyanic acid, forty years ago, found that if he gave a non-poisonous dose to an animal, he could give it, while suffering from the first dose, enough to kill it, and it would not prove fatal. These things I cannot explain altogether, but they are undoubtedly facts.

DR. J. GOLDBERGER, Washington, D. C.: The length of time that the virus will live in the louse has not been determined.

The epidemiologic points raised by Dr. Brill, pointing to differences between these diseases, are such points as arise in connection with other diseases as these are more thoroughly and carefully studied. We have learned, in recent times, that a disease of the classical type is not the only type of the disease that exists. Yellow fever, for example, is not, as we used to think and as many still believe, exactly synonymous with black vomit and a funeral. The classical conception of typhoid is certainly very different from many of the cases that clinicians now recognize, and the same thing may be said of almost every infectious disease with which we are acquainted. It is true of typhus; and the only reason that it has not been recognized is that the American profession labors under the delusion that the disease does not exist in the United States. There is no doubt that it does; and, sooner or later, we may be brought to a sharp realization of the fact by an epidemic outbreak.

IMMUNITY AND SPECIFIC THERAPY IN EXPERIMENTAL CANCER *

ISAAC LEVIN, M.D.

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An important biologic phenomenon is presented by the immunity or resistance of certain animals to the growth of transplantable tumors of white rats and mice. It may be helpful in establishing rational methods for treating human cancer if the assumption is correct that there undoubtedly exists as complete an analogy between human cancer and the tumors in these animals as the analogy between other human diseases and those that can be reproduced artificially in lower animals.

In a recent publication von Hanseemann¹ has again cast doubt on the analogy between human cancer and the inoculable tumors of white rats and mice, and declared that the latter are a great deal more benign in their course than human cancer. This assertion, while uttered by a man of great authority, does not coincide with the facts ascertained by a great deal of painstaking and careful experimental study. The spontaneous tumors which occur in these animals give rise to metastasis in 20 to 38 per cent. of the animals; they recur after an apparently radical operative removal and kill the animal in about six weeks after the tumor has come under observation. Consequently the spontaneous tumors of white rats and mice are truly malignant in their clinical behavior, and morphologically also they are similar in every respect to human malignant tumors.

The tumors which are reproduced artificially in these animals by the usual method of subcutaneous inoculation seem to be more benign in their character than the spontaneous tumors and consequently also the human cancer. The tumors inoculated subcutaneously are circumscribed, encapsulated growths; they do not recur on removal, do not invade the surrounding tissue and seldom form metastases. In a recent investigation² I have shown that these apparent differences between spontaneous and inoculated tumors of the animals are due to the technique employed in inoculation. Various tumors were inoculated into different organs, including the brain, kidney, liver, spleen and testicle. Tumors thus induced artificially showed all the characteristics of

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Department of Pathology, College of Physicians and Surgeons, Columbia University. Work conducted at the expense of the George Crocker Special Research Fund.

1. Von Hanseemann: *Berl. klin. Wchnschr.*, 1912, xxix, 223.

2. Levin, I.: *Jour. Exper. Med.*, 1912, xvi, No. 2.

malignancy described in human cancer. The tumor cells infiltrate diffusely and replace the substance of the organ. Consequently symptoms of clinical malignancy must occur as soon as a sufficient amount of a vital organ has been replaced by the tumor. These animals do not live any longer than about ten weeks after the inoculation and frequently die with much smaller tumors than are obtained on a subcutaneous inoculation. Metastases form with much greater frequency than after a subcutaneous inoculation and the tumors recur after an apparently complete operative removal. Thus tumors of white rats and mice inoculated into organs, as well as spontaneous tumors, are identical in their biologic behavior with the malignant tumors of man; and in elucidating human cancer, results obtained in the experimental study on animal tumors may be used with the same caution that is required in all other subjects of experimental medicine.

IMMUNITY TO INOCULATED TUMORS

It was stated above that the most important phenomenon observed in the course of these studies is the immunity of certain animals to the growth of an inoculated tumor. The mechanism of this immunity differs in many respects from the immunity of an organism against bacterial diseases, though it resembles somewhat the active immunity induced by vaccination. No irrefutable evidence is brought forward to indicate that a passive immunity may be induced by treatment of a normal animal with the blood-serum of an immune. The further fact that unimpaired living tissue seemed to have been required to immunize an animal against tumor growth and that there is no specific relationship between the character of the tissues used for immunization and the tumors used for subsequent inoculation was the cause of the prevailing idea that immunity in experimental cancer is due to a purely cellular activity of the organism of the host.

The most popular theory of cancer immunity is the one advanced by Ehrlich³ under the name of "athrepsia," which is based on the following considerations: Growth of inoculated cancer is due to cellular activity and indicates that the tumor cells possess a great avidity for a certain specific foodstuff within the organism of the host and consequently obtain it from the normal tissue cells of the organism. When cancer fails to grow, then either the organism of the host does not possess the necessary specific foodstuff or else the avidity of the cancer for this food is not strong enough to deprive the normal tissue cells of it. When the organism of the host is immunized by treatment with a cell emulsion, these cells bind the specific food and consequently the cancer cells inoculated subsequently do not find the necessary nourishment, and die.

Bashford⁴ in his conception of immunity in experimental cancer, also considers it to be a kind of cellular activity and furthermore denies that there is any direct influence of the organism of the host on the inoculated cancer cells. According to his idea, an inoculated piece of cancer tissue causes in the new host the formation of a specific connective tissue and vascular scaffolding. This connective-tissue stroma surrounds the graft and furnishes it with the mechanical support and nutrition necessary for its development. Immunity, then, consists in the failure of the organism of the host to supply the specific stroma reaction. The immune organism does

not produce a direct deleterious effect on the cells of the inoculated cancer, but alters its own normal connective-tissue cells so as to render them insusceptible to the chemotactic properties of the inoculated cancer cells. Other investigators, including Borrel,⁵ incline to accept the view that the immunity in experimental cancer is analogous to the immunity in bacterial diseases and is caused by certain cytolytic antibodies circulating in the blood.

I have investigated the subject of immunity from various standpoints.⁶ In the first place, these investigations have shown that it is possible to immunize an animal against a subsequent tumor inoculation not only by a previous injection of an emulsion of living cells but also by one of autolyzed tissue; i. e., of tissue in which the cells have suffered dissolution but in which the endocellular ferments apparently remain active. This fact militates against the supposition that immunity in experimental cancer is due to a peculiar cellular activity. This immunity is probably due to action of ferments and hence is analogous to bacterial immunity. In the same investigation it was also indicated clearly that the result of tumor implantation is determined by two separate factors: first, by the implantability of the ingrafted tumor; and, second, by the rapidity and rate of its growth if ingrafted.

In collaboration with M. J. Sittenfield,⁷ I have shown that athrepsia may serve to explain solely the condition of the resistance and susceptibility of an animal to the grafting of tumor tissue, and that the success of such grafting of the inoculated cells may depend on conditions of nutrition. On the other hand, the differences in nutrition cannot explain the reason why in one successful tumor graft there forms a small nodule which is subsequently absorbed, while in another the nodule grows into a large tumor and kills the animal. The latter phenomenon can be explained only by an active inhibitory influence exerted on the cancer cells by the organism of the host.

Further studies of mine⁸ have shown that Bashford's theory of a specific connective-tissue scaffolding has no general application in the explanation of cancer immunity. The condition appears to be quite different when the tumor is inoculated into an organ instead of subcutaneously. When a piece of tissue is inoculated into an organ, the first visible step is not the formation of a surrounding connective-tissue stroma. The inoculated cells immediately begin to proliferate and invade diffusely the normal tissue. On the other hand, in an immune animal⁹ the tumor inoculated into an organ does not grow but dies and is surrounded by an extensive connective-tissue stroma like any other dead foreign body. Consequently the immune organism does not lack the capacity to form connective-tissue scaffolding but actively inhibits the proliferation of the cells of the implanted piece of tumor.

In a recent investigation¹⁰ on the so-called "preeancerous state" I have gained another striking proof that the condition of immunity in animal cancer is not due to exhaustion of nutrition but to an active inhibitory influence of the organ cells on the tumor cells. It appears that immunity in experimental cancer is not always a general condition of the whole organism but

5. Borrel: *Bull. de l'Inst. Pasteur*, 1907, v, 207.

6. Levin, I.: *Proc. Soc. Exp. Biol. and Med.*, 1910, vii, 64; *Jour. Exper. Med.*, 1910, xii, 594.

7. Levin, I. and Sittenfield, M. J.: *Jour. Exper. Med.*, 1911, xiii, 511.

8. Levin, I.: *Jour. Exper. Med.*, 1911, xiii, 604.

9. Levin, I.: *Jour. Exper. Med.*, 1911, xiv, 139.

10. Levin, I.: *Jour. Exper. Med.*, 1912, xv, 163.

3. Ehrlich, P.: *Arb. a.d.k. Inst. f. exper. Therap. zu Frankfurt*, 1906, No. 1, p. 77.

4. Bashford, Murray and Cramer, T.: *Scientific Reports of the Imperial Cancer Research Fund*, 1908, No. 3, p. 315.

may also be localized in one organ. I found that Flexner-Jobling carcinoma of the white rat, which grows readily on a subcutaneous inoculation, does not grow when inoculated into a normal testicle. This resistant testicle may be rendered susceptible to the growth of the tumor by treatment with scarlet R oil or ether. These substances impair the normal functions and consequently the inhibitory action of the parenchymatous cells on the cancer cells. This purely local treatment of the organ cannot diminish the amount of the specific food which the inoculated cancer cells may find in the organism of the host.

Thus the mechanism of immunity in experimental cancer consists most probably in an active inhibitory influence of the normal organ tissue on the cancer cells and is analogous to immunity in bacterial disease. But the conditions are by no means identical and new methods will have to be devised in order to discover the presence of antibodies in the organism and to determine its nature.

The malignant tumors of white rats and mice are analogous, as stated above, to human cancer and it seems feasible to suppose *a priori* that similar conditions of resistance may exist in man. It is difficult to ascertain the matter in view of the chronic course of the disease, but rare cases of spontaneous cure in human cancer reported by Orth¹¹ and others, and my investigations¹² on the heredity in human cancer make it probable that a condition similar to an immunity may exist in human cancer.

SPECIFIC THERAPY

The great practical significance of the phenomenon of immunity in experimental cancer is due to the fact that there exists a direct relationship between immunity and specific therapy of a disease. Ehrlich was the first to indicate this relationship and to create a new science of experimental specific therapy. The action of antitoxin shows clearly this relationship. Blood-serum which is capable of passively immunizing a healthy organism will at the same time cure a diseased organism. Such specific serotherapy is as impossible to obtain in experimental cancer by present methods as to show the existence of antibodies in the blood-serum of a tumor-bearing animal.

Better success followed the treatment with substances containing free enzymes. I stated above that I have succeeded in immunizing animals against cancer growth by injection of autolyzed tissue. Blumenthal¹³ and Carl Lewin¹⁴ have reported successful treatment of cancer in rats with injection of autolyzed tissue. I have been quite as successful with the same method of treatment. The following is a short summary of the experiments:

Sarcoma tissue of a white rat was removed under aseptic precautions and autolyzed for three days. The fluid was then filtered and injected subcutaneously into rats with a large growth of the same sarcoma. Twenty-four hours after the injection the removed tumor showed a severe hyperemia with numerous hemorrhages in the parenchyma. Subsequently many of the tumors liquefied and either sloughed off or became absorbed. But at present the results of this specific ferment therapy, if this term may be used, are as yet unsatisfactory. The true nature of the therapeutic action of the substances is not known. The same autolyzed tissue may be active

in one series of experiments and not in another. All my attempts to obtain the same results with treatment of sarcoma of the white mouse with autolyzed mouse sarcoma failed.

CHEMOTHERAPY

The greatest discovery of Ehrlich in the whole field of specific therapy is the finding of a mechanism of the specific therapeutic action of certain chemicals. It was known empirically long before that certain drugs have a specific action against a disease, as for instance quinin in malaria or mercury in syphilis. Ehrlich noticed that in certain infectious diseases, mainly in those caused by such animal parasites as trypanosomes or spirilla, it was extremely difficult to produce an active immunity, and consequently the formation of a passively immunizing and curative serum. It occurred to him then to try to obtain a chemical which would have a specific action on the parasites and consequently be a true curative agent against the disease. Ehrlich¹⁵ was led to the idea by the results of his previous studies on vital staining.

These investigations have shown that certain dyes when introduced into a living organism may stain one group of cells or organ and leave the other organs unaffected, as for instance, methylene-blue, which stains only the central nervous system. Another dye closely related chemically to the first may lack the same specific effect on the same organ. Ehrlich arrived at the view that specific action of chemical substances depended on three factors: (1) the chemical constitution of the substance; (2) its pharmacodynamic action; and (3) its specific distribution in the different tissues of the organism. *A priori* it seemed further possible that chemicals might be found which might be toxic for parasites and not toxic for the body cells, and thus a specific therapeutic measure might be found against the disease caused by the parasites. The theoretic deductions of Ehrlich proved to be correct and the brilliant discovery of salvarsan and of a new science of chemotherapy followed.

Since both serotherapy and ferment therapy have been of comparatively little value in the treatment of cancer, it is natural to expect that chemotherapy will be tried. Indeed, recently von Hansemann¹⁶ reported on a series of experiments in which he succeeded in curing tumor in mice with intravenous injection of a chemical combination of selenium and eosin. Von Wassermann asserts that the action of both substances is needed for the success of the treatment. Selenium in accordance with his ideas is toxic for all animal cells, while eosin is not toxic but has a selective action on the tumor cells. It enters the tumor and acts as a carrier transporting with it the selenium to the tumor cells. He further states that the same chemical combination of the two substances may be active in one series of experiments and inactive in another due to the biologic differences of the combination. It is also apparently difficult to differentiate between the curative dose and the dose which is toxic to the animal, as many animals died immediately after the injection.

The main difficulty in the selection of a correct chemotherapeutic agent, as stated by Ehrlich, consists in the fact that no chemical is strictly specific as an antitoxin, for instance. It is always both organotropic and parasitotropic; i. e., it affects to a certain extent always both the parasites and the body tissue. The difference between a cancer cell and a normal body cell is much less than between a trypanosome and a body cell; consequently it

11. Orth: Ztschr. f. Krebsforsch., 1904, i, 399.

12. Levin, I.: Ztschr. f. Krebsforsch., 1912, xi.

13. Blumenthal: Med. Klin., 1910, vi, 1982.

14. Lewin, Carl: Ztschr. f. Krebsforsch., 1912, xi.

15. Ehrlich, P.: Festschr. f. Leyden, 1898, I.

16. Von Wassermann, A. and Von Hansemann, D.: Berl. klin. Wchnschr., 1912, xlix, Nos. 1, 3, 5.

ought to be still more difficult to find a chemical substance which will be strongly toxic for the tumor cells and innocuous for the organ cells.

I am engaged at present in the comparative study of the action of various vital stains on normal rats and mice and on the same species of animals into which tumors were inoculated into parenchymatous organs. Of the different dyes used for the experiments eosin did not appear in my hands to stain selectively the tumors alone, but stains diffusely the whole organism. Furthermore, eosin itself without the addition of selenium appears to be extremely toxic and many animals die immediately or in a couple of hours after the intravenous injections of the eosin. Nagelschmidt¹⁷ also reported recently the fact that eosin is extremely toxic unless the precaution is taken of putting the animal in a dark room immediately after the injection.

Trypanblau, isaminblau and pyrrolblau have had extensive use recently for vital staining. These dyes have a selective action on certain cells. It is not necessary to enter here into the details of the subject. The following fact is of interest for the present discussion. In the liver of a normal animal these dyes stain the so-called Kupffer's cells. If a sarcoma is inoculated into the liver a great deal of the vital stain is found in the cells of the tumor. But not all the cells of the sarcoma take the stain and furthermore Kupffer's cells are stained as strongly as in a normal animal. It would seem probable, then, that the dyes used for vital staining will not be of great aid in the chemotherapy of cancer. Recently C. E. Walker¹⁸ reported on experiments with treatment of tumors with different combinations of selenium and eosin with completely negative results.

None the less, negative results of one investigator cannot completely contradict the positive results of another, and von Wassermann's results seem to be the most successful of all those reported. The presence of immunity in the tumor animals makes it quite certain that ultimately a specific method of treatment in experimental cancer will be found. But it is impossible to predict whether the methods of chemotherapy, serotherapy or ferment therapy will be the most fruitful of results.

Chemotherapy, as stated above, is not the ideal specific method of treatment but seems the most promising of results at present. It is difficult to predict the chemical nature of the most successful drug of the future, though I believe that one does not need to search for a substance absolutely fatal to the life of the tumor cells. The end may be achieved when a substance is found that will possess the power to arrest the active proliferation of the tumor cells. I am at present engaged in work in that direction.

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ABSTRACT OF DISCUSSION

DR. WILLIAM SALANT, Washington, D. C.: What was the duration of the immunity which Dr. Levin induced by means of autolyzed tissue? A cure for cancer or for any other disease by means of a specific which is not toxic is, I believe, hopeless, since any substance when given in sufficient amount may exert a harmful effect.

DR. G. W. MCCONNELL, Philadelphia: It seems to me that immunity in cancer tumors is one of the most difficult propositions, inasmuch as we know that it may also be given to

white mice, yet mice from different parts of the country will react differently to the same tumor. This winter, for example, in some tumor work in mice, I found, in a series of twenty mice, that only 3 per cent. showed a growth when inoculated with one kind of tumor, but when inoculated with a different form, they gave a percentage of 20.

I think that it is quite well understood that certain organs of the body have a distinct organ immunity. The spleen, for instance, is seldom the seat of primary tumors, and also quite rarely the seat of secondary ones. Metastasis from these tumors does not occur very frequently. Nevertheless, if the original growth is removed, we are more likely to get secondary tumors in other parts of the body following the original subcutaneous inoculation.

DR. V. C. VAUGHAN, Ann Arbor, Mich.: It seems to me that the ferment idea is the most reasonable one at present. Of course, there is nothing in sight as yet; but the fact that you can induce immunity by autolyzed tumors, it seems to me, indicates (I will not say proves, because it does not prove) a ferment action; and the autolysis is simply a change in the physical condition of the cancer protein. When autolyzed, it is soluble, and, therefore, more readily acted on by the ferments of the body. This, of course, is all hypothesis. Everything that we say about it is theoretical, as yet, but it is by means of hypotheses that we are ultimately enabled to do things. To say that the autolyzed cancer tissue, being soluble, is more readily acted on and calls out ferments that destroy that cancer tissue seems reasonable. It is undoubtedly true that there are two kinds of proteolytic ferments that the cells of the body are capable of forming, one of which may be called a general proteolytic ferment, and the other specific proteolytic ferment. Ferments have been extracted from the leukocytes and there is no doubt of their existence. This much of it is not hypothesis. The only question is about the possibility of developing in the body enough of a proteolytic ferment to destroy the cancer tissue without, in this destruction, liberating sufficient poison to be fatal.

DR. J. W. VAUGHAN, Detroit, Mich.: Dr. Levin said that he had a serum which he obtained from one animal injected with rat sarcoma which possessed a ferment that would split up the cancer cells in other animals with the same tumor. I should like to ask how long after the injection of the cancer tissue into the animal that serum was obtained. We are accustomed to consider a ferment as a stable product. For example, we look on the use of vaccine in small-pox as such, persons retaining immunity over several years. In the majority of cases of typhoid fever, the patients retain their immunity for a long time also. In cancer, a ferment is formed that is stable only for from six to ten hours. After that, it may be stored in small quantities in some other tissue of the body, but it is not active in the serum or the blood-cell.

DR. LEO LOEB, St. Louis: Experiments carried out in our laboratory proved that while the fowl spleen had a very active immunizing power against mouse carcinoma, the autolyzed spleen no longer had such an immunizing effect.

DR. ISAAC LEVIN, New York: In reply to Dr. Salant, I could not ascertain the duration of the immunity induced by treatment with autolyzed tissue. In order to prove that the animals are immune a piece of tumor is inoculated, which becomes absorbed. Thus the animals are rendered immune doubly, by the treatment with autolyzed tissue and through the inoculation of tumor. The latter immunity caused by an unsuccessful inoculation of tumor remains active all through the life of the animal and obscures the effect of the treatment with autolyzed tissue. No chemotherapeutic measure can be found which is toxic for a parasite and completely innocuous for the organ cells. Still more difficult would it be to find a chemical substance which will be toxic to the cancer cells and will not injure the organ cells. I stated, therefore, that in my opinion chemotherapy is not the ideal method of treatment in cancer, but for lack of better methods the research on lines of chemotherapy must continue. In my own investigations I am searching for a substance which will be toxic neither to the organ cells nor to the cancer cells, but will arrest the proliferating power of the latter. Such a substance would act in a manner antagonistic to those sub-

17. Nagelschmidt: Berl. klin. Wehnschr., 1912, xlix, 118.

18. Walker, C. E.: Lancet, London, 1912, clxxxii, 1337.

stances which, as Jacques Loeb has shown, enhance the proliferating power of the cell. While it is self-evident that no chemical will be absolutely innocuous to the cells of the organism, a chemical substance may arrest the proliferating power of a cell and not kill it. The influence of the racial differences on immunity is neutralized in our work by the great number of animals used. I stated that the question of organ immunity as well as general immunity in human cancer cannot be discussed at present for lack of properly analyzed material, but that my own investigations on eugenics in human cancer seem to indicate that there may exist a condition of resistance or immunity in human cancer. Metastases occur after an inoculation into a parenchymatous organ of tumors which do not metastasize on a subcutaneous inoculation. It is my personal belief that ferment activity underlies the condition of susceptibility as well as immunity in cancer. But at present the knowledge of the chemical nature of the ferments is so limited that it is impossible to ascertain their true functional significance.

FOUR CASES OF TYPHUS FEVER (BRILL'S DISEASE) IN ONE FAMILY
WITH SUCCESSFUL INOCULATION INTO GUINEA-PIGS AND MONKEY *

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The recent work of Anderson and Goldberger of the Hygienic Laboratory at Washington establishing, experimentally, the identity of typhus fever and so-called Brill's disease, together with the mode of transmission of typhus fever by body-lice as shown by these writers, and Nicolle and his co-workers abroad, and by head-lice as lately shown by Anderson and Goldberger, greatly increase the interest in cases of what we must now regard as endemic typhus fever, so well studied by Drs. Brill, Louri and others as it occurs in this country and especially in New York City.

For many months before the occurrence of those reported, no cases of typhus fever had occurred in New York to the best of our knowledge. Those that we present are unique in the history of the endemic form of the disease as it has been studied in New York, in that they affected four members of one family, and that two of them were young children. These cases, furthermore, represent types of the disease varying from the comparatively mild, to an example of typhus fever such as is commonly seen in epidemics, thus giving, as it were, a clinical demonstration of the identity of the endemic (Brill's) and epidemic form. But one member of this family escaped the disease, a child of 1½ years of age. A careful investigation of the premises (a large tenement house) in which these cases occurred failed to reveal the occurrence of any other cases previously, and an extensive inquiry among physicians and hospitals has brought to light but three additional cases of the disease up to the present time. The patients were typical east-side residents, Russian Hebrews of the poorer class. They had been in the country for about eight months.

REPORTS OF CASES

CASE 1.—Ida K., aged 28, (Chart 1), the mother, was admitted to the Har Moriah Hospital, April 9, 1912, with a temperature of 105 F. She had previously been healthy and there was nothing in her past history to throw any light on her present condition. About six days before admission she had a severe chill followed by fever, sweating and intense headache. She was obliged to take to her bed. Four days before admission she vomited some bilious material. These symptoms continued, together with a profuse watery diarrhea, up to the time of her entrance to the hospital. On admission the patient's condition was fairly favorable; a few hemorrhagic spots were noted on the abdomen. The general physical examination, together with two Widal tests, proved negative. On April 10, the leukocytes were 12,600 per c.mm. of which 66 per cent. were polymorphs. A second count on April 13, showed 11,200 leukocytes and 64 per cent. polymorphs. The case was regarded as one of intestinal toxemia, the true cause not being suspected until after the entrance to the same hospital of other members of the family.

* From Research Laboratory, Department of Health, New York.

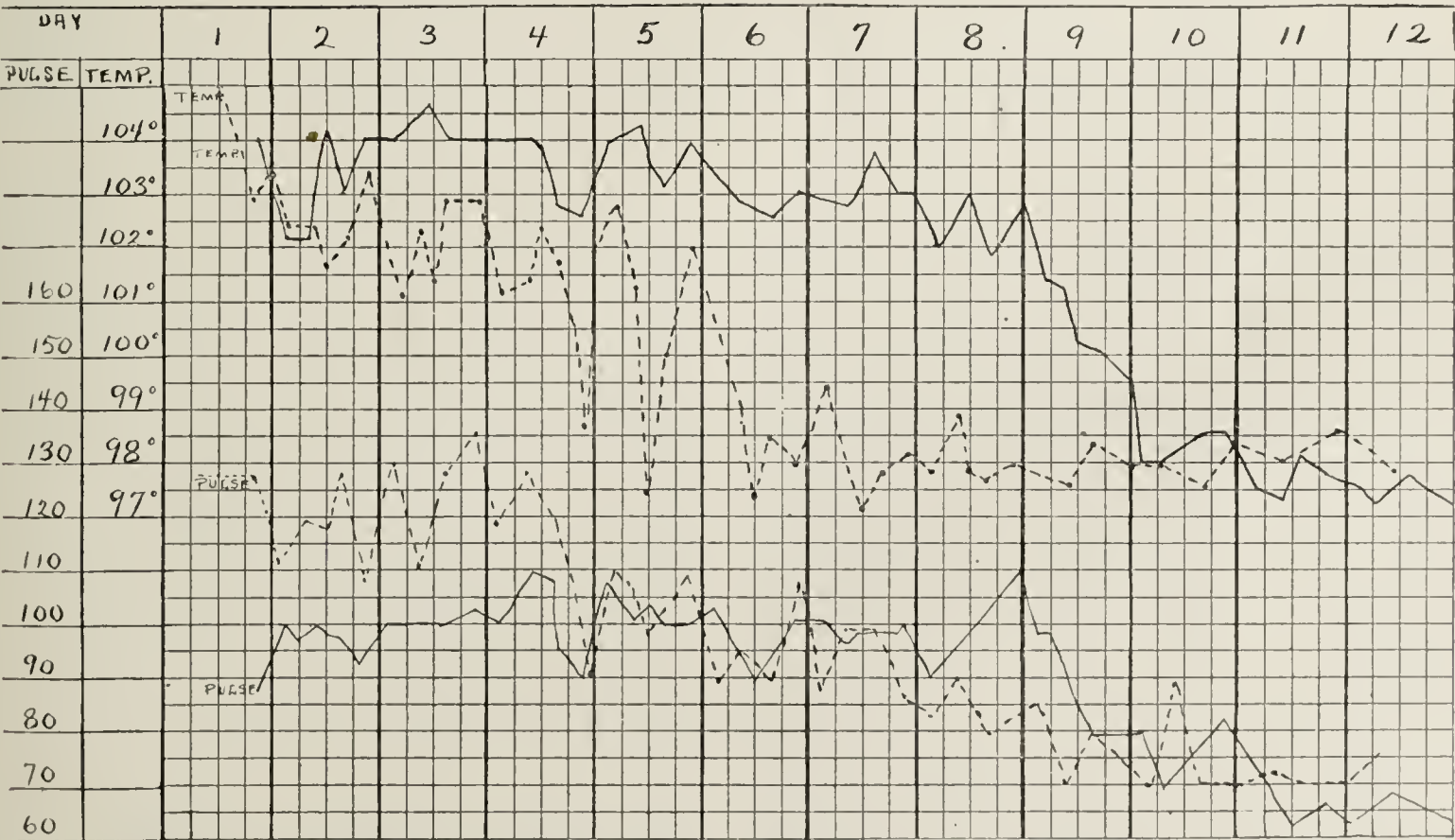


Chart 1.—Pulse and temperature in cases of Israel K. (solid line) and Ida K. (line composed of dashes).

CASE 2.—Israel K. (Chart 1), the husband of Ida K., was admitted to the hospital, May 4. There was nothing in his personal history of importance except that the patient had suffered for some ten years with a functional gastric condition, but had otherwise been in good health. He used alcohol moderately and was a heavy smoker. Six days before admission to the hospital he went to bed feeling very ill with severe frontal headache and fever. He had a slight cough. He was treated symptomatically by a private physician until his admission to the hospital where he was seen by two of us three days later and showed the following picture: The entire body from the neck down was covered with a discrete, somewhat morbilliform type of eruption, which included also the palms of the hands. The lesions were fairly widely separated, much more so than in measles, were of bluish-red color, and disappeared on deep pressure. The throat was intensely red, the head somewhat retracted, the neck stiff, and Kernig's and Babinski's signs were marked. The patient's picture was that of typical coma-vigil, the eyes wide open and staring. There was no resistance or evidence of pain caused by taking blood from the arm for purposes of inoculation. The heavy beard,

nuclears. Seen on the second day after admission, the patient did not seem particularly ill; there was a maculopapular rash over the body and extremities, the number of lesions being few and widely scattered. They were of the same general type as those seen on the father but much less marked. A physical examination on the day of his transfer to the Willard Parker Hospital, May 11, showed a fairly well-developed child with hair full of vermin, flushed face and somewhat apathetic. The rash was still present but fading. The lungs, heart and liver were negative, the spleen was enlarged and somewhat tender. An examination of the spinal fluid gave the following results: 23 e.e. clear fluid, pressure considerably increased. Cytology: no cellular elements—coarse shreds of fibrin. There were no bacteria in either smear or culture. Albumin ++. Globulin +. The progress of this case was uneventful to recovery. The pulse after the fall in temperature was frequently quite weak and irregular. The patient had a slight cough for a few days.

CASE 4.—Lena K. (Chart 2), aged 10, was admitted to the hospital on the same day as her brother, having been taken ill four days previously with headache, fever and loss of appe-

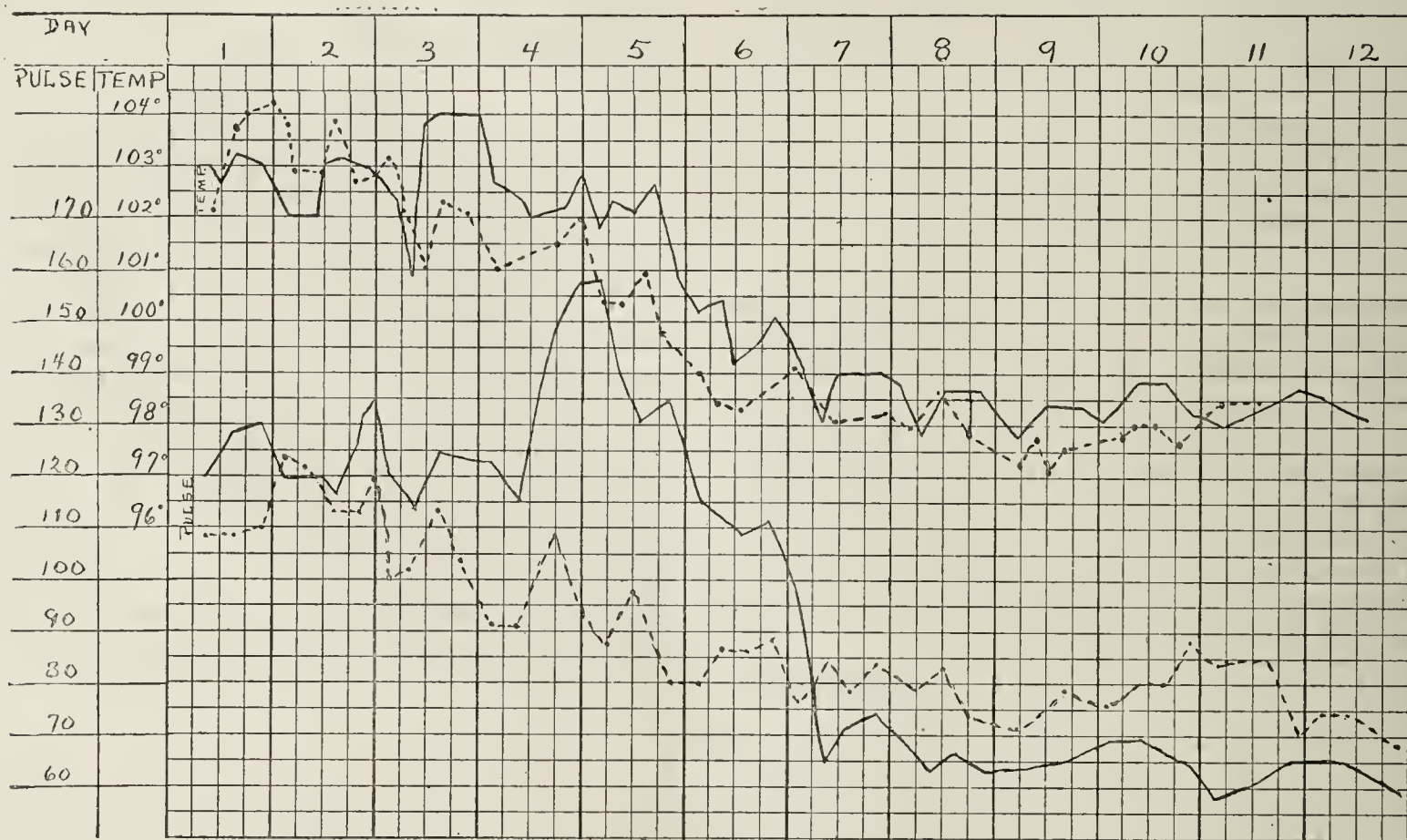


Chart 2.—Pulse and temperature in cases of Harry K. (solid line) and Lena K. (line composed of dashes).

axillæ, scalp and chest were full of lice. Blood-count, May 5, showed 17,000 leukocytes of which 84 per cent. were polynucleated; May 7, 16,000 leukocytes, 80 per cent. polynuclears. The patient was transferred to Willard Parker Hospital, May 11. A physical examination at this time showed the eruption still present with the addition of some petechiæ. The throat was moderately congested, the tongue dry and covered with sordes, as were also the teeth; the conjunctivæ were injected. The patient was emaciated. The lungs showed the presence of bronchitis of moderate extent; the liver was normal, the spleen enlarged and tender, the urine negative. May 12, the patient still coughed and the pulse was very weak. May 15, the patient had greatly improved with the fall of temperature; the rash was still visible and the pulse occasionally weak. Apart from a rather long-continued subnormal temperature his recovery was uneventful. Three Widal's proved negative and the stools showed no typhoid bacilli.

CASE 3.—Harry K. (Chart 2), aged 8 years, was admitted to the same hospital, May 8, having been taken ill three days previously with headache, fever and vomiting. The blood-count, May 8, showed 16,400 leukocytes, 82 per cent. poly-

nuclears. A blood examination showed: the leukocytes 12,400, polynuclears 76 per cent. When seen on the day following admission the patient looked very ill, frequently groaning as though in pain and with irritability alternating with apathy. Her condition markedly resembled typhoid fever at its height. Her headache was intense, and the rash was similar in appearance and extent to that of her brother. A physical examination, May 15, showed no abnormality other than a somewhat enlarged and tender spleen. The rash was fading and the patient had a slight cough. It was noted that her head was full of vermin. She made an uneventful recovery without other symptoms than those which usually accompany an infectious fever. Examination of the spinal fluid gave the following results: 8 e.e. of bloody fluid under very light pressure. Cytology: many red blood-cells, few leukocytes and polymorphonuclears; also brown crystals. There were no bacteria in either smear or culture. Albumin +. Globulin +.

The blood examination of these patients gave the results noted in the histories. In the father and two children the polymorphonuclear leukocytes showed the

inclusion bodies described by Döhle and others as occurring in scarlet fever and other diseases. The mother's blood was not examined for this condition. The treatment was purely symptomatic. Measures against the spread of this disease to physicians and nurses consisted in shaving the hair and the free use of parasitocides; the clothes were disinfected by steam.

We believe that there can be no reasonable doubt that these four patients were infected with the same virus, that of typhus fever.

RESULTS OF INOCULATIONS

Israel K.: Blood was drawn May 9, and 2 c.c. directly injected intraperitoneally into Guinea-Pigs 462 and 468 at the bedside. The remaining 4 c.c. were partially defibrinated. At the laboratory the clot was broken up in citrate solution and this added to the defibrinated blood and injected into Monkey A. This monkey at the same time received 1 c.c. of citrated blood from the next patient, Lena K.

Result: Monkey A. On the eleventh day the temperature rose to between 104 and 105 F. for twenty-four hours. This may or may not have been an abortive reaction, which, however, could be proved only by showing that the monkey is or is not immune.

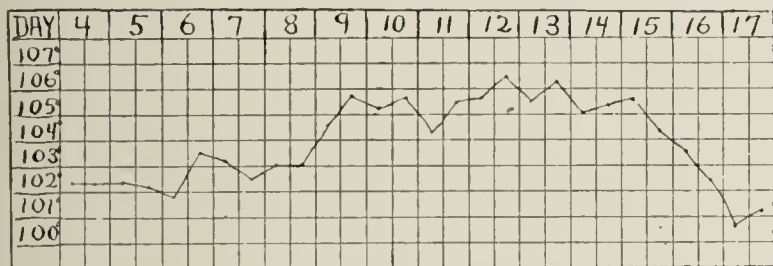


Chart 3.—Temperature of Monkey E.

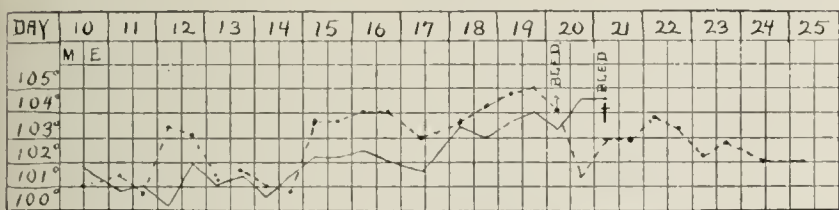


Chart 4.—Temperature of Guinea-Pigs 462 (solid line) and 468 (line of dashes).

Guinea-Pig 462: Positive. There was a definite rising temperature from the fifteenth to the twenty-first day when the animal died as a result of bleeding from the heart.

Guinea-Pig 468: Positive. Except for a transient rise on the twelfth day there was a definite rise starting on the fifteenth day.

Although the inoculation of Monkey A was apparently negative, the results in the guinea-pigs must be considered positive as evidenced by the reaction of the monkey inoculated with their blood.

Monkey E, inoculated with blood from Guinea-Pigs 462 and 468. A chart of the temperature showed a typical typhus temperature curve. Examination of blood-smears on the twelfth day showed the presence of the same inclusion bodies in the leukocytes as were found in the clinical cases.

Lena K.: May 9, 1912. 1 c.c. of citrated blood was injected into Monkey A, as already mentioned. On the next day, May 10, 10 c.c. of defibrinated blood was obtained and injected into Monkey B. May 11, 3 c.c. of cerebrospinal fluid was injected into Guinea-Pig 437.

Results: All the animals were negative.

Harry K.: May 11, 3 c.c. of cerebrospinal fluid was injected into Guinea-Pig 423.

Results: Negative.

One case, therefore, that of Israel K., gave positive, results in two guinea-pigs whose blood, injected into a monkey, caused a typical typhus temperature reaction.

This, then, is a verification of the inoculability of so-called "Brill's disease" or endemic typhus into monkeys. It also shows that it is possible to infect guinea-pigs directly with this disease. This, as far as we know, is the first time that the endemic type of typhus as it occurs in New York has been directly transmitted to guinea-pigs, and is an additional point of similarity to the epidemic type as it occurs elsewhere.

The negative results following the inoculation of cerebrospinal fluid was to be expected as previous workers have not found it infective.

The negative results of inoculation in the case of Lena K., are probably due to the variation in susceptibility of the animals. The doubtful reaction in Monkey A is attributed to the same cause.

We wish to express our thanks to Dr. Leo Stieglitz, attending physician to the Har Moriah Hospital on whose service the cases occurred, for permission to study and report these cases, and to Dr. H. Steinmetz, the house physician, for his aid.

NOTE.—Since the above was written it has been brought to our attention that Dr. Warren Coleman of New York City reported at a meeting of the Academy of Medicine, Feb. 15, 1910, four cases of so-called Brill's disease in one family. No details were given.

THE PRESERVATION OF TISSUES AND ITS APPLICATIONS IN SURGERY *

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I. INTRODUCTION

Six years ago, at the Rockefeller Institute, I began to investigate how tissues isolated from the organism could be preserved and used after a few days or weeks as grafts. I wished to find a method by which tissues, extirpated from the amputated limb of a living animal or a fresh cadaver, could be stored during the period which elapses between their extirpation and their transplantation on the patient. It would be very convenient for the surgeon to keep in store pieces of skin, periosteum, bone, cartilage, blood-vessels, peritoneum, omentum and fat, ready to be used.

I attempted to preserve the tissues outside of the organism in a condition of latent or active life.

A tissue is in latent life when its metabolism becomes so slight that it can hardly be detected, and also when its metabolism is completely suspended. Latent life means, therefore, two different conditions—unmanifested actual life and potential life. Unmanifested actual life is a normal stage of the evolution of all organisms, when they progress from general death toward elemental death. As the metabolism is still going on, although very slowly, it is a temporary condition. Sooner or later cadaveric lesions develop which bring about the complete disintegration of the protoplasm. Potential life consists of a suspension of all actual vital processes. The metabolism being suppressed, no cadaveric changes would take place in the protoplasm. Tissues in a condition of potential life could be preserved outside of the body for an indefinite period of time.

Latent life was discovered two centuries ago by Loewenhoeck, who obtained the resurrection of *Milnesium lardigradum*, which had been completely dried for a long time, by moistening it with water. In 1840,

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Rockefeller Institute for Medical Research.

Doyere also studied the peculiarities of latent life of *Milnesium tardigradum*. He completely dried a few of these animals, heated them at a temperature of 100 C., and, after having humidified them, observed that they lived again. These observations are very important because *Milnesium tardigradum* is highly organized and contains muscular fibers, nerves, nervous ganglia, etc. Paul Bert, in several famous experiments, preserved in latent life the tissues of mammals, and succeeded in transplanting rats' tails, kept for several days in a small quantity of confined air at a temperature not higher than +12 C. In 1907-08 I transplanted successfully vessels preserved for several days or weeks in cold storage in a condition of unmanifested actual life.

A tissue isolated from the organism can be kept in active life if it is given artificially a normal nutrition. The possibility of the active life of a tissue outside of the organism was demonstrated in 1907 by Harrison, in a series of splendid experiments made in the anatomic laboratory of Johns Hopkins University. Harrison transplanted the central nervous system of frog embryo in a drop of fluid taken from the lymph-sac of an adult frog. He could then observe, during a few days, the growth of the axis cylinders. In 1910, with the collaboration of Dr. Burrows, I observed the growth of tissues of mammals in plasma. In 1912, I found that the permanent active life of the tissues outside of the organism was possible: a piece of a chick's heart pulsed strongly one hundred and four days after its extirpation, and connective tissue was growing actively during the fifth month which followed its extirpation from the organism.

The discovery by Loewenhoeck, Paul Bert and Harrison of these two forms of life—latent life and active life—of the tissues separated from the organism, was of great biologic and philosophic importance, but it did not seem that it would ever be of practical interest. Nevertheless, it appears to-day that the evolution of surgery may lead to the use in human therapeutics of the work of these great biologists.

II. EXPERIMENTS

From 1906 to 1912 several technics were developed in order to keep tissues isolated from the organism in a condition of latent or active life.

These tissues were extirpated from a living animal or from an animal recently killed by chloroform. The death of the whole organism does not bring about immediately elemental death, that is, death of the tissues and organs. Elemental death is a slow process, while general death may occur suddenly. For instance, a man is stabbed through the heart and killed. His personality has disappeared. He is dead in the medicolegal sense of the word. All the organs and tissues which compose the body, however, are still living. If it were possible immediately after death to transplant the tissues and organs which compose this body into other organisms of identical character, no elemental death would occur, and all the constituent parts of the body would continue to live. In this case, general death can be defined as the rupture of the contract of association between the tissues and organs of the organism by failure of one of the partners, the heart. Therefore, general death is merely the starting-point of the disintegrative phenomena which lead to elemental death, that is, destruction of the living matter.

The duration of the period which elapses between general and elemental death varies according to the

nature of the tissues. The cerebral substance disintegrates so quickly that, after a few minutes of complete anemia, irreparable lesions take place, while skin, bones and connective tissues can overcome for a long time the cadaveric process. Therefore it was necessary to extirpate, soon after death, such glands as the hypophysis and thyroid, which disintegrate rapidly, while the more resistant tissues, like the skin and arteries, could be removed from the animal a few hours after death. The tissues must be extirpated before the beginning of the cadaveric disintegration. It is well known that elemental death is brought about by microbic and autolytic enzymes. Immediately after general death, the microorganisms from the digestive tract diffuse through the body and their ferments begin to destroy the tissues. At the same time, the autolytic ferments, which are no longer held in check by the serum, contribute also to the disintegration of the organs. This destructive process is increased or retarded by the causes which activate or retard the enzymotic actions, and the multiplication of the microorganisms. For instance, the rate of cadaveric disintegration, which is very rapid at 35 or 40 C., becomes very slow at -1 or -2 C. It is, therefore, important immediately to put the cadaver from which the tissues will be used as grafts into cold storage, and to extirpate the tissues under rigid asepsis as soon as possible after death.

The experiments were performed on various tissues: blood-vessels, cartilage, periosteum, skin, spleen, heart, thyroid and hypophysis of adult dogs and of chick fetuses.

A. PRESERVATION OF THE TISSUES IN LATENT LIFE

Experiment 1.—The tissues were deposited in a preservative medium and put in a refrigerator immediately after their removal from the organism.

Several preservative mediums were used: isotonic sodium, chlorid solution, Locke's solution, Ringer's solution, defibrinated blood, serum, confined human air, and petrolatum. The vessel or the flaps of skin and periosteum were placed in tubes filled with the medium. Petrolatum and Ringer's solution were chiefly employed. The tubes were sealed or hermetically closed and deposited in a refrigerator, the temperature of which was maintained constantly between -1 C. and +7 C.

The color and consistency of the tissues remained generally normal for several weeks. After six, seven and even ten months the microscopic appearance of the arteries was not markedly modified. The wall was a little softer, and the vessel flattened more readily. A section of a pig's carotid artery, preserved in a sealed tube with a few drops of Locke's solution from April to November, 1908, looked as if it had been extirpated from the animal only a few moments since, and its histologic appearance was entirely normal. While the morphology of the blood-vessels, skin, cartilage, etc., preserved for a few months in cold storage was not modified, glands, such as the thyroid or kidney, showed, after a short time, a marked disintegration.

The appearance of a tissue does not give any indication of its dynamic condition. There is no morphologic difference between a living tissue and a dead tissue. The only method of finding out the condition of a tissue which is supposed to be in latent life is to replace it under its normal physicochemical conditions and to observe whether it will again manifest life.

The condition of the tissues preserved in cold storage was examined by two methods: cultivation and transplantation.

1. Fragments of spleen, skin and heart were extirpated from 15- or 16-day-old chick embryos and preserved in Ringer's solution and in cold storage for one, two and even six days. Afterward they were put in

chicken plasma and in an incubator. They grew luxuriantly. It was then demonstrated that tissues preserved in cold storage were really in a condition of latent life, since they resumed their growth as soon as they were given back their normal physicochemical conditions.

2. In a great many experiments, tissues which had been kept in cold storage from one day to eleven months were transplanted into animals and the results examined from a few days to four years after the operation.

In several experiments, flaps of dog's skin, preserved in petrolatum and in cold storage from one to ten days, were transplanted. Generally the graft took as well as a fresh piece of skin. In one case a fragment of black skin was grafted on a white dog. As the black hair grew from the skin no mistake was possible regarding the condition of the graft during the period of preservation in cold storage.

In a few experiments, pieces of dog's cartilage and periosteum which had been kept in cold storage from twenty-four to twenty-eight hours were transplanted on dogs. It was found that periosteum produced bone and that cartilage remained alive.

In many experiments segments of dog's arteries and veins preserved in cold storage were transplanted on the carotid artery and on the abdominal or thoracic aortas of other dogs. The results were examined from five days to more than four years after the operation. The gross anatomic changes of the vessels were light, but the wall often presented marked histologic lesions. They consisted generally in the partial or complete disappearance of the muscular fibers. The remote results of these operations were excellent. For example, a segment of popliteal artery, extirpated from the leg of a young man and preserved for twenty-four days in cold storage, was transplanted onto the abdominal aorta of a small bitch. The animal lived in excellent health for four years and two months, became pregnant several times, and finally died during labor. The abdominal aorta was normal, but the human arterial segment was slightly dilated, and its wall was composed of connective tissue only.

In another experiment a segment of a dog's jugular vein, preserved for twenty-four hours in cold storage, was transplanted onto the thoracic aorta of a fox terrier. In spite of slight lesions of the cord, due to interruption of the aortic circulation during the operation, the animal remained in excellent health. After two years and two months the dog died of an epidemic disease. The descending aorta was normal and the transplanted segment had about the same caliber as that of the aorta.

The results of these and many other experiments showed that tissues like blood-vessels, skin and connective tissue could be preserved in latent life for two weeks at least. When blood-vessels were kept in cold storage for several months, the results were often excellent, but it was impossible to ascertain whether the original tissue had not been replaced by the tissues of the host.

B. PRESERVATION OF TISSUES IN A CONDITION OF ACTIVE LIFE

Experiment 2.—Tissues cut into thin fragments and placed in a nutritive medium at the temperature of the body can be maintained in a condition of active life. In 1912, I attempted to preserve in that manner hypophysis and periosteum extirpated from dogs living or recently killed by chloroform. The best medium is normal plasma, as was demonstrated by a comparative study of the value of varied artificial and natural mediums made at the Rockefeller Institute by Ragnvald Ingebrigtsen. The plasma was prepared according to the technique of Delezenne and Cordet and Gengou. An oiled glass cannula was introduced into the carotid artery of a dog. The blood was

allowed to flow into cold paraffined tubes, which were put in ice and centrifugalized. The plasma was then taken up with paraffined pipets, put into large glass tubes or spread on the surface of the covers of Gabritschewski boxes. The large periosteal flaps were dropped into the tubes, and the small fragments of hypophysis were immersed into the layer of plasma covering the covers of the boxes. Coagulation took place rapidly. Then the tubes and the boxes were sealed and placed in an incubator at a temperature of 38 C.

After a few days it was found that the fragments of hypophysis were living, and that continuous layers or tubular formations of epithelial-like cells had grown from their edges through the culture medium. Around small pieces of periosteum which were cultivated in hanging drops at the same time as the large flaps were deposited in the tubes a new tissue had developed. The growth of the hypophysis stopped after about five or six days, and that of the periosteum after nine or ten days. In order to preserve these tissues for a longer time it would have been necessary to wash and transplant them into a new medium.

Transplantation of the periosteum preserved in active life was made after one, two and three days. The periosteal flaps were removed from the plasma and washed in Ringer's solution. Afterward, they were placed under the skin of the chest of a dog. Periosteal flaps preserved in Ringer's solution were used as controls. The results were examined after about one month. It was found that more bone was produced by the flaps preserved in plasma than by the controls.

It is possible that a tissue, like periosteum, cartilage or skin, would grow better after having been preserved in active life than after having been kept in cold storage. Glandular tissues, like hypophysis or thyroid glands, which were not preserved successfully in cold storage, could live actively for five days at least in Gabritschewski boxes. Nevertheless, while the preservation of a tissue in active life is better than in latent life, it is also very much less safe.

The technique is more complicated and the danger of infection very much greater. The more active the metabolism of a tissue, the more sensitive are the cells to external influences. Therefore, for the preservation of tissues used at present in human surgery, the cold-storage method is simpler and more practical and must be used.

III. CLINICAL APPLICATION

It is known that flaps of human skin preserved for some time at a low temperature have already been used in human surgery. Nevertheless, the first systematic application of the preservation of tissues in latent life was made by Dr. Tuffier. In 1910 and 1911 he preserved in petrolatum and in a refrigerator pieces of fat, bone, cartilage and peritoneum which he had extirpated from amputated limbs. He also used lipomas and fragments of ovaries and of peritoneum which had to be extirpated during certain operations. These tissues were kept in cold storage from a few hours to two months. Grafts of lipoma and omentum were inserted by Dr. Tuffier between the pleura and the thoracic wall in several cases of pleurisy and intrapulmonary abscesses. In the reconstruction of joints, Dr. Tuffier several times used pieces of omentum, peritoneum and cartilage. In a case of resection of the elbow he covered the surface of the section of the bones with cartilage preserved for five days in cold storage. After seventeen months the patient was examined and the result found excellent. In another case of resection of the elbow, Dr. Tuffier covered the ends of the bones with a fragment of omentum preserved for one month in cold storage. Ten days afterward the elbow-joint could be moved easily. In ten operations of the same or similar character, there was neither elimination of the graft nor other accidents.

In 1911 Dr. Magitot of Paris extirpated the eye of a patient suffering with glaucoma. The eye was placed in a tube containing human serum, and kept for eight days in a refrigerator at a temperature of $+4^{\circ}\text{C}$., during which period the cornea remained transparent. Dr. Magitot resected the anterior part of the cornea of a man who had been burned by alkali. A large scar had developed on the cornea and the patient was blind. In the opening, a flap of cornea from the eye preserved in cold storage was inserted. The graft took. Seven months after the operation the transplanted cornea had remained transparent and the patient could see through it.

The results obtained by Dr. Tuffier and Dr. Magitot showed that tissues preserved in cold storage could be used in clinical surgery.

At the end of 1911 I attempted to develop a technic which would permit a large quantity of human tissues to be kept in store ready for transplantation. The tissues which are needed by surgeons in their clinical work are skin, bone, cartilage, periosteum, peritoneum, fat, tendons and aponeuroses. Some of these tissues could be extirpated from amputated limbs. I thought, however, that tissues of a better quality could be taken from the cadavers of the fetuses which had died during labor in the maternity hospitals. One cadaver, properly cut and preserved, would furnish enough tissues for many operations.

Dec. 6, 1911, the cadaver of an infant who had died during labor was used for the extirpation of cutaneous and other grafts. Several hours after death the body of the child was washed with soap and water and with ether. Dermo-epidemic grafts and flaps of skin were extirpated in large numbers and washed in Ringer's solution. Bones were also extirpated. Afterward the grafts were put in tubes containing warm petrolatum. Other grafts were preserved in Ringer's solution. The tubes were deposited in a refrigerator at $+3^{\circ}\text{C}$.

The Wassermann reaction made by Dr. Swift with the blood taken from the heart of the cadaver was negative.

The culture mediums inoculated with small fragments of skin remained sterile.

The dermo-epidemic grafts and the flaps of skin preserved in petrolatum and in Ringer's solution were used at the Rockefeller Hospital for the treatment of three large ulcers and one circular ulcer of the legs of two patients.

The flaps of skin preserved in petrolatum remained apparently normal. Forty-two days after the death of the child the skin preserved in petrolatum was bluish, but when exposed to the air it became pink again. The small vessels of the subcutaneous tissue were filled with blood which was red and still fluid. Histologic sections of the skin showed that it was normal. At the end of May, 1912, the appearance of the flaps preserved in petrolatum was not markedly changed. Ringer's solution was not so good a preservative medium as petrolatum. After a few weeks the flaps of skin preserved in Ringer's solution began to disintegrate slightly.

We began to graft the flaps of skin on the ulcers of the patients after twenty-four hours. The flaps were taken from the tubes and put for a few minutes in Ringer's solution at the temperature of the body. Then they were removed from the solution, compressed between two pads of hydrophil gauze and applied on the granulations of the ulcers. They were rapidly fixed to the granulatory surface by a warm mixture of paraffin, wax and castor oil, analogous to "ambrine," invented

a few years ago by Dr. Barthe de Sandford, the composition of which remained unknown. The mixture I used is composed of 18 gm. of paraffin melting at 52°C ., 6 gm. of paraffin melting at 20°C ., 2 gm. of beeswax, and 1 gm. of castor oil.

The warm and fluid mixture was applied with a brush on the surface of the graft. It became solidified very rapidly, but it was not adherent to the grafts or to the granulations, and it was possible to take it out every day. The wounds and the grafts were washed with oil and a new coat of the mixture was applied. Most of the grafts took, just as fresh grafts would have done. The last grafts were applied on the ulcers after seven weeks of preservation in cold storage, and a few of them took. The length of the period during which the flaps of skin could be preserved in latent life was not determined. It seems that the skin preserved during two weeks took as well as normal skin. As a great many pieces of skin can be kept in petrolatum, repeated grafts on the granulating wound could be made as easily as ordinary dressings with gauze.

IV. CONCLUSIONS

The results obtained by Tuffier, Magitot and myself demonstrated that human tissues preserved in cold storage could be used in human surgery. Future investigators will show in what measure tissues of infants should be employed as grafts. The grafts could easily be taken in large quantities from the fresh cadavers of fetuses and infants, and preserved in petrolatum and in cold storage. A supply of tissues in latent life would be constantly ready for use and the tubes containing the tissues could even be sent, in small refrigerators of the type of vacuum bottles, to surgeons who would need them. It would simplify very much the transplantations of skin, bone, periosteum and aponeuroses, which are more and more used in human surgery.

ABSTRACT OF DISCUSSION

DR. JOHN STAIGE DAVIS, Baltimore: My experience has been limited to the transplantation of skin, fascia, tendon, bone and cartilage. I have been able to preserve these tissues by simple methods, and have found that all of them may be kept for a considerable time in an ordinary refrigerator or in cold storage, and then successfully transplanted. This brings up the question as to the feasibility of iso- or hetero-grafts. Lexer, at the 1911 meeting of the German Surgical Congress, made the statement that iso-skin-grafts were never successful, and that none of them ever lasted longer than three weeks. I cannot agree with him, as I have seen a number of permanently successful iso-skin-grafts. On the other hand, Lexer transplanted whole iso-joints and reports satisfactory results. It stands to reason that auto-grafts of all kinds are uniformly more successful, but there is no doubt that iso-grafts will give satisfactory results in a great many instances, if the tissues are obtained and transplanted with the proper technic.

The transplantation of tissues which will live or be replaced by similar new-formed tissue for the correction of deformities and cure of defects seems to me to be much more rational and better surgery than the introduction of foreign bodies for this purpose. For instance: in certain deformities of the face it is better to transplant fat or bone or cartilage than to inject paraffin, and in the cure of large hernias free flaps of fascia lata are much more satisfactory than the wire filigree. In the formation of new joints I believe that free fascia flaps are preferable to the insertion of any foreign material.

Fifteen months ago I tried an epiphyscal transplantation on a boy 10 years old, who had been badly injured in an accident two years previously. At the time of operation the foot was markedly everted. The lower third of the outer side of the leg, ankle and foot was covered with a mass of dense scar tissue,

which was closely adherent to the bone. X-ray showed absence of about 6 cm. of the lower end of the fibula. I exposed the upper end of the fibula and split it longitudinally so that about one-third of the epiphysis with its cartilage was removed, together with a portion of the shaft with its periosteum, 6 cm. in length. This was transplanted into the defect below, the graft being secured to the freshened stump of the fibula by a collar of free fascia, and the epiphyseal end fastened snugly to the astragalus by a free fascia band. In spite of unfavorable conditions on account of poor blood-supply this graft has done well. Skiagrams from time to time have shown the epiphyseal line to be present. Dr. Baetjer reported to me last week that an x-ray taken then showed the epiphyseal line still intact and that the bone was undoubtedly growing. This result is, to say the least, encouraging.

DR. FRED H. ALBEE, New York: My experience with the transplantation of tissues has been confined wholly to bone, about thirty-six cases. All the transplants have been auto-transplants, and the work was all done from the point of view of an orthopedic surgeon. There were cases of congenital defects in the bony skeleton, pseudo-arthroses, club-feet, etc., and I believe that in the latter class of cases this is the ideal treatment. We can reconstruct the skeleton of the foot completely by using bone wedges, thus securing a properly shaped foot. The use I have made of bone transplantation has been mostly in Pott's disease. I believe that this will be eventually the accepted treatment, and the earlier the operation is done the better. I have kept in storage recently infants' bones to be used for bone-grafting. Auto-transplantation is better, but there will be certain cases in which it is better to use some other bone, and not to subject the patient to the extra hazard of taking some of his bone.

My work in animal experimentation has been cruder than Dr. Carrel's, but I have been able to preserve dogs' bones for four days in an ordinary isotonic Ringer's solution. I have transplanted this bone and it has lived and grown. In the ice-box, of course, the temperature is far above that of cold storage, showing that we have considerable leeway in the handling of bone.

DR. A. CARREL, New York: I agree with what Dr. Davis and Dr. Albee said in regard to transplantation. It is certain that the question of the usefulness of transplantation of tissue has not been settled. Auto-transplantation gives better results than iso-transplantation, and it is only by making new investigations that it will be possible to know the value of homo-transplantation, especially if the tissues are taken from small children. That question cannot be very easily decided by skin-grafting. My experiments are too few in number to enable me to come to any definite conclusion. Many other experiments should be made.

PROPHYLACTIC VACCINATION AGAINST EPIDEMIC MENINGITIS *

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Epidemic meningitis is an acute, infectious, contagious disease that is transmitted principally through the medium of healthy carriers. During an epidemic, many healthy people, especially members of families in which the disease occurs, harbor the meningococcus. The number of healthy carriers is much greater than

the number of those ill with the disease; some observers estimate that the carriers are ten to twenty times the number of the sick. Only a small percentage of the carriers develop the disease; the danger, however, that anyone who is a carrier may develop the disease, is a very serious menace, and causes considerable alarm, especially in an epidemic invasion of the disease in all sections of a city, as no one knows whether he or his friends are carriers or not. The occurrence of more than one case of epidemic meningitis in families is not so rare as believed by many who are not familiar with the facts; in the recent Texas epidemic there were many instances in which two members developed the disease; and in a smaller number three, four and five members became infected. All measures of prophylaxis are, therefore, important. This paper will dwell only on the prophylactic active vaccination, which would appear to offer best hopes of success in preventing this dread disease.

The utilization of active immunity as a means of preventing meningitis, has not, we believe, been previously used.

The work of a number of observers has demonstrated the fact, that a considerable degree of immunity develops during the course of the active infection in epidemic meningitis.

Meakens¹ demonstrated the third order of immune body in the blood, by complement fixation, and employed this test for diagnosis.

Many observers have demonstrated agglutinins in the blood of meningitis patients. Some, as Von Lingelsheim,² 1906, Kutscher, 1906, Krumbein and Schatiloff have described uniform results in testing the immune serum plus the meningococcus; Von Lingelsheim used killed culture for his tests, and declared that the test could be used for diagnosis. Most observers, however, as Trautmann and Fomme, Eberle,³ Ditthorn and Gildermeister,⁴ Lieberknecht, 1908, Elser and Huntoon,⁵ Arkwright,⁶ have had irregular results in the test, the main objections being the want of uniform reaction of an immune meningococcus serum with different strains of meningococci and the fact that there is cross agglutination between the meningococci and other Gram-negative cocci. Also certain strains of meningococci are inagglutinable, and the agglutinating properties of any strain may change during cultivation. Thus Elser and Huntoon obtained agglutination with one strain of meningococcus in dilution of 1:400 with serum of a meningitis case while four other strains of meningococci agglutinated only up to 1:50. One week later, the most agglutinable strain became unusually sensitive to non-specific agglutinins, and was agglutinated in a 1:100 dilution by serum of a typhoid patient.

Davis⁷ studied eight cases of meningitis and obtained positive reactions in dilutions of 1:50 in all, in one case 1:500 dilution.

The increase in opsonins has similarly been demonstrated by many observers. Houston and Rankin⁸ made opsonic determinations on sixty-three cases of meningitis and found high opsonic readings after the sixth day of

1. Meakens, J. C.: Biol. Division, Lab. Johns Hopkins Medical School, July, 1907.

2. Von Lingelsheim: Klin. Jahrb., 1906.

3. Eberle, Julius: Arch. f. Hyg., 1908, xiv, 171.

4. Ditthorn and Gildermeister: Klin. Jahrb., 1907, xvii.

5. Elser and Huntoon: Cornell Univ. Med. College Report, 1909, ix.

6. Arkwright, J. A.: Jour. of Hyg., 1907, vii, 193; 1911, ii, No. 4.

7. Davis, David J.: Jour. Infect. Dis., 1907, iv, No. 4.

8. Houston and Rankin: Lancet, 1907, p. 172.

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

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the disease, all showing an opsonic index over four, and a number showing much higher readings. Davis⁷ demonstrated a decided increase in the opsonic index in some cases examined but not in others. He vaccinated himself with a very large dose of dead culture, injecting the full growth of several small blood-serum slants, and found a marked immediate increase in opsonins. He found no evidence of a negative phase. Von Eberts and Hill,⁹ Birnie and Smith¹⁰ vaccinated a few epidemic meningitis patients with meningococcus bacterin, and found a considerable increase in opsonins following inoculation.

McKenzie and Martin in the Glasgow epidemic used and recommended the use of the blood-serum of meningitis patients, especially of those recovering from the disease, to be used therapeutically by intraspinal injection. Some improvement was obtained by this method; this might be considered as the clinical demonstration of immune bodies in the blood-serum.

led one of us (Sophian), to employ and advocate this measure in the recent Texas epidemic.

The absolute demonstration of the efficacy of this measure must be determined by experimental evidence, by the demonstration of a large immune body content following the administration of the vaccine, and by clinical evidence of protection against the disease, as observed during epidemics, especially among those who have been exposed to the disease.

EXPERIMENTAL EVIDENCE

This work was taken up by us at the end of the Texas epidemic, in the Southwestern Medical College. For this purpose eleven medical students volunteered to be vaccinated.

Preparation of Vaccine.—All glassware was neutralized. An organism, about five generations old, isolated from the cerebrospinal fluid of one of the patients in Dallas, was used. It was grown on 2 per cent. glu-

TABLE 1.—AGGLUTINATION STUDIES

Case No.	No. of In- jection	Dose, Mill.	Day After First In- jection	Agglutination Readings												
				20	40	60	80	100	200	500	1,000	1,000	1,500	2,000	2,500	
1	1	500	6	+++	—	—	—	Control
	2	1,000	11	+++	++	++	++	+++	+++	+++	.....	.....	.....	.....	.....
	..	.....	14	.....	.....	.....	.....	+++	+++	+++	.....	.....	.....	.....	.....
2	1	500	6	++	+++	+++	—	.....	.....	.....	.....	.....	.....	.....	.....
	2	1,000	11	+++	+++	+++	+++	+++	+++	+++	+++	+++	.....	.....	.....
	..	.....	14	.....	.....	.....	.....	+++	+++	+++	+++	+++	.....	.....	.....
3	1	500	6	+++	+++	+++	+++	+++	.....	.....	.....	.....	.....	.....	.....
	2	1,000	11	+++	+++	+++	+++	+++	.....	.....	.....	.....	.....	.....	.....
	..	.....	21	.....	.....	.....	.....	.....	.....	.....	+++	+++	+	—	.....
4	1	500	6	+	+	+	.....	.....	.....	.....	.....	.....	.....	.....	.....
	2	1,000	11	++	++	++	++	++	.....	.....	.....	.....	.....	.....	.....
	..	.....	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	1	1,000	6	+	+++	+++	+++	+++	.....	.....	.....	.....	.....	.....	.....
	2	2,000	11	+++	+++	+++	+++	+++	+++	.....	.....	.....	.....	.....	.....
	..	.....	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	1	1,000	6	+	++	+++	+++	.....	.....	.....	.....	.....	.....	.....	.....
	2	2,000	11	++	+++	+++	+++	+++	+++	+++	+++	+++	—	—	.....
	..	.....	14	.....	.....	.....	.....	+++	+++	+++	+++	+	—	—	.....
8	1	1,000	6	+++	+++	+++	+++	.....	.....	.....	.....	.....	.....	.....	.....
	2	2,000	11	+++	+++	+++	+++	+++	.....	.....	.....	.....	.....	.....	.....
	..	.....	14	+++	+++	+++	+++	+++	+++	+++	+++	+++	—	—	.....
10	1	1,000	6	+++	+++	+++	.....	.....	.....	.....	.....	.....	+++	++	±
	2	2,000	11	+++	+++	+++	.....	.....	.....	.....	.....	.....	.....	.....	.....
	..	.....	14	.....	.....	.....	+++	+++	++	.....	.....	.....	.....	.....	.....
3	1	2,000	6	+++	+++	+++	.....	.....	.....	.....	.....	.....	.....	.....	.....
	2	2,000	11	+++	+++	+++	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	1	2,000	14	.....	.....	.....	+++	+++	++	.....	.....	.....	.....	.....	.....
	2	2,000	21	.....	.....	.....	.....	+++	++	.....	.....	.....	.....	.....	.....

Immune bodies have been demonstrated in the cerebrospinal fluid of epidemic meningitis patients. Thus precipitins have been demonstrated by Vincent's¹¹ method, and positive complement fixation has been recently demonstrated by Bruynoglie¹² of Brussels. He employed this test successfully for diagnosis; it was of especial value in those cases in which the meningococci were few and hard to demonstrate.

Thus immune bodies have been demonstrated in those ill with meningitis, both in the blood and cerebrospinal fluid. There was a marked response in opsonins in the meningitis cases treated with vaccine.

In smaller animals, especially rabbits, and in larger animals, such as sheep and horses, there is a prompt response in the production of immune bodies after repeated vaccination. These facts, plus the apparent analogy of this disease (which probably begins in most, if not all instances, as a primary bacteremia) to other bacterial diseases, as typhoid, and the wonderful results obtained by extensive prophylactic typhoid vaccination

cose agar; after eighteen hours' growth it was washed off in distilled water, shaken for twenty minutes in the usual way, then heated at 50 C. for one hour and tested for sterility. It was counted by the Wright method, and standardized.

Vaccination.—Eleven students were vaccinated. They were inoculated subcutaneously just below the deltoid; five were injected with 500,000 bacteria as the first dose, and five were injected with 1,000 million. Seven days later, they were vaccinated again, with the same vaccine, in doses of 1,000 million and 2,000 million, respectively. Again a week later, they were vaccinated a third time, with 2,000 million by a freshly prepared vaccine.

Observations were made on the blood-count and the general and local symptoms. Their serums were examined every four days for agglutination and complement fixation.

Blood Analyses.—The examination of the blood showed, in practically all instances, a slight leukocytosis twenty-four hours after the injection, with return to the normal on the fourth day. There was very little change noted in the total differential blood-count. The leukocytosis was greater after the second and third injection.

9. Von Eberts and Hill: Am. Jour. Med. Sc., 1907, p. 134.
10. Birnie and Smith: Am. Jour. Med. Sc., October, 1907, p. 134.
11. Vincent: Compt. rend. Soc. de biol., 1909.
12. Bruynoglie: Centralblatt Orig., lx, No. 6, p. 58.

AGGLUTINATION STUDIES

Technic.—Macroscopic agglutination tests were done. The blood was collected from the finger in small glass capsules; the serum was separated and dilutions were made.

Culture.—The Elser-Huntoon organism (which these authors have found especially good for the purpose), which gives no spontaneous agglutination and is readily agglutinable by immune serums, was used. Uniform emulsions of culture were used.

After mixing, the culture and the immune serum were incubated for two hours, then placed on ice for twelve to twenty-four hours before reading.

DISCUSSION OF TABLE 1

1. The highest agglutination was obtained in those patients who had been given three injections of vaccine; the larger doses used apparently gave a somewhat higher fixation than the smaller doses.
2. Patient 10, who was vaccinated three times with the large doses, did not form agglutinins over 1 to 200.

- E. It is passed immediately through a Berkefeld filter.
 - F. Next it is put in hermetically sealed capsules and heated to 56 C. for one-half hour on two successive days for sterility.
 - G. It should then be stored in ice-box; may be kept for several months.
 - H. Before using it should be brought up to 0.9 per cent. tonicity, by adding one part of 9 per cent. salt solution to nine parts of antigen.
 - I. It must be titrated before using.
- This antigen is specific for the meningococcus serum, and is not fixed by the gonococcus and other serums, according to McNeil. To prepare a strong fixing antigen, not so specific, longer autolysis should be allowed after heating. The important point to remember in preparing this antigen for specificity is not to allow too long autolysis; the less time allowed for autolysis, the more specific the antigen. The Berkefeld filter must be neutral.
- In this series of tests both the highly specific antigen was used, and also the less specific, longer-autolyzed

TABLE 2.—COMPLEMENT FIXATION

Case No.	No. of In- jection	Dose, Mill.	Day After First In- jection	Complement Fixation							
				10	20	30	50	100	150	200	250
1	1	500	6	±	±	±	.....	.....	.....	.....	.....
	2	1,000	11	++	++	++	++	+	.....	.....	.....
		.....	21	.....	.....	.....	.....	+++	+++	+	—
2	1	500	6	±	+	+	.....	.....	.....	.....	.....
	2	1,000	11	++	++	+++	++	++	.....	.....	.....
		1,000	21	.....	.....	.....	.....	+++	++	++	.....
3	1	500	6	±	±	±	.....	.....	.....	.....	.....
	2	1,000	11	±	±	+++	+++	+++	.....	.....	.....
		1,000	21	±	±	+++	+++	+	.....	.....	.....
4	1	500	6	±	±	±	.....	.....	.....	.....	.....
	2	1,000	11	+++	++	+++	+++	+	.....	.....	.....
		1,000	21	+++	++	+++	+++	+	.....	.....	.....
5	1	500	6	±	±	±	.....	.....	.....	.....	.....
	2	1,000	11	±	±	+++	+++	+	.....	.....	.....
		2,000	21	±	±	+++	+++	+	.....	.....	.....
7	1	1,000	6	±	±	+++	+++	+	.....	.....	.....
	2	2,000	11	±	±	+++	+++	+	.....	.....	.....
		2,000	21	.....	.....	.....	.....	+++	+++	+	—
8	1	1,000	6	+++	+++	+++	.....	.....	.....	.....	.....
	2	2,000	11	++	++	+++	+++	+++	.....	.....	.....
		2,000	21	.....	.....	.....	.....	+++	+++	++	±
10	1	1,000	6	±	±	±	.....	.....	.....	.....	.....
	2	2,000	11	+	++	+++	±	+	.....	.....	.....
	3	2,000	21	.....	.....	.....	.....	++	++	+	—

3. Patient 2 formed agglutinins up to 1 to 1,500, after two injections of 500 million and 1,000,000, respectively.
4. The agglutinins increased after the repeated dose, and apparently developed in the larger quantities about a week after the injection.

COMPLEMENT FIXATION TESTS

- Technic.*—1. Serum: This was collected as for the agglutination tests, inactivated at 55 C. for one-half hour, and dilutions were made in normal salt solution.
2. Antigen: A polyvalent meningococcus antigen was used, prepared by McNeil of the Research Laboratory, H.D., New York City. This antigen is prepared as follows:
- A. The culture is grown on a slant of salt-free veal agar, neutral to phenolphthalein, for eighteen or twenty-four hours.
 - B. It is washed off in distilled water.
 - C. It is then heated in a water-bath for two hours at 56 C.
 - D. It is next centrifugalized for about twenty minutes; supernatant fluid is taken off and sediment thrown away.

- antigen, which was prepared later from the culture used in vaccination, and which gave somewhat sharper fixation than the more specific antigen.
3. Guinea-pig complement: Fresh complement was used; also some frozen complement one week old which proved to be perfectly active. (Dr. McNeil called my attention to this fact.)
 4. Sheep corpuscles.
 5. Antisheep amboceptor.
- The test was done one-tenth the volume of the usual Wassermann thus saving material and enabling one to work with the small quantities of blood collected from the finger.
- Titration of all materials were done at the time of the tests.
- DISCUSSION OF TABLE 2
1. Immune bodies could be demonstrated by complement fixation as early as the fourth day after the first injection (not recorded in the table).
 2. The highest fixation was obtained in dilution of 1:250, and occurred about three weeks after the beginning of vaccination. The highest and sharpest fixation occurred after the three injections of vaccine, though

high fixation up to 1 to 200 occurred at the third week after only two injections.

3. Note the fact, well demonstrated in Cases 3, 9, 7, and 8 on the eleventh day after injections, that much sharper fixation was obtained in the higher than in the lower dilutions of the serums. This observation had been previously noted by Sophian, in the course of some work on meningococcus strain differentiation by complement fixation, done by Drs. Sophian and Neal,¹³ in the Research Laboratory, New York City, in 1911.

DISCUSSION OF EXPERIMENTAL STUDIES

1. There is a leukocytosis for a few days following vaccination.

2. There is a prompt response in the formation of immune bodies, which appear four days after the first vaccination and increase rapidly after the repeated injections.

3. Agglutinins develop in larger quantities and more rapidly than the third order of immune body, agglutination being obtained at 1:2,500 dilution, in some cases, at the end of three weeks.

4. By complement fixation one could obtain sharp fixation at 1:200 at the end of the third week, this being a high degree of immunity.

5. Apparently the very large doses did not produce much higher immunity than the smaller doses used.

6. Three injections appeared to give desirable results; the doses of 500 million, 1,000 million, 1,000 million, would seem to be sufficient.

7. All of the students vaccinated responded; No. 10, however, did not develop a very high degree of immunity.

REACTION FOLLOWING VACCINATION

The reaction following vaccination with the doses mentioned consists principally of some local inflammation at the site of injection, and usually some trivial general symptoms. All symptoms are very much improved or entirely gone in twenty-four hours.

Local Reaction.—About four hours after the injection, an area of inflammation consisting of redness, some swelling and induration appears, which grows larger during the next few hours and is frequently quite painful and tender. The neighboring glands may become somewhat enlarged and tender. After twenty-four hours, most of the inflammation disappears.

At the next injection, the local reaction may be much more marked and extensive, and may be accompanied by a large area of erythema several inches in diameter.

It is seen that the reaction described is very similar to that occurring in other bacterial vaccinations, as in prophylactic typhoid vaccinations.

General Reaction.—General constitutional symptoms may be entirely missing. Frequently, however, there is some malaise, frontal headache and slight elevation of temperature lasting for twenty-four hours. Other times there may be more severe general symptoms; the patient may suffer from quite severe frontal or vertical headache, may have some general bodily pain, nausea and vomiting, with rise of temperature to 102, 103 or 104 F. These severe symptoms are somewhat unusual. Herpes, usually labial, is occasionally seen.

It is well to remember that the soluble products of the dead meningococcus also appear to irritate the meninges at times, even in the smaller doses used in vaccination, so that one may very occasionally see some

clinical signs of meningeal irritation, this being evidenced principally by very severe headache, vertigo, vomiting and photophobia. There may be some pain at the nape of the neck, but no interference with free motion. Other active signs of meningitis are missing, however; the patient does not appear acutely sick and improves rapidly in a few hours. This symptom-complex is very unusual, but it is well to remember it so as not to become unduly alarmed.

Davis, in studying the effect of the dead culture on the normal person, injected himself with a very large dose of culture, much larger than recommended in vaccination. He experienced very severe headache, vomiting, chill, high fever and general bodily pain for several days, accompanied by quite marked prostration.

Observation will have to be made on many who have been vaccinated to determine the efficacy of the measure, especially observations during epidemics and among those who have been intimately exposed to the disease. At present, the data obtained during the last epidemic are insufficient from which to draw any deduction. Hall, of Kansas City, vaccinated about fifty families in all, about 280 people, in whom the disease had occurred, giving each the full three vaccinations. Likewise, a number of nurses and physicians were vaccinated. In none did the disease subsequently occur. In Dallas a number of people, about 100, were vaccinated. As far as could be learned very few if any had the full number of prescribed injections. Two nurses, each of whom had two injections, developed the disease some weeks after the vaccinations; both recovered. In view of the fact, that neither had had the full dose, that irregular records were kept, and that no examination of the blood was made to determine the degree of immunity produced, one can not give too much weight to such occurrence. Reports appear in the literature, similarly, of typhoid developing occasionally after full vaccination but more often after incomplete vaccinations, and likewise of small-pox after small-pox vaccination. It is well known that immunity does not develop equally well in all the vaccinated, and that at times, in a very small percentage, there may be little response to vaccinations, accounting for the failures occasionally seen.

THEORETICAL OBJECTION TO THE USE OF VACCINE

The theoretical objections to the use of vaccine as a prophylactic in this disease are the same as in other diseases, being principally the production of a negative phase during which time the patient may develop a general infection, if the infective organism be present in any of the tissues. This is seen in inoculation of tuberculin in tuberculous patients and is well illustrated in the prophylactic vaccination by typhoid vaccine. Here there have been only isolated instances, among many thousands vaccinated, of the development of typhoid shortly after the vaccination which might be explained by the occurrence of a negative phase. In those who have been vaccinated by meningococcus bacterin, many had been intimately exposed to the disease; probably the majority were carriers; a number were proved carriers. It is very questionable, especially if a small dose be used the first time, whether the negative phase would be sufficiently marked to allow entrance of the organism from the nose and throat into the general system with the production of the acute disease.

From our knowledge of the negative phase, from the experience with the prophylactic vaccination against other diseases, such as typhoid, and from the experience in the several hundred prophylactically vaccinated

13. Sophian and Neal: Research Laboratory, New York City, Collected Studies, 1912.

against the meningococcus, which showed no authentic case of meningitis following the injection of vaccine which could be explained by the negative phase, from the fact that many of the vaccinations were made on positive carriers, in whom the danger would be supposed to be most serious, one is warranted in assuming that the prophylactic injection of vaccine against meningitis, especially if only a small first dose of vaccine be used, is attended with little danger of predisposing temporarily to a true attack of meningitis, and that the risk in positive carriers in vaccination is relatively little as compared to the possibility of their developing meningitis without vaccination.

To a certain extent this danger may be obviated by taking preliminary cultures of the nose and throat before vaccination. If positive, it might be advisable first to use local treatment till the culture becomes negative. In at least six instances, however, in which the nose and throat cultures were positive, vaccination promptly was followed about a week later by negative cultures, without other treatment.

The only other objection to the use of vaccine, prophylactically, is the slight temporary local and general reactions, which, in the majority of instances, are trivial.

SUMMARY

1. Observations will be made during the next year to determine the persistence and duration of the immunity produced by vaccination. It is very probable, however, that the immunity lasts a long time, at least a year.

2. It is desirable at the present time that the blood of all the vaccinated be examined to determine whether any immunity has been produced, and that record be kept.

3. Vaccination is followed by an immediate febrile reaction, leukocytosis and increase in immune body content, as determined by agglutination and complement fixation tests.

4. Complement fixation tests will probably give the most satisfactory results, the agglutination and opsonin tests with the meningococcus, as with other Gram-negative cocci, giving frequently very irregular results.

5. All evidence, especially the experimental, points to the efficacy of the injection of dead meningococcus for prophylactic vaccination, as a measure which would confer considerable immunity in most cases, probably partial in all, against the infection of epidemic meningitis. It is very likely that only a moderate degree of immunity will give very considerable or complete protection against epidemic meningitis, which is caused by an organism of low virulence, infecting only a very small percentage of those who are exposed and harbor the organism temporarily in their noses and throats.

6. It is very likely that if the disease subsequently develops in those vaccinated, it will be considerably modified and run a much milder course with much better outlook for recovery, as is seen in those who develop small-pox after vaccination.

7. The vaccine is prepared as described, by heating to 50 C. and standardizing in the usual way. These injections repeated at intervals of a week, in doses of 500 million, 1,000 million, and 1,000 million, would appear to afford a high degree of protection. The smaller doses, used in the experiments, produced almost as high a degree of immunity as the larger doses. This corresponds somewhat to the conclusion reached by Smith and Brooks,¹⁴ in their work on typhoid vaccina-

tion who state that the response to immune body formation apparently increases with increasing doses of vaccine in nearly all cases. This increase becomes relatively less and less as the dose increases and its progress suggests that with sufficiently large doses, a limiting value might be reached, which if not actually a true limit, would be practically such a limit.

ABSTRACT OF DISCUSSION

DR. A. D. HIRSCHFELDER, Baltimore: It seems to me that the exact height of the cerebrospinal fluid pressure, as compared with the general blood-pressure, may play some rôle in the apparent contradiction between certain of Dr. Cushing's results and Dr. Sophian's. Four hundred mm. of cerebrospinal fluid or water is equal to 31 or 32 mm. of mercury and, in consequence, is far below the general blood-pressure. Dr. Cushing's results regarding the rise of blood-pressure on injection of fluid into the cranial cavity play a rôle merely when the pressure of the fluid injected exceeds the general (mean) blood-pressure. Then the general blood-pressure must rise until it is able to overcome the pressure of the cerebrospinal fluid and bring about further nourishment of the medullary centers; but, with a relatively low cerebrospinal pressure, below that of the mean blood-pressure, the reinjection of fluid may merely stimulate the cardio-inhibitory centers, rather than the vasomotor. In some cases, you might get mechanical stimulation of the vasomotor center with the rise that Dr. Sophian reported, but, owing to a greater irritability of the vagus center, the fall of blood-pressure might result.

DR. WILLIAM LITTERER, Nashville, Tenn.: Within the past few years, I have had opportunity to see in Nashville and vicinity something like 140 cases of the epidemic spinal meningitis. Out of this number I know of three cases in which death has resulted either from the too rapid abstraction of the spinal fluid or by the too rapid introduction of the serum, two deaths from the former and one death from the latter. Since using Dr. Sophian's method I agree with him that there is much less serum used in each individual case. In using the blood-pressure as a control I feel more at ease than I formerly did in withdrawing the fluid or in introducing the serum. I certainly think the method should be used in every case in which the spinal fluid is to be removed or serum introduced.

DR. ISAAC LEVIN, New York: I should like to know what fluid Dr. Carter was using in his intraspinal injections in animals. This question is of importance, because fluids of different physicochemical constitution would produce more or less different results; and possibly the reason for the discrepancy between the clinical results, where apparently the blood-pressure changes precede the respiratory changes, and the opposite results on animals, may be due to a difference in the character of the fluid. I noticed in my own investigations that in certain species of animals one frequently finds a complete arrest of respiratory functions while the heart is still acting; so that such differences between various species of animals may exist. Still, it is important to continue the work with a fluid of more or less similar physicochemical nature.

DR. L. B. WILSON, Rochester, Minn.: In giving serum in divided doses, has Dr. Sophian found that at any time, just after the third or fourth dose, there was no longer a drop in pressure? We get a drop in blood-pressure sometimes after the first dose, with recovery; a similar drop after the second dose, though a less one, and recovery; and then very little or no drop after a third or a fourth dose.

DR. A. SOPHIAN, New York: I merely gave 400 mm. as an illustration. Many cases have considerably higher pressures, even higher than 800 mm. Dr. Carter, in his work, used Ringer's solution. The difference in his readings and mine, I believe, can be explained by the fact that he could obtain more accurate readings in his dogs, which were anesthetized. In my clinical cases, if I had been able to take more accurate tracings, I might also have detected a little respiratory change

14. Smith and Brooks: Jour. Hyg., May, 1912.

before the large drop in blood-pressure; but the important point is that if one take blood-pressure readings one is warned by the fall in blood-pressure, and may prevent the dangerous symptoms, which are principally respiratory embarrassment and shock. One may have respiratory cessation, even though the heart continues beating for several minutes.

In subsequent punctures the reaction in blood-pressure is very irregular, so that one cannot predict in any case how the patient is going to react. In my experience, however, the fall in blood-pressure is greater in subsequent punctures than in the original, so that at the fourth or fifth puncture one may inject only a small quantity of serum and cause a large fall in blood-pressure. I have treated children, however, in whom I could not inject more than 4 to 5 c.c. at first, without causing severe symptoms and considerable fall in blood pressure. In one child of two years there was a drop from 40 mm. to 10 with marked symptoms of collapse after injecting only 5 c.c. of serum. In subsequent punctures, however, I could inject 15 c.c. without causing a large drop in the blood-pressure. The table of average doses for different ages does not always hold true. If one cannot have blood-pressure observations taken during the operation, one may venture to inject the average dose described, without causing severe symptoms in many instances. There is a group of symptoms that occurs corresponding to the fall in blood-pressure. The first symptom is stupor, and then dilatation of the pupil; next respiration becomes superficial and irregular, and general symptoms of shock appear. If incontinence of urine and feces occurs during the injection it is an indication to stop, because with these symptoms a very large fall in blood-pressure frequently occurs, which in turn is accompanied by cessation of respiration, convulsions and death.

ERYTHROMELALGIA

REPORT OF A CASE PRESENTING PERIPHERAL VASOMOTOR
DISTURBANCES IN THE HANDS AND FEET FOR TWELVE
YEARS, REACHING A CLIMAX IN EIGHT YEARS,
WITH RECOVERY FOLLOWING TREATMENT
BY SUPRARENAL SUBSTANCE *

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The case record which forms the substance of this paper I believe to be of unusual interest. Aside from the recovery of an undoubted case of a disease in which recovery is so rare, the light which the result of the treatment instituted may throw on the association of the internal secretions with the pathology of this vasomotor neurosis is believed to warrant its presentation.

It seems unnecessary to discuss the symptomatology and its variations *in extenso*, or the relation to other vascular neuroses, more than to share the opinion of Cassirer,¹ who after analyzing ninety observations reported as erythromelalgia, believed the majority belonged to other conditions.

As to cause, it may be said with Oppenheim,² that "nothing is positively known as to the termination of the condition nor can we say anything definite as to its cause."

Further, it is not without considerable hesitancy that one advocates or even suggests a treatment in a condition in which all measures have been conspicuous by their failure, and while apparent relief has occurred

under various treatments, as a rule none have been flattering in their results.

In the present case, I feel somewhat as Weir Mitchell must have felt when he achieved so remarkable a result in the traumatic case, so often cited, following an operation which so utterly failed in a subsequent case.

The history and notes of the case are as follows:

The patient, W. D. W., aged 70, occupied commercially, was first seen Jan. 21, 1910. He was born in Indiana but has been in Colorado since 1892.

Family History.—Mother died of pneumonia, aged 76; father died of heart disease, aged 78; a brother died of diphtheria, aged 19; another of dropsy at 70, while a third died of hemiplegia, aged 70. There are three sisters living in fair health; one has heart disease. Otherwise, the family history is negative, including nervous and mental disease.

Previous History.—The patient admits the usual diseases of childhood, which include a severe attack of scarlet fever at 16 years of age; chills and fever at about this time and recurrent attacks until 1859, and typhoid at 14 years of age. Venereal diseases and alcohol to excess are denied. He has been a moderate smoker. His occupation has not been particularly fatiguing nor has he suffered any undue exposure.

About fourteen years ago, the tip of the forefinger and thumb of the left hand began to feel as though he was about to have a felon—a prickling sensation with swelling, accompanied by redness and pain. This was relieved by the application of poultices. This condition recurred in two or three weeks, becoming more frequent during the next two years. Then he began to notice pain in the outer side of the right foot, which, in the course of two or three weeks, involved the entire foot and became constant and severe. There was apparent swelling and the whole area would become a dark red color. This condition was invariably relieved by elevating the feet or the hand. In the feet, the condition extended as far as the ankle. In about three months, there was a remission and the patient was able to move about with little pain. During the past twelve years there have been remissions of from a few days to several months. Throughout this period there were attacks of sharp, shooting pains in the abdomen and chest, lasting but a few minutes at a time and invariably disappearing after the use of hot applications or a little whisky.

In 1900 while walking on the street, he noticed a quivering of the tongue and lips, and other attacks in which a weakening of the knees and transitory blindness occurred. These attacks would last from five to fifteen minutes. He never saw double and experienced no weakness of the hands.

In 1906, the patient became unable to walk the two blocks from the street car to his home, on account of intense pain, particularly in the soles of the feet. They burned and ached until they were elevated and cold applications were used. Motion, as well as a dependent position, often brought on paroxysms of pain.

Two years and a half ago, during the summer, there was a recurrence of severe pain in both feet; the right foot became red, hot and swollen; the left similarly but to a lesser degree. Red spots, which were also painful, appeared on the body. Relief was obtained by cold applications. The patient has now been confined to his bed for about two years.

Present History.—The only complaint is the condition of the feet and the thumb and forefinger of either hand. When the feet are lowered, they become red, hot and slightly purplish, beginning across the back of the foot and extending upward on the leg. The pain begins with an intense burning and becomes so extreme that narcotics are required for relief. The paroxysms are somewhat relieved by elevation. The intense burning and pain occur sometimes at night but a sensation of burning is present the greater part of the time. Alcohol and alcoholic solutions of menthol, cocain and camphor, applications of ice or cold water, have all afforded some relief. If it were not for the condition of the feet and to a somewhat lesser extent, of the hands, the patient states that he would be perfectly well. There is no vomiting without cause. There had been dizziness before he became bedridden, although not

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Cassirer: Quoted in Osler's Modern Medicine, vi, 676.

2. Oppenheim, Bruce: Text-Book of Nervous Diseases, 1911, ii, 1332.

before he began to have pain and swelling in the feet. There have been no headaches; a transitory numbness has been present in both hands, also some weakness. The patient states that, at times, he has had difficulty in speaking, particularly in articulation. He admits slight impairment of his visual acuity and describes bright, golden rings, which appear small at first but increase in size, lasting but a few moments; they are especially noticed on extreme lateral rotation of the eyes. Appetite and digestion are good and the food is relished. Bowel action is regular. The patient sleeps fairly well when not in pain.

Examination.—Jan. 23, 1910: The patient is an anemic-appearing man of fair development and is lying in bed because of the condition which is invariably present on lowering the extremities. The legs and feet are held above the body by means of a device constructed for the purpose. When the feet (especially the left one) are lowered to the floor, the skin of the feet and toes assumes a reddish color rapidly deepening in shade until it presents a purplish appearance, which rapidly includes the dorsum of the foot, then the ankle and leg and, if allowed to remain long enough in the dependent position, the thigh participates to some extent. There is some apparent swelling. Pressure of the finger causes a blanching, which instantly or rapidly recolors and leaves no pit. Subjectively, there is a feeling of tightness about the foot and a burning sensation which is variable in degree, and also an aching pain which increases in severity. When the limb is returned to its elevated position, the superficial engorgement disappears and, in from five to ten minutes, the normal color gradually returns, leaving no trace of the hyperemia, except occasionally a slight blueness about the ankle. The skin of the feet and legs presents a glistening, thin, paper-like appearance, but this is to some extent accounted for by the applications of counter-irritants, mild and strong, which have been applied. There is no localized loss of power or wasting, other than may be accounted for by disuse. All movements are performed with equal strength and precision; the patient is able to walk with the aid of canes but the increasing tenderness and pain rapidly stop each attempt. He speaks with clear enunciation and shows a good memory for recent, as well as remote, events. There is a moderate sclerosis in the palpable vessels, which is uniform rather than nodular in type.

Reflexes: All of the deep reflexes are present, equal on both sides and about normal in degree. There are no clonuses. Superficial reflexes are present, normal in degree, and equal on both sides. The Babinski phenomenon is absent on either side. Compression of the calf (Gordon) of either leg causes no action in the toes.

Special Senses; General Sensation: Tactile sensibility is increased when the limbs are elevated and somewhat more decidedly increased when they are dependent, at which time they become hyperesthetic and hyperalgesic. Heat is intolerable, while cold is at times soothing.

Eyes: All external ocular motion is normal, equal and without nystagmus. Pupils are 2.5 mm. in diameter, equal and respond actively to light and accommodation. There is a slight areus senilis. The fundi present no pathologic change.

Hearing: There has been some failing in hearing which has increased during the past three years, but there are no foreign sounds. Aerial conduction is greater than bone conduction, and the fork is heard best in the closed ear.

Taste is stated to be about as usual, while it is complained that the sense of smell has been impaired since childhood.

April 3, 1910: The patient has been taking internally, suprarenal substance in 5-grain tabloids for periods of several weeks, alternated with chalybeates, which have seemed to ameliorate the condition. The application of a rubber bandage has, for a time, made it possible for him to walk about. It became necessary to-day, however, to remove the bandage on account of pain which has been present since before the beginning of a storm which is now in progress. The general condition is much improved. The patient sits in a chair with the feet elevated. The skin of the feet and legs has lost the shiny, glistening appearance and appears more nearly normal. The suprarenal substance was ordered continued during intervals of three weeks.

April 10, 1910: There is pain in the thumbs and fore-fingers of both hands and, if allowed to hang downward, the condition becomes aggravated, the redness appears and they are hot to the touch. The patient is able to walk about and the feet can be rested on the floor for some time with only a limited redness and the glistening color of the skin is entirely absent. Pain is present in paroxysms. He is up and about most of the day and occasionally walks without bandaging. Blood-pressure, by means of the Faught instrument, is as follows: systolic, 200; diastolic, 110.

Sept. 10, 1911: In view of absence from the United States, the patient has not been seen for ten months. The medication has been kept up, however, as previously outlined, and there has been progressive improvement and no severe paroxysms of pain during this time. The patient gets up and goes about the house every day. The feet can be lowered and maintained so for a half hour to an hour and then show but a slight amount of redness and cause no pain. Walking has caused no pain and but slight redness.

Oct. 8, 1911: The pain and burning have entirely disappeared and have been absent for about two months. Paroxysms have remained in abeyance and it is now a year since the last one.

Jan. 2, 1912: There is a total absence of the superficial engorgement previously noted. The patient has for several days complained of a burning sensation in the great toe of the right foot, on the tip of which is a spot, bluish-black or black and about the size of a 5-cent piece. Its appearance suggests a dry gangrene. It is abrupt in outline—not shaded off into the healthy skin—and presents slight marginal redness.

Jan. 14, 1912: The lowering of the extremities and the use of hot foot baths have caused the ischemia to subside and what was presumed to be a dry gangrenous spot to disappear. The patient was directed to elevate the feet as little as possible. There is now retention of urine with ammoniacal decomposition and after voluntary evacuation of the bladder, about 40 c.c. are removed by the catheter. Excepting the annoyance of the secondary cystitis occasioned by the prostatic enlargement, the patient is well.

Jan. 28, 1912: The patient is up and about and following instructions; he walks a good deal about the house; in fact, as much as the general weakness will permit. He suffers no pain or burning and the feet may be dependent, moved or used for hours without occasioning the return of the hyperemia. There has been no recurrence of the pain or burning sensation. Blood-pressure (systolic) is 145 mm.*

FORMS AND ASSOCIATED CONDITIONS

James Collier³ has reported six cases of disseminated sclerosis, two of tabes and one of chronic myelitis, in which erythromelalgia occurred.

A case of Graves,⁴ a woman aged 82, presented erythromelalgia of the right foot a month after an attack of hemiplegia.

The upper and lower extremities were attacked in Auché and Lespinasse's⁵ case, as well as the face, eyes and ears.

Gerrard's⁶ cases, in the tropics, can hardly be considered to conform to the chief characteristics of the disease, but rather to suggest a tropical form of peripheral neuritis with vasomotor manifestations.

Some cases again, like that of Kanoky and Sutton,⁷ would rather seem to come under the angioneurotic edemas than erythromelalgia.

* During absence from the city in June, 1912, the patient acquired some acute illness from which he died. Reliable details are not obtainable and unfortunately a necropsy was not made.

3. Collier, James: The Occurrence of Erythromelalgia in Diseases of the Spinal Cord; An Account of Ten Cases, *Lancet*, Aug. 13, 1898.

4. Graves: Painful Affections of the Feet, *Clin. Lect. and Rep. Lond. Hosp.*, li, 586. Sydenham Society's Edition.

5. Auché and Lespinasse: Sur un cas d'érythromélgie ou névrose congestive des extrémités, *Rev. de méd.*, 1889, ix, p. 1049.

6. Gerrard, P. N.: Burning Foot or Erythromelalgia Tropical, *Dublin Jour. Med. Sc.*, 1904, cxviii, 192.

7. Kanoky and Sutton, R. L.: A Case of Erythromelalgia, *The Journal A. M. A.*, Dec. 19, 1908, p. 2157.

In some cases, spots of hyperemia have been noticed on the trunk as well as on the extremities, as in Benda's⁸ case, which showed the red areas on the neck, while in the case here reported, there were spots on the trunk.

The relation between erythromelalgia and symmetrical gangrene has been discussed and the syndrome has been found associated with Raynaud's disease and intermediate cases between the two diseases have been recorded by Morell and Lavellée⁹ and Rolleston.¹⁰ Sir James Paget¹¹ described a case in which extreme pallor preceded the redness and swelling; pain was present during the pallor, and was relieved at the onset of the redness.

A case observed by me in 1908, and similar to the last, occurred in a woman aged 35, who was in good health otherwise. The fingers were first affected three years before, and later, the toes became affected. The attacks occurred suddenly, without regularity and were characterized by blanching of the tips of the fingers, which rapidly became cadaveric up to the base, where it ended abruptly. The same condition occurred in the feet up to the ankles. This was accompanied by tingling and insensibility to touch and pain. The fingernails were very white; there was an appearance of shriveling or wasting and they were cold to the touch. After a varying interval of from fifteen minutes to half an hour, the ischemia receded slowly in the reverse order and was replaced by an intense redness, swelling, heat and marked tenderness to palpation, but no hypersensitivity.

Many cases are reported in which an evident vasomotor disturbance with neuralgic pains have occurred in association with different organic and functional nervous diseases.

PATHOLOGY

Some writers regard the disease as an angioneurosis, affecting the vasomotor centers in a manner opposed to that of acroparesthesia and symmetrical gangrene.

Cavazzani and Bracci¹² think it is a neurosis with primary involvement of the vasodilators.

Eulenburg¹³ expresses the opinion that it is due to a spinal disease, involving the posterior and lateral gray matter of the cord.

Weir Mitchell and Spiller,¹⁴ in view of the finding of degeneration of the sensory fibers in an amputated toe, state: "We believe, therefore, that we are justified in attributing the symptoms in this case to peripheral neuritis . . . we must conclude that involvement of the sensory fibers anywhere between the spinal cord—or possibly within the spinal cord—and the peripheral ramifications are capable, under certain circumstances, of causing erythromelalgia."

Hamilton,¹⁵ who found marked arterial thickening with narrowing of the lumen and some fibers in the feet which failed to take the characteristic stain, believes that we are forced to accept the "rather vague explanation" of some disorder of the vasomotor system.

Three cases reported by Shaw¹⁶ would seem to be typical, and in all, examination revealed arterial change, but no changes in the peripheral nerves.

The conflict of the findings is seen when the oft-mentioned case of Dehio¹⁷ is compared with that of Weir Mitchell and Spiller.¹⁴ In the former, the hand and foot were involved and portions of the ulnar nerve and artery were removed without improvement. The nerve showed no abnormality and the artery presented an arteritis involving the intima and media. In the latter, examination of the great toe which was amputated showed the nerves and blood-vessels to be much degenerated.

If we consider with Sachs,¹⁸ that "erythromelalgia is relatively frequently associated with gangrene, especially dry gangrene," the occurrence of gangrene after the treatment followed in the case presented fails to have significance. If, however, we study those cases which conform to the true type and, as Weir Mitchell states and is quoted by Barlow¹⁹ and subscribed to by Shaw¹⁶ "gangrene does not occur," one may be more justified in inferring an overaction of the suprarenal substance, a conclusion which rather takes emphasis from the long duration and progressive course than if it were stationary or an ameliorated one.

TREATMENT

Of the treatments advocated, the results have varied as much as the plans adopted. Recovery is reported following psychotherapy and also through major surgical intervention.

Prolonged rest in bed, electricity, incisions into the swollen, red areas, amputations of toes and fingers, all have been tried with relief in some instances, but without notably affecting the general course of the disease.

A severe case recorded by Allen Sturge²⁰ appears to have ended in recovery after several years which was attributed to "faith healing."

Achard and Levi²¹ state that in cases associated with emotion in hysterical individuals, psychotherapy might be of use even in the hypnotic state. While electric treatment has given good results in the hands of Sigerson, some authors believe it was through its suggestive influence.

Achard and Levi also state that recovery took place in a case following malaria, by the use of quinin.

In Vorhees'²² case, fluid extract of ergot seemed to give relief.

In the traumatic case of Weir Mitchell,²³ in which the internal saphenous and musculocutaneous nerves were resected and the two plantar ends of the posterior tibial nerves stretched, a most remarkable relief followed and the patient was able to resume his work. In a subsequent case, the same treatment resulted in gangrene and death.

According to Lewandowsky,²⁴ suprarenal substance acts as a stimulant, not only to the vascular muscle fibers but to all the involuntary muscles. The giving

8. Lewin and Benda: *Erythromelalgia*, Berl. klin. Wchnschr., 1894, p. 53.

9. Morell and Lavellée: *Un cas d'érythromélagie*, etc., Bull. Soc. franç. de dermat. et de syph., 1891, ii, 354.

10. Rolleston: *A Case Showing Some of the Features of Erythromelalgia*, Lancet, 1898, 783.

11. Paget, James: *A Case Illustrating Certain Nervous Disorders*, St. Barth. Hosp. Rep., London, 1871.

12. Cavazzani and Bracci: Quoted in Oppenheim's *Text-Book of Nervous Diseases*, ii, 1333.

13. Eulenburg: *Neurol. Centralbl.*, 1893, p. 657.

14. Mitchell, S. Weir, and Spiller: *Am. Jour. Med. Sc.*, 1899, cxvii, 13.

15. Hamilton, A. S.: *Report of a Case of Erythromelalgia with Post-Mortem Findings*, Jour. Nerv. and Ment. Dis., 1904, xxxi, 217.

16. Shaw, H. B.: *The Morbid Anatomy of Erythromelalgia Based On the Examination of the Amputated Extremities of Three Patients*, Brit. Med. Jour., 1903, i, 662.

17. Dehio: *Berl. klin. Wchnschr.*, 1896, xxxiii, 817.

18. Sachs: *Am. Jour. Med. Sc.*, 1908, cxxxvi, 563.

19. Barlow: *Allbutt's System of Medicine*, 1899, vi, 607.

20. Sturge, Allen: *Tr. Clin. Soc. London*, 1879, xii, 156, sequel, xxii, 381.

21. Achard and Levi: *Semiologie Nerveuse*, p. 580.

22. Vorhees, I. W.: *Some Notes on a Case of Erythromelalgia with Treatment*, Med. News, Oct. 15, 1904, p. 737.

23. Mitchell, S. Weir: *Clinical Lessons on Nervous Diseases*, 1897, p. 185.

24. Lewandowsky: Quoted in the *United States Dispensatory*, Ed. 19, p. 583.

by mouth has been regarded of feeble influence; nevertheless, such administration extended over a long period of time would seem to bring about a like action more slowly and more enduring; and it was for this reason that I used it in my case.

CONCLUSIONS

The syndrome is seen in association with diseases of the spinal cord and peripheral nerves, but is occasionally seen in a pure form.

It is often difficult to differentiate it from the neurotic edemas which it somewhat resembles.

The pain in some cases would appear to be the result of disturbance in the peripheral nerves, the posterior roots, or possibly, the lateral columns of the cord, while in others, the burning and aching might be due to mechanical irritation of the peripheral nerve-endings, primarily.

In the treatment, rest in bed has been in most severe cases already made necessary by the pain aggravated by the upright position.

In view of the vasomotor theory in the production of vasoconstrictor paralysis, the apparent influence of suprarenal substance in my case would seem to add testimony and justify its use in plain or uncomplicated cases.

Constitutional treatment is usually indicated to overcome the results of inactivity and confinement.

A rubber bandage may at times render it possible for the patient to be on his feet with less discomfort and thus contribute to the betterment of his general condition.

325 Mack Building.

ABSTRACT OF DISCUSSION

DR. L. PIERCE CLARK, New York: Weir Mitchell's type of erythromelalgia is rare indeed. Many cases so reported on closer investigation prove to be the mildest types of neuritis, or, more frequently, a phase of arteriosclerosis or a kindred vascular disorder of the finest arterioles. It seems quite likely that the disorder should still be regarded as a syndrome and not as a distinct disease. Any form of treatment of erythromelalgia is usually most discouraging.

DR. GEORGE A. MOLEEN, Denver: In the study of all the cases reported there is wide variation in opinion as to the pathology. There is no attempt to cast discredit on the prevailing general views. The object of reporting the case was if possible to throw some light on the influence of the internal secretions as possibly controlling the vasomotor dilatation in these cases.

DIET AND HYGIENE IN DISEASES OF THE SKIN *

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Diseases of the skin are notoriously rebellious, and some cases tax the skill and patience of even the specialist to an annoying degree. In some instances they seem almost incurable; but there is a cause for everything in this world, and human skill and discernment are gradually probing Nature, and the science and art of medicine has progressed incomparably of late years, along the lines of both etiology and treatment. There is still, however, much to be learned regarding many diseases of the skin, as to their causation, persistency and proneness to recur.

It is no great wonder that they should have these latter characteristics if we do not reach and rectify their underlying causes.

I say "underlying causes," for I recognize fully the local agencies, parasitic, microbic and others, which produce many of the lesions on the skin; but the fact remains that there must be some condition of the system or tissues which often escapes detection and which either renders the skin susceptible to local disease or directly excites it thereto; for but few of the diseases appearing on the skin are like small-pox, in which the poison secures immunity from another attack. We have learned that all of us are exposed to the infection of tuberculosis almost daily, and yet very few are seriously affected, and in like manner pus cocci are well-nigh omnipresent, though relatively few persons are afflicted with boils, carbuncles or pus infections.

The thoughtful physician seeks, therefore, to know why it is that these exogenous etiologic elements should produce an eruption in one individual and not in others, and why the same individual may at one time escape and at another time suffer from their baneful influence. True science should look deeper than local causes in a large share of many kinds of diseases, both of the skin and other portions of the body, and the careful study of metabolism is throwing great light on the true pathogeny of many affections, including some of those of the skin. As the study of metabolic disturbances progresses, illumined by careful volumetric analyses of the urine, that true indicator of the state of the arterial blood, it will become more and more apparent that successful practice will depend on the careful recognition and treatment of disordered systemic conditions, with due regard to local causation.

That many affections of the skin have more or less to do with the nutritive processes which are continually going on within the body, and are affected to a greater or less degree by the manner in which metabolism is carried out, there can be no doubt. This has been clearly shown by many, and was the special topic of discussion at the Fifth International Dermatologic Congress in Berlin, in 1904, with a number of papers on the subject. It is a matter of the greatest importance, further discussion of which is prevented by lack of time.

But all recognize that metabolism is influenced, or determined for good or bad, to a great degree by the proper or improper action of the various organs and excretories of the body, and universal experience shows that these are again influenced continually by the character of food and drink taken.

We see, then, that there is a thoroughly scientific basis for the thesis that diet and hygiene are of importance in relation to many diseases of the skin, and many of us can recall instances in which the clinical evidence of this is irresistible. Thus, it is a matter of common observation that acute erythema and urticaria may result in certain persons directly from the ingestion of certain articles of food, as shell-fish, strawberries, mushrooms, bananas, etc. It is also well known that in some persons crops of acne will follow the free use of certain articles, as buckwheat, chocolate, nuts, cheese, fruit cake, pastry, fried articles, etc. The ill effects on the skin of alcoholic drinks is also a well-recognized fact, and many further illustrations could be given.

The effect of diet and rules for its guidance in connection with many diseases of the skin have not yet been at all clearly worked out, for unfortunately few have apparently made much study or observation in this direction, and very little is found on the subject in text-books or

Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

current literature. But from what is known of the subject we may conclude that there are four methods, or directions, in which diet can have an effect on many diseases of the skin:

1. There may be a direct irritating action from the ingesta on the stomach and intestines, giving rise to reflex cutaneous eruptions, in the same manner as in the erythema and urticaria from shell-fish, strawberries, mushrooms, etc. These eruptions often vanish very promptly when the offending mass is rejected by the stomach or removed by purgation.

2. Articles of diet may produce various forms of gastric or intestinal indigestion, giving rise to imperfectly elaborated material, or to toxins, which then have a directly irritating effect in their circulation through the capillaries, as in the acne from indulgence in sweets, pastry, cheese, etc., or the irritating effect of an excessive proteid diet in psoriasis and some other eruptions.

3. Possibly certain elements may act directly on the skin tissue, as do some drugs, such as iodids, bromids, etc.; it is more than probable that alcohol, which can be excreted by the skin, may act in this way.

4. The error in diet may consist in the absence of certain elements in the food, requisite for the proper and exact nutrition of the skin, interfering with the process of keratinization, even as rickets arises from the absence of the proper salts in the food; also in scorbutus, the absence of the vegetable acids and salts affects the tissues, which condition is checked when these are supplied.

While it is true that it is difficult in many instances to trace disease directly to the effect of definite errors in diet, accumulated experience has shown that the converse is often true, namely, that relief from many conditions of disease can often be obtained by certain regulations of diet. Thus, no one questions but that the former prevalence of attacks of acute gout was due largely to the free partaking of certain rich, sweet wines, such as port and Madeira, and that the relative infrequency of such cases is due to the fact that these particular wines are now much less frequently taken—certainly not in such quantities as formerly.

The strong claims in past years that uric acid in the blood was the cause of many troubles, while not now accepted in its entirety, has undoubtedly been of great service in directing attention to errors in nitrogenous metabolism, which has thus resulted favorably in the dietary and other treatment of many diseases, both of the skin and other organs.

A most striking illustration of the beneficial effect of a restriction of the nitrogenous food, under certain conditions, is found in the so-called "rice diet" which I suggested not long ago, after an experience with it in many cases for five years, one of which may be briefly recorded:

In January, 1906, a man, aged 45, was referred to me with an exceedingly severe attack of bullous erythema multiforme, of which he had had two similar attacks within the previous three years. The attack began suddenly at 4 o'clock the previous afternoon, after eating heavily and drinking champagne. Beginning with a few papules and very severe itching, it developed with great rapidity, so that when first seen the patient had large bullæ over the hands and wrists, some of them hemorrhagic. His agony was intense from the burning and itching; pulse was 88 and throbbing, and the tongue was coated. In addition to a laxative and alkaline diuretic, the patient was given a diet of boiled rice, with butter, bread and water. The result was surprising, for the progress of the disease seemed to be arrested instantly, and in five days there was only some scaling. The patient remarked on the great difference between the course of this most severe attack and the others he had had

Since that time I have employed the same dietary treatment in quite a large number of cases of various acute inflammatory affections of the skin, in which careful volumetric urinary analyses showed defective elimination, with most gratifying results; these have been so different from what I had previously obtained, that with this diet one can almost promise that the very greatest relief can be afforded in a very short time in conditions which were previously much more rebellious.

In my own person I experienced the beneficial effects of this diet in a remarkable manner on three occasions.¹

I had had an acute vesiculobullous eruption on my hands for a number of summers, which proved very rebellious each year to the most varied treatment. After it had increased to a distressing degree, so that the hands were greatly swollen and covered with bullæ which kept the fingers apart, two years ago I placed myself on the diet mentioned, taking only rice, boiled in water, bread, butter and water three times daily for five days. Within twenty-four hours there was remarkable relief to the tension and itching, and within forty-eight hours there was very little discomfort on washing and wiping the hands, which before had caused agony. Within four days the bullæ were quite flaccid and the swelling of the hands was gone, and a week later the skin was almost normal. After five days of the diet, I resumed ordinary living, and about two weeks later there was a return of the eruption, with vesicles and bullæ, and great itching. I then stopped all medication which I was taking and resumed the rice diet, and the effect was the same: the irritation ceased, almost as by magic, and in three days the vesicles and bullæ had subsided. I then returned to a more moderate mixed diet and remained free from trouble.

Last summer the eruption reappeared, as usual, but resort to the rice diet early, for five days, quite checked it, without any medication whatever, and with more care in my ordinary diet I remained free from eruption. I may say that I am not a high-liver, take relatively little meat, and seldom touch alcoholic beverages.

An interesting point in connection with this almost perfectly non-nitrogenous diet relates to the urinary secretion. I had a complete volumetric analysis of the urine made the day before undertaking the rice diet, and then again at the expiration of the five days. The results showed that at the end of that time I was passing the full normal amount of urea and a little excess of uric acid, although I had taken no nitrogenous food. This can be explained only by the removal from the tissues of stored-up and effete nitrogenous matter, the elimination of which gave relief to the cutaneous symptoms.

I have employed this diet in a very large number of cases of acute inflammatory disease of the skin in private and hospital practice for over six years, with the happiest result, and seldom have found a case not benefited, although, of course, the treatment must be used with judgment.

I have mentioned five days as the time in which it will commonly manifest its good effect, but in certain cases this course may be repeated now and again if the symptoms flare up. I had one private patient with eczema who voluntarily continued it for a month, because of the continued well-being, and yielding of the eruption; in one hospital patient, with very general eczema and most severe rheumatoid arthritis, the rice diet was gladly persisted in week after week during her entire stay of three months, with the result of not only the disappearance of the eruption but a most remarkable change in the arthritic trouble; the fingers which were distorted side-

1. Bulkley, L. D.: Personal Experience with a Very Restricted Diet (Rice) in Acute Inflammatory Disease of the Skin, *Med. Rec.*, Jan. 28, 1911.

ways and previously immovable loosened up so as to be quite useful. In still another case in private practice a woman, aged 45, with very general and severe psoriasis, actually continued on this diet voluntarily for five months, with a few slight breaks when visiting; this was followed by a most marked improvement to the psoriasis, which had nearly disappeared, with complete cessation of the patient's rheumatism, which had been very distressing, and a surprising improvement in her health and vigor. These are remarkable and exceptional cases and are mentioned only to illustrate that the system can secure calories enough from this diet to maintain nutritional equilibrium, or even gain in weight, as did the hospital patient, while the others lost but a trifle on the scales.

Time forbids dwelling on many points of interest in connection with this diet, but a few words must be added which are of importance in order to secure the best results. It is essential that these carbohydrates should be masticated most thoroughly, fletcherized, and to secure slow eating I direct that a fork and not a spoon be used, and that at least half an hour be taken for the meal. The rice is boiled in water, eaten hot, with plenty of butter on it, as also on the bread, which must be twenty-four hours old; the water may be taken hot or cold, but not iced, and apart from actual eating, that is, not to wash down the food.

Along this same line of sparing nitrogenous metabolism comes the vegetarian treatment of psoriasis which I have been urging for the past twenty years and more,² and which often yields such brilliant results. It is hardly necessary to enter largely on this subject now, but a few words may be of service. While I have repeatedly seen the eruption steadily fade and actually disappear under a perfectly rigid vegetarian diet, properly carried out, with absolutely no internal or local treatment, this is, of course, exceptional and the best results are obtained by a thorough treatment along all lines; but from watching very many cases, with careful notes over a long period of time, I am confident that the absolute vegetarian diet is of the very greatest service in securing immunity from the eruption.

It is, however, true that there will sometimes be a recrudescence of the eruption, to a greater or less extent, even while the patient is supposed to be under a rigid vegetarian diet, but, as a rule, the outbreak will not be nearly so severe or persistent as previous ones. The lesions will be small and much less pronounced and will commonly yield more readily to appropriate treatment, dietary and medicinal.

This recurrence of the eruption may be accounted for in several ways, and does not at all weaken the argument for a vegetarian diet in psoriasis. First, it is always possible that the patient may not have adhered to the restricted diet as absolutely as supposed and reported. Second, the details of a proper vegetarian diet have by no means been all worked out, and it is quite possible that some article in the vegetable kingdom may lead to the faulty metabolism which is at the bottom of psoriasis. We know that beans, peas and lentils contain a large percentage of proteid, and I had one very intelligent man who reported that he had some lesions whenever he partook largely of them. Third, there may be such a wrong action of some of the internal organs that even a purely vegetarian diet does not always secure a perfect blood

condition. Fourth, there may be other causes at work, as yet unrecognized, which favor the eruption.

Many cases have for years been watched in another way, which also proves the value of the vegetarian diet. Repeatedly it has occurred that the patient for one reason or another has broken away from the rigid rules given, and on returning to a free meat diet has had a recurrence or increase of the eruption, and has returned penitently and gladly resumed dietetic treatment, with satisfactory results.

In regard to the length of time necessary to continue this strict vegetarianism, it is difficult to state, unless it be that it be permanently maintained, for the same causes will generally produce the same result, and a return to a faulty nitrogenous metabolism may again cause the eruption. It is understood that this diet includes perfect abstinence from all food which is not produced directly from the ground, with the single exception of butter, which should be freely taken, as it furnishes relatively about the largest percentage of calories possible. All forms of meat, fish, shell-fish, eggs and milk are excluded, and cereals and vegetables form the basis of diet. But some articles of the vegetable kingdom are to be excluded, for sweets and pastries do harm, and alcohol in any form is strictly prohibited. I have frequently found that free indulgence in acid fruits increases the eruption, and dried beans, peas and lentils have been already mentioned as likely to excite the eruption, when taken in excess.

Milk was mentioned as excluded from the dietary, because when taken with other food it often seems to clog the liver action and thus act badly in psoriasis, as well as in acne and some other dermatoses. But in nervous and debilitated subjects with various diseases of the skin it often serves a most excellent purpose, and does not seem to disagree with the eruption, when taken in the manner which I have so long advocated;³ namely, absolutely alone, at blood heat, and one hour before the meal, provided that nothing has entered the stomach since the preceding meal, and that the process of digestion has been fully completed, and the stomach is in the condition of the "alkaline tide."

Time does not permit the consideration of many points of interest regarding the dietary relations of many other diseases of the skin, but it is hoped that enough has been said to demonstrate that the condition of the skin may be profoundly influenced by the character of the food and drink taken. And if in certain affections of the skin the influence of diet is so striking, is it not probable that in many others the dietary influence may be of more or less importance? And, as stated at the beginning, may it not be that much of the proverbial rebelliousness of skin affections as a class is, in part at least, due to wrong nutrition as influenced by an erroneous diet?

It is an interesting fact that even microorganisms require a proper soil in which to propagate, and we have learned that even the tubercle bacillus is relatively harmless to the many whose nutrition is perfect, and that tuberculosis is best overcome by proper feeding and hygiene. We all know that in the laboratory the various microorganisms grow only on their own proper mediums. It is also a curious fact that ringworm of the scalp, which is so easily contracted by young children and is often so rebellious in them, has a strong tendency to cease with puberty; it is the rarest thing to find it on the scalp of an adult.

2. Bulkley, L. D.: Report of 140 Recent Cases of Psoriasis in Private Practice Under a Strictly Vegetarian Diet, *THE JOURNAL A. M. A.*, Aug. 26, 1911, p. 714.

3. Bulkley, L. D.: Relations of Diseases of the Skin to Internal Disorders, New York, 1906, p. 112.

Hygiene is closely linked with diet as an element of importance to consider in connection with many affections of the skin, though it is too often disregarded. There are many essential points which might be dwelt on with advantage, but time forbids other than a brief mention. Mr. Fletcher and others have shown conclusively that rapid eating and imperfect mastication are a source of disease, which can often be remedied by a proper attention to these matters, and this I have found of the utmost significance in connection with many cases of diseases of the skin. Digestion begins with the saliva, in the mouth, and if this portion of the digestive process is imperfectly performed there must be some difficulty in other organs performing their functions perfectly. So that from experience I have found it wise to insist that the mouth is made to do its work properly; in other words, that the food is fletcherized.

Regularity of life is undoubtedly a contributory element to good health, and when one organ, as the skin, is diseased, it will naturally return to the normal state and remain so more readily if regularity is attended to. This refers to regularity in the hours of eating and sleeping, and it would surprise many to hear the confessions drawn out from patients with various obstinate skin affections, in regard to the hygienic elements in these directions which are grossly at fault. The hurry and excitement of the present age are unquestionably contributory elements in many diseases, and from long observation I am confident that they have a strong bearing also on many of the more rebellious forms of diseases of the skin.

Proper internal and external treatment are, of course, of the utmost importance in controlling and curing many cutaneous diseases, but the close student will also find in proper diet and hygiene agents which are of the highest value in overcoming many of the troublesome affections which, while appearing on the skin, are often only outward "danger signals" of something wrong in the internal economy, and in the manner in which it is nourished and cared for by diet and hygiene.

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ABSTRACT OF DISCUSSION

DR. M. L. RAVITCH, Louisville: Dr. Bulkley has laid a great deal of stress on diet. I do not believe that uric acid is a causative factor in skin diseases. I have made more or less exhaustive analyses of the urine in all skin cases, and have never found anything distinctive. I have never seen psoriasis affected by any prescribed diet. I do not regard diet as an important factor in the majority of skin diseases.

DR. L. D. BULKLEY, New York: For the past forty years I have been observing the effects of dietary errors on the skin, the improvement that rapidly followed in many cases after a careful regulation of the diet, and I am just as certain about every word I said in my paper as I am of my own existence. I am sorry that the younger men, who have, perhaps, not had the opportunity or experience, do not grasp the importance of this factor, but I believe they will in time.

The Narcotic Effects of Alcohol.—Alcohol, like ether, has a twofold action: (1) temporarily exhilarant; (2) depressant for a longer time. As with chloral the temporary stage of exhilaration is followed by a stage of sleepiness or insensibility. A little ether or chloroform gives a pleasant feeling of warmth and a sensation of vigor followed by drowsiness and a desire to sleep. In larger quantities there is a short stage of exhilaration, talkativeness and babbling, followed by complete loss of mental control; the bodily temperature is lowered and a stage of deep sleep and a loss of power to move ensues. Alcohol acts in precisely the same way.—B. C. Keister, in paper read before the Medical Society of Virginia.

INTRAMAMMARY INJECTIONS OF OXYGEN IN THE TREATMENT OF ECLAMPSIA

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In a recent editorial¹ the similarity existing between the milk-fever of cows and eclampsia in women is discussed. It is considered first that the milk-fever of cattle is caused by the elaboration of a toxin, or toxins, in the udder of the animal, which on absorption are productive of the disease in question; the toxicity of colostrum when injected into the animal subcutaneously is spoken of in evidence. The likelihood of production of such toxins by a gland of such size as the udder, when brought suddenly into a state of intense activity following a period of more or less quiescence, is remarked on. It is stated also that "a therapeutic advance which has almost completely abolished the mortality from the disease (milk-fever in cows) and has greatly facilitated a speedy recovery, . . . consists in acute dilatation of the udder by means of suitable liquids or gases. Originally introduced on the hypothesis that an infection of the udder was to be combated, the injection of antiseptic solutions has been replaced by those of bacterially inert agents with equal efficiency." Healy and Castle, whose work is referred to in this editorial, further conclude:

We are of the opinion that eclampsia is due to a similar toxin elaborated by the breast in a similar manner, and would strongly recommend, as the most promising treatment, dilatation of the breast with oxygen or sterile air, accompanied with vigorous massage of the breasts, or forcible compression of them by means of a properly applied bandage, at the same time using whatever medical measures may be indicated. We ourselves shall thoroughly test this method of treatment as soon as the opportunity occurs

With these facts in mind, the method was tried in the following case:

The patient was a white secundipara, aged 27. The first pregnancy and labor occurred two years ago and were normal. The present pregnancy had progressed satisfactorily and without complication to term. At 10 a. m. the patient was delivered of a living child, after a labor lasting three hours. The first convulsion occurred six hours after delivery, at which time I found the patient completely comatose. The pulse was 140 and temperature 102.5. The bladder contained 2 ounces of highly albuminous urine. The following treatment was given: one-fourth grain of morphin sulphate and 10 minims of tincture of veratrum viride hypodermically; 10 ounces of blood were taken from the arm; 10 grains of calomel and 0.25 grains of elaterium were forced down the throat and hot packs and proctoclysis with normal salt solution were employed. Under strict aseptic precautions, and washed through a strongly phenolized solution, oxygen was introduced into each breast from an ordinary tank of the compressed gas. Each breast was completely filled, the gas also finding its way into the thoracic areolar tissue and distending the parts as high up as the clavicle. Each breast was then strapped down tightly and a figure-of-eight bandage applied over this. No massage was used. After institution of treatment there were two slight convulsions; the pulse fell to 60 (veratrum influence, I believe), the bowels moved in three hours; consciousness was first regained in four hours; urine began to be plentifully secreted, and subsequent recovery was progressive and uneventful.

This report is given for what it is worth. Eclampsia is a complication of such high mortality, and the methods of treatment heretofore advocated are so wholly empiri-

1. THE JOURNAL A. M. A., April 20, p. 1201.

real that we all grasp with avidity any new thought concerning it. The idea as to the *modus operandi* of this treatment, gained from the editorial above quoted, is that of "shutting off entirely or largely the blood-supply of the milk-gland until it has the opportunity to resume its ordinary excretory activity, thereby eliminating the toxic product in the colostrum or milk." Whether by such a procedure we can "shut off" the blood-supply to any but the slightest extent, in an organ so anatomically arranged as to make such a result very difficult of attainment, is a matter for discussion. An interesting point in the case reported here is the fact that, notwithstanding the extreme distention of the tissues and the tight strapping and bandaging, the absorption of the gas was very rapid. The idea naturally suggests itself, that the effect may be due, to the greatest extent, to a direct action of the oxygen on the toxins themselves.

St. Mary's Hospital.

NOTE ON A PEPTID-SPLITTING AGENT IN HUMAN BLOOD-SERUM

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A PRELIMINARY REPORT

The researches of Vaughan, Cumming and Wright¹ and Nicolle and Abt² seem to indicate that proteins introduced into the peripheral circulation or serous sacs undergo what Vaughan terms "parenteral digestion." These workers consider parenteral cleavage of proteins a very important factor in the body's defensive mechanism.

Apart from the laboratory or clinical evidences that the blood and body cells split foreign proteid in a manner corresponding to its hydrolysis *in vitro*, we have not noted previous evidence that such cleavage is actually carried on in the circulation.

Recently, while studying the biochemical properties of blood-serum (particularly the serums from patients affected with some form of gastro-intestinal neoplasm), we had opportunity of investigating its action on the dipeptid, glycyltryptophan (Fischer).³ This dipeptid is indol-alpha-aminopropionic acid (tryptophan) combined with glycocoll. It has been shown by Neubauer and Fischer⁴ and Abderhalden⁵ that glycyltryptophan is readily hydrolyzed by ferments and that the cleavage product, tryptophan, can be conveniently recognized in acid solution by admixture of bromin vapor.

We have found that when aseptically obtained fresh blood-serum is combined with a solution of glycyltryptophan (Fischer) and incubated under toluol at 37 C. for twenty-four hours, on acidulation with 3 per cent. acetic acid, typical rose-pink to violet color changes occur on the admixture of bromin vapor. These color changes persist for varying lengths of time. Control serums heated to 80 C. previous to incubation do not give such glycyltryptophan reaction. Neither is such reaction obtained if serums are incubated alone, are mixed with absolute alcohol, 1 per cent. mercuric chlorid solution, 2 per cent phenol (carbolic acid) solution, 0.25 per cent. alphozon solution, or antiformin.

Not all blood-serums split glycyltryptophan solutions with equal rapidity or completeness. There are some serums which have almost lost their power of splitting this dipeptid. These are frequently from patients not well. Varying dilutions of serum with normal salt solution or distilled water exhibit certain variations which seem to permit of a quantitative interpretation.

The agent in blood-serum causing the cleavage of glycyltryptophan appears to have the qualities of an enzyme.

SO-CALLED PRECOCIOUS MENSTRUATION COMBINED WITH OCCURRENCE OF MILK IN THE BREASTS OF AN INFANT; A CASE WITH HEREDITARY FEATURES

J. L. VALLELY, M.D., GATUN HOSPITAL, CANAL ZONE

Mrs. V. M. C., an American woman, aged 28, was delivered of a female child on May 30, 1912, at Gatun, Canal Zone. On June 1 there occurred a vaginal discharge of apparently almost pure blood from the infant, which lasted three days and caused no symptoms. When the child was eight days old her breasts were engorged, especially around the nipples, and a whitish fluid exuded, which, under the microscope, showed large numbers of fat globules. This fluid the mother thought necessary to squeeze out every day as the breasts filled up rapidly. The child has no abnormal temperature.

The mother states that all her female children, three in number, had the bloody vaginal discharge, which commenced about the third day after birth and lasted three days, when it disappeared without other symptoms. She also states that in all her four children, including her boy, the occurrence of milk took place in the breasts, commencing when the child was seven or ten days old, lasting a few days, and causing no other symptoms. In all cases there was a considerable quantity of the milky fluid formed every day.

The mother also states that the mother of her husband, Mrs. R. C. C., now living in Mount Vernon, Illinois, who is the mother of seven girls and four boys, told Mrs. V. M. C. shortly after she (Mrs. V. M. C.) was married that all her girls had had the bloody vaginal discharge when two or three days old, and that all her children, both boys and girls, had had the occurrence of milk in the breasts at about the age of seven days, the boys having a larger quantity of the milky formation.

Dr. McGillicuddy, Canal Zone, attended Mrs. V. M. C. when the boy was born.

Without going into the etiology of this case, I would merely state that Halban attributes both these occurrences—the vaginal discharge and the milk—to a common cause, namely, the circulation of some substance probably derived from the placenta. I would also call attention to the feature of inheritance through the children's father.

INTRAHEPATIC HEMORRHAGE OF TRAUMATIC ORIGIN; OPERATION; RECOVERY

GASTON TORRANCE, M.D., BIRMINGHAM, ALA.

Surgeon to St. Vincent's Hospital

A man, 25 years of age, was brought to me with a history of having been injured twelve days previously. At the time of the injury he was standing in the mines by a post near the car track, when a train of cars jumped the track and one of them struck him in the back over the region of the left kidney; the impact of the car threw him against the post. For the first four or five days he suffered pain over the kidney and passed some bloody urine; he then began to have pain over the liver, radiating around the margins of the ribs, and noticed an enlargement in the region of the gall-bladder. He had no rise of temperature and was not confined to bed all of the time.

When admitted to the hospital there was a decided enlargement over the gall-bladder with some tenderness and slight

1. Vaughan, Cumming and Wright: *Ztschr. f. Immunitätsforsch. u. exper. Therap.*, May 13, 1911, p. 458.

2. Nicolle and Abt: *Ann. de l'Inst. Pasteur*, February, 1908.

3. Fischer, E.: *Ber. d. deutsch. chem. Gesellsch.*, 1901, xxxiv, 2864.

4. Neubauer and Fischer: *Deutsch. Arch. f. klin. Med.*, 1909, xcvii, 499.

5. Abderhalden: *Ztschr. f. physiol. Chem.*, 1909, lxii, 136.

rigidity; there was a slight tinge of yellow; his temperature was normal; white blood-count was 10,500; the urine showed a trace of albumin, some pus and red blood-cells.

I concluded that he had a very much distended gall-bladder and decided to operate at once. On opening the abdomen I found the gall-bladder normal, but there was a considerable enlargement of the liver between the gall-bladder and the median line, which seemed to be nearer the surface on the under surface of the liver. This history of injury led to the diagnosis of intrahepatic hemorrhage. As the enlargement was so gradual and so recent there was some question as to whether the bleeding had ceased or not. To leave it was to invite infection and abscess formation. After the abdominal cavity was thoroughly protected with gauze packs, a trocar was passed into this bulging part of the under surface of the liver and about a pint of fluid blood was drawn off; the opening was then enlarged enough to admit two fingers for exploration of the cavity. A rubber tube wrapped with gauze and rubber dam was introduced and a gauze drain covered with rubber dam was placed beneath the liver at this point and the omentum was packed around the drains.

The patient was in good condition at the end of the operation and was placed in bed with the foot elevated. He made an uneventful recovery. A few days after operation there was a free flow of bile which continued for about two weeks. For the first week the patient was kept on a very limited diet; then a more liberal diet was allowed, but it was found that this made him quite ill with nausea, etc., probably because of the destruction of liver substance. The patient left the hospital in three weeks with only a small sinus draining mucus and was gradually increasing his diet.

SUSPENDED HEART ACTION IN ACUTE DILATATION; CARDIAC MASSAGE; RECOVERY

ISRAEL BRAM, M.D., PHILADELPHIA

During the past few years much has been written on the subject of cardiac massage in collapse, referring especially to desperate cases of chloroform anesthesia. Keen¹ has detailed two routes for reaching the heart: By resection of the chest-wall directly over the heart, and by manipulation of the heart through the abdomen, either with or without an opening in the diaphragm. König-Maas has reported favorably on massage of the heart over the chest-wall. He places the ball of the thumb of the right hand between the apex-beat and the sternum, and makes quick, sudden compressions of the thoracic wall at the rate of from thirty to one hundred times a minute.

The following case suggests the value of this latter method of cardiac massage:

E. G., a man aged 42, suffered with mitral regurgitation with moderate enlargement of the heart. The disease was of about two years' duration when he came to me, and after one year's treatment the murmur becoming inaudible, and the heart having resumed almost its natural size, he was discharged with due warning against physical or mental strain. On Jan. 15, 1912 (two months afterward), I was hastily summoned to his bedside, where I found him in a state of collapse. Examination revealed a condition of acute cardiac dilatation, with a rapid irregular and at times imperceptible pulse, dyspnea, cyanosis, cold clammy skin, extreme anxiety and restlessness with moments of unconsciousness. Hasty inquiry led to a history of mental excitement (due to business worries) several hours before, and physical exertion for the past few days. I administered a hypodermic injection of digitalin, atropin and strychnin and awaited results. Within three or four minutes he suddenly blanched, respiration ceased, he became pulseless and the heart action became imperceptible. All hopes seemed gone, and it appeared that my sole duty was to pronounce the patient dead. The next moment I was struck with the idea that cardiac massage be tried before giving up. I quickly grasped the precordial region with the right hand, making quick, sudden compression of the thoracic wall and was surprised to feel a slight response in the radial artery of the patient. Thus encouraged, I repeated this procedure at

the rate of about fifty times a minute, each resulting in a radial pulsation. An occasional gasp for breath indicated that the respiratory functions were also awakening to assist the patient. I continued the cardiac massage for about thirty minutes when, the radial pulsations becoming slightly stronger, I ventured to omit a cardiac manipulation. In its place there was a spontaneous, very slight radial wave. Soon I ceased this artificial method of circulation and the heart once more began its efforts to functionate. Judicious cardiac stimulation hypodermically was continued, and within five hours the pulse was of fair volume and rhythm. The patient was then given a hypodermic injection of morphin and atropin and allowed to rest for about eight hours. On my return he was markedly improved, and with the aid of careful nursing he made an uneventful recovery, returning to his business in eight weeks.

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HERNIA OF DIVERTICULUM OF THE BLADDER

GUSTAV J. BERGENER, M.D., SAN FRANCISCO

Patient.—Section Foreman B. R. K., aged 50 years, consulted me March 15, 1912, and gave a history of a log having rolled over his abdomen twenty years before, from which time his trouble dates. For the last ten years he had had a difficulty in passing urine if he held it for any length of time. He had been operated on four years before examination for inguinal hernia on the same side which was now causing the trouble. The present condition began to manifest itself a month before he came to me, at which time patient stated he was thrown back by a cable. I found the external abdominal ring normal in size and a fluctuating tumor about the size of an English walnut just to the right of ring, noticed only when standing up. I made a diagnosis of hernia and sent the patient to the hospital for operation.

Operation.—The following day, March 16, I made an incision about 11 cm. long through skin and fat over the hernial protrusion and along the course of the cord. I then came on dense cicatricial fascia of the external oblique extending from the external ring to about 7 cm. outward; from there on for about 4 cm. the fibers of the external oblique were separated. The fascia of the external oblique was split up to the point of the internal ring, and the cord was freed from surrounding structures, whereupon a tubular sac of about 5 cm. in length extending along the cord made its appearance. It resembled and folded on itself like a peritoneal sac and could be partly peeled from the cord; therefore I opened it to get in my finger to further loosen it up. After I had tried to free the lower end a straw-colored fluid began to make its appearance. A catheter was introduced through the urethra into the bladder and appeared at the part which had been cut into. The prolongation (diverticulum) of the bladder which had emerged at the point of the external ring consisted of mucous membrane and muscular coats, whereas the hernial protrusion of the bladder was at the external ring of the mucous coat alone. The prolongation of the bladder was barely large enough to admit my index-finger ending at the bladder by the wide mouth. I dissected it out to the external ring, then resected it, and closed it with a double row of running chromic catgut sutures, dropping it below the conjoined tendon and Poupart's ligament. The field of operation was mopped dry and the parts closed, placing the cord below tendon, muscles, and ligament. The fascia of the external oblique was overlapped and sutured with mattress and interrupted sutures of chromic catgut. No drainage was placed in the wound.

Postoperative History.—A retention catheter was placed in the bladder for the first three days and irrigated with saturated solution of boric acid and 1:2,000 solution of silver nitrate. The patient was able to be up on the eleventh day. Cystoscopic examinations of bladder two weeks and six weeks after the operation showed a linear scar of about 2.5 cm. at the left anterolateral wall of the bladder, a few congested spots in the neighborhood of the scar and a slight outward bulging to the left of the scar. There were no calculi and no obstruction to passage of the cystoscope.

1. Keen: Proc. Philadelphia County Med. Soc., 1904, xxv.

To my mind the diverticulum came on after the injury of twenty years ago and the hernia at the time of the accident a month ago. The case, with both diverticulum and hernia of the bladder, is a rather unusual one, because of the manner in which it protruded at the external ring as in direct hernia, and its location along the cord as in indirect hernia.

ANOTHER TRUE HERMAPHRODITE

ROY K. SMITH, A.M., M.D., SEOUL, KOREA

Patient, aged 28, married for seven years, came to the hospital for treatment for hypospadias and the removal of a mass in the right inguinal region. He said he had never had intercourse but had had sexual desire with erections and emissions. Facial hair was entirely lacking (not so remarkable, however, as the Koreans have very scanty beards as a rule) and the expression of the face was as much that of a woman as a man. He had a strong muscular frame, being accustomed to doing ordinary coolie labor. The breasts were as large as those of a young virgin and the hips were broad. Examination revealed a penis about 2 inches long with well-developed glans and corona and loose foreskin and a penile hypospadias with the meatus about 1 inch back of the tip of the glans. The scrotum was normal. On the left side was a normal testicle (?) with epididymis and vas deferens, the spermatic cord rolling easily under the fingers. On the right was a mass which was round and firm like a testicle, slightly larger than that on the left and drawn upward toward the inguinal canal. Above this in the inguinal canal but with a distinct groove between it and the supposed testicle was a firm mass which did not give impulse on coughing and which felt like a hydrocele of the cord under pressure. The light test was not applied. Between the scrotum and anus was a well-marked dimple.

Operation, Feb. 26, 1912, under chloroform and ether anesthesia. Incision was made over the mass, a hernial sac found and opened and a uterus and right tube and ovary delivered. The end of the tube was not patulous but had well-developed fimbriae and two hydatids of Morgagni. The remains of the round ligament consisting of a small band of fibrous tissue extending into the scrotal connective tissue was ligated and cut. The left tube extended into the pelvis and seemed to be connected to the base of the bladder. There was a band running from the left side of the uterus to the brim of the pelvis on the left side anteriorly, presumably the round ligament. No ovary was found inside the pelvis. The continuation of the uterus downward behind the bladder became a firm hard cord about $\frac{1}{2}$ inch in thickness, supposedly the remains of a vagina, as when traction was made the external dimple was made more prominent. The uterus, ovary and tube were ligated and removed, the stump closed over and dropped into the abdominal cavity and the sac closed as in operation for hernia. The fascia of the external oblique was sewed to Poupart's ligament in its whole length and the skin closed with subcutaneous suture.

Subsequently the hypospadias was operated on by freeing the urethra, placing the opening farther back, cutting the dense hard tissue holding the penis down and bringing in skin flaps from the sides making a penis about 3 inches long.

After hardening in formaldehyd the uterus measured 7.5 cm. long by 5 cm. broad, the right tube 7 cm. long and the ovary 4 cm. by 3.5 cm. The ovary contained several small cysts filled with bloody fluid. Microscopic sections of this organ did not show any graafian follicles, but the stroma was characteristic ovarian connective tissue.

The ultimate proof of this being a case of true hermaphroditism would of course rest on the examination of the gland left in the scrotum. But the history of erections and emissions of spermatic fluid given by the patient and the similarity of the feel of the organ to that of a normal testicle and cord, as well as its being in the proper location for such an organ, make it very probable that the patient was a true hermaphrodite.

Dr. Bolt of Chin Wha College, Peking, China, and Dr. J. W. Hirst of Severance Hospital, Seoul, assisted at the operation. Severance Memorial Hospital.

Therapeutics

RADIO-ACTIVE SUBSTANCES IN THERAPY

More than a decade has passed since the introduction of radium into therapeutics, but we are as yet unable to assign a definite position to this or any of the other radio-active metals. At the congress for balneology in Berlin, 1911, Kionka made the assertion that radium had so far not shown any certain success in a single disease. It had removed pain and had given good results in gout, in some cases. Notwithstanding our lack of definite knowledge regarding the therapeutic action of these substances, a large number of preparations are being put on the market and advertised with more or less absurd claims. In view of the fact that the practitioner is being brought face to face with the question whether these preparations are of value, it seems worth while to summarize the results of a discussion of the subject at the German Congress of Internal Medicine,¹ in April of this year.

Considerable attention has been attracted by the claim of Gudzent that uric acid is dissolved and eliminated by solutions containing radium emanations. These claims are opposed by the experimental results of Wessely, who introduced urates into the anterior chamber of the rabbit's eye and then exposed the animal to the action of radium emanation. No evidence of solution or more rapid absorption could be obtained.

P. Lazarus also, on the basis of new experiments, maintained his position that the inhalation of relatively small doses of emanation were without effect on gouty deposits. He holds that the results of Gudzent were due to experimental errors.

Solutions of thorium X have been substituted for the salts of radium and employed by intravenous injections. Having been injected they are supposed to give off emanations similar to those of radium. Falta reports a destruction of leukocytes and reduction of the size of the spleen in leukemia. Plesch has employed this method in the treatment of pernicious anemia. He lays stress on the considerable lowering of blood-pressure, increased consumption of oxygen and an increase of the metabolism, which results in a considerable loss of weight. According to Gudzent, therapeutic effects could be obtained only by very high doses, but owing to the harm which may be done, great caution is necessary.

As a result of the discussion, the conclusion seems to be justified that very large doses of the emanation or of the thorium X solution are necessary to secure therapeutic results, and in these cases the therapeutic results appear to be separated from the toxic action by a very narrow margin. It is evident, therefore, that the use of these substances is still in the experimental stage, that little, if any, effect is to be expected from preparations on the market, especially since they contain only extremely minute doses which, although probably safe, are also probably worthless. It has been remarked editorially² that the chief value of radium preparations is in the name. In this connection we may well heed the opinion of Krauss, who expressed himself at the German Congress of Internal Medicine to the effect that in these preparations we are dealing with a biologically powerful agent which needs further study, but the therapeutic results are so far too uncertain, and the danger of the new method too great for it to be proclaimed as a curative remedy.

1. Therap. d. Gegenw., May, 1912.

2. Michigan State Jour. Med., June, 1912, p. 358.

THE CARE OF INFANTS

HISTORICAL DATA

At no time of year is a discussion of the care of infants more important than in the summer. The subject has been overdiscussed and overwritten, but it may not be superfluous to print a few facts and suggestions in this department.

In all early times a mother nursed her own baby, and, when crowding into cities, where filth and lack of sanitation were most in evidence, it was fortunate that she did. In the sixteenth century the professional wet-nurse appeared; for nearly 300 years she was the only substitute for the child's own mother, and the baby still had a fair chance to live. Wet-nursing became a profession, and the physicians more or less carefully selected the wet-nurse. Cow's milk was supposed not to be fit for a baby, and boiled milk was supposed to be injurious. If cow's milk had been used to give to babies in these early years, the death-rate, which was frightful from the filth and contagion, would, from lack of care of the milk, have undoubtedly killed almost every baby that did not nurse. In spite of infants being nursed by their own mothers or wet-nurses, the deaths of young children in the seventeenth century were simply enormous; in fact, it is stated that two-fifths of the total deaths of children in London occurred in those under 2 years of age. Up to 1600, babies were nursed even up to 2 years of age, when gradually the age was reduced to a year and a half, provided that the child had plenty of teeth. In the latter part of the sixteenth century and the beginning of the seventeenth, some mothers began to be less willing to nurse their children, at least for any length of time; the wet-nurse became more and more popular, and the mothers of illegitimate children were often selected. The nurse's child was put into some asylum, or farmed out, and even later these prospective wet-nurses did not care how soon after birth their own child died.

In the beginning of the nineteenth century the child began to be fed cow's and ass's milk; but the improvised bottles and sucking-tubes were so neglected and soon became so filthy that a large number of the children so fed died. It was not until almost the latter third of the last century that proper feeding-bottles were made and proper care of them was understood, and it is only within the last ten years that proper feeding-nipples have been generally used.

It is stated that the first proprietary baby-food was made in 1840. These foods have gradually multiplied until the present time. The wet-nurse has now practically passed out of existence.

The nursing period has gradually been diminished to one year, then to six months, then to three months, and now it is largely a question as to whether the mother will nurse her baby at all.

Cow's milk is supposed to be the proper baby-food when mother's milk fails, or rather, when the mother fails to nurse her baby, and bacterial science, sanitary restrictions and governmental and municipal supervision have all developed marked activities in the preservation and distribution of pure, clean milk. Wonderful formulas have been worked out, based on analysis of human milk, to fit the cow's milk to the baby's needs as modified by age, nutrition and digestive ability. A large number of artificial foods scientifically prepared representing various nutritive abilities are advocated and used as substitutes for cow's milk, or additions to cow's milk. Now what has this done for the infant?

The answer can best be made by a careful study of the classic plea¹ of the president of the American Medical Association, Dr. Abraham Jacobi. Not only medical men but the civilized world should read carefully his arraignment of the neglect of babies by their mothers and his earnest plea for their suckling their own infants. It cannot be amiss here to note a few of the many important facts that he presents and a few of the deductions that he draws.

STATISTICS

The necessity for proper nutrition of the mother and a proper care of her general well-being is shown by the fact that the average weight of babies born in poverty is 10 per cent. less than the weight of those born in better surroundings, and three or four times as many of these babies die when at home as when they are placed in good hospitals. Also, looking toward a proper and good milk secretion, mothers should not be compelled or allowed to rise from a confinement too soon. Their convalescence is not prolonged afterward as would be the convalescence of a mother of the non-working class; therefore greater care is necessary temporarily for her future health.

Dr. Jacobi urgently reminds us that mother's milk from almost every standpoint is the milk for her baby. The nutriment contained in it is generally sufficient, and the amount secreted generally increases, depending on the demand of the baby. Her milk also contains the various elements that are necessary for the baby's early protection. Whatever diseases she has had which have rendered her immune cause her to furnish to the child antitoxins, or a greater number of antibodies, and the child while nursing is less likely to have these diseases than a child that is bottle-fed. This is doubtless the reason for the fact so long observed that infants do not readily acquire certain diseases.

The young baby should not be put to the breast more than once every three hours. After the third month Jacobi thinks it should get along with five meals in twenty-four hours. A truth is much dwelt on, namely, that the baby often cries for water and not for food, and water is what he wants and should have, and that frequently. It is quite probable that the baby's loss of weight in the first two or three days is really due to the loss of water, which is not properly supplied by what he is allowed.

Statistics are tiresome and sometimes fallacious, but the mortality of babies has been so carefully watched and tabulated that the figures are incontrovertible, and these figures show that breast-fed babies have more vitality than those raised on artificial food alone. One set of statistics also shows that of a hundred babies born apparently healthy who died before the end of the first year, three had been nursed for nine months or more; twelve had been nursed from three to nine months; thirty-five for less than three months; and forty-seven had been fed artificially.

Other statistics have shown that nearly ten times as many artificially fed babies die of gastro-intestinal disturbance, atrophy, marasmus and convulsions as do breast-fed babies. The conclusions from these statistics are obvious; the baby should be breast-fed, and by its own mother.

As well presented by Henry Koplik,² it is too readily decided by the physician and the family that the mother cannot nurse her baby, and even if nursing is started it

1. Jacobi, A.: The Best Means of Combating Infant Mortality. *THE JOURNAL A. M. A.*, June 8, 1912, p. 1735.

2. Koplik, Henry: The Education of the Physician and Post-graduate Study in the Hygiene and Diseases of the Nursing Infant, *THE JOURNAL A. M. A.*, Jan. 13, 1912, p. 75.

it stopped for too trivial reasons. If the mother's milk is analyzed, it may seem not to come up to the normal fat content, or may not apparently be sufficient in amount. If the child is given plenty of water, and the nursing is persisted in, soon the amount of nutriment and the quantity of milk will generally become sufficient. If the character and quantity of the milk are positively not sufficient, mixed feeding may be given—in other words, part mother's milk and part artificial nourishment.

Analysis of a thousand infants brought to Koplik in his private practice for consultation concerning their condition, shows that only 10 per cent. were exclusively breast-fed, while 30 per cent. were exclusively bottle-fed. The remaining 60 per cent. were both breast-fed and bottle-fed, although a large majority were not kept at the breast later than the fourth month.

If artificial food must be given, Koplik deplors the fact that so little instruction is given the mother concerning its preparation, and even the milk-depots, which are now many in number, he believes fail of their value unless they also have departments furnishing instruction to mothers as to how to care for the milk and prepare the baby's food. Such instruction, whether given by a physician, by a nurse or by a teacher employed for this purpose should include not only the care of the nutriment, but the care of the baby, namely, its baths, clothing, eyes, ears, mouth and genitals, to say nothing of instruction in the necessity of fresh air and in what manner it shall be given the baby. Instruction in these lines will prevent many unnecessary deaths and a large amount of unnecessary illness.

PROPER FOOD

In discussing the milk food problem for infants it might be well to revert to the splendid symposium that occurred on this subject in the Section on Diseases of Children of the American Medical Association, at its annual meeting in 1908. The conclusions presented by the participants in this discussion are valuable and to the point.

Dr. Effa V. Davis³ concludes that no working rule is efficient that does not consider the welfare of both the mother and child; that the early secretion from the mother's breasts is useful in sustaining the child, and that babies should be encouraged to nurse from the first day of life in every ease possible; that when the milk is abundant a three-hour interval during the day and a longer interval at night is a proper rate of feeding.

Dr. J. Ross Snyder⁴ concluded that there was more likelihood of our thoroughly understanding cow's milk and becoming equipped as veterinarians than of understanding human milk and becoming more expert physicians. He suggested the formation of a breast-milk commission to study the physiology and pathology of lactation and secure reliable statistics in relation to the ability of mothers to nurse. Another object of this commission should be to disseminate knowledge relating to the hygiene of nursing, and to initiate a propaganda combating the many superstitious surrounding lactation. He also urged the consideration of the formation of an organized corps of wet-nurses, and the establishment of depots at which bottled human breast-milk could be sold. This is only an extreme plea for the feeding of human milk to the baby.

Dr. G. R. Pisek⁵ showed the fallacies of many of the standards held as proper ones for artificial feeding. The simple enumeration of these standards shows the fallacious aim of raising artificial food, and principally cow's milk, above human milk. In other words, these very standard-bearers have done harm in minimizing the necessity for the baby's being nursed by its own mother. A brief enumeration of these standards are: 1. If mother's milk fails, give cow's milk, goat's milk, or ass's milk, but give milk. 2. All milks are composed of the same ingredients, only the difference is in the proportions, and by modifying the composition one milk may be converted into another. 3. The milk of another animal should be converted into a milk as near the human milk proportions as possible. 4. Cow's milk has a tendency to be acid, while human milk is more alkaline: therefore 5 per cent. of lime-water should be added to cow's milk. 5. The difference between human milk and cow's milk is largely due to the different proportions of casein and caseinogen. 6. Human milk is sterile and cow's milk is full of bacteria, hence sterilize the cow's milk. 7. The only standard of the value of the food is whether or not the child gains weight. 8. The infant needs a certain number of calories, depending on his size. Pisek shows the fallacies of following out any one of these rules.

Dr. Jacobi,⁶ of New York, also took part in this discussion, and he showed the fallacy and the heresy of the "top-milk feeding," and offered the following conclusion: Artificial food is not equivalent to woman's milk; cow's milk cannot be changed into woman's milk; and to add cow's milk-fat to cow's milk to make it more nutritious is dangerous. Cow's milk-fat and woman's milk-fat are essentially different. Cereal decoctions may at times be necessary to improve the value of artificial milk nourishment.

Dr. Thomas S. Southworth,⁷ who concluded this symposium discussion, urged careful analysis of the need of the infant for fats. Too much fat had been advocated in artificial feeding, and now the pendulum was swinging too far the other way; and the only rule was the tolerance of the infant for fat. In other words, the child must be individualized; no rule for the fat content of artificial infant food could be laid down.

From the above, theoretically and practically, there can be no justifiable discussion as to whether a mother should or should not nurse her babe. She should. The only point of discussion is, how long should she nurse him?

(To be continued)

5. Pisek, G. R.: Fallacious Standards Employed in Artificial Infant-Feeding, *THE JOURNAL A. M. A.*, Oct. 10, 1908, p. 1214.

6. Jacobi, A.: The Gospel of Top-Milk, *THE JOURNAL A. M. A.*, Oct. 10, 1908, p. 1216.

7. Southworth, T. S.: High Fat Percentages in Infant-Feeding, *THE JOURNAL A. M. A.*, Oct. 10, 1908, p. 1219.

3. Davis, E. V.: The Quantity and Quality of Breast-Milk During the First Two Weeks of the Puerperium, *THE JOURNAL A. M. A.*, Oct. 10, 1908, p. 1209.

4. Snyder, J. R.: The Breast-Milk Problem, *THE JOURNAL A. M. A.*, Oct. 10, 1908, p. 1212.

Eye Symptoms with Deforming Osteitis.—H. Coppez had occasion to note degenerative processes in the macula in four cases of Paget's disease, and the findings were so much alike in all that he thinks the underlying cause of the bone disease must be responsible for them. Yellowish spots were found in and around the macula and they gradually became confluent. The optic nerve was sound but a tendency to cataract was evident in each case; the patients were all between 57 and 61 years old, and their central or paracentral scotoma has persisted to date unmodified by treatment. The Wassermann test is negative in all and all have moderate myopia. His article was published in the last *Journal méd. de Bruxelles*, 1912, xvii, 245.

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[For other information see second page following reading matter]

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A NEW METHOD FOR EXAMINATION OF THE CEREBROSPINAL FLUID

It is obvious that every step in the demonstration of simpler biologic methods for ready use as an aid in diagnosis is a step forward. Such an advance seems to have been made by Braun and Husler,¹ who suggest a new method for examination of the spinal fluid. The method is the natural outgrowth of previous work on this subject and is founded on the original observation of Ferrata and Brand, who showed that the portion of complement—the so-called middle piece—contained in the cerebrospinal fluid can be precipitated in various ways in connection with serum globulin. It has also been shown by Weil and Kafka² that, whereas both amboceptor and complement are increased in this fluid in meningitis, amboceptor only is increased in general paralysis. It is thus apparent that increase in globulin, which accompanies complement, is diagnostic of meningitis, and that by demonstration of its presence in the fluid in increased amounts, a paralysis may be excluded.

The chief difficulty associated with former methods of demonstrating this increase in complement has been the complexity of the reaction, due either to the large amounts of fluid required or to the unusual chemical and other agents necessary. As the globulin fraction may be precipitated by acids, Braun and Husler have taken advantage of the fact, and have devised the following simple method: Only 1 c.c. of cerebrospinal fluid is required. To this is added, 1 c.c. at a time, a solution of three-hundredth-normal hydrochloric acid. If after 5 c.c. are added no precipitate forms, the reaction is negative. It is desirable that a freshly prepared solution of the acid be used, or else one which has been kept in special bottles which will not dissolve and thus neutralize the acid. The mixture is examined against a dark background and compared with a tube containing only the acid solution.

A fairly large series of cases were examined by this method. In seven cases of tuberculous meningitis, there were six positive results and one positive after three trials. Ten cases of meningitis due to various organisms,

as streptococci, meningococci, etc., were all positive, although, as the authors state, these were of little value, as the fluids withdrawn were distinctly turbid. In three paralyzes a very faintly positive result was obtained. Nineteen cases of various disorders, as alcoholic neuritis, multiple sclerosis, lues, tabes, etc., simulating meningitis, all gave negative results. Finally in a case of uremia and in a case of brain embolus, very faintly positive results were obtained. In all these cases, the diagnoses were substantiated by various pathologic and bacteriologic studies.

The great advantage of this reaction lies in its simplicity, the small amount of fluid required, and the ready availability of the reagent necessary. The response is fairly prompt and if no turbidity has resulted after two hours, a negative result is recorded. The series of cases reported seems fairly conclusive as to the value of the reaction, but it is of course necessary that further examinations be made and larger statistical reports published before definite judgment can be passed. In the meantime we may say that it has been demonstrated conclusively that the cerebrospinal fluid in meningitis, especially tuberculous, on addition of a weak acid solution, becomes distinctly turbid and may thus be differentiated from normal fluids.

THE COMING OF AGE OF THE BABCOCK TEST

In a circular with this title, Director Russell of the Wisconsin Agricultural Experiment Station¹ has given an interesting summary of the perfection of the Babcock quantitative test for milk-fat and the influence which it has exerted on dairy science and practice throughout the world. Milk and its numerous products play so important a rôle in the economy of the home and in the dietary of the sick that the significance of Professor Babcock's contribution cannot remain unnoticed in the annals of the medical world. The simple, yet highly accurate Babcock method of estimating the fat content of milk and cream finds daily application not only in dozens of analytic laboratories, but likewise in hundreds of creameries, in milk establishments, and even in the office of the busy practitioner of medicine, where a few inexpensive devices enable him to gauge the richness of a breast-milk or a modified milk mixture with facility.

Every pediatricist appreciates what the Babcock test means for the exigencies of practice and successful feeding. To-day, twenty-two years after the introduction of this procedure, which, as Ex-Governor Hoard remarked, has made dairymen more honest than the Bible because it has removed all opportunity for them to profit by any deceit, it is interesting to note that no change has been made in the essential features of the test during all this period. The technic of the operation remains the same as when the details were published by Dr. Babcock in 1890. The stimulus which it has given to scientific

1. Braun and Husler: Deutsch. med. Wchnschr., 1912, xxxviii, 1179.

2. Weil and Kafka: Wien. klin. Wchnschr., 1911, xxiv, 335.

1. Circular of Information, No. 32, University of Wisconsin, Agric. Exper. Sta., Madison, Wis., March, 1912.

dairying, to the standardization and improvement of our milk-supplies, to the possibilities of rational infant-feeding and to what these in turn involve in the direction of the public health is scarcely appreciated by the medical profession. Director Russell has written that the Babcock test frees the dairy farmer from the fetters of past traditions, and removes him from the category of "mossbacks." The influences here referred to have in fact been even more far-reaching.

An additional feature deserves mention: No patent was taken out on either the method or the apparatus required to carry out the Babcock test. There was no copyrighting of a name — no commercialism. In accord with a code of ethics now more generally recognized than at that time, the discoverer, because of his connection with the state experiment station, gave his invention freely to the world. We may gladly join in acknowledging our obligation to the man whom the grateful state of Wisconsin has presented a medal in recognition of "his unselfish dedication of these inventions to the public service."

THE INSANITY PROBLEM

We have repeatedly emphasized the importance of denying the mentally unfit immigrant the privilege of landing in this country.¹ The advocates of a more liberal interpretation of the immigration laws argue that in many instances humanitarian considerations should allow exceptions to the general rule. As we have previously pointed out, this is a dangerous principle to follow. Those who favor lax laws and a still more lax enforcement of the already existing laws seem to lose sight of two well-established facts: First, feeble-mindedness and insanity are on the actual increase among us; second, the chief contributing factor to this increase is the immigrant population. With the increase in insanity the problem of its treatment and prevention becomes more and more complex. The difficulties surrounding the treatment of the actually insane are chiefly those attendant on the procuring of proper legislation and sufficient funds for the managing of our psychopathic institutions.

Though the treatment of insanity is now on a fairly satisfactory basis, the problem of the prevention of mental disorders is becoming daily more acute and perplexing. Theoretically we know how it can be done. It is a question of eugenics. If the unfit can be kept from mating by segregation during the reproductive period, a few generations will suffice to reduce insanity and feeble-mindedness almost to the vanishing-point. Should such a program be carried out, it has been estimated that in fifteen or twenty years the state could be relieved of the burden of further increasing its institutions and that in thirty years most of its properties especially acquired to

accommodate all the seriously defective could be sold.² While this is theoretically possible, the practical application of such methods would be fraught with great difficulty, and under present social conditions is impossible.

There does seem to be one remedy, however, that should enable us to lessen the increase of the insane in this country, even though we are unable to reduce the number materially. A proper application of the laws debarring mentally defective aliens from entering the United States would cut off one of the chief sources from which the tainted stock is recruited. This statement can be substantiated by abundant statistical evidence. Thus, of the white insane of known nativity enumerated in hospitals in the whole United States on Dec. 31, 1903, it was found that the foreign-born insane contributed almost 15 per cent more than their proportionate share.³ In New York it has been estimated that one out of every 250 aliens admitted to that state finds his way into the psychopathic wards of one of its institutions during the first year of his arrival.⁴

For the year ending Sept. 30, 1908, out of a total of 5,301 patients admitted to New York State Hospitals for the Insane, 2,548 were ascertained to be of foreign birth.⁵ The feeble-minded and backward children in our schools come largely from the immigrant population. In a report prepared for the Public Education Association of New York, in 1911, the histories of 317 mentally defective children were selected at random from thirty-two ungraded classes. All but forty of these children were of foreign parentage.⁶ This report merely tends to confirm the estimate⁷ that 30 per cent. of the feeble-minded children in the United States are the progeny of aliens or naturalized citizens.⁷

With this greatly excessive prevalence of mental defectiveness among immigrant races, it would seem that all right-thinking physicians should lend their unqualified support to every measure which is intended to increase the efficiency of the medical inspection and examination of immigrants.

URIC ACID

Uric acid has long been a name of mysterious import in medicine—one of those terms which, to the scientific mind, means unsolved problems; to the unthinking individual it often serves as a veil to hide ignorance; for the quack and the nostrum-maker, especially the manufacturer of ethical proprietaries, it has been a money-maker. No one will maintain that the rôle of uric acid

1. Editorial, A Legal Decision on a Medical Question, THE JOURNAL A. M. A., March 23, 1912, p. 861; editorial, Proposed Amendments to Immigration Law, *ibid.*, April 27, 1912, p. 1286.

2. Davenport, Charles Benedict: Heredity in Relation to Eugenics, p. 259.

3. Special Reports of the Census Office, Insane and Feeble-Minded in Institutions, 1908, p. 20.

4. Salmon, T. W.: Insanity and the Immigration Law, New York State Hosp. Bull., November, 1911.

5. Twentieth Annual Report of the N. Y. State Commission in Lunacy, Part I, Appendix, p. 1638.

6. Moore, Anna: Report of the N. Y. State Charities Aid Association, 1911.

7. Editorial, Mental Disorders and Immigration, THE JOURNAL A. M. A., March 30, 1912, p. 938.

in the body has lacked investigators; for the literature abounds in researches which have aimed to elucidate the place of this small but ever-present constituent of the kidney secretion in the physiologic economy and to unravel its occasional pathologic significance.

Among the questions which have arisen in this connection, one of fundamental importance may be formulated as follows: Is uric acid an end-product of metabolism or an intermediary stage in the chemical transformation of the purin compounds in the organism? If uric acid is not a terminal product in the same sense that urea or creatinin are regarded as final products, then it must be assumed that the output of uric acid which is found in the urine from day to day represents only a fraction of that which has been formed in the body; indeed, on this hypothesis it must represent that fragment of the entire circulating uric acid which has escaped destruction. If this were true, it is evident that the amount of uric acid eliminated within any given period is not necessarily an index to that which has been formed within or introduced into the organism. Furthermore, on this basis pathologic accumulations of uric acid might be due to inadequate destruction of the compound quite as well as to impaired elimination.

The untutored observer might assume that it is easy to determine the points at issue. All that is necessary, he would say, is to feed uric acid and ascertain whether it disappears entirely or in part, or whether it can be recovered again in the excretions. If it cannot, the inference would follow that the organism must possess the capacity of destroying uric acid. Experiments along these lines have been undertaken time after time. In some cases uric acid was largely recovered; in others, it practically disappeared. Here we have an illustration of those apparent conflicts of experimental results which always lead to new knowledge when they are followed up for an explanation, yet which are not infrequently held up to the ridicule of the unscientific because of their momentary inconsistency. "Away with experiments; they are the figments of preconceived notions!" remarks the scoffing empiricist.

As a matter of fact, few chapters of physiologic chemistry have received more copious additions in the past decade than that of the purins and their metabolism. Since the discussions on the "Truth and Poetry Concerning Uric Acid" in these columns¹ the wide-spread distribution, the unique specificity and diversity of enzymes which react on the purin compounds have opened up new fields of study in which our American colleagues, notably P. A. Levene and Walter Jones and their co-workers, have performed meritorious service. Perversions of uric acid metabolism were soon conceived to be an expression of inadequate or disturbed enzyme distribution in the pathologic organism — a theory of gout still advocated by various investigators. But the most interesting fact

to help explain the endless discrepancies consists in the discovery that the organisms of the familiar experimental animals convert uric acid to allantoin, which represents the end-product of purin metabolism in these species. Now it becomes apparent why uric acid disappeared so readily in them. Man, however, forms the striking exception. Allantoin is never found in the human urine, except in insignificant traces. The human organs, in contrast with those of the other mammals examined, are without any uricolytic power whatever. Here, then, is a marked distinction between man and the ordinary laboratory animals.

Shall we then conclude that uric acid is a terminal product, indestructible when once formed in the human organism? The more recent investigations in which uric acid has been introduced parenterally, i. e., either intravenously or subcutaneously, have shown that it reappears almost quantitatively in the excretions. When, however, uric acids or purins are given by mouth this degree of recovery no longer pertains. Here Sivé² has furnished what appears to be an adequate explanation. Ingested purins are easily decomposed in the alimentary canal. There is an abundance of evidence that intestinal bacteria (notably those of the colon group) readily destroy the integrity of the purin molecule. Thus the purins taken by mouth fail in large measure to reach the circulation in their original form and are forever lost for chemical identification in the processes beyond the intestine.

At present, then, it appears probable that the purins which escape putrefactive decomposition are not destroyed in metabolism. In the form of uric acid as a terminal product in man (or allantoin in animals) they escape from the organism. Such conclusions must inevitably direct attention more strongly than ever to the conditions which influence the deposition, retention or elimination of uric acid and facilitate an understanding of the more immediate problems of the gouty diathesis. Meanwhile the outlived theories may be relegated to the rubbish-heap of science.

INORGANIC SALTS AND PHYSIOLOGIC EQUILIBRIUM

Jacques Loeb has developed the idea that the inorganic salts which play such an important part in our nutritive welfare exert an effective influence by maintaining a sort of physiologic balance in the liquids surrounding our living cells. The fact that salts of more than one element, such as sodium, potassium, calcium and magnesium are all found regularly in the blood and lymph is of more than accidental moment. Many of these ions are toxic by themselves; they can exert influences markedly depressing or stimulating as the case may be. Some of the salts act antagonistically to each other, and the sum total of the various influences playing on our reactive tissues is an equilibrium between toxic and anti-

1. THE JOURNAL A. M. A., Jan. 14, 1905, to May 13, 1905, inclusive. See also Mendel: Harvey Lectures, 1905-06, Philadelphia, 1906.

2. Sivé: Ueber den Purinstoffwechsel des Menschen, Arch. f. d. ges. Physiol. (Pflüger's), 1912, cxlv, 283.

toxic, destructive and protective forces. A physiologically balanced solution, then, is one which contains salts of such kinds and in such proportions that the toxicity which any individual component can exert by itself is completely suppressed. Such is the blood; such should be the perfusion and irrigation fluids which are coming into use.

From the considerations just outlined it is not difficult to understand that any condition which upsets the proportional interrelations of the various salts may lead to physiologic upsets in the organism. The removal of calcium or of sodium, for example, gives opportunity for the preponderant activity of the remaining elements. Such disturbances are not without familiar illustrations. Various forms of tetany have been attributed to a loss of calcium. It is known that injections of calcium salts in such instances lead to an inhibition of the hyperirritability. The specific relation of calcium ions to the permeability of the capillaries and to some of the activities associated with the sympathetic nervous system has been experimentally emphasized by Hans Meyer and his pupils. Calcium salts are currently employed to overcome localized edemas, such as urticaria. Ringer's solution with its additional content of calcium and potassium is an illustration of the attempt to remedy the deficiencies of the inadequate simple common salt solution. Many more illustrations might be cited of the significance of the "balanced antagonism" of the salts in physiology and pathology as well as in therapeutic procedure.

Quite recently the balance of acids and bases in the body and its concern in the maintenance of proper physiologic equilibrium was discussed with reference to its dependence on the composition of the diet.¹ Supplementing these earlier remarks we may now refer to feeding experiments conducted in the Pharmacologic Institute at Vienna on the disposition of the individual bases, or cations, under different conditions of nourishment or in acid intoxication.² It was observed that under customary conditions of diet the relative distribution of bases in the output from the body was practically like that in the intake. When the food becomes deficient in an element like calcium, there is a loss of the latter from the body. This is made up, however, by an equivalent retention of other bases such as sodium and magnesium. Similarly, when mineral acids are ingested, the loss of sodium and potassium predominates while the organism strives to conserve the other bases. From these and other facts it follows that the cations can replace each other in equivalent quantities, thereby preserving the reaction or equilibrium of bases and acids in the body despite the withdrawal of some one element. On the other hand, it is more than likely that although the neutrality, so to speak, of the organism is thereby maintained, the upset in the relative proportions of the

elements may at times be attended with grave consequences in the light of the views propounded by Loeb. From this standpoint deficiency of calcium in the diet may be objectionable, not so much because of the withdrawal of this base as on account of the serious disturbance in the balanced antagonism or interdependence of all the elements concerned.

It requires no great stretch of the imagination to believe that various trophic disorders, particularly of the skin and peripheral nervous system, are associated with perversions of the salt equilibrium of the organism. Changes in irritability thus evoked may perhaps be referable in some instances to continued errors of diet. One-sided nutrition on a limited narrow dietary furnishes the opportunity for precisely such conditions. Furthermore, the often inexplicable yet undeniable beneficial influences of radical changes in dietary habits or of a regimen at some watering-place with its mineral springs may find their explanation in considerations of the sort advanced above. This chapter in physiologic therapeutics is far from completed.

MINERS' NYSTAGMUS

The careful study of occupational diseases is one of the features of the modern conservation movement coming with the recognition of the economic advantage which attaches to the preservation of health in the industrial population. As an instance of the financial aspects of some of these matters we may cite a recent estimate of the cost of the 1,618 cases of miners' nystagmus in the United Kingdom in 1910. The compensation of these individuals is calculated at over \$155,000, a figure which does not take into account the poor earning capacity of the men in the incipient stages of the disease and other profits lost by the employers. Aside from its purely humanitarian or scientific aspects, therefore, successful investigation of such an industrial disease promises to pay a rich return. This statement needs to be brought home to American captains of industry who have as yet made only a beginning in a direction almost certain to lead to a profitable outcome from every point of view.

Among miners nystagmus is an occupational neurosis characterized by an involuntary oscillation of the eyeballs on fixation. It seems to be confined to the workers in coal-mines and prevents the miner from accurately fixing anything toward which his vision is directed. Such a disturbance of vision evidently must seriously impair the working capacity of an individual who needs to strike accurately with his pick or to match timbers well in the collieries.

There are two prominent views with regard to the etiology of the disease. One of these attributes the nystagmus to the strain of accommodation in the presence of deficient light; the other view associates the disease with the positions taken by the colliers, and

1. THE JOURNAL A. M. A., July 27, 1912, p. 278.

2. Lüthlen, F.: Das gegenseitige Kationen-Verhältniss bei verschiedener Ernährung und bei Säurevergiftung. Arch. f. exper. Pathol. u. Pharmacol., 1912, lxxviii, 209.

assumes that there is a local myopathy affecting the elevator muscles of the eye. The cause and prevention of miners' nystagmus has been investigated lately by Llewellyn.¹ It is a striking fact that the disease does not occur in the metalliferous mines where safety lamps are not required. In mines where candles can be used or where electric lamps are in operation nystagmus is not found. Now the safety lamp gives much less light, quickly becomes dirty, throws shadows and must be placed out of the reach of the picks. We are apt to overlook the amount of our light which is due to the diffuse reflection from the walls of the room in which we happen to be. In the coal-mine practically all of the light is absorbed; hence the need of satisfactory sources of illumination.

The disease is shown to attack the men who use their eyes in a much larger proportion than the other men. A large proportion of them suffer from errors of refraction. All have weakness of accommodation. Llewellyn regards nystagmus as a disease of great complexity and one in which many factors are at work. The chief of these is strain caused by deficient light. He believes that, as the result of working for long periods in the comparative darkness of the pit, the cells of the retina probably lose their power of producing sufficient pigment for exact vision. This failure occurs sooner in fair blue-eyed people and in those who are subject to a greater eye-strain, owing to errors of refraction. The more frequent occurrence of nystagmus in winter, the loss of visual acuity, the dread of light, are all points in favor of this theory. Another is the oblique position in which the head is held in many cases, whereby an attempt is presumably made by the patient to bring a fresh part of the retina into action. Darkness itself, Llewellyn suggests, is not enough to set up nystagmus.

Here are the preventive measures proposed: No man with refractive errors should be allowed to work underground and no man should be employed without medical examination. Above all, however, comes the improvement in the lighting power of the miner's lamp. If possible a lamp giving a diffused light should be introduced. Improved ventilation also means a better light. The study of the introduction of electric lamps promises to be of great interest in this connection.

Current Comment

THE RAT AS A SOURCE OF ECONOMIC AND HEALTH WASTE

Modern industry seeks to economize cost through the scientific and practical study of efficiency methods. This economy is sought by improved processes and machinery, by the elimination of useless handling and waste motion in the performance of routine work, and in other ways. In many lines of business even a superficial observation

of the routine of production or distribution at once reveals enormous waste of effort. Preventive medicine is the application of the efficiency idea to health matters. As in the industries, a little study reveals obvious and useless waste, not only on the economic side, but also in the way of the less tangible but more important things — physical pain, discomfort, unhappiness — which make for lessened enjoyment of health and life. These are fundamental things, the avoidance of which inspires all industrial effort. Two sources of economic and health waste are the rat and the fly. Just at present the rat is foremost as a problem in preventive medicine on account of its connection with the threatened entrance of plague into our country, and therein lies one of the shortcomings of our health-efficiency system. The discovery of plague in a neighboring island at once sets in motion the rather clumsy machinery of our health service, local and national, and at an enormous waste of time, money and effort we seek to catch, examine and then kill all the rats on 2,000 miles of coast-line to keep out one disease. It is necessary, of course, and must be done. But how much better it would be to have no rats! It has long been known that rats are a source of tremendous economic waste, not only in seaboard cities about docks and wharfs, but in every portion of the land. Figures are sometimes given of the amount of this waste, which mounts into the millions, but even these figures are only guesses and probably far short of the truth. The principle of modern efficiency would at once demand that no rats should be tolerated; that, in the first place, this enormous economic waste and danger to health should be prevented by swatting the rat, clubbing him, trapping him, poisoning him, asphyxiating him—exterminating him—wherever and whenever he raises his pestiferous head. It should not be left to the now handicapped health organizations of cities and towns and the nation to do this work. The work should be done by the individual property-owner or occupier, who now carelessly, indifferently or ignorantly invites the rat to become an unprofitable but most prolific tenant and guest, paying for his board by subjecting his host to the peril of deadly epidemic diseases. By building the rat out of existence and by waging vigilant continuous warfare against him the public could reduce the rat problem, and consequently the plague problem, to nothingness.

THE PRACTICAL VALUE OF DIRECT TRANSFUSION OF BLOOD

The time is not yet at hand when final statements as to the definite indications for direct transfusion of blood can be made. In secondary anemia, such as results from traumatic hemorrhage, from post-partum hemorrhage, and from other conditions, it would often be desirable to transfuse after the bleeding has been controlled, if the technic were as simple as, for instance, the intravenous injection of salt solution. Unfortunately, we are not yet in possession of a technic for transfusion which is easily mastered; the operation is not without considerable difficulty—even some danger to the patient. It should be remembered always that the selection of a donor is a most important matter, requiring special care. All this does not mean that recent

1. Llewellyn, T. L.: The Cause and Prevention of Miners' Nystagmus, *Proc. Roy. Soc., London, B.*, 1912, lxxxv, 10.

accomplishments in this field are insignificant, but rather that the ultimate goal desired is not attained. With the present technic, probably only three classes of patients with secondary anemia should be considered as fit subjects for transfusion: those who have bled so profusely that their life is in jeopardy; those who have lost much blood and are suffering from uncontrollable hemorrhage, and those who require some operation or other while in a state of very grave anemia. The practice of transfusion of patients suffering from moderately severe hemorrhage such as may be associated with extra-uterine pregnancy is not generally commendable because it leads to a routine performance of transfusion, when in reality control of the bleeding is all that is necessary. When transfusion becomes a simpler matter than now, many patients no doubt may be transfused with benefit, but at present the operation with the selection of the donor is so complicated as to be employed only after careful deliberation. In other kinds of cases, such as pernicious anemia, Hodgkin's disease, and chronic infections with a hopeless outlook, e. g., tuberculosis with advanced anemia, evidence is still wanting that transfusion is of any real benefit. At the most, the improvement resulting has been simply temporary. Perhaps the outlook in tuberculosis is a little more favorable; here the content of the blood in complement is low and as transfusion tends to increase complement, theoretically it would be beneficial. The outcome of repeated transfusions in tuberculosis and other similar diseases may be awaited with interest.

THE THERAPEUTIC USE OF BLOOD

An interesting development in minor surgery is the use of blood to stop hemorrhage. For this purpose blood may be drawn from a normal person and injected subcutaneously at once or, if preferred, a sterile flask with a coiled wire may be used to receive the blood, which is then defibrinated so as to be ready for injection. If haste is not required a simple procedure is to allow the blood to stand in the ice-box in a sterile bottle, the serum being used for injection as required. From 10 to 20 c.c. may be injected, and the dose repeated several times if desirable. As substitutes for human serum, beef-serum or that of the horse or rabbit may be used. The possibility of anaphylactic reactions from the use of foreign serums makes the latter somewhat less desirable. Blood-serum is also efficacious when administered locally, and applied to oozing surfaces it possesses marked hemostatic properties. Good results follow injections of blood or serum in hemorrhage of the new-born, except when life is endangered from exsanguination; in these cases direct transfusion is indicated. In hereditary hemophilia injection of serum is useful, probably because it causes a stimulation of the bone-marrow, resulting in an increase of thrombokinase, which both Sahli and Morawitz find is lacking in hemophilics. The treatment of the toxemias of pregnancy with serum of normal pregnant women also promises well, and even now many cases have been recorded in which the treatment has given satisfactory results. The mode of action in these cases is unknown.

MEDICAL MEETINGS AS ADVERTISING MEDIUMS

A most valuable advertising asset for a nostrum exploited to the medical profession is an "original paper" read before a medical society. Some time ago this method was very common in this country; it was not at all unusual for a physician to present before a society a paper that was a veiled puff for some "ethical" proprietary. Thus not a few of what became popular nostrums were introduced to the medical profession. Happily, in recent years this method of advertising has gone out of vogue on this side the Atlantic, and few physicians would have the courage at the present day to do what was a common thing less than a decade ago. While conditions have improved here, however, they seem to have been growing worse in Germany, although apparently a halt will be called there before long. A year ago¹ we commented on the newspaper notoriety that Dioradin was receiving, and said that Bernheim and Dieupart, of Paris, seemed to have been selected by Szendeffy, of Budapest, the originator of Dioradin, to deliver the news of the wonderful discovery (?) to the public and, incidentally, to the medical profession. Bernheim recently read a paper on his favorite subject before the German Society of Internal Medicine. Later this paper was reprinted and distributed by the promoters of Dioradin; but included in the reprint were testimonials which originally were not a part of the paper. Of course the pamphlet bore the imprint of the society, which seemed to lend official sanction to the testimonials. For this reason a protest was issued² by the presiding officer of the society, as follows:

GERMAN CONGRESS FOR INTERNAL MEDICINE

The German Dioradin Company sends out Pamphlet 4 of its publications with the imprint "German Congress for Internal Medicine, April 16 to 19." In this pamphlet is reprinted the contribution presented at the congress, April 18, by Dr. Bernheim of Paris along with a series of testimonials for Dioradin which were not given at the congress. The board of directors of the German Congress for Internal Medicine has not authorized this publication and protests against the misuse of its name.

I. A. PENZOLDT, Presiding Officer (*derzeitige Vorsitzender*).

This is encouraging; it is another evidence that the German medical profession is awakening to the wretched conditions which in recent years have developed in that country in connection with the exploitation of proprietary medicines.

NOBLESSE OBLIGE—A WISCONSIN BIRTHRIGHT

Within the past few years Wisconsin has come to be known as one of the progressive states whose social and political consciousness has been awakened. It belongs to that group of commonwealths, few in number, but purposeful and aggressive in action, which to-day are making American history. With one of the best state universities in the country and a public school system of which it may well be proud, its average of intelligence is high. What has been said of the state in general applies with equal force to the medical profession in that state. There is to-day within its borders a class of

1. THE JOURNAL A. M. A., Aug. 19, 1911, p. 659.
2. Therap. Monatsh., June, 1912, p. 468.

physicians second to none. But—. The progressive American physician has made strenuous efforts within the past decade to release his profession from the thralldom of secret nostrums. He has done this by insisting that his medical journal shall cease to be an organ subsidized by the proprietary medicine interests and shall become, what it was intended to be, a publication in which the interests of scientific medicine and of the physician are the first consideration. This has been accomplished in a large number of the states by the organized profession publishing its own journal. For some years the state medical society of Wisconsin did not own its own journal. During that period there was possibly some excuse for a lack of close censorship over the class of advertising that appeared. Now, however, the Wisconsin State Medical Society owns and publishes its official organ and the members of the profession of that state are responsible for it and for the character of its advertisements. It is therefore with surprise and regret that one finds in the pages of the *Wisconsin Medical Journal* advertisements of some of the worst nostrums with which American medicine is afflicted. Here are a few preparations advertised in that journal: Kutnow's Powder, Waterbury's Compound, Pinozyme, Hagee's Cordial, Ergoapiol, Campho-Phenique, Bovinine, Dioviurnia, Epilepsigen, Tongaline, Neurosine. That the official organ of the state medical society of Wisconsin should give publicity to secret nostrums and encourage their use among its members, and that the state medical society itself should receive an income from such a source, is not only a discredit to the organized profession of that state, but comes as a shock to those — they are many — who expect better things from Wisconsin.

MODERN METHODS IN PROMOTING THE HYGIENE CONGRESS

Those responsible for the American end of the International Congress on Hygiene and Demography are using modern methods in advertising it. They are favored in having the backing of the government, so that their mail goes out under government envelopes postage-free, and the committee has good, live ideas in putting the congress before the profession. The circulars are well written, attractively printed and, in the language of the day, have a "punch" back of them. One of these notices begins: "That leadership which is generally accorded to American physicians, in matters of public health, now confronts the most significant challenge ever offered in the history of American medicine." This sentence introduces a cogent appeal to physicians to become active members of the congress in order "that the medical membership of the forthcoming congress shall surpass the score made by French, or German, or British physicians, at previous congresses. In short, we shall accept the challenge. Let us make it unanimous." On a slip in the same communication, delicately tinted and daintily printed, we find the following: "Perhaps you are a member already. Good for you! Your friend and you will make two. Please wake him up." The committee has a writer who knows how to prepare

good literature. When the congress is over, he ought to be able to secure a good position with some publicity concern. His present efforts ought to meet the success they deserve, and we should like to call attention to the fact that membership in this congress costs only five dollars, and would be cheap at twice this amount. Let us make this congress a success so far as medical members are concerned. Do your part and write at once to Dr. John S. Fulton, Secretary-General, Senate Annex, Washington, D. C.

WHOLESALE GEOGRAPHIC SURGERY

What might be called a capital operation is the proposed cutting of a canal from the Mediterranean to the Desert of Sahara, converting a considerable portion of the latter into an inland sea. Now that the Panama Canal is almost completed and the edge of its novelty has been somewhat dulled in the public thought, France steps forward to propose a new, stupendous engineering feat.¹ There are two facts that make this a feasible proposition. The first is that part of the desert is below the sea-level and the second that the canal to admit the waters of the Mediterranean would have to be but fifty miles long. The results need but to be hinted at: an inland sea for large ships, tropical verdure to replace barren desert, agricultural possibilities to support nations of people and great modification of the climate. Since the parts of the Sahara which are below the sea-level are broken up by higher spots, this inland sea would be filled with islands and promontories. The proposal is an ingenious one, full of great possibilities for benefit to Africa.

ANOTHER MARTYR TO SCIENTIFIC MEDICINE

Dr. T. B. McClintic, of the United States Public Health Service, died in Washington, August 13, of Rocky Mountain spotted fever, contracted while investigating the disease in Montana. Last year Dr. McClintic spent about three months in Montana studying the disease under the auspices of the Montana state government, and this year his services were again requested. He went there last May. As soon as he realized that he had contracted the disease he started for Washington; he died within twenty-four hours after his arrival. It will be remembered that Rocky Mountain spotted fever is transmitted by a tick, *Dermacentor venustus*. As it prevails in Montana, the disease is peculiarly fatal, the mortality being between 90 and 100 per cent. Dr. McClintic was one of the leading officers of the United States Public Health and Marine-Hospital Service, and has done important work in the investigation of germicides and antiseptics, and in other scientific research work. He was regarded as the leading authority on the disease of which he died, and as a man of great promise. Dr. McClintic was 39 years of age, and had been married barely a year. Thus is inscribed one more name on the roll of the heroes and martyrs of scientific medicine.

1. Thompson, G. A.: A Plan for Converting the Sahara Desert Into a Sea, *Scient. Am.*, Aug 12, 1912, p. 114.

Medical News

COLORADO

Teaching Ophthalmology.—The graduate course in ophthalmology, in the University of Colorado, the first of its kind given in this country, was completed August 3. The ten students who regularly entered the course represented nine different medical colleges. Nearly all had been engaged in ophthalmic practice exclusively, at different points, varying from Harrisburg, Pa., to Delta, Colo. Four of them passed the examination, and, on complying with other requirements, will become eligible for the degree of doctor of ophthalmology. These four are Drs. George F. Libby, William H. Crisp and Daniel G. Monaghan, Denver, and Dr. Samuel Z. Slope, Harrisburg, Pa.

DELAWARE

Maternity Department of Hospital Completed.—The Maternity Ward recently completed in the Delaware Hospital, Wilmington, was opened for public inspection, July 25. The ward will accommodate fifteen patients and has a modern equipment.

Opposes Liberation of Tuberculous Prisoners.—The Anti-tuberculosis Society of Delaware, through its president, has entered an official protest against the liberation from the New Castle County Workhouse of prisoners in the last stage of consumption, on the ground of the danger therefrom to the prisoners' families and the public in general.

Personal.—Dr. H. R. Burton has been elected president of the Lewes Board of Health.—Dr. John Ball, Hoekessin, is confined to his home on account of a nervous breakdown.—Dr. Josephus A. Wright, Delmar, has been appointed superintendent of the Sydenham Hospital, Baltimore.—Dr. A. J. Fleetwood, Laurel, while making a professional call, was attacked by a highwayman and robbed of his pocketbook and watch.—Dr. George McElpatrick, Wilmington, has been appointed captain, M. C., N. G. Del., and assigned to the First Infantry.

DISTRICT OF COLUMBIA

Motor Ambulance Presented to Hospital.—A new motor ambulance has been presented to the Emergency Hospital by Mrs. E. T. Stotesbury. The machine is thoroughly equipped with first-aid appliances and is capable of a speed of twenty-five miles an hour.

Personal.—Dr. Joseph G. B. Bullock, who was operated on for appendicitis at Georgetown University Hospital recently, has recovered and returned to his work in the medical department of the Pension Bureau.—Dr. S. Boyce Pole has been appointed physician to the poor of the district succeeding Dr. J. R. Tubman, retired.—Dr. William C. Fowler has been reappointed inspector in charge of contagious disease service.—Dr. John L. Norris has been appointed deputy health officer, vice Dr. H. F. Sawtelle, resigned.

FLORIDA

New Building for Health Department.—The Health Department of Jacksonville has moved into the new City Building. The new quarters provide offices for the city health officer and his clerical force and two well-equipped laboratories.

State Society Meeting.—At the thirty-ninth annual meeting of the Florida Medical Association, held in Tampa under the presidency of Dr. Albert H. Freeman, Starke, Dr. Raymond B. Turek, Jacksonville, delivered the annual oration and the following officers were elected: president, Dr. J. S. Helms, Tampa; vice-presidents, Drs. G. E. Henson, Crescent City, I. G. Dupuis, Lemon City, and M. L. Crum, Bowling Green; delegate to the American Medical Association, Dr. J. Y. Porter, Key West; alternate, Dr. L. A. Bize, Tampa, and councilors, fifth district, Dr. H. C. Bozier, Ocala; sixth district, Dr. U. S. Bird, Tampa; ninth district, Dr. J. S. McGeachy, Chipley; tenth district, W. E. Wright, Wauchula, and eleventh district, Dr. E. E. Rollins, Fort Pierce.

GEORGIA

Clinic Opened.—The Morris Hirsch free clinic conducted by the Jewish Alliance was opened at 90 Capital Avenue, Atlanta, July 2. A milk station has been established in connection with the clinic.

New Medical Society.—The Twelfth District Medical Society was organized in Dublin, August 2 and the following officers were elected: president, Dr. J. L. Weddington, Dublin; Drs. L. L. Moye, Vidalia and J. E. New, Dexter, vice-presidents, and Dr. C. R. Riner, Summit, secretary-treasurer.

Personal.—Dr. W. L. Funkhouser has been elected inspector of the Public Schools of Rome.—Dr. J. L. Selman, Douglasville, was thrown from his buggy, July 28 and seriously injured.—Dr. Everet Daniel has resigned as a member of the Board of Health of Moultrie. The civilian members of the board resigned at the same time.—Drs. H. W. Hesse, Raymond V. Harris and Ben. H. Gibson were bruised and cut when the automobile in which they were returning from the meeting of the Savannah Medical Society, July 10, collided with a trolley car.—Dr. F. S. Rogers, Coleman, had both legs fractured in a collision between his automobile and an engine of the Georgia Central Railway, July 4.—Dr. Andrew F. Quillian has been appointed resident physician at the Atlanta Contagious Disease and Detention Hospital, vice Dr. O. B. Bush, resigned to enter private practice.—Dr. William B. Crawford has succeeded Dr. M. F. Dunn as president of the staff of St. Joseph's Hospital, Savannah.

ILLINOIS

New Officers.—Ogle County Medical Society at Forreston, July 17: president, Dr. Samuel Houston, Polo; secretary, Dr. J. F. Kretsinger, Leaf River.

The Systematizing of Charity Medical Work.—Dr. Pietrowicz has announced the following as his aids in the work which he has undertaken of systematizing the charity medical work of the county: Dr. Jacob Frank, president of the Chicago Medical Society, Dr. Heman Spalding of the Department of Health, Dr. Henry B. Favill and Dr. A. C. Cotton.

Reorganization of County Relief Station.—Dr. Stephen R. Pietrowicz, formerly superintendent of the Cook County Institutions, Dunning, has agreed to serve Cook County free of charge in connection with the Department of Outdoor Relief. He will investigate the charges regarding favoritism, and will make the assignments of cases to members of the medical staff.

Hospital Notes.—The proposition to bond Sterling for \$25,000 for a public hospital was carried August 7, by a vote of three to one.—More than \$1,000 was realized for St. Francis Hospital, Evanston, by an entertainment given for its benefit, July 30.—Henry County Infirmary near Cambridge was destroyed by fire July 20. None of the inmates was seriously injured.

Madison County Secures Hospital.—The State Board of Administration, on August 6, decided to locate the new state hospital for the insane authorized by the last General Assembly, in Madison County, near Alton. Five hundred thousand dollars has been appropriated for the purchase of not less than one thousand acres of land and the preparation of plans, and seventy-eight sites have thus far been offered for selection.

Personal.—Dr. George F. Butler, Wilmette, county physician of Cook County, has been elected chairman of the committee to investigate the examination of members of the Cook County Hospital attending staff.—Dr. J. H. Bacon, Peoria, started for Europe, August 5.—Dr. A. C. Eakin, Rockford, was operated on for appendicitis in St. Anthony's Hospital in that city, July 29.—Dr. C. L. Tegtmeier, Freeburg, was thrown from his buggy recently and fractured his leg.—Dr. I. S. Fremmel has been transferred from the Elgin State Hospital to the new Chicago State Hospital.

Chicago

New Nurses' Home.—A six-story fireproof nurses' home is to be erected for the nurses of Presbyterian Hospital, which is to be connected with the hospital by a tunnel. The home will be equipped with rooms for 175 nurses and will have a roof garden.

Personal.—Dr. Thomas S. Crowe has started for Europe.—Dr. and Mrs. John B. Murphy and family sailed from Europe, August 9.—Dr. Antonio Lagorio has been elected vice-president of the board of directors of the Chicago Public Library.—Drs. Joseph H. Capps and George F. Butler have been added to the Citizens' Milk Committee.

Successful Candidates in the County Hospital Examination.—Of the 290 who took the examination for membership on the Cook County Hospital attending staff, 79 passed the test. The leaders in the various departments were as follows: surgery, Dr. Daniel N. Eisendrath; medicine, Dr. Joseph A. Capps; dermatology, Dr. K. A. Zurawski; dental surgery, Dr. W. H. C. Logan and diseases of children, Dr. Henry W. Cheney.

In Memory of Freer.—The Bureau of Science of the Philippine Government has adopted resolutions in memory of Dr. Paul Casper Freer, Chicago, director of scientific work in the bureau, who died last April. The resolutions express the sense of his associates that "the Bureau of Science has suffered a

very great loss and that the cause of science in these islands has been deprived of one of its most zealous and conscientious advocates."

Memorial Association Formed.—Women physicians of Chicago have organized a memorial association. The memorial is to be in the form of lectureships in the different medical schools. The holders of these positions will endeavor to keep the fame of notable dead women physicians before the medical fraternity. Two women who will be especially honored are Dr. Sarah Hackett Stevenson and Marie J. Mergler. Drs. Lucy Waite, Eliza H. Root, Sara C. Buckley and Marie L. White are in charge of the movement.

INDIANA

Hospital for Gary.—In six days the citizens of Gary collected \$36,655 for the Mercy Hospital fund, or \$6,000 more than was expected.

Psychologic Laboratory in Reformatory.—Dr. David C. Peyton, general superintendent of the Indiana State Reformatory, Jeffersonville, has announced the establishment of a laboratory of experimental psychology. Dr. Peyton's plans include the conversion of reformatories into the equivalent of training schools for unfortunates whose deficiencies have betrayed them into crime.

Personal.—Dr. Lewis Burekhardt and family, Indianapolis, sailed for Europe August 15.—Dr. A. F. Gugsell has been appointed postmaster of Jasper.—Dr. Rebecca Parish, Indianapolis, who has recently been in charge of the Mary Johnstone Hospital, Manila, P. I., has returned to the United States on a leave of absence of a year.—Dr. E. A. Crull, Fort Wayne, who has been seriously ill with blood-poisoning, is reported to be recovering.—Dr. E. A. Sturm, Jasper, has been elected secretary of the Dubois County Medical Society, vice Dr. C. R. Ramsbrok, Huntingburg, deceased.

KANSAS

Free Clinic.—A free clinic for the poor is soon to be opened by the Associated Charities in Kansas City. The dispensary is located in the rooms of the Associated Charities and will be open for two hours each day.

Personal.—Dr. J. P. Kaster has been elected chief surgeon of the Atchison, Topeka and Santa Fe Hospital Association.—Dr. G. W. Allaman, Atchison, has been elected head physician of the Fraternal Woodmen.—Dr. F. L. Williams, Wichita, was seriously scalded while sterilizing instruments, July 26.—Dr. Leo E. Haughey, Topeka, has resigned as medical lecturer for the Kansas State Board of Health and has settled in Courtland.—Dr. B. J. Patterson, Rexford, sustained serious injuries in a collision between his motorcycle and an automobile, August 5.

University Notes.—Dr. John Sundvall, Baltimore, has been appointed professor of anatomy in the University of Kansas, Rosedale.—Lindsey S. Milne, M. B., Russell Sage Foundation, has been appointed professor of medicine in the University.—The estate of the late Dr. J. E. Robinson, first governor of the state, which by his will was left to the University on the death of his wife, has become available. The value of the estate is estimated to be from \$80,000 to \$120,000. The funds derived from this source are to be used, in accordance with the wishes of Dr. Robinson, in the development of the medical school.

KENTUCKY

Fire in Sanatorium.—Fire in the Martinsville Sanatorium, July 25, caused a loss of about \$3,000.

Change of Date of Meeting.—The secretary of the Kentucky State Medical Association announces that the annual meeting will be held in Louisville, October 29-31, instead of October 12-14 as previously announced.

Must Itemize Accounts.—Acting on the advice of the Attorney General, the State Auditor declined to issue a warrant for \$2,500 in favor of the State Board of Health and has advised the secretary that in future all requisitions must be accompanied by duplicate bills showing the purpose for which the money is to be used. Heretofore, the Board of Health has drawn its annual appropriation by monthly installments.

LOUISIANA

Hospital Perm.t Granted.—The committee on police and public buildings of the New Orleans City Council has taken favorable action on the application of Dr. D. S. Brosnan to conduct a private hospital at Prytanua and Clio Streets.

Money to Fight Diseases.—At a meeting of the City Council of Shreveport, July 31, \$11,500 was appropriated for the uses of the City Board of Health.—The Louisiana Antituberculosis League received about \$4,000 as the result of its recent subscription day collections.

Higher Examination Fee.—Dr. A. B. Brown, secretary of the Louisiana State Board of Medical Examiners, announces that an amendment has recently been secured through the medical practice act, increasing the fee for license examinations from \$10 to \$25. This increase is said to have been necessary in order properly to provide for the expenses of the board.

Personal.—Dr. G. Farrar Patton, New Orleans, sailed for Europe, June 14.—Dr. A. R. Carter, Roseland, suffered painful injuries of the kneecap while getting into his buggy, July 31.—Dr. D. D. Mims, Crowley, fractured his arm and suffered other serious injuries while jumping from a freight train in motion, July 24.—Dr. R. W. Seay, Grand Isle, was shot through the left arm from ambush, July 12.—Dr. G. C. Chandler, recently appointed a member of the Board of Health of Shreveport, has been elected president of the Board and city health officer, vice Dr. A. A. Herold, resigned, and elected coroner.—Dr. J. T. Bringier, Burnside, has been appointed a member of the Board of Control of the Lepers' Home.

MARYLAND

State Society to Meet.—The semi-annual meeting of the Medical and Chirurgical Faculty of Maryland will be held in Cambridge, Eastern Shore, during the week of October 20, and in conjunction with it, there will be a public health conference and exhibit.

Personal.—Dr. Joseph H. Branham entertained the Anne Arundel County Medical Society August 13, at his country home "Brangwyn" on the Severn River.—The automobile of Dr. James M. Urie, Kennedyville, was overturned, August 4, and Dr. Urie and his three children were injured.

New Sanatorium Building Opened.—The new building of the Maryland Tuberculosis Sanatorium, Sabillasville, was opened August 1. The building has been erected at a cost of about \$100,000, is of frame construction, 540 feet in length, and will very nearly double the capacity of the institution. It contains one hundred private rooms and about one hundred ward beds. The building is provided with inclines which will be used as fire escapes. Its water supply is abundant and is derived from artesian wells.

Baltimore

New Office Building for Physicians.—The Whitridge property at Charles and Read Streets is now being converted into an apartment and physicians' office building and will be known as the Ellicott Building.

Personal.—Dr. J. J. Mills has started for Europe.—Dr. Theodore Cooke is making a four-story addition to his residence and is converting it into an apartment house.—Dr. Joseph F. Tearney has been appointed chief medical examiner of the Baltimore and Ohio System, succeeding the late Dr. Summerfield B. Bond.—Dr. R. R. Snowden has succeeded Dr. Walter A. Baetjer as resident physician at the Baltimore City Hospital.—Dr. William R. Stokes, city bacteriologist, is ill at Mercy Hospital with malaria.—Dr. Harvey Cushing has returned from Europe.—Dr. Chadbourne Andrews, resident physician at the Hebrew Hospital, will be succeeded in that position September 1 by Dr. Eugene B. Wright.—Dr. Frederick H. Baetjer, roentgenologist of Johns Hopkins Hospital, is confined in that institution suffering from an infection of the right hand. Dr. Baetjer had already suffered the loss of four fingers of the right hand on account of x-ray burns but it is hoped that the remaining finger will be saved.

MASSACHUSETTS

Raise Money for Sanatorium.—A county fair was held at the Montserrat club for the benefit of the Children's Island Sanatorium in Marblehead Harbor, at which about \$7,000 was raised for the institution.

Personal.—Dr. Harry S. Wagner, Westfield, has been appointed president of the Hartford County (Conn.) Tuberculosis Home, Newington Heights.—Dr. Francis X. Mahoney, Dorchester, Boston, has been elected chairman of the Board of Health, vice Dr. Samuel H. Durgin.—Dr. James Gregory Mumford has been appointed physician in chief of the Clifton Sanatorium and Hospital, Clifton Springs, N. Y.—Dr. Harvey Cushing, Baltimore, recently appointed surgeon in chief of the Peter Brent Brigham Hospital, Boston, has purchased a residence on Walnut Street, Brookline.

MINNESOTA

New Officers.—Wabasha County Medical Society at Lake City, July 11: president, Dr. D. P. Dempsey, Kellogg; secretary-treasurer, Dr. W. F. Wilson, Lake City.

Milk Standards.—The State Board of Health has set a state-wide milk standard. Milk, to pass inspection, from this time on, must contain less than 100,000 bacteria per cubic centimeter.

Missionary Work in Medical School Inspections.—Dr. Ernest B. Hoag of the University of California has been engaged by the State Board of Health to supervise the medical school inspection work of the state. He will remain a year in the state preaching and teaching the gospel of medical school inspection.

Trachoma Report.—The committee appointed by the State Board of Health to examine into and report on the trachoma situation in Northern Minnesota and on the White Earth Indian Reservation has recommended the establishment of Indian villages, the segregation of the afflicted Indians and the maintenance of a hospital in each village. Active work in the extermination of the disease will begin as soon as the schools on the reservations are opened.

Personal.—Dr. Herbert W. Davis, St. Paul, sailed for Europe, July 6.—Dr. Leverett Dale Bristol, St. Paul, will retire from practice to accept a position as head of the department of bacteriology in the medical department of Syracuse (N. Y.) University.—Dr. William H. Rumpf, Faribault, has been commissioned as lieutenant M. C., N. G. Minn. and assigned to duty with the Second Infantry.—Dr. A. J. Chesley, Minneapolis, has been elected state epidemiologist by the State Board of Health, vice Dr. Hibbert W. Hill.

Hospital Notes.—Drs. W. G. Dolan and James Fleming, Cloquet, have purchased Barclay Hospital, Cloquet, which will hereafter be known as the Cloquet Hospital.—The State Inebriate Hospital, Wilmar, will be opened late this month or early in September. Dr. H. A. Tomlinson, superintendent of the State Insane Hospital, St. Peter, is to be in charge of the new institution.—Otter Tail County has decided to erect a county tuberculosis sanatorium, to cost \$10,000. The building is to be frame with a cement foundation and two stories in height with sleeping porches and solariums.—Members of the Ramsey County Board of Control have advocated the erection of a tuberculosis hospital on the grounds of the City and County Hospital to cost \$75,000.—The new tuberculosis sanatorium at Nopeming has just been opened. Dr. J. L. Laird is superintendent of the institution, which has been erected at a cost of about \$50,000. About twenty patients are being cared for at the present time and the institution will accommodate about thirty more.—Itasca County has voted \$20,000 for a county tuberculosis hospital.

MISSOURI

New Clinic in Little Italy.—A permanent clinic will be held by the Board of Health of Kansas City in the district known as "Little Italy" where a temporary clinic is now in operation. The present clinic is only for babies and children but in the permanent clinic persons of all ages will be treated.

Serum Farm and Laboratory for Kansas City.—Dr. Frank J. Hall, Kansas City, has decided to establish a serum farm near the city and a laboratory in a down-town building, at which antitoxins and serums of various kinds will be manufactured. Drs. Abraham Sophian, Elliott R. Alexander and Mr. Thomas Deaken, all of New York City, are associated with Dr. Hall in his enterprise.

Disease Prevention Bureau.—A bureau of information and preventive medicine for the free use of Missourians is to be established at the University of Missouri, Columbia, with Dr. W. J. Calvert at its head. The chief work of the bureau will be to spread information regarding the prevention of disease. Free pathologic examinations will be made at its laboratory and free examinations and aid in the checking of disease will be furnished.

Hospital News.—A new hospital is to be erected in Springfield to cost \$25,000. Dr. W. P. Patterson is president of the Hospital Association.—Kansas City is said to be in the peculiar predicament of having an isolation hospital for communicable diseases ready for occupancy, but without funds for its furnishing and equipment.—The treasurer of the Fulton State Hospital in his report for the six months ended July 1, states that it has cost eighty-one counties and the city of St. Louis \$63,926.74 to pay for the maintenance of their insane wards at the local institution during that period.

St. Louis

Hospital Notes.—The Alexian Brothers, St. Louis Maternity and Christian hospitals have been issued licenses by the Board of Health.—A Jewish Kosher Hospital is planned for St. Louis. At a meeting, July 20, \$5,287 were subscribed for the building and \$600 toward a maintenance fund.—A building permit has been issued for the new Barnes Hospital on Kingshighway. The permit is for work to cost \$70,000 and authorizes the erection of a three-story building.—The new chapel of Mount St. Rose Hospital was dedicated with formal ceremonies by Archbishop Glennon and a bazaar was held on the grounds to raise funds for the hospital, which is a sanatorium for tuberculosis.

NEW YORK

Sanatorium Opened.—The Schenectady County Tuberculosis Sanatorium, Glen Ridge, was formally opened August 3. The sanatorium has been erected at a cost of about \$60,000, and will accommodate about forty patients.

Personal.—Dr. I. M. Shapero, Syracuse, has returned from Europe.—Dr. F. S. Honsinger, Syracuse, who has been confined to his home for five months as the result of a fracture of the hip, has recovered and resumed practice.

New Building for Sanatorium.—Plans have been filed for an addition to Dr. Corden T. Graham's Sanatorium, Rochester, to cost \$65,000. The building is to be of concrete, brick and hollow tile, two stories in height, and will have thirty-three rooms and a solarium.

Trachoma in an Albany School.—There is an epidemic of trachoma in the State Training School for Girls at Albany, which has been in progress since last March. Thus far there have been 120 cases. It is probable that the disease was introduced by a girl from New York who had been treated for the disease for a year previous to her admission to this school.

New York City

Personal.—Dr. C. E. Royce, New York City, has been elected pathologist of the University Hospital, Iowa City.—Dr. Frazer, ambulance surgeon of St. Catherine's Hospital, Brooklyn, who was seriously injured in a collision between the hospital ambulance on which he was riding and an electric car, is reported to be improving.—Dr. M. H. Merriman, Dr. and Mrs. E. N. Carpenter, Dr. and Mrs. Arthur W. Bingham, Dr. J. H. Thompson, and Dr. J. C. Sharp, sailed recently for Europe.—Dr. Reginald H. Sayre has returned from Europe.

NORTH DAKOTA

Personal.—Dr. and Mrs. G. L. Goslie, Fargo, have returned after a year abroad.—Dr. D. L. Dunlap, physical director of the University of North Dakota, Grand Forks, has resigned.—Dr. and Mrs. R. A. Beard, Fargo, have started for Europe.

Hospital Notes.—The commissioners of Ward County have decided to sell the county hospital now known as St. Joseph's Hospital, Minot, and have advertised for bids to be received on or before August 26. The property will be held subject to the lease now held by the Sisters.—Parkview Hospital and Sanitarium has been incorporated at Jamestown by Drs. W. A. Gerrish, P. G. Arzt and M. H. Sides with a capital stock of \$40,000. The hospital will be three and one-half stories in height, of brick construction, fireproof throughout, and will have accommodation for fifty patients.

Work of Public Health Laboratory.—During the past year more than 7,000 tests and examinations of various kinds were made at the North Dakota Public Health Laboratory, Grand Forks, and at its two branches in Minot and Bismarck. There were 2,047 tests of water; 1,062 examinations of sputum; 13 individuals suffering or supposed to be suffering from rabies were treated; 706 Widal tests were made; 439 cultures for diphtheria were taken; 767 specimens of milk and cream were analyzed; 522 specimens of pus were examined, and 193 specimens of pathologic tissue were examined.

PENNSYLVANIA

Health Bulletins.—The April issue of *Health Bulletin*, published by the State Department of Health, is devoted to detailed information regarding the organization of baby-saving shows and that for May takes up the question of prevention of drowning, rescue, first-aid treatment, artificial respiration, etc. The method of resuscitation is fully illustrated.

Personal.—Dr. Clyde R. McKinniss has been appointed a member of the staff of the Norristown State Hospital, vice Dr. William W. Richardson, resigned.—Dr. W. E. Lang, Easton, has been appointed assistant physician of the Ritters-

ville State Hospital and placed in charge of the male department.—Dr. Omar H. Mehl, Braddock, had his automobile wrecked, but was only slightly injured himself when the machine was struck by a Pittsburg and Lake Erie train, August 1.—Dr. Howard Wood, McKeesport, has sailed for Europe.—Dr. Alfred Myers, York, is reported to be seriously ill.—Dr. J. Walter Park, Harrisburg, was operated on for appendicitis at the Harrisburg Hospital, July 26.

Hospital Notes.—It is planned to make extensive additions to Packer Hospital, Sayre. The first of these is a children's ward containing eighteen ward beds, six private rooms, etc. This is to be of fireproof construction and is to be fully equipped and furnished at the expense of Mrs. Mary Packer Cummings, Mauch Chunk. A surgical pavilion is also to be erected which will have two operating-rooms, waiting-rooms, locker-rooms, sterilizing-rooms, etc. This addition is being built by the Ladies Auxiliary in memory of the late Dr. Charles H. Ott. The space now occupied by the operating-rooms, dispensary, drug-rooms, etc., will be remodeled and used for a large dispensary, with waiting-rooms and smoking-rooms.—The new State Hospital for the Criminal Insane, Fairview, is almost completed and will be ready for occupancy, October 15. Dr. T. C. Fitzsimmons, Waymart, has been appointed superintendent.—Mid-Valley Hospital was opened for the reception of patients, August 1. This institution is chiefly the development of private charity that recognized the necessity of such an institution between Scranton and Carbondale.—The State Insane Hospital, Rittersville, was formally opened July 25, but the institution will not be ready to receive patients for several weeks.

Philadelphia

Physicians' Building.—Several physicians have organized the Clinical Society of Philadelphia. One of the objects of the society is to erect a building in the central part of the city to cost about one million dollars which will be used entirely for offices for physicians.

Hospital News.—The University Hospital is enlarging its nurses' home and building additions at Thirty-fourth and Spruce Streets. Plans for the nurses' home of the St. Luke's Hospital are now being estimated on by Henry P. Schneider, the builder. The structure will be 33x73 feet with a wing 33x47 ft., two stories in height, of brick construction.

Personal.—Drs. C. B. Penrose and Ross H. Skillern have sailed for Europe.—Dr. John G. Clark has returned from Europe.—Dr. Lewis W. Steinbach has returned after a visit to the Holy Land.—Dr. A. H. Stewart, first assistant bacteriologist of the Board of Health, has resigned to engage in private practice.—Dr. Benjamin L. Gordon, police surgeon and member of the staff of Mount Sinai Hospital, was brutally assaulted and robbed August 1.—Dr. Lewis Brinton was struck by a motorcycle at Atlantic City, July 30, and sustained a concussion of the brain and serious internal injuries.

Health Bureau Warnings.—Because many cases of typhoid fever in the southern section of the city have been traced to either the indiscriminate drinking of raw water or to swimming in either the Delaware or Schuylkill rivers, Director Neff, in a public health bulletin issued August 7, warns the public against swimming in the Delaware, the Schuylkill or any river polluted with sewage. The Department of Health has issued during the week a bulletin on hydrophobia. There were two deaths of persons in this city caused by rabies last year and ten in the entire state. The department advises prompt treatment in a hospital or by a physician of all persons bitten by dogs or other animals, no matter how slight the wound.

WISCONSIN

New Officers.—Waupaca County Medical Society at Waupaca, July 25: president, Dr. P. J. Christofferson, Waupaca; secretary, Dr. George T. Dawley, New London.

Sanatorium Notes.—The Sheboygan County Antituberculosis Association has decided to ask cooperation of the County Board for the use of the brick residence on the Taylor Farm as a county sanatorium for tuberculosis.—Eau Claire County has decided to accept the site offered in the neighborhood of Mount Washington as the location for the county tuberculosis sanatorium.—Bids have been accepted for the Manitowoc County Tuberculosis Sanatorium, Whitelaw, which will accommodate 25 patients and is expected to cost a little more than \$12,000.

Personal.—Dr. Louis Shapiro, Milwaukee, medical inspector of the Bureau of Health of Manila, district health officer for the Mountain Province and chief of the Bontoc Hospital Division, has returned to the United States on leave of absence after

four years in the Philippine Islands.—Drs. G. A. Hipke and A. R. F. Grob have resigned as trustees of the Emergency Hospital, Milwaukee, and have been succeeded by Drs. Curtis A. Evans and Ralph Elmergreen.—Dr. H. R. Adams, Marinette, is reported to be critically ill.—Dr. Frank Scheele, Wauwatosa, has been appointed a member of the staff of the Emergency Hospital, Milwaukee, vice Dr. L. Baum, resigned to accept a position as surgeon to the International Harvester Company, Chicago.—Dr. John W. Jones, Clinton, is reported to be critically ill.—Dr. P. H. Hansberry, Hillsboro, who was seriously injured recently, is still under treatment at St. Joseph's Hospital, Milwaukee.—Frank W. McKee, Richland Center, is recovering slowly from an operation on the throat.

GENERAL

Missouri Valley Meeting.—The Medical Society of the Missouri Valley will hold its silver jubilee at Council Bluffs, Ia., Sept. 5-6, under the presidency of Dr. J. M. Bell, St. Joseph, Mo. The medical and surgical orations will be given by Drs. W. O. Bridges, Omaha, and Henry T. Byford, Chicago, respectively. A feature of the first afternoon will be the symposium on anesthesia, and on the day following the meeting a series of clinics will be given in Omaha.

Pellagra Conference.—The second triennial meeting of the National Association for the Study of Pellagra will be held in Columbia, S. C., October 3-4. The sessions of the association will be held in the Assembly Hall at the State Hospital for the Insane. At the first afternoon session, etiology, epidemiology and statistics will be considered and in the evening an address will be delivered by Surgeon-General Rupert Blue, U. S. P. H. & M.-H. Service. On the second morning the subject for discussion will be the laboratory investigation for pellagra and the clinical features of the disease. In the afternoon the sociologic study and treatment of the disease will be taken up. On the second evening there will be an exhibition of lantern slides illustrating pellagra.

Public Health Service Bill Passed.—The House of Representatives on August 10, and the Senate on August 13, passed the Public Health Service Bill, which, in one form or another, has been before Congress for several years. The bill as passed is as follows:

"An act to change the name of the Public Health and Marine-Hospital Service to the Public Health Service, to increase the pay of officers of said service, and for other purposes."

"That the Public Health and Marine-Hospital Service of the United States shall hereafter be known and designated as the Public Health Service, and all laws pertaining to the Public Health and Marine-Hospital Service of the United States shall hereafter apply to the Public Health Service, and all regulations now in force, made in accordance with law for the Public Health and Marine-Hospital Service of the United States, shall apply to and remain in force as regulations of and for the Public Health Service until changed or rescinded. The Public Health Service may study and investigate the diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage and the pollution either directly or indirectly of the navigable streams and lakes of the United States, and it may from time to time issue information in the form of publications for the use of the public."

"Sec. 2. That beginning with the 1st day of October next after the passage of this act the salaries of the commissioned medical officers of the Public Health Service shall be at the following rates per annum: surgeon-general, \$6,000; assistant surgeon-general, \$4,000; senior surgeon, of which there shall be 10 in number, on active duty, \$3,500; surgeon, \$3,000; passed assistant surgeon, \$2,400; assistant surgeon, \$2,000; and the said officers, excepting the surgeon-general, shall receive an additional compensation of 10 per cent. of the annual salary as above set forth for each five years' service, but not to exceed in all 40 per cent.; provided, that the total salary, including the longevity increase, shall not exceed the following rates: assistant surgeon-general, \$5,000; senior surgeon, \$4,500; surgeon, \$4,000; provided further, that there may be employed in the Public Health Service such help as may be provided for from time to time by Congress."

As will be noticed, the bill provides for the simplification of the name, the broadening of the functions of the service, and an increase in pay for its officers.

The Plague.—August 3 a mass meeting was held in the Crescent Theater, New Orleans, to discuss the plague situation. The meeting was addressed by Dr. J. H. White of the Marine-Hospital Service, Dr. Oscar Dowling, Secretary State Board of Health, Dr. W. T. O'Reilly, City Health Officer, Dr. C. W. Duval and others. The situation was gone over thoroughly and the objects and methods of the campaign against rats explained to a large audience. It was proposed by one speaker to ask the state legislature for an appropriation of one million dollars to aid in the extermination of rats.—A brown wood rat was discovered on the water front, which was a very unusual location in which to find this species of rat, but it gives a hint as to how the plague may be spread among small rodents throughout the country districts as has been the case in California.—The forty-seventh case of bubonic

plague in Porto Rico was reported August 6 by Surgeon Creel of the Marine-Hospital Service. The case occurred in San Juan and had been under observation for some time.—The American Embassy at Trieste reports that on July 7 dead rats were discovered in the hold of the steamship *Africana* which had recently arrived from Buenos Ayres. Bacteriologic examination showed that the rats had died from bubonic plague. By order of the sanitary commission, work on the boat was stopped and it was towed out into the harbor and placed under quarantine. No member of the crew had developed the disease.

—On June 18 the death occurred of a Filipino watchman in the Chinese district of Manila, which was the first death in Manila from plague in more than seven years. Necropsy showed typical lesions of bubonic plague, which was confirmed by microscopic examination and by inoculations in guinea-pigs. No plague has been found in rats in Manila since June, 1906. All precautions were taken. The origin of the case could not be determined. The interesting fact was noted, however, that the man had sloughing tonsils.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Aug. 3, 1912.

Injury Confounded with Intoxication

There was a curious conflict of evidence in the case of a taxicab driver who was charged with being drunk while in charge of his cab. A policeman said that the driver's cab had been in collision with a motor bus and that he appeared to be drunk. The police surgeon who examined him said he was unquestionably drunk: he smelt of drink, his statements were incoherent and he could not stand properly. A police inspector stated that he was drunk and that he smelt of drink and staggered. The driver swore that his cab was run into by the bus and that he received a blow, as the result of which he lost his senses for nearly an hour. He had had nothing to drink and had been a teetotaler for years. Evidence was then given by the matron of a maternity and nursing home who saw the accident and was about to give the man brandy when she was stopped by the policeman who said, "The man is drunk." She answered, "He is not, but is suffering from shock." There was not the slightest suspicion of drink. He smelt of smoke, not of drink. A cyclist also gave evidence in the driver's favor. In answer to the magistrate the physician said that a mark on the driver's cheek did not indicate a blow sufficiently severe to account for his condition. The magistrate in summing up said he was impressed by the evidence of the nurse, who was a woman of strong common sense. The physician was of opinion that the driver was drunk because his conduct was that of a drunken man, but having examined his face, he (the magistrate) believed that the mark indicated a blow severe enough to account for his dazed condition. He had no hesitation in dismissing the charge. From time to time cases of head injury occur in which the subjects are arrested for drunkenness and perhaps die in the police cell, as a consequence of fracture of the skull, which is discovered at the necropsy. It is noteworthy that in this case the injury was not to the skull but to the face.

The International Eugenics Congress, An Event of Great Importance in the History of Evolution, Has Taken Place

The first International Eugenics Congress has been held, at the University of London, under the presidency of Major Leonard Darwin, son of the great evolutionist. It was organized by the Eugenics Education Society, whose aim is to spread a knowledge of the laws of heredity so far as they may improve the race. Invitations to the congress were widely circulated to all eugenics and heredity societies throughout the world and to persons likely to be interested in its objects. Almost every nationality was represented and the number of members numbered about 400. The sittings occupied five days, and papers on almost every aspect of eugenics were read and discussed.

In his opening address, the president said that two great factors influenced them all through their lives—heredity and environment; and if at this congress they were chiefly concerned with the former—with nature rather than with nurture—it must not be assumed that little importance was attached by them to the many endeavors which were being made to improve the environment of the people, his ancestors and predecessors. The history of the world was not a tale of continuous and uninterrupted advance. Nature seemed to be making innumerable experiments, of which many proved

failures. It did appear that the world as a whole had always been slowly advancing; but if they looked merely at their own form of civilization history afforded no right to prophesy a continued improvement in the immediate future of the race. Indeed, many circumstances brought to light in recent investigations ought to force them to consider whether the progress of Western civilization was not now at a standstill, and in danger of a retrograde movement. Now by social methods they were doing their best to prevent further progress by this means. The unfit among men were no longer killed by hunger and disease, but were cherished and enabled to reproduce their kind. It was true they could not but glory in this saving of suffering; but they must not blind themselves to the danger of interfering with Nature's ways. Cattle-breeders bred from the best stocks, but the paramount necessity of maintaining a moral code introduced vast difficulties in the case of man. Conscious selection must replace the blind forces of natural selection. Eugenics was but practical application of the doctrine of evolution.

DIFFERENTIATION AMONG PEOPLES

Prof. Enrico Morselli, director of the clinic for mental and nervous diseases, University of Genoa, supplied a paper on "Ethnic Psychology and the Science of Eugenics." He said that all the varieties of the races of mankind differed both physically and mentally. It was necessary that each race, when it knew its contribution to the development of universal civilization, should contemplate the preservation of its own ethnic type. Differentiation among peoples was an indispensable factor in human progress. Eugenics should therefore not look for the realization of a uniform type of man.

LAWS OF INHERITANCE

Prof. V. Guiffreda-Ruggeri, University of Naples, said that the mendelian laws held for man. Every race had a hereditary possession of certain characters, which were transmitted in the germ-plasm.

A MENACE TO BRITISH INSTITUTIONS

Dr. F. L. Hoffman, statistician of the Prudential Insurance Company of America, read a paper on "Maternity Statistics of the State of Rhode Island." The census of 1905, he said, showed that half the population of this typical New England state was of foreign extraction and that native-born women were less fertile than foreign-born. Unless the better classes of America recognized their duty to increase and multiply, there was no chance of the survival of those British ideas and influences which tended to make the world a fit place to live in. In the discussion which followed, it was stated that in the east end of London the story of Rhode Island was repeated. It was also questioned whether the inferior classes were increasing as fast as their birth statistics tended to show. Owing to the wretched conditions of their existence their mortality was high.

THE PROBLEM OF HEREDITY

Mr. Samuel G. Smith, professor of sociology of Minnesota University, read a paper on "Eugenics and the New Social Consciousness." He said that he would prefer for a father a robust burglar to a consumptive bishop, though he would be glad to be adopted in another family soon after birth. Parents of talent were able to give exceptional advantages to their children, who ought to show a greater number of successes, but there was not the slightest evidence that talent of any particular form was ever inherited. Luther, Napoleon and Abraham Lincoln were biologic surprises. In the discussion which followed, it was contended that the statement that "all children were well born" was utterly contradicted by experience. In reply, Professor Smith said that England had set an example to the world in turning criminals to good use. She had sent them to America to become the founders of the first Virginian families and to Australia to produce prime ministers.

EUGENICS AND MILITARISM

Prof. V. Kellogg, Stanford University, California, held that militarism acted disastrously on a country through loss of life in war, removing large numbers of young men from the reproducing part of the population, and by the spread through the community of diseases contracted in military service.

THE EFFECT OF ALCOHOL ON THE GERM-PLASM

Dr. A. Mjoen (Norway) said that there had been for four years an agitation by physicians in Norway to compel the classification of liquors in three sections, according to their percentages of alcohol, and that legislation had just been

passed to that effect. He believed that the consequence would be that the consumption of liquors would undergo a gradual change to lighter and harmless drinks.

THE CONGRESS HAS PROVED A GREAT SUCCESS

One of its results is the establishment of a permanent international eugenics committee. Representatives of Great Britain, the United States, France, Germany, Italy, Norway, Denmark, Belgium and Spain are at present included, and there may be added representatives of any other country by request of any important organized group of eugenicists. It is proposed to hold an international congress every three years. A meeting of the international committee will be held in Paris next year, when it will be decided where the Congress of 1915 will be held. The choice lies between San Francisco, where there is to be an exhibition in 1915, and Paris. In a farewell address the president said that time alone could tell whether the eugenics movement would progress rapidly or slowly, but succeed it would. One immediate effect which he anticipated was the hastening of the legislation now under discussion in Parliament with regard to the feeble-minded. To stamp out feeble-mindedness from future generations had a leading place in their program. The nation to which they belonged was, as regards its future, largely dependent on the success of their movement. They were the true patriots, because they were toiling without hope of reward. To keep in this narrow path they were bound to separate themselves somewhat from those who were seeking for more immediate objects, however laudable these might be.

Vaccine Therapy: Sir Almroth Wright's Work

The Inoculation Department of St. Mary's Hospital, of which Sir Almroth Wright is director and at which he has done his epoch-making work on vaccine therapy, has grown considerably. In 1903 the work was commenced in one small room; in 1905 it expanded into two rooms; in 1907 fresh and larger quarters were necessary; and in 1909 it was completely reorganized as the Department of Therapeutic Immunization under a committee of which the ex-premier, Mr. Balfour, became chairman. By the generosity of various donors it became possible to enter into an agreement with the hospital for the use of five wards containing thirty-one beds which previously had been unoccupied and were then equipped for the use of the department. Captain Douglas, late of the Indian Medical Service, whose name has been associated with some of the most important of Wright's work, was appointed assistant director and under him eleven highly qualified assistants. A report has just been issued showing the results obtained by vaccine treatment, particularly of tuberculosis. It is pointed out that the regimen of fresh air, good food, etc., brings about a cure only in cases of slight infection when this is the result of unhygienic conditions. Tuberculosis occurs in another class of persons, who, even when in excellent surroundings, have but a small amount of resistance to the tubercle bacillus, and on coming in contact with it are rapidly infected. In these the ideal treatment is not only to place the patient in the most favorable sanitary conditions but also to stimulate by vaccines the production of antibacterial substances in the blood. A distinction is drawn between "open" cases of tuberculosis in which the bacteria are readily diffused from some central focus into the circulation, and "closed" cases in which they are more or less imprisoned within a barrier of connective tissue thrown around them. In the former the difficulty is to guard against the auto-intoxication liable to be produced even by moderate exertion; in the latter exercise or massage is deliberately employed in order to liberate a sufficient number of bacilli for auto-inoculation.

The Imperial Cancer Research Fund

The annual report of the Imperial Cancer Research Fund by Dr. Bashford, director of the laboratories, contains an important section on the spontaneous recession of transplanted tumors. This was first observed in the mouse and then in the rat. During the past year it has frequently been observed in the case of a tumor of the rabbit which was being propagated in the laboratory. There is therefore no doubt that it is a phenomenon of wide biologic significance. But recession in spontaneous tumors is much rarer; observations during the past eight years show that it occurs in the mouse in tumors proved to be malignant in scarcely 1 per cent. It appears to be due to a disturbance in the relation between epithelium and connective tissue in the course of which the cancer cell loses its aggressive character and is overpowered by the connective tissue. Similar changes occur in the healing of cancer under radium or epinephrin. The continuance of research on these lines is considered most important.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, July 26, 1912.

Parameningococcus Meningitis

On July 23, Prof. F. Widal and M. Weissenbach read a paper before the Académie de médecine on the use of antiparameningococcus serum. In view of the fact that antimeningococcus serum is one of the most effective means of cure in cerebrospinal meningitis caused by the meningococcus of Weichselbaum, which, left to itself, is almost inevitably fatal, Widal and Weissenbach think that when this serum is without effect, the possibility of meningitis caused by a kindred germ, the parameningococcus, should at once be considered. The latter microbe, first discovered by Dopter, is distinguished from the meningococcus by the fact that it does not agglutinate in antimeningococcus serum. The clinical picture of the disease which it causes is in all points similar to that of meningococcus meningitis. Antimeningococcus serum being ineffective against the parameningococcus, Dopter set about preparing an antiparameningococcus serum. Widal and Weissenbach observed a woman who presented the classical picture of cerebrospinal meningitis and in whom three injections of 40 c.c. of antimeningococcus serum made at two-day intervals were without result. The antiparameningococcus serum of Dopter was then used; after three injections the cure was complete. Only a few cases of parameningococcus meningitis are reported, but as knowledge of the disease becomes more general, no doubt it will be more frequently reported. A diagnosis of cerebrospinal meningitis still indicates the necessity of injecting immediately massive and repeated doses of antimeningococcus serum, for meningococcus meningitis is the form of the disease which is almost always encountered, but if this treatment is without result injection of antiparameningococcus serum should immediately be thought of. Moreover, as an injection of serum into the subarachnoid space demands the previous withdrawal of a certain quantity of cerebrospinal fluid, this fluid should regularly be cultured and the culture tested to see if it is agglutinated by the antimeningococcus serum. Thus if the first serotherapy is unsuccessful it will soon be certainly known if the parameningococcus is the cause of the disease and Dopter's serum can at once be used.

Confinement to Bed in Mental Diseases

At the same session Dr. Magnan, physician of the Sainte Anne Asylum, read a paper on the effects of "Confinement to Bed in Mental Diseases." According to his personal experience, such treatment in an open ward produces much improvement, especially in acute febrile cases. Magnan is impressed by the superiority of the nursing care given by women, who show much more zeal and devotion. He therefore thinks that it would be wise to substitute women for men in the infirmaries and the wards where patients are kept in bed.

The Municipal Laboratories and Pharmacists

The municipal council of Amiens decided to create a municipal laboratory to analyze foodstuffs and make bacteriologic examinations; the Syndicat des pharmaciens du département de la Somme protested, declaring it would be subjected to unfair competition and that there were enough private laboratories so that a municipal laboratory was not necessary. The central government has rejected the demands of the pharmacists on the grounds that as regards foodstuffs the laboratory supplies the means for complying with the law against frauds, and that the bacteriologic analyses which the laboratory is to undertake could not be carried out with equipment found in the ordinary pharmacies. On the same grounds the government has refused to annul, at the request of the Syndicat central des chimistes and essayeurs de France an order by the prefect of police allowing the public to make use, on payment, of the service of analysis of the municipal laboratory.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, July 26, 1912.

Personal

Professor von Romberg of Tübingen has been called as a successor of Professor von Baur. I believe I am not mistaken in thinking that Romberg will accept the appointment. If he does, the Munich faculty may congratulate itself, as Romberg is considered to be one of the best of the younger clinicians of Germany.

Professor Matthes of Marburg has received a call to Königsberg as a successor of Lichtheim.

Professor Lubosch of Jena has been appointed a prosector of the Anatomic Institute at Würzburg.

Professor Disse, a prosector of the Anatomic Institute of Marburg, died at the age of 60.

Leyden Lecture

The Leyden lecture, an annual lecture established by the Berlin Society of Internal Medicine as a memorial to its founder, will be delivered this year in October, by Bashford, the London investigator of cancer. Probably this distinction will be a salve for the wounded pride of Bashford, on whom a fine of £20 was imposed for his attacks on a London quack.

A University at Dresden

The lively public discussion which took place regarding the erection of a university at Frankfort on the Main, and still more the favorable prospects for the accomplishment of this project, have stimulated the ambition of other large cities in Germany—Hamburg, Posen, Dantzig and Dresden—to secure the establishment of universities within their walls. The Saxon government has decided against the project for a university at Dresden on the ground that the learned professions are already overcrowded and that the government does not regard the maintenance of two universities of the first grade as practicable. The same reasons which are here brought up in opposition to a Dresden university may well be urged against all similar projects. The proletariat of scientists in Germany is already sufficiently numerous.

Carcinoma

Professor Poll of the Berlin Anatomic-Biologic Institute has collected genealogic material for the study of hereditary carcinoma. By tracing the ancestral trees of various cancer families it is shown that cases develop with a certain regularity at an early age and with special frequency if both parents are from families affected with cancer, whether they belong to the same line or are not related. The immediate ancestors need not be affected with the disease. In the opinion of Professor Poll, the explanation of such observations, if a large numerical law of the occurrences can be established, must be sought in the direction of the principle of multiple units of heredity. In order to investigate these phenomena more thoroughly, ample material is necessary and, further, exact tables of ancestry, records of the age and the place of the local lesions, with special consideration of the healthy members of the family.

Antivaccinationist Self-Punished

One of the most active opponents of vaccination among German medical men has now experienced in his own body that it is not possible by hygiene alone, as the antivaccinationists claim, to protect one's self against small-pox. Dr. Spohr, of Frankfort on the Main, who is a notorious apostle of the nature cure (*Naturheilkunde*), was infected with small-pox by a woman patient who had recently come from Russia. Instead of going to a hospital and permitting the prescribed notice of the sickness to be given, he allowed himself to be cared for at home by his wife. The result was that his child and two women living in the neighborhood, together with their physician (homeopath), were attacked by the disease. Spohr went away after his recovery and the authorities learned of the sickness of the child first by an anonymous notice. Now the fanatic will be punished for breaking the contagious disease law.

Relief from Professional Duties on Sunday

In some of the cities of Germany the physicians are organizing to enable them to have Sunday free for leisure. In Berlin it is proposed to divide the city into districts. In each district one physician will have charge of the substitute service and send out quarterly to physicians, pharmacists, newspaper offices and to the central police station, the schedule of service as arranged. The individual physician will thus be on duty according to the number of physicians belonging to his district, at the most once a quarter, while the others may leave their practice unconcerned on Sunday in order to get recreation. The physician who is on duty must be paid immediately for his visit and must report at once to the family physician and to the physician previously called, as well as to the superintendent and must not on any account continue the treatment of the case. The plan proposed seems to answer the purpose, namely, to enable the physician wishing recreation to secure it without detriment. Some difficulties are likely to be experienced in arranging for substituting in the *Krankenkassen* practice. Also many hindrances may be expected in connection with the practice of specialists.

Annual Meeting of the German Central Committee for the Tuberculosis Campaign

According to the business report of the meeting held in the middle of June, there are in Germany at present 180 sanatoriums for adult consumptives, with about 140,000 beds. For patients in the advanced stage there are 128 hospitals or wards in hospitals. There are twenty-one hospitals for tuberculous children, with 1,351 beds. The number of forest convalescent stations is ninety-nine; the number of open-air schools, sixteen. Bureaus for information and care of tuberculous patients have increased to 720, and are established particularly in the country. Similar organizations are represented by the 537 Baden and 141 Thüringen local committees (*Ortsausschüsse*). Among the subjects discussed in the scientific sessions of the central committee, two were of special importance. The first was the question of the isolation of tuberculous patients in the advanced stages. It was emphasized that the chief source of infection is the tuberculous patient himself, and that therefore the spread of the disease by him to those with whom he comes in contact must be prevented. In the poor classes, among whom tuberculosis has the widest prevalence, isolation of patients in the home is almost impossible. In these cases nothing will help but the removal of patients from the dwelling, a measure practically very difficult. To overcome the objection of patients and their families, the family must be indemnified for the loss of income which is assured to a consumptive individual by the insurance law, so that the family, deprived of the income of the patient, may not become a subject of charity. The idea of isolation should not be made prominent, for the first consideration is assistance to the patient. Patients, as a rule, remain in institutions only so long as their hope of recovery is sustained. Even in advanced cases, therefore, medical treatment and sympathetic personal care must be provided for. The patients should first be treated, as far as possible, in the near neighborhood of their homes, in order that their families may see them. They must be kept healthfully busy, as in light garden work.

Three kinds of isolation may be considered: (1) homes exclusively for advanced pulmonary tuberculosis, (2) special tuberculosis wards in general hospitals, (3) special hospitals for patients afflicted with pulmonary tuberculosis in all stages. According to the experience of the insurance company of the Rhine province, the second and third kind of isolation serve the best purpose. In about thirty of the smaller country hospitals, the company has secured the establishment of tuberculosis wards to which they send patients. The tuberculosis hospital for all stages, in Gladbach-Windberg, has likewise shown good results. Berlin, Charlottenburg, Schöneberg and Cologne have established similar institutions. The number of tuberculous patients under care, the length of time of care and the amount of money expended have been quadrupled in the last five years. The expense for care amounts to an average of 45 per cent. per day for a person, including all subsidiary cost for clothing, medical care and drugs.

According to a review of the sanatorium statistics of the German empire, there were received in 1895 in the German hospitals altogether only 26,107 consumptives; in 1900 the number amounted to 42,530; in 1905, 83,805, and in 1910 it was not less than 123,336. To be sure, in these figures the number of patients received into the sanatoriums is included, but after subtracting the number of such patients, there is evident a marked increase in the admission of consumptives into the general hospitals. The number of patients who have died from pulmonary tuberculosis in the German hospitals has not increased to so great a degree, as it has risen from 10,347 in 1895 to 16,704 in 1910. Judging from the experience of a few large cities, and also from the statements made by the national insurance societies for the Rhine province, it may be expected that in this respect in the future more favorable figures will be presented, and that it will continually be more feasible to induce the seriously ill tuberculous patients of the poorer classes to seek hospital care for the rest of their lives.

Regarding the etiology of tuberculosis, which subject formed an important theme at the international tuberculosis meeting at Rome, Drs. Bruck and Steinberg of the Breslau station for the care of tuberculous patients made a report. They stated the problem of pathogenesis in the following question: Is the cause of a tuberculous infection to be found especially in a new infection, or in a quantitative or qualitative peculiarity of the first infection in childhood, or in the occurrence of a certain etiologic factor which does not act specifically before the appearance of manifest tuberculosis?

Bruck describes the single groups with the introduction of examples and concludes that the present state of the investigation indicates the possibility of both an endogenous and an exogenous origin of tuberculosis. Conclusive analogies in

human pathology are hardly permissible from the results of animal experimentation because nothing is certainly known regarding the quantitative susceptibility of man for natural tuberculous infection; also in regard to immunity, animal experiments have not heretofore been able to furnish sufficiently clear results, because the individual animals behaved very differently with reference to reinfection, and in animal experimentation only weeks or months intervene between the first and second infection while in man years and decades are involved. Further, it is not known how long and what quantity of infectious material will overcome a naturally acquired immunity of man. A one-sided emphasis on the protection of the child, which itself without doubt deserves the most active promotion, might easily be undesirable, as it does not take sufficiently into account the occasional exogenous origin of tuberculosis.

Experimental Modification of Spermatozoa by Physical and Chemical Action

Prof. O. Hertwig made a report at the Royal Prussian Academy of Sciences, June 20, on experimental changes in the composition of the germ-plasm of spermatozoa, induced by physical and chemical means. He has made experiments in the Anatomic-Biologic Institute with radium and mesothorium radiation of the germ-cells of various species of vertebrates, such as the trout, triton, frog and toad. The results of these experiments confirmed the law already established for the frog in regard to the curve obtained by graduated radiation of the spermatozoa employed for the impregnation of eggs. This law explained also the newly discovered and at first somewhat surprising fact that in many hybrid impregnations, as between the frog and the toad, between *Rana fusca* and *Rana viridis*, or between *Salamandra mac.* and *Triton taniatus*, the eggs which have been impregnated with spermatozoa of a foreign species that have been subjected to strong radiation develop into normal embryos and permit the cultivation of larvæ which will live several weeks, while those which are fertilized with spermatozoa which have not been subjected to radiation regularly die and decompose early in the state of the germinal vesicle. Further, it has been established by experiments which were undertaken on *Rana fusca* and *R. viridis* that similar results as those produced by the radiation of the germ-cells can be obtained by the action of chemicals; as for instance, by the action of a suitable solution of methylene blue.

Reduction of the Birth-Rate

A semi-official article in the *Norddeutsche Allgemeine Zeitung* which is an organ of the government, deals with the question of the birth-rate and the desirability of increasing it. In the introduction emphasis is laid on the fact that the reduction of births in Prussia constitutes a phenomenon which cannot be too seriously considered. Even for the German empire a gradual decrease of birth-rate has been determined. In 1876 there were 42.6 births, for 1,000 inhabitants; in 1890, 38.3; in 1907, 33.2, and in 1910, 30.7. In 1910, for the first time in thirteen years, there was an absolute reduction in the number of births, which was less than 2,000,000. While the death-rate is constantly falling (in Germany in 1876 it was 29.3, and in 1910, 17.1), and therefore the increase in population has been maintained for some time, even with a reduction in the number of births, still the reduction of the death-rate is less than that of births. With a continuation of the present conditions, a point must be reached in which the reduction of the death-rate can no longer compensate for the lessened number of births, and therefore a standstill or even a reduction of the population will occur.

The anonymous author of the article very justly calls attention to the fact that this is especially a social and not a physiologic problem, and that there is no reason for suggesting an exhaustion of the race. According to a social law formulated from considerations of national economy, increasing prosperity is accompanied by a sinking birth rate. History also indicates that the higher civilization drives the individual to the highest development at the cost of reproduction. The increasing difficulty of making a living together with the increased complexity of modern life cause an increase in a family to be regarded as a burden. Many landlords prefer to rent to families without or with only a few children rather than to those who have many children. Against social limitation of births economic and social remedies, such as instruction and education of the people, are recommended and among them a more strict supervision of the advertisements of secret remedies and a systematic propaganda against the tendencies of neomalthusianism. For large cities in which the reduction of the birth-rate has been especially demonstrated, the favoring of the garden city movement, model tenements and increased transportation facilities is to be recommended.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, July 23, 1912.

The New Rector of the Vienna University

Professor Weichselbaum, the well-known pathologist, has been elected for the year 1912-1913, to hold the honorable post of rector of the university, the highest office that can be obtained by a scientist on the staff of one of our universities, and a signal mark of the esteem of his confrères. The four faculties here (medical, legal, theological and philosophical) have each the right to present a member every four years to this office; therefore it will be another four years before a physician will hold that post. The students, with whom Weichselbaum is a great favorite, have received the news with much satisfaction.

A Campaign Against the House-Fly

In this country, as in others, the public is being aroused to the understanding of the danger involved in the presence of the ubiquitous *Musca domestica*, the common house-fly. Several experimenters have investigated the nature of the infections possibly carried by this insect, and after the transmission of streptococcal and staphylococcal infection was repeatedly demonstrated, the facts were made known to the general public. Through the Urania, an institute devoted to the dissemination of knowledge of all kinds among the people, illustrated lectures on the dangerous habits of the fly have been delivered. It is also urged that the children should be taught in school to beware of the fly, especially during the fruit and harvest seasons. Cooperation between public health officers and the market and trade inspectors has secured some commendable ordinances. Thus all retail vendors of fruit are obliged to keep these goods covered by glass or a thin-meshed gauze; proper attention has to be paid to the destruction or capture of flies in shops dealing in food-stuffs. Stabling, manure and accumulations of material liable to attract flies are to be kept at a distance from inhabited houses, at least in towns. For the capture of flies traps are recommended from which the fly cannot escape as it does from fly-paper or dishes filled with formaldehyde solution. Stress is laid on the fact that during the warm season the frequency of gastrointestinal troubles seems to have a marked correlation with the frequency of flies.

Scholarships for Medical Students Willing to Enter the Army Medical Corps

In order to induce a sufficient number of medical students to stay and serve over their term with the army medical corps, the ministry of war has invited the application of medical students, regardless of creed and nationality, for scholarships worth about \$1,200 (8,000 kronen) each. Each student has to bind himself to serve not only his regular twelve months with the army, of which six months must be served as a physician in a military hospital, but to stay with the colors six years longer. After that time he may leave without pension, or serve another three years, when he is entitled to a pension of \$250 a year, increasing for each year served over the ten years by varying but fair amounts. Heretofore the army medical corps has been seriously lacking in subaltern officers, chiefly because of better outlook for physicians settling down in our fast-growing small towns and quickly developing rural districts.

Marriages

JOHN H. ROHR, M.D., North Milwaukee, to Miss Marie McLean, of Milwaukee, at Nashotah Mission, Wis., August 3.

ROSCOE DRAKE McMILLAN, M.D., Red Springs, N. C., to Miss Gertrude Anne Garrison of Burgess Store, Va., June 10.

HARRY AINSWORTH CLARK, M.D., to Miss Grace Elmina Urban, both of Boston, at Cristobal, C. Z., July 10.

WILLIAM O. FRYBERGER, M.D., to Mrs. Mary L. Hughes, both of Minneapolis, at Buffalo, Minn., July 30.

WEBSTER EBER GRAY, M.D., Nashville, Tenn., to MAUDE MAY REED, M.D., of Indianapolis, recently.

LOUIS HARRIMAN DOUGLASS, M.D., Baltimore, to Miss Helen Rowles, at Towson, Md., July 30.

HOLLIS ELMER POTTER, M.D., Chicago, to Miss Blanche Morse, of Dillon, Mont., July 24.

GAUS WILLIAMS BILLUPS, M.D., to Miss Josephine M. Long, both of Baltimore, July 25.

HENRY OLIVER MARCY, M.D., Boston, to Miss Mary E. Smead, of Toledo, Ohio, recently.

THOMAS DANIEL CASEY, M.D., to Miss Mary Perrong, both of Ashland, Pa., July 25.

BERNARD FRANKEL, M.D., to Miss Ray E. Shaffer, both of New York City, July 26.

Deaths

Samuel Campbell Hotchkiss, M.D. Assistant surgeon U. S. P. H. & M.-H. Service; committed suicide in Washington, D. C., August 6, by taking poison. Dr. Hotchkiss was born in Michigan in 1880. He took his academic degree from Oberlin University and his medical course in Western Reserve University, Cleveland, from which he graduated in 1908. A year later he entered the United States Public Health and Marine-Hospital Service and in 1910 was assigned to duty in the division of pathology and bacteriology. At the request of the National Association for the Study and Prevention of Tuberculosis and of the Secretary of the Interior Dr. Hotchkiss was assigned to duty in May, 1911, in the Bureau of Mines to investigate tuberculosis and other occupational diseases among miners. Close application to this work and worry over the completion of his report is believed to have been the cause of the mental aberration during which he committed suicide. Dr. Hotchkiss had an excellent record in the Public Health Service, and his death, just as he was entering upon a new and important field of activity, is a great loss to public health work.

Edmund Marburg Rininger, M.D. Marion-Sims College of Medicine, St. Louis, 1893; a member of the Washington State Medical Association and American Urological Association; medical director of the Guardian Life Insurance Company and of the Alaska-Yukon-Pacific Exposition; one of the most prominent practitioners of the Pacific Northwest and one of the first physicians to practice in Alaska; who was influential in having the senate pass the bill appropriating \$25,000 for the care of the sick of Alaska; founder of Holy Cross Hospital, Nome; at one time president of the Seattle Surgical Club; was instantly killed, July 25, in a collision between his automobile and an interurban train near Riverton, Wash., aged 42.

Jethro A. Hatch, M.D. Rush Medical College, 1860; surgeon of the Thirty-Sixth Illinois Volunteer Infantry during the Civil War; a member of the Indiana legislature in 1872 and congressman from the Tenth Indiana district in 1896; a resident of Victoria, Tex., since 1907; died suddenly, August 3, while making a speech before the Victoria County Republican convention, aged 75.

Van Duyne A. Sutliff, M.D. Medico-Chirurgical College of Philadelphia, 1902; demonstrator of anatomy in his alma mater for five years; a member of the American Medical Association and Philadelphia Society for the Prevention and Study of Social Diseases; died at his home in Philadelphia, July 31, from uremia, two weeks after an operation for appendicitis, aged 30.

Richard M. Norment (license, North Carolina, 1893); a member of the Medical Society of the State of North Carolina; a veteran of the Mexican and Civil wars; for several terms a member of the legislature from Robeson County; postmaster of Lumberton since 1900; died at his home, July 30, from senile debility, aged 84.

John William Harris, M.D. Kentucky School of Medicine, Louisville, 1889; a Confederate veteran; for twenty-six years physician to the Madison County Infirmary, Union City, Ky.; health officer of Madison County, Ky.; jail physician and physician to the P. A. Clay Infirmary; died at his home in Richmond, July 29, aged 66.

John Jay Taylor, M.D. Medico-Chirurgical College of Philadelphia, 1887; a member of the American Medical Association, American Medical Editors' Association and American Academy of Political and Social Science; editor and publisher of the *Medical Council*; died at his summer home in South Ocean City, N. J., August 1, aged 58.

Robert L. Russell, M.D. University of Arkansas, Little Rock, 1898; of Leslie; a member of the Arkansas Medical Society; formerly physician in charge of the state penitentiary and later founder of a private sanitarium in Leslie; died in St. Vincent's Infirmary, Little Rock, July 29, aged 49.

Silas Talbert Yount, M.D. Bellevue Hospital Medical College, 1876; formerly of Lafayette, Ind., but for twenty years a resident of Chicago, a specialist in nervous and mental disease, died in St. Luke's Hospital in that city, August 6, from myocarditis, aged 56.

Joseph S. Troutman, M.D. University of Tennessee, Nashville, 1892; for twenty years a specialist on the diseases of the eye, ear, nose and throat; of Paducah, Ky.; died in the Western State Hospital, Hopkinsville, July 30, from cerebral hemorrhage, aged 48.

Wilbur Fisk Lamont, M.D. Albany (N. Y.) Medical College, 1889; a member of the Medical Society of the State of New York; and a practitioner of Catskill for twenty-three years; died in the Albany Hospital, August 1, from pernicious anemia, aged 49.

Roland S. Devlin, M.D. Queen's University, Kingston, Ont., 1906; of Montreal; was shot by an insane man while going to the aid of another individual shot by the same man, and died in the Royal Victoria Hospital from his wounds, August 1, aged 32.

John Samuel Bassett, M.D. Berkshire Medical College, Pittsfield, Mass., 1850; for more than half a century a practitioner of New York City; died suddenly at the Wayside Inn, New Milford, Conn., July 31, from cerebral hemorrhage, aged 81.

George Washington Gray, M.D. University of Nashville, Tenn., 1866; for twenty-five years a resident of Terrell, Tex.; a Confederate veteran; died at the home of his son in Ardmore, Okla., June 12, from senile debility, aged 72.

Andrew Jessup Garrison, M.D. Medical College of Ohio, Cincinnati, 1880; of Indianapolis; a member of the American Medical Association; died in the Cincinnati City Hospital, July 30, from cerebral hemorrhage, aged 59.

Frank M. Conn, M.D. Medical College of Ohio, Cincinnati, 1873; a member of the Washington State Medical Association; died at his home in Seattle, July 24, from the effects of an overdose of chloroform, aged 70.

Ellwood Huggins, M.D. Baltimore University, 1888; for several years a practitioner of Howard and Calvert counties, Md.; died at his home in Baltimore, July 28, from cerebral hemorrhage, aged 64.

William A. Brown (license, Illinois, years of practice, 1878); for several years a practitioner of Danville, Ill.; died at his home in Los Angeles, Cal., July 25, from senile debility, aged 82.

John Barron, M.D. University of Maryland, Baltimore, 1877; for thirty years a practitioner of Govanstown, Md.; died at his home in Baltimore, August 2, from heart disease, aged 70.

Claude Luverne Vaughan, M.D. University of Iowa, Iowa City, 1905; a former member of the American Medical Association; died at his home in Caroline, Wis., July 31, aged 29.

A. S. Campbell, M.D. Medical College of Georgia, Augusta, 1872; a surgeon during the Civil War; died at his home in North Liberty, Ind., July 30, from senile debility, aged 84.

Edwin Sylvester Swisher, M.D. New York University, New York City, 1876; of Socorro, N. M.; formerly of Canton, Ill.; died in Kansas City, August 1, from heart disease.

Elmer Y. Lawrence, M.D. Chicago Medical College, 1867; of York, Neb.; a veteran of the Civil War; died in Boulder, Colo., July 26, from senile debility, aged 82.

Edmund C. Allard, M.D. Hahnemann Medical College, Chicago, 1883; died at his home in Fond du Lac, Wis., August 1, from disease of the kidney, aged 54.

George Anderson Russell, M.D. Central College of Physicians and Surgeons, Indianapolis, 1890; died at his home in Terre Haute, Ind., July 30, aged 50.

David M. Aronsohn, M.D. University of Minnesota, Minneapolis, 1905; of Glasgow, Mont.; died in the St. Paul City Hospital, August 1, aged 35.

George H. Rue (license, Illinois, 1878); of Lexington; died in Bloomington, August 6, from injuries received in a railway wreck near Quincy, Ill.

Harley Hedges Williams, M.D. Ohio Medical University, Columbus, 1902; died at his home in Sydney, Ohio, August 1, aged 33.

Joseph Kingham, M.D. University of Michigan, Ann Arbor, 1866; died at his home in South Branch, Mich., July 16, aged 72.

Ben G. Adamson, M.D. University of the South, Sewanee, Tenn., 1898; died at his home in Jackson, Tenn., July 25, aged 42.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

AN OPPORTUNITY FOR THE PHARMACIST

While the pharmacist can do much toward the advance of medicine and also toward the improvement of the public health, his commercial tendencies have to a large extent made him lose sight of his opportunities. Thus it has been necessary to refer to the close connection of the National Association of Retail Druggists (N. A. R. D.), with the patent medicine cooperative organization, the A. D. S., or American Druggists Syndicate (THE JOURNAL, Jan. 8, 1910; Jan. 22, 1910; April 9, 1910). Also the fear has been expressed that the U. S. P. and N. F. Propaganda of the National Association of Retail Druggists, though discouraging the use of secret nostrums, would fall short of our aim toward rational prescribing (THE JOURNAL, March 2, 1912, p. 640). That this propaganda is in fact attempting to perpetuate the use of unscientific "shotgun" mixtures by arguments commonly employed in the exploitation of nostrums was recently pointed out by the *Indiana State Medical Journal* (June 15, 1912, p. 275).

But, while these efforts toward the perpetuation and extension of the patent medicine and the nostrum business are not a credit to pharmacy, N. A. R. D. Notes, the official organ of the N. A. R. D., has started a public health propaganda department in which the druggist is urged to protect the public by giving advice as to the seriousness of various diseases and the need of their treatment by trained physicians. When it is considered that a large number of people go to their druggist for advice or treatment for ailments of all kinds, the opportunity which is in the hands of the pharmacist will be appreciated. As the less-educated public still is uninformed of the seriousness of gonorrhea and syphilis and of the need of immediate and efficient treatment of these diseases, and as many druggists still take these afflictions lightly and attempt to prescribe for them, the good effect of the following (N. A. R. D. Notes, July 4, 1912, p. 813) will be appreciated:

"Running tuberculosis a close second, we have that other dreaded disease in the domain of society, the gonococcus contagion, or, as it is more commonly called, gonorrhea. This is a filth disease. It is a fruitful cause of blindness. It is highly contagious. Cases apparently cured linger for years and are always contagious, even after a lapse of seven or more years.

"This disease is difficult to eradicate from the system; it is very apt to become chronic, giving rise to very serious after effects. Pharmacists should inform themselves of the cause of this disease and its prevention, and then tell the truth about it. No pharmacist has ever cured a case of it yet, and it is high time that the fake methods of cure (?) were supplanted by common-sense methods.

"Mr. Pharmacist, when a young man comes to you to be cured of this disease, tell him the truth and give him advice, not medicine; send him to the best physician. Tell him that a large proportion of the serious surgical operations endured by women are direct results of neglected cases of gonorrhea, cases that apparently were 'cured'; tell him that half of the blind children in the world are made blind by this disease; tell him that his wife, present or future, and his children, may become affected, through his neglect and his (or your) attempt at a cure; tell him that there are many things about this disease that he should know but which only a skillful physician can tell.

"If you do not do this, Mr. Pharmacist, you are criminally guilty in a greater degree than he is, for he does not know, and you do. But it takes a man to tell such things to our friends and customers, and it is sincerely to be hoped that every pharmacist is a man. Send such patients to a good doctor, not to a quack specialist. Quack specialists are no better than the fake cures advertised in newspapers and magazine.

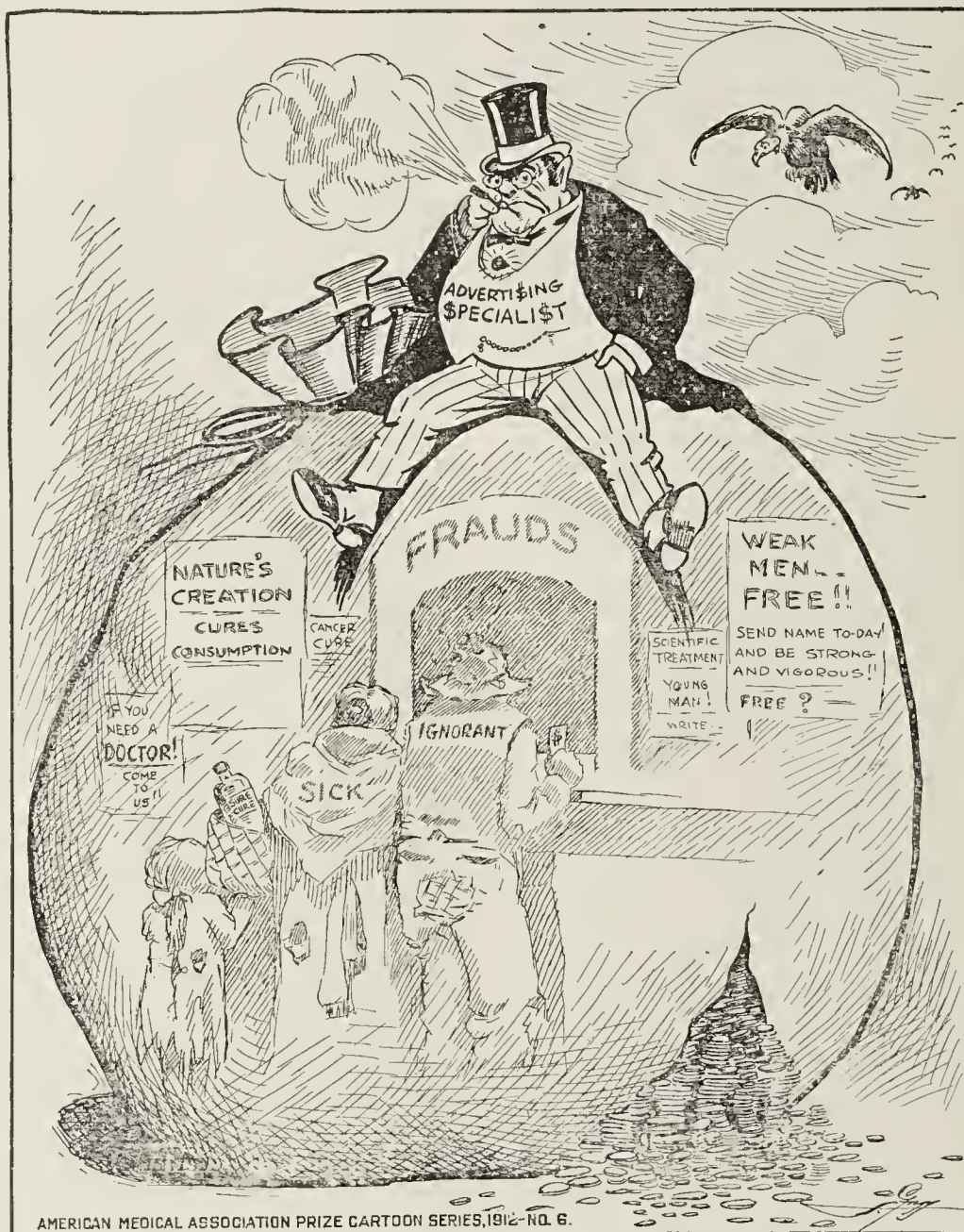
"Let this one fact stand out plainly and be a warning to every pharmacist: In view of the prevalence of the disease, in view of the hundreds of ways in which it manifests its chronic nature, in view of the increase of cases and the consequent increase in its ravages (cancer, operations, blindness, syphilis, etc.), it is very plain that pharmacists cannot cure it, that fake medicines advertised to cure do not cure it, and that quack specialists have not cured it.

"It is of course a pity that where possibly one case is referred to a good physician or the patient himself goes to such at once, one hundred go to some

quack advertiser, or use some of the many advertised fake cures, as lost manhood cures, blood-poison cures, etc. But this is all owing to a want of knowledge on the part of the public, and which can only be changed by educating this same public.

"The first ray of hope looking toward a real cure of this dreaded disease is the discovery, by Ehrlich and Hata, of salvarsan, or 'No. 606.' The tests thus far made with this agent have yielded astonishing results, but only the future can tell whether it is the true remedy or only another 'will-o'-the-wisp.'

"What the pharmacist should do in these instances is to send all patients to a reliable physician. It is criminal to do otherwise. Besides, as far as revenue is concerned there can be no loss, for the physician will prescribe and he can prescribe more intelligently than a pharmacist can counter-prescribe. However, this is no matter for financial consideration, but one of honor, justice and a conservation of the health



THE VULTURES!

of the human race, and every honorable pharmacist should look at it in that light."

While the author of this lecture apparently has confused the two sexual diseases, the advice given, if followed by the pharmacist, is bound to bring added protection to the public and credit to pharmacy.

MARJORIE HAMILTON OBESITY CURE

Aftermath

Our readers will recall the exposé¹ in this department of *THE JOURNAL*, March 16, 1912, dealing with the Marjorie Hamilton Obesity Cure. To refresh the memory, we cannot do better than reprint the summary that appeared at the end of the original article:

Here we have a concern advertising, as something new to the United States, a "system" of flesh reduction that is older than the oldest inhabitant. On the specious plea that every part of the treatment is pleasant, the victim is persuaded to part with her money only to find that she must purge, diet, and carry out a system of exercises. This, too, in spite of the fact that, either inferentially or directly, she has been led to believe that none of these methods forms part of the "treatment." She is told—before she sends her money—that neither the internal nor external use of drugs is part of the "treatment;" she finds—after she has sent her money—that the use of saline purgatives internally and of a strongly alkaline powder externally, are part of the "system." She is told—also before she sends her money—that she may eat all she desires; she finds—after she sends her money—that she must give up, among other things, "white bread, potatoes and pastries." She is told—once more, before sending her money—that it is unnecessary to take up "terrible gymnasium work;" she finds—of course, after sending her money—that exercises with and without dumb-bells and Indian clubs are part of the "system."

After *THE JOURNAL* article appeared, the United States postal authorities took a hand and on June 7, 1912, W. C. Cunningham and his wife, Marjorie Hamilton Cunningham, were indicted by the federal grand jury and placed under arrest. The indictment charged them, first, with devising a scheme to defraud and, second, with the fraudulent use of the mails to further that scheme. The Denver papers at the time of the arrest stated that the court records and papers in the hands of the federal authorities showed that Cunningham had, in 1906, served a term of eight months in jail in Minneapolis for fraudulently listing fees when he was the "president and manager" of a real estate business in that city conducted under the names, North American Land Co., the Security Land Co., the Cooperative Land Co. and the Commercial Land Co. In addition to his "listing fee" scheme he also is reported to have advertised and sold a book on "Real Estate Instructions and Scientific Salesmanship."

Further, the records are said to show that after completing his jail sentence, Cunningham went to Rochester, N. Y., where he became associated with C. F. Clark and T. F. Adkin, who, with E. Virgil Neal (X. LaMotte Sage), have been engaged in exploiting various mail-order medical fakes. Our readers will remember references to this trio in connection with the Turner Obesity Cure and the thought arises that Cunningham probably got his idea for the Marjorie Hamilton Obesity Cure from the Turner concern, operated by Adkin and Clark. The family resemblance between these fakes is a strong one. From Rochester, Cunningham went to Buffalo, N. Y., where he started a mail-order business of his own, selling "beauty treatments." From Buffalo, he came to Chicago where he conducted the various enterprises that were described in the article on the Marjorie Hamilton Obesity Cure.

PRINCESS TOKIO

Since our previous article appeared, Cunningham has branched out in the mail-order fake line. The "Princess Tokio Beauty Company" is the name of his new venture. "Princess Tokio" is said to be "introducing to America for

the first time, the new quick wrinkle remover." The methods are what would be expected of Cunningham: Follow-up letters of the same picturesque class as those sent out by his obesity cure concern; a sliding scale of prices starting with \$5 in the April letter, dropping to \$3 in May, offering it for \$2 in June and finally reaching \$1 in July. Some of the Princess Tokio letters are perfect gems of advertising. For instance:

"We wish to warn our customers not to use the treatment more than once daily, so that we remove their wrinkles gradually INSTEAD OF INSTANTLY. We warn you of this, not because it is in any way injurious to the skin, but because it achieves such surprising results in so short a time that it often causes embarrassment if you remove all your wrinkles in one day."

But Princess Tokio and Marjorie Hamilton will soon be no more known—to their native land at least. The Denver papers for July 24 state that Cunningham will retire from business in the United States and will confine his activities entirely to the European field. Willard B. Cook, formerly connected with the Van Camp Packing Company, and Charles E. Hayes, an advertising man, are said to have purchased an interest in Cunningham's foreign rights and to have sailed for London to take preliminary steps for the opening up of the European fields. Their previous experience in the bean canning and advertising industries naturally qualifies them to act as experts in the cure of obesity!

With the ruling passion for the almighty dollar strong, even on the eve of dissolution, the concern makes a final attempt to separate the credulous from their cash. Those unfortunates who are on Marjorie Hamilton's mailing list have received, within the past few days, another heart-to-heart circular letter which commences:

"I have decided to retire from business. The clamor, strain, worry and work to which I have been subjected in the transaction of my enormous business have been more than I have bargained for when I first undertook to give the fat people of the world the benefit of my great treatment for fat reduction."

Then she continues pathetically:

"But the strain has been too great and I must reluctantly admit that I must hereafter forego the good work and retire to rest and recuperate. That I have had a success beyond my fondest expectations has been the encouraging and hopeful reward of my efforts to benefit suffering humanity and I shall go back to the obscurity of private life with the consciousness of having done a great good to a veritable army of people who needed my aid and whose letters of gratitude are my most precious belonging. I feel there are other avenues where I can devote my life to relieving the sufferings of the poor, the helpless and hopeless where my love for humanity will have a more limited but a more tranquil and less strenuous opportunity, so I am writing to thank you for your interest in me and my treatment and to bid you goodbye."

All of which leads up to the marvelous reduction to "\$1 only" for her Great Quadruple Combination Treatment for Fat Reduction. As a parting shot, she says:

"Whether you buy my treatment or not, let me urge on you not to let so-called doctors induce you to poison your system with drugs."

Thanks to the publicity first given this fraud by *THE JOURNAL* and copied largely by the more independent newspapers, then admirably followed up with an investigation by the post-office authorities, the American public has received protection from at least one fraud. Great Britain has no fraud order system connected with its postoffice department and the British Isles are becoming the dumping grounds for the faker whose native land has grown too hot for him. With the closing of the Marjorie Hamilton fakery there passes into the limbo of forgotten frauds one of the most picturesque and impudent humbugs of the pseudo-medical type.

Confidence as an Element in Psychotherapeutics.—Better than any "system" is that valuable psychotherapeutic influence which takes the form of confidence in the doctor—confidence on the part of the patient, based on the belief that the doctor knows, and is doing what is best, confidence in himself on the part of the doctor, based on the fact that he knows what is best, and is doing it.—Bondurant in *Medical Record*.

1. This article has been reprinted in pamphlet form; illustrated; price, 4 cents.

Correspondence

A Plan for the Adoption of the Metric System

To the Editor:—The advantages of the metric system of weights and measures are so numerous and apparent that it may be considered almost an insult to a reader's intelligence to enumerate them, yet we are little nearer the realization of these benefits than we were when the system originated in the brain of the great prime minister of the First Empire.

The system was made legal in France in 1801 and was made compulsory in 1840. It was made legal in England in 1864 and in the United States in 1866, yet it is not compulsory in either, and really amounts to little more than a hardship, an additional tax on the mentality of an already severely taxed professional and scientific world.

The pharmacist with two systems, the *avoirdupois* and *apothecaries'*, already contributing a full share to his confusion, finds himself burdened with a third. The medical student, often driven to the verge of despair by his hundreds of hours allotted to the intricacies of such exhaustless and often exhausting studies as anatomy, chemistry and physiology, finds himself robbed of some of his few hours for practical *materia medica* in order that he may be drilled in a system of weights and measures against the use of which he is privately cautioned for reasons that unfortunately are only too potent.

As the metric system of weights and measures possesses all the superiority over others that our decimal money system does over one like the English, and the use of several systems at one time is almost intolerable, the natural end to be desired is its universal adoption. Yet definite government action looking toward the attainment of that object seems as far distant as it was many decades ago.

I believe that the professions particularly interested in medicine have reached that stage of organized effort that would now render comparatively easy the accomplishment of a task that a few years ago might have been impossible. I believe also that the necessity of the single set of standards is widely acknowledged and that energetic, well-directed action on the part of the medical profession, as represented by the American Medical Association, will secure the cooperation of others to be benefited and will result in the much needed reforms.

The present status of the prescribers and compounders may be summed up in part as follows:

Dosage to be of ready value to the physician in correctly prescribing, or to the pharmacist in rechecking the prescription, must be impressed on the memory to the point that its use is almost automatic—a linguist to speak any language fluently must speak one automatically.

It is confusing in the extreme to try to remember arbitrarily dosage in two systems.

The older prescribers, with but few exceptions, learned the *apothecaries'* system for all uses. They see no reason for changing and, as matters now stand, there is none.

The prescribers recently graduated, in the majority of instances, were taught the *apothecaries'* system primarily, and are not fundamentally grounded in a thorough familiarity with the metric system, for under the existing conditions the teacher can plead no legitimate excuse for teaching the latter thoroughly.

The pharmacist, old or recent, was and at present should be taught the *apothecaries'* and *avoirdupois* systems primarily, as they are the ones representing the vast majority of his daily uses.

At present the practice of prescribing by the metric system is questionable as many pharmacists are not even equipped with these weights and measures and being forced to transcribe to the *apothecaries'* system, liability to error results.

The bottles in common use are made for *apothecaries'* measures.

Even if the pharmacist has the requisite weights and measures, he usually knows his dosage in the old system, and in rechecking must make a mental transposition and so does not

constitute to the same extent the toxicologic safeguard between prescriber and patient.

If the prescriber has had the same equipment and has to resort to the same mental processes, he is more liable to need this usually efficient safeguard.

The pharmacist at present buys solids by *avoirdupois* weights, sometimes by metric; he buys liquids by *apothecaries'* measure, *avoirdupois* weight and sometimes by metric weight or measure. His lay sales are usually by *avoirdupois* weight or *apothecaries'* measure. He dispenses by *apothecaries'* weight and measure, sometimes by metric. Many of his formulas, as percentage solutions, must take into account the difference between a fluidounce by measure and weight. Yet we condemn him for mistakes and wonder whether he or his fathers sinned when he finds an early grave.

To those not familiar with the metric system its intricacies are largely exaggerated. Unfortunately the text-books treating it usually give lengthy tables, confusing even to look on, and do not lay emphasis on the fact that only a part—a very small part—is ever used in prescribing.

Looking to the immediate needs of the related professions, should I meet with sufficient encouragement, I hope to present or see presented at the next meeting of the American Medical Association a paper suggesting energetic effort directed toward securing the adoption of the metric system exclusively in prescribing and compounding medicine.

There can be but little doubt that a delegation selected by the American Medical Association would secure the selection and cooperation of delegations from such organizations as the American Pharmaceutical Association, the National Association of Retail Druggists, the National Wholesale Druggists Association, the American Dental Association, the medical and pharmaceutical college associations, the state board associations and others, these delegates to constitute a body to agree on a plan for the adoption of the metric system in things pertaining to medicine.

As a suggestion of what might be hoped for, the following outline is submitted:

1. For a period of four years, let us say, all medical, dental and pharmaceutical schools should require all dosage in all quizzes, exercises and examinations to be given in both systems, and after that time only in the metric system; and all new editions of text-books should be accepted only when the metric system primarily is employed in stating weights and measures.

2. For four years all state medical, dental and pharmaceutical examining boards in every examination should include a comprehensive set of questions on the metric system the answering of which is compulsory; and for the same time all dosage should be required to be given in the metric system primarily, and after that time in the metric only.

3. For four years and afterward, all papers citing weights and measures read before bodies of these professions should be required to use both systems, or metric only.

4. For four years, all journals of these professions that can be influenced should publish articles that use weights and measures only in the metric system or both systems.

5. A propaganda should be inaugurated that after four years all prescriptions be written in the metric system and that previous to that time, say after two years, the metric system or both be used at the discretion of the prescriber. The pharmacists should further arrange that for two years drugs ordered from jobbers would be accepted either by the metric or other systems, but after that time all drugs would be ordered by the metric system exclusively.

6. After four years containers should be ordered for metric quantities only.

7. All prescription blanks ordered for distribution should have the line near the right-hand margin for the convenience of entering metric quantities. The wholesalers, manufacturers, etc., should further arrange that after two years all catalogues and other quotations be expressed in the metric system or both, and after four years in the metric system only.

It is still remembered how easily the pharmaceutical manufacturers, by concerted action, discontinued the use of the half-gallon bottle.

Further in connection with this could a more opportune time be found for the adoption, by the interested professions, of the centigrade thermometer? Its acceptance could, in point of time, be arranged to go hand in hand with the decimal system of weights and measures.

All of this would not work out without opposition from many sources and much inconvenience being entailed. The success of almost every scheme for the improvement of existing conditions has been purchased with sacrifices.

In this instance is not the desired result worthy of any reasonable expenditure of patience and unremitting effort on the part of those most concerned?

O. W. BETHEA, M.D., Ph.G., F.C.S., New Orleans.

"Some Features of Anaphylaxis"—Failure to Credit Dr. Vaughan

To the Editor:—May I call attention to an injustice in the editorial on anaphylaxis in THE JOURNAL (August 3, p. 372)? The ideas there ascribed to German investigators were original with Dr. V. G. Vaughan, of Ann Arbor, having been formulated by him several years ago, and extensively investigated in his laboratory.

H. G. WELLS, Chicago.

To the Editor:—Under this heading an editorial in THE JOURNAL (August 3, p. 372) gives Friedberger the credit of having proposed the theory that in anaphylaxis an enzyme is formed which splits up the protein on its second injection and that the harmful effects are due to the split products resulting from this cleavage. Friedberger has made many valuable contributions to our knowledge of anaphylaxis and some of these strongly support the theory of the formation of ferments, but he was not the first to propose this theory and I do not think that he would make such a claim for himself. The ferment theory was first proposed by Vaughan and Wheeler in the *Journal of Infectious Diseases* (June, 1907). The American investigators are generally given the credit for this theory in Germany, but not in your editorial. This might be shown by many quotations from German scientists, but at present I will copy only one. Biedl and Kraus (Kraus and Levaditi: "Handbuch der Technik und Methodik der Immunitätsforschung," supplementary vol. i, p. 286) say: "Vaughan and Wheeler suggest that after the first injection of the antigen a specific ferment is formed which remains in the organism as a proferment and this is activated on the reinjection of the antigen. This ferment splits up the protein into toxic and non-toxic portions and to this latter the anaphylactic shock is due."

Not only were Vaughan and Wheeler the first to propose this theory, but it was in the laboratory of hygiene of the University of Michigan that the actual existence of such a ferment in the sensitized animal was demonstrated and its cleavage action on the antigen proved. The contribution detailing this work may be found in *Zeitschrift für Immunitätsforschung*, xi, 673.

It is exceedingly distasteful to me to have to call attention to my own work, especially in my own country, but I cannot allow your editorial to pass unnoticed.

V. C. VAUGHAN, Ann Arbor, Mich.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WHAT IS A NORMAL SOLUTION?

To the Editor:—In order to settle an argument regarding the question of a normal solution, please advise me if the following is correct?

I assert that a normal solution of a substance is the molecular weight of the given substance, expressed in grams, divided by the hydrogen equivalent and added to sufficient amount of water to make a liter.

For example, a normal solution of sulphuric acid would be one made as follows: The molecular weight of H_2SO_4 is 98. As the

hydrogen equivalent of H_2SO_4 is 2, I would use one-half the molecular weight, or 98 divided by 2, which is 49, this being expressed in grams and added to sufficient water to make a liter.

A normal solution of sodium chlorid, $NaCl$, would be determined as follows: Since $NaCl$ is derived from HCl , the hydrogen equivalent of $NaCl$ would be 1, as the acid is 1, hence in this case the entire molecular weight of $NaCl$, or 58.5 gm., should be added to a sufficient amount of water to make a liter.

Please explain this matter fully, stating the difference between an isotonic normal solution, physiologic normal solution, etc.

O. J. MILLER, M.D., Sanford, Fla.

ANSWER.—The definition given by our correspondent is essentially correct if it be understood that a liter of normal sulphuric acid must contain one-half the molecular weight, expressed in grams, of *absolute hydrogen sulphate*. The following, taken from the United States Pharmacopeia, further explains the strength of normal solutions:

"Normal volumetric solutions (N/I) are those which contain in one liter, in any stated reaction, the chemical equivalent of 1 gm. of hydrogen. If the molecule of the reagent is univalent, one liter will contain the weight in grams equal to the molecular weight of the reagent; if bivalent, a weight in grams equal to one-half its molecular weight; if trivalent, a weight in grams equal to one-third its molecular weight.

"Thus, hydrochloric acid, $HCl=36.18$, having but one H atom replaceable by a basic element, has 36.18 gm. of absolute HCl in 1,000 c.c. of the normal volumetric solution; while sulphuric acid, $H_2SO_4=97.35$, having two replaceable H atoms, contains only one-half this number, or 48.675 grams of absolute H_2SO_4 in 1,000 c.c. of its normal solution. Potassium hydroxid, $KOH=55.74$, has but one K to replace one H in acids, hence its normal solution contains 55.74 grams of pure KOH in one liter. Again, one molecule of potassium dichromate in oxidation liberates *three* atoms of oxygen, which are capable of oxidizing *six* atoms of ferrous to ferric iron. Therefore, each molecule of the dichromate, yielding *three* atoms of oxygen, is equivalent to *six* atoms of hydrogen. Hence, the normal solution should contain $292.28 \div 6$ or 48.713 gm. in 1,000 c.c. Two molecules of potassium permanganate $2KMnO_4=313.96$, in oxidation, give off five atoms of O, which are equivalent to ten atoms of H: hence its normal solution should contain $313.96 \div 10$ or 31.396 gm. in 1,000 c.c."

While in the present Pharmacopeia the molecular weights are calculated on the basis of hydrogen as a unity it is now more general to base molecular weights on oxygen, which is taken as 16. Thus the molecular weight of sulphuric acid generally rounded off to 98 ($2+32+64=98$) according to the United States Pharmacopeia is 97.35 ($2+31.83+63.52=97.35$) while according to the latest revision of atomic weights based on oxygen = 16 the molecular weight for sulphuric acid becomes 98.086 ($2.016+32.070+64=98.086$).

An isotonic solution is one of such strength that it will have the same osmotic pressure as another solution, with which it is said to be isotonic. A solution isotonic with the blood-plasma is obtained by dissolving sodium chlorid in water to a strength of 0.9 per cent. This solution when mixed with blood causes no hemolysis of the red blood-corpuscles. A solution of 0.7 per cent. of sodium chlorid produces so little change in the osmotic conditions and so little hemolysis of the red blood-cells that it is commonly used as a physiologic normal solution, and has received this designation. Formerly, a solution of 0.56 per cent. of sodium chlorid, which is the strength of the sodium chlorid of the blood, was termed a normal salt solution. This is still frequently used in therapeutics under the name of "normal salt solution," or "physiologic salt solution," although, as will be noted, it is not strictly isotonic with the blood. While a solution of 0.9 per cent. of sodium chlorid is isotonic with the blood-plasma, yet because its content of sodium chlorid is greater than that of the blood, it will cause a certain amount of sodium chlorid to be diffused into the blood and replaced by other salts.

LITERATURE ON DUST

To the Editor:—Please give references to literature on the subject of dust which has appeared within the last two years.

E. A. CRULL, M.D., Fort Wayne, Ind.

ANSWER.—

Prudden: Dust and Its Dangers, G. P. Putnam's Sons, New York, price, 75 cents.

Hessler, Robert, Logansport, Ind.: Dusty Air and Ill Health, price, \$1.65.

W. C. Hanson: Protection of Factory Employees Against Dust Arising from Certain Occupations, *Am. Jour. Pub. Hyg.*, June, 1910.

Shingu, S.: Inhalation of Coal Dust by Children, *Virchows Arch. f. path. Anat.*, May, 1910; abstr. in THE JOURNAL, July 9, 1910, p. 177.

Lead and Dust in Pottery Works (London Letter), *THE JOURNAL*, July 23, 1910, p. 324.
 Anders, J. M.: Street Dust as a Factor in Spreading Diseases, *Med. Record*, October, 1910.
 Anders, H. S.: The Dust Menace and Municipal Diseases, *THE JOURNAL*, Nov. 4, 1911, p. 1524.
 Street Dust and Food, *THE JOURNAL*, March 25, 1911.
 Gehrman, A.: Facts as to City Dust, *Monthly Cyclopaedia and Med. Bull.*, November, 1911, abstr. in *THE JOURNAL*, Dec. 30, 1911, p. 2164.
 The Pathways of Inhaled Dust, *THE JOURNAL*, May 11, 1912, p. 1448.

TECHNIC OF WASSERMANN REACTION

To the Editor:—Please refer to literature on the technic of the Wassermann reaction.
 E. A. WATSON, M.D., Kearney, Neb.

ANSWER.—The technic of the Wassermann reaction is described in recent text-books on clinical diagnosis, and was summarized in this department Aug. 3, 1912, page 386. A list of articles on the subject was published in *THE JOURNAL*, April 9, 1910, p. 1226. The following more recent articles which deal with the technic may be referred to:

Ferrannini, L.: Simplified Technic for the Wassermann Reaction, *Riforma med.*, Feb. 6, 1911; abstr. in *THE JOURNAL*, March 18, 1911, p. 860.
 Thomsen, O., and Boas, H.: The Wassermann Reaction and Resistance to Heat of Antibodies Involved, *Hospitaltid.*, Aug. 2, 1911; abstr. in *THE JOURNAL*, Oct. 14, 1911, p. 1333.
 Peters, H. L. B.: Relation of Natural Antisheep Amboceptor to Wassermann Reaction, *New York Med. Jour.*, Nov. 18, 1911; abstr. in *THE JOURNAL*, Dec. 2, 1911, p. 1869.
 Craig, C. F., and Nichols, H. J.: The Effect of the Ingestion of Alcohol on the Result of the Complement Fixation Test in Syphilis, *THE JOURNAL*, Aug. 5, 1911, p. 474.
 Guggenheimer, H.: Influence of Temperature on the Wassermann Reaction, *München. med. Wchnschr.*, June 27, 1911; abstr. in *THE JOURNAL*, Aug. 5, 1911, p. 519.
 Black, J. H.: Experience with Noguchi Modification of Wassermann Reaction, *Texas State Jour. Med.*, October, 1911; abstr. in *THE JOURNAL*, Nov. 4, 1911, p. 1566.
 Munk, F.: Antigens for the Wassermann Reaction, *Deutsch. med. Wchnschr.*, May 9, 1912.
 Keidel, A.: A Simple Bleeding-Tube for Obtaining Specimens for the Wassermann Reaction, *THE JOURNAL*, May 25, 1912, p. 1579.
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 Gammeitoff, S. A.: Modified Technic for Wassermann Reaction, *Hospitaltid.*, April 12, 1912.
 Ballenger and Elder: Procuring Blood for the Wassermann Reaction Test, *THE JOURNAL*, June 8, 1912, p. 1773.

LANGENBECK'S TRIANGLE, AND COLORING MATTER OF THE LOBSTER

To the Editor:—Will you kindly describe, if convenient: (1) Langenbeck's triangle, and its application in surgery; (2) the chemical change causing the change of color from black to red in crustaceans, on boiling.

R. S. PORTER, M.D., Fort William H. Seward, Alaska.

ANSWER.—1. Langenbeck's triangle is formed by lines drawn (a) from the anterior superior spine of the ilium to the outer side of the great trochanter, (b) to the surgical neck of the femur, (c) a line connecting the first two. The area enclosed by these lines is the hip-joint area.

2. According to the researches of McMunn, a substance called cyano-crystalline is found in the shell of the lobster. This substance turns red on boiling or by the action of acids. So far as we know, the reason of this change of color has not been determined.

INSIGNIA FOR PHYSICIANS' AUTOMOBILES

To the Editor:—Has the American Medical Association or *THE JOURNAL* recommended any form of physician's mark for use on an automobile? If so, I would like a description of it. What is the common and ethical mark for this use?
 E. L. L.

ANSWER.—Our reply answers not only this correspondent but also a number of other inquiries recently received concerning an automobile emblem. The American Medical Association has not adopted a mark for members to use on their machines. *THE JOURNAL*, Aug. 27, 1910, p. 795, replying to a query concerning the restriction of the use of the red cross and suggesting a green cross as an insignia for physicians' automobiles said in part as follows: "The executive committee of the American National Red Cross . . . requested all hospitals, health departments and like institutions to refrain from the use of the red cross in order to avoid confusion, and suggested as a substitute some other insignia, such as a green Saint Andrew's cross on a white ground. Congress, at its last session, restricted the use of the red cross to the American National Red Cross . . . and prohibited organizations from adopting this emblem after the passage of the law.

. . . The green St. Andrew's cross on a white ground would be a proper badge for physicians' automobiles, hospital ambulances, etc., and could be adopted by agreement with authorities." A manufacturer advertises an emblem of this design in *THE JOURNAL*.

While the Association has not approved any mark for physicians' automobiles, many local physicians' automobile clubs have designs of their own which are recognized and accorded certain privileges by the local police authorities. A general emblem would serve only to indicate that the owner of the car is a physician.

PASTIA'S SCARLET FEVER SIGN

To the Editor:—Please describe Pastia's sign in scarlet fever referred to in Taubles' series as reported in *THE JOURNAL*, August 3, p. 397.
 M. W. LAYMAN, M.D., Williamsport, Md.

ANSWER.—Taubles states that Pastia's sign, as described by the discoverer, consists in an intense, continuous linear exanthem localized in the skin folds of the anterior aspect of the elbow. It is of a deep rose color, becoming darker in time and after several days even ecchymotic. The lines, usually from two to four, vary in number, and the skin between the lines presents the rash that is seen on the rest of the body. To this description Taubles adds that, first, the sign is occasionally visible in some or all of the other flexures, as the base of the neck, wrist, axilla, groin, nates, popliteal folds; and, secondly, the red stripes of the sign can be caused to stand out in striking contrast by exerting gentle pressure on the skin and then quickly removing the pressure, whereupon the skin surrounding the lines will be temporarily pale and the lines will be seen as intensely red.

TREATMENT OF FURUNCLES

To the Editor:—Is there any preventive for yearly crops of furuncles? They come at all seasons and there seem to be no predisposing causes.
 F. B. BAIRD, M.D., Philadelphia.

ANSWER.—We know of no preventive of recurring furuncles, unless they can be shown to be due to some definite and removable cause. Diabetes, nephritis and anemia have frequently a predisposing influence and should receive appropriate general treatment. The drinking of fresh brewer's yeast, from one to two ounces daily in several doses, is sometimes beneficial. Careful cleansing of the skin and protection from irritation are appropriate. We would suggest the use of an autogenous vaccine prepared from the discharge of the furuncles. Individual furuncles can be aborted by extracting the central hair and introducing as deep into the follicle as possible without causing pain a fine probe which has been dipped into pure phenol (carbolic acid), and then touching the apex of the boil with liquid phenol; or, better, by injecting with a hypodermic syringe a drop of liquefied phenol into the base of the boil.

DRESSING FOR LABORATORY DESKS

To the Editor:—I saw in *THE JOURNAL*, two or three years ago, a formula for dressing the tops of wooden desks in a chemical laboratory so as to make them resistant to ordinary reagents. I cannot find the article now. Please give me the reference.

SAMUEL CODMAN, Hwaiyuan Anhwei, China.

ANSWER.—The formula for the dressing for laboratory desks is described in *THE JOURNAL*, May 7, 1910, p. 1562.

TREATMENT OF RHUS POISONING

To the Editor:—Some time ago there was quite a discussion in *THE JOURNAL* on poison-ivy and the treatment best suited to counteract the effects of it, in which some useless and some harmful advice was given by various writers (Sept. 30, 1911, p. 1151; Oct. 14, 1911, p. 1304, and Oct. 21, 1911, p. 1385). I would call the attention of the profession to a small book written and published by Annie Oakes Huntington, Glen Road, Jamaica Plain, Mass. This book covers the subject thoroughly and effectively, and will be of use to anyone interested in the subject. Its cost is 75 cents.

On treatment I will quote: "Soap, water and a scrubbing-brush seem altogether too simple a method for treatment to advise for the painful eruption brought on by handling these two poisonous plants (poison-ivy and swamp sumach), yet if we begin with this old-fashioned country remedy and study the various methods of treatment from one generation to another, we return at last through the most recent scientific investigations to our original starting-point. The only effective measures are preventive ones; the only remedy is a wash which mechanically removes the poisonous oil from the skin. In this lies the sum and substance of the entire method of treatment."

Your patients will much appreciate your having the information contained in this little volume of fifty-three pages when they call on you for treatment of skin irritation caused by exposure to poison-ivy.
 ANDREW WILSON, M.D., Wheeling, W. Va.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ILLINOIS: Collisium Annex, Chicago, September 24-26. Sec., Dr. James A. Egan, Springfield.
Iowa: Capitol Bldg., Des Moines, September 11-13. Sec., Dr. Gullford H. Sumner, State House.
MASSACHUSETTS: State House, Boston, September 10-12. Sec., Dr. Edwin B. Harvey, Room 159, State House.
NEW YORK: September 17-20. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

Delaware June Report

Dr. Henry W. Briggs, Secretary of the Medical Council of Delaware, reports the written examinations held by the regular and homeopathic boards at Dover and Wilmington, June 18-20, 1912. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. At the examination held by the regular board at Dover, the total number of candidates examined was 16 of whom 15 passed and 1 failed. Five candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
State University of Iowa, College of Medicine.....	(1912)		85.8
Baltimore Medical College.....	(1906)		76.5
Maryland Medical College.....	(1912)		85
University of Pennsylvania.....	(1881) 81.7; (1912)		84.7, 86.7
Medico-Chirurgical College, Philadelphia.....	(1912)		88.4
Jefferson Medical College (1890) 78; (1912) 86, 86.7, 86.7, 87.8, 88.2, 93.5.			
Woman's Medical College of Pennsylvania.....	(1911)		86
FAILED			
University of Naples, Italy.....	(1906)		72.4

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Baltimore.....	(1904)	Maryland
Johns Hopkins University, Baltimore.....	(1909)	Maryland
University of Pennsylvania (1882) (1905) Pennsylvania;	(1889)	New York

At the examination held by the homeopathic board at Wilmington, two candidates were licensed, one by examination and one through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Hahnemann Medical College of Philadelphia.....	(1912)		92

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Hahnemann Medical College of Philadelphia.....	(1907)	Penna.

Louisiana May Report

Dr. A. B. Brown, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, May 30 to June 1, 1912. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 123, of whom 94 passed and 29 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Alabama (1911) 84.3, 93.7; (1912) 80, 82.1, 82.5, 84.1, 85.2.			
Tulane University of Louisiana (1910) 80.8; (1912) 75, 75.2, 76.4, 76.6, 77, 77.5, 77.7, 77.8, 78.2, 78.3, 78.7, 79.1, 79.1, 79.3, 79.7, 80.6, 80.8, 81.1, 81.1, 81.2, 81.3, 81.5, 81.5, 81.6, 81.6, 81.9, 81.9, 82, 82.5, 82.9, 83.1, 83.2, 83.2, 83.2, 83.2, 83.3, 83.4, 83.4, 83.4, 83.5, 83.6, 83.8, 84, 84.4, 84.8, 85.3, 85.3, 85.4, 86.1, 86.1, 86.8, 87.2, 87.3, 87.6, 87.8, 88.1, 88.2, 88.6, 88.9, 89.1, 89.2, 89.3, 89.8, 90.2, 90.4, 91.2, 91.5, 91.7, 91.9, 92.6, 95.			
Memphis Hospital Medical College (1902) 79.2; (1910) 76.5; (1911) 75.2, 81.8; (1912) 75.5, 78, 78.2, 79.8, 84.2, 84.4, 84.8.			
Vanderbilt University	(1912)		75.8
Meharry Medical College.....	(1912)		79.2, 81.6
University of Virginia.....	(1901)		86.9
FAILED			
Atlanta School of Medicine.....	(1911)		74.1
University of Louisville.....	(1909) 65.2; (1910)		51.3
Louisville and Hospital Medical College.....	(1908)		62.5
Tulane University of Louisiana (1898) 56; (1902) 67.4; (1912) 73.2, 73.6, 74, 74.4.			
St. Louis College of Physicians and Surgeons....	(1907)		68.8

Memphis Hospital Medical College (1899) 51.5; (1908) 57.2, 61.9; (1910) 70.8; (1911) 37.5, 48.2, 59.8, 61.9, 64; (1912) 17.3.* 51.9, 64.6, 66.7 (1912).†
University of Tennessee..... (1912) 65.6, 71.75
College of Physicians and Surgeons, Memphis..... (1911) 53.2
Fort Worth School of Medicine..... (1911) 61.7

* Did not complete examination.
† Caught with book during anatomy examination.

The following questions were asked:

ANATOMY

1. How many tarsal bones are there? Name them. 2. Describe briefly the cervical vertebrae. 3. Give origin and insertion of pectoralis minor, coraco brachialis, pronator radii teres, sartorius and biceps. 4. Name the branches of abdominal aorta. 5. Give the relations of the femoral vessels in Scarpa's triangle. 6. Describe the blood-supply of the cecum and vermiform appendix. 7. What are the relations of the deep epigastric artery of (a) an oblique inguinal hernia, (b) a direct inguinal hernia? 8. What is Gimbernat's ligament? 9. Tell briefly what you know about the fifth cranial nerve. 10. Name and describe briefly the membranes which surround the spinal cord.

PHYSIOLOGY

1. Describe the anatomic and histologic structure of (a) the neuronal cell-body, (b) the axone, (c) What is the function of each structure? 2. What is the tactile sense? (a) Where is it most acute? (b) What is its cognitional value? (c) What is its relation to the central nervous system? 3. Give the general characteristics of urine as to (a) quantity, (b) reaction, (c) specific gravity, (d) color. When do these vary? 4. Name the enzymes of the pancreatic juice and describe separately the part each plays in digestion. 5. What factors, chemical and physical, are concerned in gastric digestion? 6. Describe briefly the chemical changes, the thermal changes, the electric changes, changes of form, in muscular tissues, when in a state of activity. 7. What is the character of contraction (a) in non-striated involuntary muscle; (b) in striated voluntary muscles? (c) Give examples of each. 8. What are the functions of the blood plasma and of the blood corpuscles? 9. Describe the types of normal respiration and how influenced by (a) age, (b) sex, (c) race. 10. What forces are involved in the circulation of the blood in the arteries and in the capillaries?

PATHOLOGY

1. What post-mortem changes occur in the tissues? 2. What is the cause of a rise in body temperature? Explain the mechanism. 3. Define atrophy. Give the varieties of atrophy. 4. Differentiate fatty infiltration and fatty degeneration. 5. Define hyperemia, anemia, leukemia. 6. Explain what is meant by the terms physiologic and pathologic leukocytosis, respectively. State whether a leukocytosis is present in the following diseases: typhoid fever, malarial fever, appendicitis, acute miliary tuberculosis. 7. What is an embolus? Mention frequent sources of emboli and state the sequels of embolism. 8. Describe, in the order of their occurrence, the cardinal signs of inflammation and explain them. State also the terminations of inflammation. 9. Describe the reparative processes following the fracture of a long bone. 10. What is the line of demarcation in gangrene?

CHEMISTRY

1. What is the chemical composition of bone? 2. Mention six elements used in medicine and give their symbols and atomic weight. 3. Define (a) analysis, (b) synthesis, (c) cohesion, (d) chemical affinity. 4. Convert 67 degrees Fahrenheit into Centigrade. 5. What is the process termed when oxygen unites with another element? 6. Give a test for diacetic acid and state its clinical significance. 7. What is Ehrlich's diazo-reaction and state its clinical significance. 8. Give a test for indican and state its clinical significance. 9. Give an emergency method of preparing ferric hydroxid for use in a case of poisoning by arsenic. 10. Give a test for HCl in the gastric contents.

THERAPEUTICS

1. What are digestants? (a) Name the principal official digestants. (b) What are the therapeutic uses of each? 2. What are the indications and contra-indications to the use of opium? 3. What is serum therapy, and how would you treat a severe case of laryngeal diphtheria and what would be your prophylaxis in a suspected case of tetanus? 4. What are the therapeutic uses, locally and internally, of atropin sulphate? 5. Mention four ways in which antipyretics reduce body temperature. 6. How would you treat a case of arteriosclerosis? 7. Give the therapeutic uses of the different preparations of mercury. 8. How would you treat a case of syphilis in its different stages? 9. What are the indications and contra-indications in the use of ergot? 10. How would you treat a case of hookworm disease?

PHYSICAL DIAGNOSIS

1. Define cyanosis and give its causes. 2. Define vocal fremitus and state its significance in pulmonary disease. 3. What are the essentially different sounds given by percussion over healthy lung? 4. What are the physical signs of pulmonary solidification? 5. In what condition does bronchial breathing take the place of vesicular breathing? 6. Differentiate organic and functional heart murmurs. 7. What are the causes and treatment of palpitation of the heart? 8. What are the causes of endocarditis? 9. Why is dyspnea caused by disorganization of the mitral valves? 10. What are the signs of impending death?

SURGERY

1. How would you treat a compound fracture, say of the tibia? 2. What is talipes equino-varus? Give treatment. 3. Give diagnosis and treatment of epithelioma of the lower lip. 4. Give symptoms and treatment of ulcer of the pylorus. 5. A woman comes to you with a lump in her breast. What steps would you take in order to make a diagnosis and how would you treat it? 6. Give signs, symptoms and treatment of aneurysm of the popliteal artery. 7. What is a wen? How would you treat it? 8. What is varicocele? How would you treat it? 9. Give symptoms and treatment of

enlarged prostate. 10. Describe briefly the Bassini operation for inguinal hernia.

OBSTETRICS

1. Describe the fetal circulation. 2. What are the conjugate and transverse diameters of the inlet and outlet of the pelvis? Give the anatomical points of the measurements. 3. Enumerate the causes of delayed labor, (b) the dangers, (c) management. 4. State the causes of post-partum hemorrhage and the treatment. 5. Describe the third stage of labor, the dangers which attend it and the methods of conducting it. 6. Mention two conditions liable to cause prolapse of the cord and the treatment for one condition mentioned. 7. What can be determined by external palpation of the pregnant woman at term? 8. Give causes, (b) diagnosis, (c) mechanism and (d) management of a face presentation. 9. Name the diameters of the fetal head. 10. Describe an embryo at the second month.

GYNECOLOGY

1. Give a description of the physiology of menstruation. 2. What are the causes of hemorrhage from the non-pregnant uterus? Give the treatment for any two of the number which you mention. 3. What is urethral caruncle and its treatment? 4. Give the etiology and treatment of acute general cystitis. 5. Why is gonorrhea in women a grave disease? 6. Define salpingitis and state its causes and pathology. 7. What are the most common benign growths found in the cavity of the uterus? 8. Give the symptoms of ovarian cyst. What is the treatment? 9. Give the physical signs of cancer of the uterus at an early stage. 10. Describe the technic for supravaginal hysterectomy.

HYGIENE

1. Name and describe briefly the different methods of domestic water purification. 2. What are the most important foreign ingredients, organic and inorganic, in water? 3. What are the major sanitary details in the production and marketing of pure milk? 4. What is Pasteurization of milk and what are its advantages and disadvantages? 5. What are the relative merits of formaldehyd and sulphur dioxid as disinfectants, and in what form and in what manner are they applied? 6. What are the sources of the impurities in air, and what relation do these impurities bear to health? 7. What sanitary measures should be instituted in the care of a typhoid patient? 8. What is understood by (a) natural immunity, (b) acquired immunity? (c) Give examples. (d) What are the causes of immunity? 9. How is tuberculosis detected in the cow? 10. What diseases of the (a) skin, (b) spine, (c) respiratory tract, (d) digestive system, (e) throat, are especially prevalent in school children, and how would you detect eye-strain, adenoids, trachoma and infectious catarrhal conjunctivitis?

North Carolina June Report

Dr. Benjamin K. Hays, secretary of the North Carolina State Board of Medical Examiners, reports the written and oral examination held at Hendersonville, June 11, 1912. The number of subjects examined in was 14; percentage required to pass, 80, and not less than 35 in any one branch. The total number of candidates examined was 124, of whom 87 passed and 37 failed. Twenty-two candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Examined.
George Washington University.....	(1912)		1
Howard University, Washington, D. C.....	(1910)		1
Atlanta School of Medicine.....	(1912)		1
Atlanta College of Physicians and Surgeons.....	(1911)		1
University of Louisville.....	(1911) (1912)		2
Indiana Medical College, School of Medicine of Purdue University.....	(1906)		1*
University of Maryland.....	(1907, 1) (1912, 9)		10
Johns Hopkins University.....	(1906)		1
Tulane University of Louisiana.....	(1912)		2
Maryland Medical College.....	(1912)		1
Marion-Sims College of Medicine.....	(1900)		1
North Carolina Medical College.....	(1910, 2) (1912, 18)		20
Leonard Medical School.....	(1912)		8
Long Island College Hospital.....	(1909)		1
Jefferson Medical College.....	(1912)		13
Woman's Medical College of Pennsylvania.....	(1912)		1
Medical College of the State of South Carolina..	(1912)		1
Knoxville Medical College.....	(1903)		1
Tennessee Medical College.....	(1904)		1
Vanderbilt University.....	(1912)		1
University of Virginia.....	(1910) (1911) (1912)		3
Medical College of Virginia.....	(1910, 1) (1912, 3)		4
University Coll. of Med., Richmond.....	(1911, 1) (1912, 10)		11

FAILED

Howard University, Washington, D. C.....	(1911)	1
George Washington University.....	(1911)	1
College of Physicians and Surgeons, Baltimore...	(1910)	1
University of Maryland.....	(1912)	2
College of Physicians and Surgeons, Boston.....	(1909)	1
North Carolina Medical College.....	(1905, 1) (1912, 5)	6
Leonard School of Med... (1910, 1) (1911, 5) (1912, 6)		12
Lincoln Memorial University.....	(1911) (1912)	2
Chattanooga Medical College.....	(1903) (1908)	2
Meharry Medical College.....	(1912)	2
University of West Tennessee.....	(1912)	1
Knoxville Medical College.....	(1908)	1
University of Nashville.....	(1908)	1
University of the South.....	(1908)	1
Medical College of Virginia.....	(1905) (1910)	2
University College of Medicine, Richmond.....	(1911)	1

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University.....	(1907)	Dist. Colum.
Columbian College, Med. Dept., Washington, D. C. (1900)		Dist. Colum.
Atlanta School of Medicine.....	(1906)	Georgia
Medical College of Georgia.....	(1899)	Georgia
Southern Medical College, Atlanta.....	(1894)	Georgia
Rush Medical College.....	(1904)	Illinois
Baltimore Medical College.....	(1905)	Dist. Colum.
Harvard Medical School.....	(1888)	Mass.
University of Maryland.....	(1904) (1909)	Maryland
Tennessee Medical College.....	(1900)	Tennessee
Cornell University Medical College.....	(1905)	Mississippi
University and Bellevue Hospital Medical College (1902)		New York
Jefferson Medical College (1876) Pennsylvania; (1909) Ohio; (1909) Oklahoma; (1911) Delaware.		
Chattanooga Medical College.....	(1904)	Tennessee
University of Tennessee.....	(1908)	S. Carolina
Vanderbilt University.....	(1908)	Washington
University of Virginia.....	(1888)	New Jersey
Medical College of Virginia.....	(1908)	Virginia

* Took oral examination.

Wisconsin May Report

Dr. John M. Beffel, Secretary of the Wisconsin State Board of Medical Examiners, reports the written examination held at Milwaukee, May 28-30, 1912. The number of subjects examined in was 20; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 59 of whom 48 passed, 6 failed and 5 were conditioned. Twenty-one candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Bennett Medical College.....	(1912)		75, 82
Northwestern University Medical School.....	(1910)		79
Rush Medical College.....	(1911) 92; (1912)		81
College of Physicians and Surgeons, Chicago.....	(1912)		85
Washington University, St. Louis.....	(1911)		80
Jefferson Medical College.....	(1911)		80
Marquette University, Milwaukee (1911) 76, 78; (1912) 75, 76, 78, 78, 79, 79, 79, 80, 80, 80, 81, 81, 81, 83, 83, 84, 84, 85, 85, 86, 86, 87, 88, 88, 89, 90.			
Wisconsin College of Physicians and Surgeons (1912)			81, 83, 84, 86, 85, 87, 87, 87, 88.
Queen's University, Kingston, Ontario.....	(1912)		82
University of Toronto, Ontario.....	(1905)		82

FAILED

Bennett Medical College.....	(1911)	65
Sioux City College of Medicine.....	(1906)	65
Marquette University, Milwaukee.....	(1912)	65, 68, 73
Wisconsin College of Physicians and Surgeons.....	(1912)	72

CONDITIONED

Chicago College of Medicine and Surgery.....	(1910)	79 *
Bennett Medical College.....	(1912)	76, † 80 †
Hahnemann Medical College and Hospital, Chicago.....	(1910)	80 †
University of Pittsburgh.....	(1908)	81 †

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Yale Medical School.....	(1908)	Vermont
Hahnemann Medical College and Hospital, Chicago (1888)		Iowa;
(1907) Illinois.		
Northwestern University Medical School (1890) (1902) (1909, 2) (1910) Illinois		
Rush Medical College, Chicago... (1907) (1909) (1911)		Illinois
College of Medicine and Surgery, Chicago.....	(1906)	Illinois
College of Phys. and Surg. Chicago.....	(1906) (1910)	Illinois
Chicago College of Med. and Surg.....	(1910)	Illinois
Drake University.....	(1906)	Iowa
State University of Iowa, College of Medicine... (1911)		Iowa
Sioux City College of Medicine.....	(1904)	Iowa
University of Minnesota, Coll. of Med. and Surg. (1905)		Minnesota
Medical College of Virginia.....	(1909)	Virginia

* Conditioned in anatomy and chemistry. † Conditioned in pathology, bacteriology and histology.

Wisconsin July Reciprocity Report

Dr. John M. Beffel, secretary of the Wisconsin State Board of Medical Examiners, reports that at the meeting held at Madison, July 9-11, 1912, eleven candidates were licensed through reciprocity including one osteopath. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University Medical School (1908, 2) (1910) (1911) Illinois.		
Bennett Medical College.....	(1910)	Illinois
Drake University.....	(1883)	Illinois
Hospital College of Medicine, Louisville.....	(1892)	Indiana
University of Michigan, Dept. of Med. and Surg. (1911)		Michigan
Jefferson Medical College.....	(1862)	Illinois
Marquette University, Milwaukee.....	(1908)	N. Dakota

Miscellany

What Is the County Medical Society and Why Should We Join It?

Men in the same pursuit often feel the need to get together to discuss common problems, to exchange views and experiences, to gain inspiration. It is this necessity that brings business men and professional men together. What profession has more problems to meet every hour of the day than the medical profession? First the problems pertaining to medical practice in general. The constant changes in the science and art of practice, the learning and unlearning of supposed truths, the ever shifting field of practice, the transitions from old to new conceptions—each gives rise to new problems which must be solved and can be solved only by free discussion and interchange of ideas and experiences. The young doctor brings his theory and the old doctor brings his mature experience, and they swap, each profiting by the deal. The county society, therefore, is the doctors' exchange, and a seat in this exchange should be as valuable as in the stock market, for a profitable deal often means financial success. And, by the way, this is the only kind of stock—the stock of knowledge—that the doctors should deal in, for every other kind usually spells r-u-i-n.

Business men often get together to protect their guild against unfair competition or other conditions inimical to their business interests. Medical practice is a business and requires the same kind of guardianship. The underpaid doctor, the "cheap" doctor, the lodge doctor, the commercial school, the school with a low standard of medical education, the quack, the faker, the patent medicine man, the quack druggist—these are the enemies of the legitimate practitioner, and these enemies we can fight only by combining our forces. The county society is the headquarters of our fighting army.

Intelligent, broad-minded men often get together to discuss and take action on matters pertaining to public welfare. They take up politics, industrial conditions and other social problems and by their discussion and cooperative action frequently mold public opinion and help to direct public policy. Is there any other profession that can boast of a larger number of public-spirited men than the medical profession? Who looks after the health of the community? Who makes the town and the city habitable? Who saves the babies from untimely death? The doctor. Who transformed pest-holes into summer resorts? Who made commerce between these same pest-holes and the rest of the world possible? Who brought about the successful issue of the greatest engineering undertaking the world has ever witnessed? The doctor. With such great achievements to our credit, it is only proper that the doctors should get together to encourage this social service.

The county medical society should be a civic center.

Men of like tastes often get together for social intercourse. During their busy hours they have no time or opportunity to meet in a social way. To fill this gap, clubs of various kinds are formed. The doctors, more than any other people, stand in need of social intercourse. The opportunities of meeting for a friendly chat are so few that unless satisfactory arrangements are made, they may go through life perfect strangers to each other. Such opportunities are provided by the county medical society.

The county medical society should be the social center.

To perfect the organization of the doctors in this country, the county medical society was made the unit. Therefore, no doctor can belong to the American Medical Association unless he is a member in good standing of his county society. As a matter of fact the American Medical Association has no independent existence. It is the association of county and state societies which control the policies of the Association through their delegates—truly, a democratic arrangement. Every doctor, therefore, no matter how humble, may help to determine the policies of this great medical body by his influence in the county society.—*Delaware State Medical Journal*.

Examination of Rats for Plague.—Dr. G. W. McCoy (*Public Health Reports*, July 26, 1912), gives the technic for the examination of rats for evidence of the plague. He quotes the Indian Plague Commission to the effect that the naked eye is markedly superior to the microscopic method in the diagnosis, for in all except a few atypical cases the plague lesions are characteristic. The most noticeable post-mortem appearance is the engorgement of the subcutaneous blood-vessels, together with a diffuse pink color of the subcutaneous muscles, which have a peculiar dry, waxy translucency, usually distributed over the whole surface of the body but occasionally confined to the side on which the primary bubo is found. The bubo, when present in typical form, is sufficient for diagnosis. Marked injection surrounds it and sometimes there is hemorrhagic infiltration. The gland itself feels firm but is usually caseous or occasionally hemorrhagic. In the liver an apparent fatty change is encountered, which is found to be due to necrosis. White spots of the size of a pin-point are sometimes found which give the surface of the organ a stippled appearance as if dusted over with gray pepper. The spleen is markedly enlarged, firm, friable, rather dark in color, and occasionally presents small granules under the capsule. Pleural effusion is a sign of great importance when associated with other suspicious lesions. It is serous in character, usually clear, though occasionally blood-stained. Effusion is rare in other diseases in rats. Plague infection may be present without recognizable gross lesions, perhaps once or twice in 100 cases. Inoculations in such instances may demonstrate *B. pestis*. Microscopic examination, in doubtful cases, is important, as is the making of cultures. The method of examination is as follows: The rats are immersed in any convenient antiseptic to kill fleas and other ectoparasites. They are then nailed by their feet to a shingle and the skin is reflected from the whole front of the body and neck so as to expose the cervical, axillary and inguinal regions. The thoracic and abdominal cavities are then opened with scissors. Careful search for buboes should be made in the regions of the various peripheral lymph-nodes, and the lungs, liver, spleen, etc., examined for the signs mentioned above.

Physical Welfare of Policyholders.—The issue as to whether or not it is possible for each company to do something toward promoting the physical welfare of its policyholders is squarely before the life insurance managements, and, after reasonable investigation and consideration, should be squarely met, according to E. L. Fisk (*New York Med. Jour.*, July 13). An educational campaign can be economically and effectively carried on by any company. The mere facts presented in a health bulletin may of themselves be without power to influence the average individual, but the practical business idea behind the issuance of the bulletin may arrest attention and give to the facts a potent suggestive value. Bad living habits and neglect of the body until disease becomes obvious are the results, partly of ignorance, and partly of fashion and the suggestion of example. If the life companies persistently pound into the brains of 22,000,000 people in this country the simple, elementary principles that underlie right living and form the basis of preventive medicine in its broadest sense, they will come very near to governing the fashion in these matters. Not only will they reach the individual policyholder, but they should reach and activate those thinking groups which, in every community, so largely mold and guide public opinion. By the systematic dissemination of information, much of which is locked up in medical literature and reaches the public fitfully, and often in unscientific and exaggerated, or unintelligible form, we may bring about a condition where ignorance along certain lines will be regarded as shameful, and many unhealthful practices will be looked on as implying such ignorance. The life companies have already accumulated valuable information regarding the influence of living habits and various impairments which lower the resistance to disease. A vast mine of information in their possession is now being worked over, analyzed, and interpreted according to scientific standards. By imparting such information to policyholders as it becomes available, much that is debatable in matters of personal hygiene could

be cleared up, and the newly born science of medical selection would enjoy the inestimable privilege of growing up side by side with the still young science of preventive medicine, the giant of the future. By cooperation with public health authorities, by urging policyholders to support health legislation, and to obey existing public health laws, which can never be enforced without the consent of an enlightened public mind, by promoting health leagues in the thousands of communities where policyholders, examiners, and agents are available for cooperation, the death rate among insured lives, as well as that in the general population, would be favorably affected. Education and organization could move abreast. All such activities should encourage a closer relationship between policyholder and company and diminish the waste to the insuring public and to the companies, through excessive lapsing and twisting of policies, besides increasing the volume of new business by popularizing insurance, and rendering it actually "life" insurance, as well as "death" insurance.

The Burden of the Feeble-Minded.—The history of Emma W., at one time an inmate of Letchworth Village, a New York institution for the feeble-minded, should be convincing that it is bad policy to let the feeble-minded drift in and out of the almshouse; that it is but humanity and economy to segregate them, and to strike at the causes of mental defect. Emma W. came to life in an almshouse, stamped with illegitimacy and feeble-mindedness. Her family's record reads: mother, two brothers, and a sister feeble-minded; mother's

face a sheen from precipitation of the fuchsin, and measure usually from 3 to 4 mm. in diameter. If typhoid-like colonies appear on the plates fish five or six of them, and inoculate tubes of Russell's medium in the following manner:

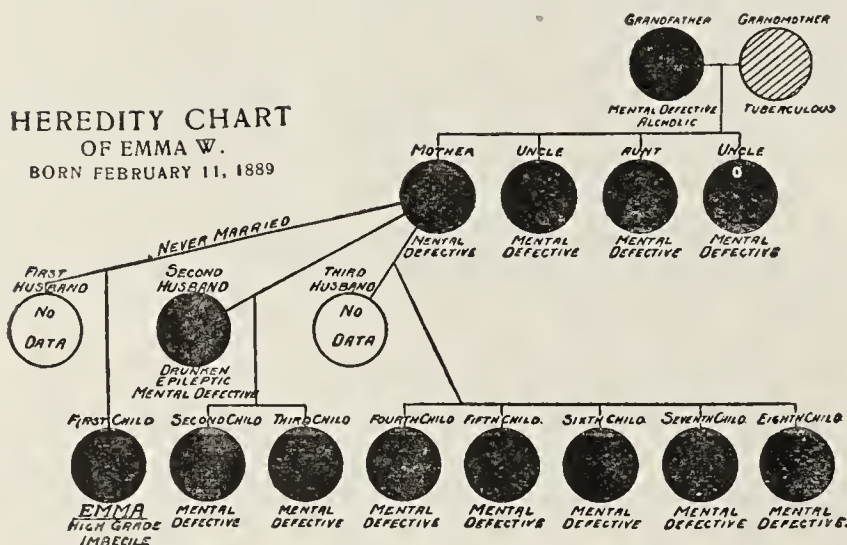
Touch the colony with a sterilized platinum needle, make two streaks along the slanted surface of the medium in the tube and then stab the needle down through the center of the block of medium to the bottom of the tube. Incubate the inoculated tubes of Russell's medium for from twenty to twenty-four hours and then examine.

On Russell's medium inoculated in this way typhoid bacilli leave the surface of the medium blue but change the medium in the butt of the tube to a bright red; colon bacilli redden both the surface and the depths of the medium and cause the formation of gas bubbles throughout the depths of the medium; paratyphoid bacilli leave the surface blue, but produce redness and gas bubbles in the butt of the tube; dysentery bacilli leave the surface blue and change the medium in the butt of the tube to claret color quite readily distinguishable from the brighter and more pronounced redness produced by typhoid bacilli.—L. L. Lumsden and A. M. Stimson in *Public Health Reports*.

French Hospital Ship for Fisherman on The Banks.—*La Société des Oeuvres de Mer*, with headquarters in Paris, maintains a hospital ship, the *Saint François d'Assise*, for the benefit of the French fishermen on the Newfoundland Banks. It is a 600 ton steamship, carries a crew of twenty-seven men, including a chaplain, and a physician, and has beds for thirty-six patients with additional accommodations for shipwrecked sailors or patients suffering from minor injuries. The ship leaves France in the spring soon after the annual exodus of fishermen to the banks and cruises in that region during the summer. Patients are taken aboard and cared for, and from time to time the boat puts into St. Pierre where patients can be transferred to the government hospital. At the close of the fishing season in September it returns to France. In addition to the work of relieving the sick, the hospital ship sometimes picks up wrecked crews and acts as a floating post-office for the fishing fleet. While chiefly interested in the welfare of French fishermen, the society's hospital ship ministers alike to all nationalities on the banks. No charge is made for medical services, or supplies. In 1911, 1,143 vessels were spoken; seventy patients were admitted to the hospital; 420 consultations at sea were held; medicines were distributed in 253 instances; fourteen shipwrecked seamen were picked up; 228 foreign vessels were visited by the *Saint François d'Assise* and its sister ship, which cruises on the Iceland fishing ground and the North Sea. Of these sixteen were American vessels. The expenses are met by a small subsidy from the French government and by private subscriptions.

Medicine in China.—Dr. M. R. Edwards, the head of the Shanghai branch of the Harvard Medical School, found on investigation scarcely more than 2,000 trained native physicians and not more than 1,000 foreign physicians in the whole empire. In the above-mentioned institution a department of preventive medicine will educate native public health officials, who alone can best overcome the prejudices of the ignorant classes in time of pestilence and epidemics. A research laboratory will also be established where the diseases of the Orient will be studied by a group of men devoting their whole time to this work. It is also expected that the laboratories will offer facilities for research to men coming for independent study from other countries, and will aim in every way possible to assist in the development and advance of medical science throughout China. This new Harvard school marks a distinct advance in the facilities for obtaining a sound medical education offered to Chinese. It has, however, been foreshadowed by the Union Medical schools in Peking and Shantung in the north and by the University of Pennsylvania school in Canton and the Hong Kong University. The teaching in the new Harvard school and also that in Hong Kong University is conducted in English. The requirements for admission are a thorough knowledge of English and an elementary scientific training.

HEREDITY CHART OF EMMA W. BORN FEBRUARY 11, 1889



father feeble-minded and mother's mother tuberculous. When a second child was expected the mother was induced by well-meaning people to marry the father, who was a drunken epileptic. Two children were born. Still later the same well-meaning people aided her to get a divorce in order to marry the father of another child about to be born. Since then four more have been born. All of these children are feeble-minded. Entire family, with exception of the oldest child, is at large. The accompanying chart, taken from *The Survey*, March 2, 1912, shows graphically her heredity.

Method of Examining Feces for Typhoid Bacilli.—Place about 5 gm. of the feces in a conical glass or other suitable vessel, add 15 or 20 c.c. of sterile physiologic salt solution or bouillon and agitate. Let stand one-half to one hour either at room temperature or, preferably, at incubator temperature (37 C.) in order to permit the heavy particles to settle. Deposit one or two drops of the supernatant fluid in the center of an Endo plate. With a right-angled glass rod distribute the drop over the entire surface of the plate and then rub the rod over the surface of a second, third, fourth, and fifth Endo plate. By carrying the spreader over the surfaces of several plates in this way, one or two of the plates will furnish abundant but sufficiently isolated colonies to permit "fishing." After inoculation place the plates inverted in the incubator, leave there for from twenty to twenty-four hours, and then examine. On the plates colonies of typhoid and paratyphoid bacilli will be transparent, colorless, dewdrop-like and usually from 1 to 2 mm. in diameter; while colonies of colon bacilli will be deep red, showing sometimes on the sur-

Book Notices

UROLOGY. The Diseases of the Urinary Tract in Men and Women. A Text-Book for Practitioners and Students. By Ramon Guiteras, M.D., Professor of Genito-Urinary Surgery, New York Post-Graduate Medical School. Two Volumes. Cloth. Price, \$12. Illustrated. New York: D. Appleton & Company, 1912.

The first volume of this work is devoted largely to general subjects such as the history of urology, the anatomy of the parts concerned, general arrangement of a specialist's office, care of instruments, history-taking, filing of records, methods of examination, general symptomatology, urinalysis, etc. One occasionally fails to find mention of some of the methods of examination, as, for instance, some of the color-tests of functional capacity of the kidneys, but as a rule the subjects are very well covered and the author deserves credit for the thorough and painstaking care which he has given to the minutest details—details which are of so much importance to every physician who wishes to succeed. There are so few who are able to develop unaided good systems of their own that this part of the work will be greatly appreciated.

In the last few chapters of this volume are discussed the anomalies of the kidney and ureter, movable kidney, kidney stone, tuberculosis of the kidney and operative surgery of the kidney. The second volume is devoted to the diseases of the bladder, the prostate, the urethra and its appendages, the scrotum, the cord, the testicles and the seminal vesicles; it includes a final chapter on lues. Throughout this volume the same attention to details is observed as in the first one.

While the views and work of others are not slighted, the author is constantly relating how and why he does things and that should be the real reason for writing a book: not to tell how someone else does things, but how the author himself does them. He may do many things better than someone else and he may do some things not so well, but in any case there is no use writing a book to tell what someone else knows. The characteristic feature of the work is that the author tells his own story and tells it well. He is very frank at times in stating his own ability, as for instance under the treatment of vesical calculus we find the following: "In men litholapaxy is preferable, as it is less dangerous to the patient. I do not employ this method, for I do not feel that I am in sufficiently good practice to undertake the operation as I have so few cases of the kind." Notwithstanding his diffidence, he has illustrated and described the technic of the operation very clearly.

There are 943 illustrations, most of them original. The general practitioner who is constantly called on to treat this class of cases, as well as the specialist, will find this a valuable work.

SYNTHESE DER ZELLBAUSTEINE IN PFLANZE UND TIER. Lösung des Problems der künstlichen Darstellung der Nahrungsstoffe. Von Professor Dr. Emil Abderhalden, Direktor des Physiologischen Institutes der Universität zu Halle a. S. Paper. Price, 3.60 marks. Berlin: Julius Springer, 1912.

Perhaps the author of this work is most widely known by his investigation of the problem of the absorption and utilization of iron which refuted the hypothesis of Bunge that only organic iron compounds could be utilized by the economy and showed on the other hand that the organic compounds are first broken down by the digestive juices and the iron converted into the ionic condition before it can be utilized by the organism.

It was an extension of this work on the organic iron compounds that led him to the discoveries and speculations embodied in the present work. Starting with the known dependence of the animal organism on already formed material furnished by plants for the "building-stones" from which its cells are to be constructed, the author proceeds to show the specific character of the materials furnished by the plant and the equally specific although different products which form a part of the animal cell. It is evident that in order to build up the specific compounds characteristic of animal life, the animal organism must reduce the complex ingredients of the nutrition derived from the vegetable to simpler forms.

Thus the complex carbohydrates represented by the different forms of starch are reduced to a simple monosaccharid, "glucose," before they are available for animal nutrition. In a similar way the animal organism takes fat of various composition, from various sources and after reducing it to glycerin and the various fatty acids, recombines it to make the fat peculiar to the individual animal. The same thing holds good for the proteins. They are broken up into their constituent amino-acids by the process of digestion. The protein of one animal will not fit the cell structure of another. Since it is evident that the organism uses the simple constituents of the protein molecule, it was of interest to determine if these "building-stones" could be found in the blood. Careful search of the blood and tissues failed to reveal the presence of these amino-acids. This leads the author to propose the hypothesis that the amino-acids are changed on absorption into the proteins of the blood by the agency of the intestinal epithelium. These new-formed proteins circulate in the blood as the common nutriment of the body cells. Each cell again digests the albumin molecule into the constituent amino-acids and from them reconstructs the specific protein which it needs for its own structure or to perform its special functions.

The relations of these processes are developed in various directions. The possibility of nourishing an animal completely on a simple mixture of glucose, fatty acids, glycerin, amino-acids and the products of digestion of nucleoproteins has been shown by experiment. The possibility of using such a mixture solves the problem of producing foodstuffs artificially, although the laboratory cannot yet compete economically with the vegetable world, and, as our author remarks, there would always remain the chance that by inadvertence one or other important building-stone might be forgotten in making the mixture.

In this monograph we have a very interesting and suggestive presentation of one of the important problems of science. It should be widely read and no doubt its influence in stimulating further research on this and allied subjects will be one of its greatest benefits.

NERVÖSE ANGSTZUSTÄNDE UND IHRE BEHANDLUNG. Von Dr. Wilhelm Stekel. Mit einem Vorworte von Professor Dr. Sigmund Freud. Second Edition. Paper. Price, 17 marks. Pp. 448. Berlin: Urban & Schwarzenberg, 1912.

This author, more Freudian than Freud himself, has often been the cause of bitter attacks against Freud's doctrines. And it cannot be denied that his statements are blunt—he means what he says and he says what he means. This volume is the first of a series devoted to disorders of the emotional and affective life, called by the author "parapathic diseases." In it he discusses anxiety-neurosis and anxiety-hysteria. His formula reads: "An individual who is unable to find his adequate and specific form of sexual satisfaction develops an anxiety-neurosis." Stekel is convinced that through the great activity of the wish-complexes there ensues a struggle between moral duty and erotic desire; the somatic and psychic conflict results in the building up of the clinical picture of the anxiety-neuroses. He is not certain that the anxiety is altogether a conversion of the sexual libido, as Freud maintains, or whether the latter only plays an important rôle in the production of the anxiety-neurosis. For Stekel there exists neither neurasthenia nor psychasthenia—only mental states capable of producing somatic disturbances in those who are predisposed thereto by heredity, environment, education, or the disorders of the internal secretions. In the clinical portion of the book he endeavors to explain every symptom on the basis of sexuality; after diligent search he always discovers infantile sexual experiences. For him every important symptom is the direct result of either unsatisfied or perverted sexual desire, among which he includes mental onanism and substitution-onanism—incest-fantasies. Anxiety, in short, is the fear of one's sexual libido, or a fear of the criminal ego.

The efforts of treatment in the anxiety-neuroses, according to Stekel, must be directed toward weakening sexual excitement and inhibiting criminality by transferring the suppressed complexes from the submerged into the conscious state. For, he maintains, the free, floating anxiety may attach itself to another object and may thus reappear in

consciousness under false associations. He opposes the Weir Mitchell rest-cure on the ground that it does more harm than good by permitting patients to brood over their ailments. Another objection is that through the enforced rest in bed the libido is heightened and the patient is likely to indulge in excessive masturbation. Except for the chlorotic, who must be fed and put to bed, he condemns the entire procedure as worthless. Further, he ridicules Dubois' philosophy and his fear of sexual subjects; on the contrary, he believes in frank talks on any subject by the Freud free association method.

The concluding chapter on treatment and prophylaxis is radical and opposed to conventional teachings. Among other statements we find the following: "The tendency to instruct the young in matters sexual is overdone and may do more harm than good."

One who has not read any of Freud's writings may find this book shocking, but those familiar with Freud's theories may acclaim this as a rather conservative contribution to Freudian literature. There is much food for reflection in this interesting and well-written monograph.

LOCAL ANESTHESIA IN DENTISTRY. With Special Reference to the Mucous and Conductive Methods. A Concise Guide for Dentists, Surgeons and Students. By Prof. Dr. Guido Fischer, Director of the Royal Dental Institute of the University of Marburg. Translated from the Second German Edition by Richard H. Riethmüller, Ph.D. Cloth. Price, \$4. Pp. 202, with 105 illustrations. Philadelphia: Lea & Febiger, 1912.

This is a summary of the history, experiment, evolution and results of the different drugs used for the original method of freezing the part to be operated on, including the use of cocaine and its substitutes, so universally used at the present time. The author shows that cocaine is not a safe agent for local anesthesia, but that novocain and its solution are more to be relied on. Braun has shown that the following principles are necessary for the selection of an anesthetic:

1. The locally anesthetizing effect of the drug must be less toxic than that of cocaine.
 2. The drug must not cause any tissue lesions.
 3. It must be soluble in water, and its solutions must be sterilizable.
 4. It must permit combination with suprarenal preparations.
- The author thinks that "novocain fulfils all of these requirements." He then enters into the discussion of the chemical composition, action and effect of the different preparations of novocain and the method of application.

The second part is taken up with the discussion of the indication for local anesthesia and the dangers of infection.

The technic is elaborately and minutely discussed in part three. The nerve-supply of the face, jaws and teeth are beautifully illustrated in reference to the points of application of the anesthetic to obtain the desired results. For minor surgical operations on the body, the author believes that this method of local anesthesia is becoming more general daily.

FOURTH SCIENTIFIC REPORT ON THE INVESTIGATIONS OF THE IMPERIAL CANCER RESEARCH FUND. Under the direction of the Royal College of Physicians of London and the Royal College of Surgeons of England. By E. F. Bashford, General Superintendent of Research and Director of the Laboratory. Paper. Pp. 233. London: Taylor and Francis, Red Lion Court, Fleet Street, E. C., 1911.

The research which has been conducted during the past eight or nine years under the auspices of the above fund has tended toward specialization on study of the cancer in mice, although systematic statistical studies on the geographic and ethnologic distribution of the disease have also been made. In this volume of the reports, besides a discussion of the present status of the work under the fund, and its bearing on the cancer problem, there are published but three papers: "Spontaneous Tumors in Mice;" "Cancerous Ancestry and the Incidence of Cancer in Mice," and "The Behavior of Tumor-Cells during Propagation." Haaland's article concerns a study of 353 spontaneous primary tumors observed in mice, of which but twenty-five arose certainly outside the mammary gland (not including thirty lung adenomata and twenty-one cases of lymphatic tumors, the exact nature of these

two groups being at present somewhat doubtful). Especial attention is given to the tumors arising from other than mammary tissue, it being noteworthy that in all there were but six tumors in males. The finding in mice of such special tumors as hypernephroma, fibromyoma, melanoma, squamous-celled carcinoma and osteosarcoma, attest to the essential identity of tumor formation in mice and men; but the total absence of cancers of mice in two of their commonest sites in man, the alimentary tract and the uterus, shows a striking difference in distribution which awaits explanation. The unusual tumors are described at length, and with lavish, splendidly reproduced illustrations, of such superior quality both as to beauty and real illustrating value that they and the artist, J. R. Ford, are entitled to special commendation. Haaland finds that in the mammary gland of the female mice there frequently occur areas of nodular hypertrophy, associated often with inflammatory changes, which are sometimes due to the presence of nematode worms, and which may well be at least partly responsible for the frequency of cancer in this organ. Mice with spontaneous tumors seem not to be inoculated more easily with tumors from other mice than do normal animals, but are very easily inoculated with their own tumors, indicating the absence of any general constitutional changes which favor growth of cancer other than the specific one which has already been developed.

Murray, in a concise paper, presents evidence that the offspring of mice whose mothers and grandmothers had mammary cancers are considerably more likely (18.2 as against 8.6 per cent.) to develop spontaneous cancers than are mice whose immediate ancestors did not have cancer, although they do not develop the cancers any earlier in life than the latter class.

The general results of this work "harmonize with the conclusion drawn from other lines of work that cancer always arises *de novo* in the organism attacked by a transformation of the ordinary tissue-elements, and lend no support to the view that groups of cells, isolated anatomically and physiologically from the rest of the organism from an early period, form the structural basis of the development of malignant new growths."

Bashford applies the results of extensive transplantation of mouse cancer to a consideration of various fundamental problems of cancer growth and theories of etiology, Ehrlich's athreptic theory of growth coming in for particular consideration and discredit.

All in all, this report indicates substantial, well-coordinated and thoroughly scientific study of the problems of cancer; it is the sort of work that increases the sum of knowledge and furnishes a progressing base from which to start organized and definite incursions into unknown territory, which have much better chance of success than have wild but spectacular dashes into the field, without plan or system.

DER INFANTILISMUS, DIE ASTHENIE UND DEREN BEZIEHUNGEN ZUM NERVENSYSTEM. Von Dr. Paul Mathes, Privatdozenten für Geburtshilfe und Gynäkologie an der Universität in Graz. Paper. Price, 6 marks. Pp. 188, with 8 illustrations. Berlin: S. Karger, 1912.

In this study the author puts together infantilism, asthenia and sundry anomalies of the nervous system and peculiar character make-up, and sees a relation between them all. Since he is a gynecologist by profession, it will be readily understood why the mechanics of the abdominal organs at rest and in motion occupy such a large space in his book (about 77 out of 188 pages). The author is inclined to the view that most of the symptoms in women which express themselves in gynecologic and other ailments are a result of a peculiar unfinished state, so-called infantilism with accompanying asthenia. Interesting, though not convincing, is his statement with reference to women's tendencies to emancipation and craving for political suffrage. He sees in all this nothing but an evidence of their infantilism and an inherent constitutional inferiority with reference to sexual characteristics. Though many will disagree with some of Mathes' views, yet one cannot help agreeing with him that our most cherished opinions are often the result of our peculiar anatomy.

TASCHENBUCH DER SPEZIELLEN BAKTERIOLOGISCHEN DIAGNOSTIK. Von Dr. Georg Kühnemann, Oberstabsarzt a. D., Prakt. Arzt in Berlin-Zehlendorf. Cloth. Price, 2.80 marks. Pp. 132. Berlin: Julius Springer, 1912.

This handbook does not purport to be a treatise on bacteriology or to contain directions for all kinds of procedures such as would be useful for specialized bacteriology or research. Non-pathogenic organisms are omitted and attention limited to pathogenic bacteria, protozoa and fungi. The morphology, biology, cultural characteristics, pathogenicity and methods for cultivating are given in concise and systematic manner. Attention is given especially to the characteristics which aid in diagnosis of disease. Staining characteristics and points of differentiation between similar organisms are given in full. Complete descriptions are given of serum diagnostic tests such as the Wassermann reaction, agglutination tests, etc. From the abundant literature on bacteriology the author has condensed the important facts concerning the different groups of pathogenic organisms and has selected what he considers to be the most valuable general laboratory methods, to the exclusion of such methods and details as are of limited application. A work in English covering the same ground, or a translation of this work would meet with a hearty welcome from busy English-speaking physicians.

A SURGICAL TREATMENT OF LOCOMOTOR ATAXIA. By L. N. Denslow, M.D. Cloth. Price, 3 shillings, 6 pence. Pp. 118. London: Ballière, Tindall & Cox, 1912.

This book advances the view that locomotor ataxia is a disease of the cord, often with a syphilitic basis, but with, in every case of this disease in a male subject, "an abnormal condition of the urethra." "By treatment directed to this condition many of the symptoms of the disease, e. g., the pains, ataxia, visceral crises, *sensation profonde*, hyperesthesias, anesthetics and incontinence of urine and feces, may be cured or alleviated, and the disease itself at least held in check" (p. 1). These remarkable claims are supported by several histories of supposed cures. The book, as we view it, seems to be a thinly concealed advertisement for the author. To the layman it would offer hope of relief from a supposedly serious or incurable affliction. The informed physician can, we trust, see that beneath the smattering of scientific verbiage which is largely quoted from foreign sources, there is little or nothing of merit. Even assuming that the purpose for which the book was written was a laudable one, and the statements as to cases are true, there is nothing about the work commending it to one's reason, scientific judgment or common sense. We are surprised that the publishers ever consented to put it forth with their name on it.

UEBER NERVÖSE ENTARTUNG. Von Professor Dr. Med. Ostwald-Bunke, I. Assistenten an der Psychiatrischen und Nervenlinik der Universität zu Freiburg i. B. Paper. Price, 5.60 marks. Pp. 120. Berlin: Julius Springer, 1912.

This dispassionate dissertation on the degeneracy of our times, especially with reference to the increase and the transmission of nervous and mental diseases, is a worthy contribution. Bunke does not believe in the view that acquired disease is ever transmitted to future generations. His conclusions lead him to adopt the opinion of those who see in our social and economic conditions the sole cause for the slight increase in nervousness. This book might become an "eye-opener" to those of our pessimistic philosophers who constantly prattle about the degeneracy of our times, forgetting all the while that in every age and clime there have been individuals who could not "see straight."

SUGGESTION AND PSYCHOTHERAPY. By George W. Jacoby, M.D., Consulting Neurologist to the Hospital for Nervous Diseases, New York. Cloth. Price, \$1.50 net. Pp. 355, with illustrations. New York: Charles Scribner's Sons, 1912.

This book is written for the educated layman on a subject requiring clarifying statement. The book-market has already become flooded with pseudoscientific literature on psychotherapy, but what is needed most of all is the honest expression of leading medical men. No doubt this modest little volume will find a useful place on the shelves of the intelligent man's library.

Medicolegal

Liability of County for Services Rendered on Request of Attending Physician or of Mayor of City

(*Dykes vs. Board of Commissioners of Stafford County (Kan.)*,
121 Pac. R. 1112)

The Supreme Court of Kansas had here an action brought by a physician to recover for services rendered in different cases. In one, it appeared that the physician attending on a family, several members of which were sick, believing the malady to be diphtheria, the health officer believing otherwise, called in consultation the plaintiff (the health officer being invited but failing to attend), who diagnosed the cases, and found the patients suffering from diphtheria. The plaintiff quarantined the family, administered antitoxin, and gave general instructions for the treatment and isolation of the cases and of the family and for the protection of the public against the spread of the disease. The county had a poor farm, but one with no facilities or conveniences for isolating or quarantining persons suffering from contagious or infectious diseases. He presented his bill for \$15, alleged to be a reasonable compensation, to the county board, which refused to pay it. It is held that, as the pleading showed that the services were performed on the request of the attending physician who had no authority to bind the county, and failed to show refusal or inability on the part of the afflicted family to pay, a cause of action was not stated. The court, however, says that the plaintiff, not being a volunteer, but answering the call of the attending physician, acted properly, and, in so far at least as his services tended to the protection of the public from the spread of what was thus determined to be diphtheria, a moral obligation existed for his reasonable compensation, though, because it was not alleged that the family were unable or unwilling to pay for his services, and, not being called into the case by any one having authority to bind the county, it could not be said the trial court erred in sustaining a demurrer to this cause of action, the county board having seen fit to refuse payment.

Other causes of action being based on alleged authority from the mayor or acting mayor, it is held that a county having a poor farm with no facilities or conveniences for operating on or caring for persons without friends or money, suffering from catalepsy, appendicitis, or broken collar bone, is liable for the reasonable value of services and treatment afforded such persons, not inhabitants, on the order of the mayor or acting mayor of a city of the third class within such county. Under section 5561 of the general statutes of Kansas of 1909, the mayor or acting mayor of a city of the third class is deemed to be an overseer of the poor, with power in cases of emergency to bind the county by granting or ordering such temporary relief for a person, not an inhabitant, lying sick, or in distress without friends or money, as the nature of the case may require; the intention of the legislature and the duty of the county being to succor such afflicted sojourner, rather than to delay action for the observance of formalities. The legislature in making provision for aiding afflicted sojourners knew as all practical persons know that in cases of emergency celerity rather than formality of action is essential, else, while adjusting and applying the ordinary red tape, the death of the patient may end the need of human succor.

Attending Physician Testifying to Results of Autopsy

(*Thomas vs. Byron Township (Mich.)*, 134 N. W. R. 1021)

The Supreme Court of Michigan holds that, where neither the deceased nor the representative of her estate had waived the statutory privilege, it was error to permit the physician who attended her from the time of her injury until her death to testify, in an action brought by the administrator of her estate to recover damages for her injury, to the results of an autopsy and his conclusions therefrom as to the cause of her

death. The question so decided the court says was one of first impression before it, and one on which the authorities gave no great assistance, no case being cited by counsel, and the court being unable to find any, where the exact question presented has been passed on.

There was no dispute but that the relation of physician and patient existed during the lifetime of the plaintiff's decedent, or that all communications and knowledge which are inhibition of the Michigan statute received by this physician during her lifetime were privileged and so continued, there having been no waiver; but it was claimed that the death of the patient made this testimony competent. From the examination of the witness the court concludes, by the questions asked, the answers to which were excluded as privileged, that he had during the lifetime of the patient made such an examination of her person, and received such information, as was necessary to diagnose her case and prescribe for her, and also that he had disclosed to the defendant's attorney such facts. The court must also conclude from the record that on account of this relation, which existed between the witness and the deceased, it was possible for him to proceed within a few hours after her death to hold an autopsy.

The statute involved has been in force, in Michigan, without amendment, since the Revision of 1846. Its provisions are therefore a part of the fixed policy of the state. This court has given it a liberal construction in protecting the privilege of the patient created by it. To allow the testimony of this attending physician as to this autopsy and his conclusions therefrom would operate to take away such privilege clearly granted. This testimony was improperly given in the case. Any other construction and determination is not in harmony with this court's construction of this statute and cannot be entertained. It was error to admit it.

The court also holds that it amounted to prejudicial error for counsel for the defendant to repeatedly ask the witness similar improper questions, apparently to get before the jury incompetent testimony, after an objection had been sustained to a question asking him to state what he determined from his visiting the patient and diagnosing her case was the matter with her. This court has repeatedly held that such conduct will not be tolerated.

Attendance on Indigent Persons for Which Compensation May Be Had—Action of Board of Supervisors Not Final

(*Chapman vs. Board of Supervisors of Muskegon County (Mich.)*, 134 N. W. R. 1025)

The Supreme Court of Michigan says that the plaintiff, a physician, rendered professional services to one Bessie Peterson, an alleged indigent person, starting to attend her some time before he claimed to have been directed to care for her by the supervisor of the township, and continuing to attend her until October 4, 1903, when he removed to Chicago, having arranged with another physician to take care of her for him. She was afflicted with tuberculosis of the bowels.

The claim that it was not shown that Bessie Peterson was an indigent person might be disposed of by noting that the health board of the township by resolution determined that at the time the services were rendered Bessie's father was not financially able to pay for them. Moreover, this court has held that in case of a legal employment the pecuniary ability of the patient is not controlling. Nor could it be said that there was no evidence of a legal contract.

It was contended that the board of supervisors having disallowed the plaintiff's claim, its decision was final. But the circuit court had jurisdiction to entertain an appeal. The services for which compensation was sought were all rendered before the adoption of the constitution of 1908. Section 9 of Article 8 provides: "Appeals may be taken from such decisions of the board of supervisors, or auditors, to the circuit court in such manner as shall be prescribed by law." Section 2 of Act No. 58, Public Acts of 1909, provides that:

"When the claim of any person, firm or corporation shall be disallowed in whole or in part by the board of supervisors or board of county auditors, such person, firm or corporation may appeal from the decision of such board to the circuit court for the same county." The language of this act is very broad. No intimation is there given that appeals will lie only in those cases in which the claim arose subsequently to the passage of the act. The right given apparently covers every case of total or partial disallowance. It is clear that this statute confers no new rights, or creates no new liability. It affects the remedy only for a pre-existing right, and as such may be invoked in the enforcement of that right.

But while it has been held that this statute should receive a liberal construction in the interest of the public health, this court thinks that it would be going too far to hold that a physician having a contract of employment with a health board might hire another physician to do the actual work, and himself collect for the service. It may well be supposed that the element of personal fitness enters into the contract. The board certainly is clothed with the power of selection, and the county should not be called upon to pay for the services of a physician with whom no contract was made. It seems equally plain that that portion of the bill represented by charges made by the plaintiff for services rendered by himself prior to the making of the contract was properly disallowed. However, the plaintiff was entitled to compensation for medicines furnished by him, under his contract, even though they were administered by the hand of another.

Physician Looking to Recovery of Judgment for Fee as Witness

(*Lack Malleable Iron Co. vs. Graham (Ky.)*, 143 S. W. R. 1016)

The Court of Appeals of Kentucky says that it cannot agree with the contention that the testimony of a physician as a witness for the plaintiff in a personal injury case must be disregarded when it is shown that he is looking to the recovery of a judgment in the case for his fee. In the first place, it would be a serious and unwarranted reflection on the integrity of a physician to say as a matter of law that his testimony was warped or influenced by the fact that, unless a recovery was had, he would not be paid for his services in examining or treating the patient. In the second place, if such a rule obtained, it would have a tendency to deprive those in need of the services of skilled physicians of such services, or at least put them to the necessity of paying for such services as had been rendered before the physician could testify. It is, however, competent, when a physician has testified as to the character, nature and extent of an injury, to ask him the amount of his bill and whether or not it has been paid, for the purpose of showing bias and affecting his credibility on this point. But when a jury, with these facts before it, has returned a verdict in favor of the plaintiff, evidently based, at least in part, on the opinion of such physician, the court would not be warranted in disregarding the evidence and setting aside the verdict.

Society Proceedings

COMING MEETINGS

Am. Acad. of Ophthal. and Oto-Laryngol., Niagara Falls, Aug. 20-22.
Amer. Assn. of Obstetricians and Gynecologists, Toledo, Sept. 17-19.
American Electro-Therapeutic Association, Richmond, Va., Sept. 3-5.
American Public Health Association, Washington, D. C., Sept. 18-20.
American Roentgen Ray Society, Niagara Falls, Sept. 11-14.
Colorado State Medical Society, Pueblo, Sept. 24-26.
Conf. State Bds. of Health of N. Am., Washington, D. C., Sept. 20-21.
Indiana State Medical Association, Indianapolis, Sept. 26-27.
Internat. Congress on Hygiene, etc., Washington, D. C., Sept. 23-28.
Medical Society of the Missouri Valley, Council Bluffs, Ia., Sept. 5-6.
Nevada State Medical Association, Reno, Sept. 10-12.
New Mexico Medical Society, Roswell, Sept. 12-14.
Pennsylvania State Medical Society, Scranton, Sept. 23-26.
Wyoming State Medical Society, Sheridan, Sept. 17.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Surgery, Gynecology and Obstetrics, Chicago

July, XV, No. 1, pp. 1-133

- 1 *Mesenteric Chyle Cysts. E. Friend, Chicago.
- 2 Pathogenesis, Anatomy and Cure of Prolapse of Rectum. A. V. Moschowitz, New York.
- 3 *Gastroenteroptosis. J. Ransohoff, Cincinnati.
- 4 End Results in Gall-Bladder Surgery. B. B. Davis, Omaha, Neb.
- 5 Infection of Retroperitoneal Lymphatics. J. E. Moore, Minneapolis, Minn.
- 6 Present Status of Abdominal Cesarean Section: When and How Should Operation be Performed? R. Peterson, Ann Arbor, Mich.
- 7 Surgery of Cervix Uteri. H. P. Newman, San Diego, Cal.
- 8 *Chronic Infective Tenosynovitis. W. W. Grant, Denver.
- 9 Some End-Results of Intestinal Stasis in Children. L. E. Barrington-Ward, London.
- 10 Bilateral Resection of Jaw for Prognathism. W. M. Harsha, Chicago.
- 11 Bilateral Resection of Mandible Posterior to Second Molars, for Correction of Prognathism. J. Eisenstaedt, Chicago.
- 12 Renal Varix. P. M. Pilcher, Brooklyn.
- 13 Hernias of Ovary, of Fallopian Tube and of Ovary and Fallopian Tube. A. P. Heineck, Chicago.
- 14 Simplified Technique for End-To-End Intestinal Anastomosis With Report of Twenty-Eight Cases. A. L. Soresi, New York.
- 15 *Unusual Bone Tumor of Foot. E. H. Beckman, Rochester, Minn.
- 16 *Tincture of Iodin in Preparation for Labor Cases. M. Watkins, Natchez, Miss.
- 17 Litholapaxy as Office Operation in Selected Cases. H. A. Fowler, Washington, D. C.
- 18 Some Phases in Surgical Treatment of Gastric Ulcer. W. D. Haines, Cincinnati.

1. **Mesenteric Chyle Cysts.**—Friend has collected fifty-two true chyle cysts of the mesentery, dating from 1875 to 1912, although the disease was first described by Rokitsansky in 1842. From this series he has found that they occur at all ages from early childhood to very late in life. In size they varied from $\frac{3}{4}$ -inch in diameter to an adult head. The great majority presented themselves in the umbilical region or between the umbilicus and the pubes. Among twenty-five patients treated by incision and drainage there were twenty-three recoveries and two deaths, and among eighteen patients treated by extirpation there were twelve recoveries and six deaths. One patient in whom an artificial anus was established died. Friend cites one personal case.

3. **Gastroenteroptosis.**—Every case of gastroenteroptosis, Ransohoff says, should be studied individually and should not be treated in a routine way, whether by medicine or operation. If after the removal of a normal or nearly normal appendix the patient continues to suffer he should not be lightly classed among the hopeless neurotics. Rather is it the duty of the surgeon to see whether he has not overlooked some visceral displacement or torsion, which is the cause of the suffering. A small incision in abdominal work has some disadvantages. The conclusion of the internists based on laboratory findings, as for example, after ingestion of a test meal, cannot be made the basis of the functional capacity of the stomach under every-day conditions. In many seemingly hopeless cases of gastroenteroptosis with marked neurasthenic symptoms, operation promises relief. If this is the result of suggestion, it is none the less valuable if the relief is permanent. Whereas, of course, internal treatment, abdominal supports and postural treatment should be tried, operative interference should not be unnecessarily delayed, lest the habitus nervosus becomes too deep-rooted to be eradicated. No gastroptotic patient should be operated on unless some actual functional disturbance can be demonstrated. To relieve this must be the aim of the operation. Given a gastroptosis in which we can demonstrate distinct functional incompetence or deviations, the existence of nervous phenomena does not militate against operation, but may be the chief reason for performing it.

8. **Chronic Infective Tenosynovitis.**—In the case cited by Grant all the most important flexor muscles of the hand, the flexor carpi ulnaris, the flexor carpi radialis, the flexor sublimis, profundus digitorum and flexor longus pollicis, were involved. Five and a half years before Grant saw the patient

the fingers of the left hand were affected, though not severely, with what was called rheumatism. This condition gradually extended, in the course of a year, to the front of the wrist and forearm. Although mild, the disease was progressive, extending slowly to the palm and up the arm, at times remaining stationary. It continued in this way with slight pain, at times, and swelling, gradually increasing until January, 1911, when the pain, swelling and fever increased rapidly, completely disabling the hand and arm in the course of a few weeks. The hand was absolutely helpless, with some anesthesia, due doubtless to pressure. His fingers were in a state of partial flexion and he was unable to flex or extend them in the slightest degree. Examination showed the palmar surface of the hand and arm greatly swollen, the fingers (except the thumb) not seriously involved in the swelling, and the constriction of the annular ligament making a sharp line of distinction in the appearance of the hand and arm. Pressure and manipulation revealed a soft, doughy feeling and deep fluctuation from the arm to the palm and thumb. The extensor muscles were not involved in the slightest. A central incision was made through the skin and deep fascia from the upper third of the arm to the middle of the palm and a connecting incision to the distal phalanx of the thumb, following the course of the flexor longus pollicis, which was infected and enormously distended throughout its entire extent. There were no adhesions between fascia and tendons, but the latter were adherent *en masse* and the veins greatly engorged. The annular ligament was divided, the tendons treated separately, the thickened, distended sheath of each split throughout its length and trimmed with scissors. Each sheath was distended with a thick, grumous, odorless material resembling yellow cornmeal gruel. In the belly of the sublimis digitorum there was a circumscribed cyst containing about a tablespoonful of this material, the capsule or membrane being almost as rigid and thick as cartilage. No rice bodies peculiar to tuberculosis were found. There was a similar mass in the palm, with thin capsule, not in direct communication with a tendon. Some tendons were softened by a degenerating process. At the present time the wrist motion is almost normal, though it still creaks a little on extreme flexion. The patient has a very useful hand.

15. **Bone Tumor of Foot.**—This case is reported by Beckman because of the unusual circumstance of finding a bony tumor lying in the hollow of the left foot which was not attached at any point to the bones of the foot. The patient's health remained good. He had never suffered any pain or inconvenience from the tumor except a slight tenderness when walking and the inconvenience of having the entire plantar arch filled up by the mass. He had not stopped work. The skin over the tumor was apparently normal, had never been reddened or sensitive, and the blood vessels were not dilated. The entire mass felt smooth and firm. The motion at the ankle joint was not interfered with. At the operation the growth was then seen to be irregularly nodular with many wart-like projections which had pushed through the fascia. On account of the size of the tumor, it could not be exposed and it was split through the center with a chisel and half of it removed. After obtaining more room in this way, the other half of the tumor was enucleated intact and was found to rest on the deep tendons of the foot, but no bare bone was exposed at any point. The tumor consisted of bone and cartilage covered with a thick fibrous capsule, which, on microscopic examination, showed no periosteum. The tumor weighed 160 grams, was irregularly oval, and measured 12x7x5 cm. Microscopically, the structure of this tumor is cancellated bone containing several areas of cartilage. It does not differ from the structure of many other new osseous growths developing from bone.

16. **Iodin in Preparation for Labor Cases.**—Watkins' usual routine, when called to a case late, is simply to wash the hands in soap and water, put on gloves to sterilize, clip long hair with scissors, thoroughly apply tincture of iodine to the field, separate the labia, sponge out with bichlorid solution, wash up, put on gloves and he is then ready for examination, and his results are gratifying. In special hurry cases, he lets his trained nurse apply iodine while he washes up. This method is applicable to abortions and curettage as well.

Pennsylvania Medical Journal, Athens

July, XV, No. 10, pp. 761-842

- 19 Anomalies of Refraction and Their Relation to Abnormalities of Ocular Balance. S. D. Risley, Philadelphia.
- 20 Refraction and Use of Cycloplegics With Especial Mention of Hyoscin. C. M. Harris, Johnstown.
- 21 Recurrent Third-Nerve Paralysis With Report of Case. J. F. Klinedinst, York.
- 22 Prescribing of Glasses by Family Physician. J. Thorington, Philadelphia.
- 23 Asexualization of Unfit. M. W. Barr, Elwyn.
- 24 Social Evil from Rational Viewpoint. H. M. Christian, Philadelphia.
- 25 Prophylaxis of Venereal Diseases. T. Diller, Pittsburgh.
- 26 Idem. J. W. Luther, Palmerton.
- 27 *Idem. E. Martin, Philadelphia.
- 28 Cataract Operations, Comparison of Technic of Dr. Herman Knapp of New York and of Colonel Smith of Punjab, India. J. E. Willetts, Pittsburgh.
- 29 Need Business Qualities Interfere With Successful Practice of Medicine? C. J. Cummings, Williamsport.
- 30 Arteriosclerosis. F. A. Rupp, Lewistown.
- 31 Nitrous-Oxid and Oxygen Anesthesia. R. T. Wall, Scranton.
- 32 *Increasing Factors of Safety in Surgical Operations. J. M. Wainwright, Scranton.
- 33 Diphtheria. A. L. Kotz, Easton.

27 and 32. Abstracted in THE JOURNAL, November 4, pp. 1559 and 1560.

American Journal of the Medical Sciences, Philadelphia

July, CXLIV, No. 1, pp. 1-156

- 34 Constipation. D. Rochester, Buffalo.
- 35 Drug Treatment of Edema. J. L. Miller, Chicago.
- 36 Non-Surgical Treatment of Exophthalmic Goiter. S. S. Cohen, Philadelphia.
- 37 *Infections Following Tonsillotomy with a Consideration of the Forms of Such Infections. H. Koplik, New York.
- 38 Anatomy and Relations of the Tonsil in the Hardened Body. G. Fetterolf, Philadelphia.
- 39 *Chvostek's Sign and Its Significance in Older Children. M. H. Bass, New York.
- 40 Verrucae Plantares. R. L. Sutton, Kansas City, Mo.
- 41 Therapeutic Application of P-Hydroxyphenylethylamin: An Active Principle of Ergot. D. M. Hoyt, Philadelphia.
- 42 Occurrence of Trichomonas Hominis in Gastric Contents With a Report of Two Cases. F. Smithies, Ann Arbor, Mich.
- 43 Sacro-Iliac Displacement. J. K. Young, Philadelphia.
- 44 *Hemolysis in Vivo and in Vitro as Diagnostic of Cancer. L. W. Gorham and H. Lissner, Baltimore.

37. Infections Following Tonsillotomy With a Consideration of the Forms of Such Infections.—In this paper Koplik calls attention to three distinct forms of sepsis which followed on surgical removal of the tonsils: 1. The form which runs an obscure fever for a week or more without causing any endocarditic or other lesions. 2. Those cases which run a temperature and combine with them the manifestations either of a mild infectious endocarditis, or in which, as in the case of chorea, the endocarditis takes on a severe infectious (or, as it is called, malignant) type, with subsequent fatal issue. 3. A third form of sepsis is that in which the infection is evidently severely hematogenous and causes destructive blood changes, with signs of sepsis such as profuse hemorrhagic ecchymotic areas on the surface of the skin, petechiae, severe hemorrhages from the bowel, and areas of bronchopneumonia.

39. Chvostek's Sign and Its Significance in Older Children.—In all 495 children, ranging in ages up to 14 years, were examined by Bass as to the presence of this sign. It was positive in sixteen of these cases, that is, 3.2 per cent. It will be noted that the sign was present only in 1 per cent. of the children under 3 years, and then became gradually more frequent until it reached 19.6 per cent., in children aged 10 to 14 years. These figures agree fairly well with those found by German observers. Analyzing his series of cases to see how far the positive Chvostek means tetany, Bass concludes that there seems to be no case among these sixteen (nor among fifteen described later) in which a positive diagnosis of tetany, present or previous, could be made. In only two of the cases could a history of convulsions be obtained. In the one case a girl, aged 15 years, had had a number of general convulsions when aged 8 or 9 years, but since then she has had no more. Although she had a marked Chvostek's sign, her electrical reaction to galvanism was normal. Her brother also had never been sick, except for his present complaints of nervousness and headache. Both the children showed orthostatic albuminuria. The second case giving a previous history of convulsions was a boy, aged 6 years, who for a year had been subject to peculiar attacks, resembling Jacksonian epilepsy. Chvostek's sign in his case was also well marked but his electrical reactions were

normal, and the diagnosis of late tetany (tetanoid spatek-lampsie of Thiemich) was therefore ruled out. He showed signs of hysteria, such as temporary deafness, irregular and varying areas of anesthesia, and analgesia, and was therefore classed as a case of hysteria. An interesting observation was made in this case as regards the variability of Chvostek's sign. The child was seen one afternoon and showed a very strongly marked facial phenomenon. A few days later he had convulsions followed by several hours of coma. Excepting in these two cases of convulsions no history of any symptoms of tetany, such as laryngismus or carpopedal spasm, could be obtained in any of the cases. In a few children electrical irritability was tested, but no case showed galvanic hyperirritability. These cases showing the positive sign in a way resemble each other; they fall into a well-defined group. The most striking feature is the large number (thirteen) of cases of orthostatic albuminuria. Most of these, as well as two cases classed as headache and five classed as neurotic, the asthmatic, the case of enuresis and cyclic vomiting, belong to the same clinical group, children showing the "vasomotor symptom complex." The preponderance (twenty-three out of thirty-one cases) of this type of child fits in well with the conclusions of Hochsinger, and emphasizes the frequency of the presence of Chvostek's sign in nervous children. In these cases this sign seems of much more value than the knee-jerk, and its presence in neurotic children appears to be of much more constancy than an increased patellar reflex. Of the thirty-one children six did not show any other signs of nervousness, five having bronchitis and one mitral disease. These six, however, were seen only once or twice. The other twenty-five all showed distinct neuropathic symptoms, twenty of them belonging to the vasomotor group.

44. Hemolysis in Vivo and in Vitro as Diagnostic of Cancer.—This work was undertaken for the purpose of comparing the skin reaction for carcinoma described by Elsberg, Neuhof, and Geist, with the hemolytic power *in vitro* of the serum of cancer patients, and to study the relation if any, existing between these phenomena and the normal isohemolysins and isoagglutinins. As the result of their studies the authors reach the conclusion that the test is certainly not specific for carcinoma. They found it positive in somewhat more than half of patients suffering from cancer (60 per cent.), and negative in a large majority of patients showing other forms of disease (about 89 per cent.). It may prove to be another help in the diagnosis of cancer, and its value is sufficient to warrant the application of the test and study in a large series of cases. Apparently no connection exists between a positive skin reaction and hemolysis in the test-tube. The test-tube method is of questionable value. The grouping to which the corpuscles employed for injection belong is not a matter of indifference but one of considerable importance. The authors are not prepared to speak as to the special value of the reaction in differentiating early carcinoma and borderline tumors, or as to its absence in advanced cases. A positive reaction is of much greater significance than a negative one. If the reaction is positive, the patient very probably suffers from cancer; if, however, it be negative, cancer cannot be excluded.

Journal-Lancet, Minneapolis

July 1, XXXII, No. 13, pp. 337-362

- 45 Surgical Treatment of Diverticula of Urinary Bladder. W. Lerche, St. Paul, Minn.
- 46 Spondylitis Deformans. With Report of Cases. C. A. Reed, Minneapolis.
- 47 Abdominal Contusions, With Report of Cases. C. J. Holman, Mankato, Minn.
- 48 Chronic Cholecystitis and Associated Affections. S. B. Haessly, Red Wing, Minn.

July 15, XXXII, No. 14, pp. 367-397

- 49 Roentgen-Ray in Diagnosis of Fractures. W. S. Fullerton, St. Paul, Minn.
- 50 Fracture of Elbow. O. W. Parker, Ely, Minn.
- 51 Fracture of Wrist. A. E. Wilcox, Minneapolis.
- 52 Fracture of Patella. W. E. Harwood, Eveleth, Minn.
- 53 Compound Fractures. B. S. Adams, Hibbing, Minn.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

July, III, No. 6, pp. 609-667

- 54 *Action of Caffein on Mammalian Heart. J. D. Pilcher, Cleveland.

- 55 Action of Glandular Extracts on Amount of Ephnephrin in Blood. I. Ott and J. C. Scott, Philadelphia.
- 56 *Action of Sodium Citrate on Mammalia. With Special Reference to Acquired Tolerance and To Its Action on Cerebellum. T. B. Robertson and T. C. Burnett, Berkeley, Cal.
- 57 *Action of Salts of Cholin on Arterial Blood-Pressure. L. B. Mendel, F. P. Underhill and R. R. Renshaw, Middletown, Conn.

54. **Action of Caffein on Mammalian Heart.**—Pileher summarizes his findings as follows: 1. During the acute fall in blood-pressure, subsequent to a rapid intravenous injection of caffein. (a) Within a total quantity of caffein 10 mg. per kilogram the cardiac volume ("tone") and the amplitude of the excursion is usually unchanged. (b) With larger quantities, the volume progressively increases (or the "tone" decreases) and the amplitude of the excursion decreases. 2. Permanent changes. (a) Within a total quantity of caffein 20 mg. per kilogram, there is a moderate rise in blood-pressure, an increased heart-rate, a decrease in heart volume (or an increase in "tone"); there may or may not be an increase in the amplitude of the excursion. (b) With larger doses, the blood-pressure progressively falls, the heart-rate increases, the volume increases (or the "tone" is lessened), the amplitude of the excursions decreases.

56. **Action of Sodium Citrate on Mammalia.**—As a result of administering repeated and gradually increasing doses of sodium citrate, the authors found that rabbits acquire such a pronounced degree of tolerance for the drug that a dose (15 c.c. M/1) which normally causes extremely severe symptoms of intoxication, or even death, causes either very slight symptoms or else no symptoms of intoxication at all. This tolerance they regarded as consisting, essentially, in tolerance to deprivation of tissue-calcium. Two alternative explanations of this phenomenon are suggested, namely: (a) The sensitiveness of tissues to lack of calcium is partly a phenomenon of "*Unterschiedsempfindlichkeit*." Just as an organism can accustom itself to several different "nitrogen levels" and maintain nitrogen equilibrium at different periods with very different nitrogen outputs, so we may imagine that the tissues affected by sodium citrate can function at various "calcium levels" provided the transition from a higher level to a lower is sufficiently gradual. (b) Tolerant animals are able to draw on reserves of calcium which are ordinarily not available. The cortex of the cerebellum, in rabbits, is not affected by the direct application of sodium citrate to its surface, while the application of sodium citrate to the underlying white matter elicits a profound reaction. With exceptions noted, the symptoms of acute citrate-intoxication in rabbits, following the subcutaneous administration of large doses, are attributable to direct cerebellar excitation by the citrate, inasmuch as they may be elicited by the direct application of minute doses to the white matter of the cerebellum. Of the various parts of the central nervous system the cerebellum is the one which is most sensitive to the excitant action of deprivation of calcium.

57. **Cholin and Blood-Pressure.**—The authors' experiments, along with numerous further records, afford, they believe, added evidence that the views promulgated by Popielski and his pupils about the physiologic behavior of salts of cholin are not tenable. Even with exceptionally pure synthetic salts they have never failed to observe the characteristic transitory fall of arterial pressure, a fall not profound or prolonged, but never absent even when fractions of a milligram of purest products are injected. The "contamination" theory is rendered improbable by the fact that cholin salts showed no quantitative differences in the physiologic effect when different specimens of presumably unequal purity were investigated. Furthermore, it seems extremely doubtful if properly prepared and preserved cholin salts readily decompose.

Journal of Oklahoma State Medical Association, Muskogee
July, V, No. 2, pp. 45-89

- 58 Surgery of Chronic Pelvic Inflammation. R. M. Howard, Oklahoma City.
- 59 Sympathetic Ophthalmia. E. S. Ferguson, Oklahoma City.
- 60 Hemorrhoids. I. W. Robertson, Dustin.
- 61 Private Laboratory as Aid to Physician's Home Study. C. D. Blachly, Norman.
- 62 Plea for More Liberal Diet in Typhoid. A. H. Bungardt, Cordell.

- 63 Suppurative Pleurisy. C. W. Heitzman, Muskogee.
- 64 New Way to Preserve Pathologic Specimens. W. D. Berry, Muskogee.

Journal of Medical Research, Boston

July, XVII, No. 3, pp. 357-546

- 65 Antibodies Produced by Various Constituents of Dog's Bile. H. T. Karsner, Boston and R. M. Pearce, Philadelphia.
- 66 *Comparative Study of Antibodies. J. A. Kolmer, Philadelphia.
- 67 *Primary Cancer of Lung. A. T. Henrici, Pittsburgh.
- 68 Atrophy of Pancreas After Occlusion of Pancreatic Duct. L. S. Milne and H. L. Peters, New York.
- 69 *Glycolytic Power of Blood and Tissues in Normal and Diabetic Conditions. L. S. Milne and H. L. Peters, New York.
- 70 Contribution to Pathogenesis of B. Abortus. Bang-H. M. Fabyan, Boston.
- 71 Bacterium Ozone (Abel): Fermentation Reactions with Eleven Sugars, Differential Diagnosis and Use as Vaccine for Treatment. C. G. Page, Boston.
- 72 Case of Ovarian Pregnancy. G. S. Graham, Hanover, N. H.
- 73 Induced Variations in Bacterial Functions: Experimental Study. A. C. Abbott, Philadelphia.
- 74 *Metaplasia of Bronchial Epithelium. S. R. Haythorn, Pittsburgh.
- 75 Determination of Cholesterol Content of Human Serum by Colorimetric Method. P. G. Weston and G. H. Kent, Warren, Pa.

66. **Comparative Study of Antibodies.**—All of the immune serums which Kolmer has examined contained some body capable of fixing hemolytic complement. But the nature of the complement-binding substances is difficult to understand. Thus diphtheria immune serum certainly contains no lysins or receptors of the third order and yet such serums bind complement with specific antigens quite readily. Not infrequently these tests apparently show the largest amount of antibody present at a time when the patient clinically is gradually developing severer symptoms and signs of syphilis, whereas strictly speaking the largest amount of antibody should be found at the height and decline of the infection. With these considerations combined with the lack of relation between complement fixation and bacteriolysins it would appear to Kolmer that a special body is stimulated and thrown into the blood-stream in the nature of a reacting substance, a "reagin," capable of binding hemolytic complement and not a true antibody in the sense of being prophylactic against or destructive to the antigen.

67. **Cancer of Lung.**—The majority of so-called cancers of the lung, Henrici believes, are in reality of bronchial origin. Squamous-celled cancers of the lung, he says, probably arise in the majority of cases from bronchial epithelium which has undergone a metaplasia. Some of these tumors apparently invade the lung along the alveolar wall, retaining the alveolar septa as stroma.

69. **Glycolytic Power of Blood.**—Normal dog-serum was found by Milne and Peters to have no glycolytic action on glucose. After a large meal or the administration of a large quantity of dextrose or saccharose the serum acquires no glycolytic power. Blood-corpuscles can absorb a comparatively large amount of glucose. Only a small amount of this glucose absorbed by blood-corpuscles can be recovered as dextrose. The blood of depancreatized dogs has a normal or slightly increased power of taking up dextrose and only a small amount of this can be recovered as dextrose. The tissues of depancreatized diabetic dogs can absorb as much as normal, or more, dextrose from a perfusion fluid. Normal dog-serum has a marked diastatic action on glycogen, converting it into glucose. Its strength is not altered after a large meal or administration of large quantities of dextrose, in fasting, or in phloridzin diabetes, but is slightly, often markedly, increased in depancreatized diabetic dogs. In phloridzin diabetes the sugar content of serum is slightly increased, often in sufficient degree to easily account for its elimination in the urine.

74. **Metaplasia of Bronchial Epithelium.**—The evidence concerning metaplasia, as observed by Haythorn in his case, is strongly against the theory of the "direct metaplasia" of Virchow. His findings, in a measure, agree with Schridde's idea in so far as they show that the metaplastic cells are newly formed cells and that they come from the growing layer. They support Ribbert's views in that the new-formed cells are less highly specialized than the normal cells, and also that the surrounding tissue changes have a strong influence on the type of the new cells formed. They seem to contradict the necessity of the presence of embryonic rests, as they could hardly have

been so numerous as simultaneously to set up the process in several different bronchi. Another idea which is brought forward is that the bronchial mucosa, destroyed beyond the hope of specific regeneration, seeks to protect itself with the best reparative cells it can produce in its exhausted state. Assuming that there is a histochemical identity of the so-called basement membrane, Haythorn suggests that there is a link between the injury to these membranes and tumor growth; that is, that the irritants and inflammations which destroy them open the way for metaplasia and new growth.

Journal of Missouri State Medical Association, St. Louis

July, IX, No. 1, pp. 1-42

- 76 Plea for Separation of State Medical Interests from Politics. R. H. Goodier, Stoutsville.
- 77 Recognition and Treatment of Early Manifestations of Mental Diseases. C. R. Woodson, St. Joseph.
- 78 Evolution of American Surgery. C. M. Nicholson, St. Louis.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

July, V, No. 1, pp. 1-26

- 79 Baltimore's Milk Supply. F. C. Blanck, Baltimore.

Monthly Cyclopedia and Medical Bulletin, Philadelphia

July, XV, No. 7, pp. 385-448

- 80 Salvarsan in Treatment of Various Clinical Forms of Syphilis, With Report of Twenty New Cases. J. M. Anders, Philadelphia.
- 81 *Value of Enterostomy in Ileus. L. H. Taylor, Washington, D. C.
- 82 Visceral Orthopedics. G. O. Jarvis, Philadelphia.
- 83 *Cholesterin Reaction in Serodiagnosis of Lues. F. S. Matlack, Philadelphia.
- 84 Genesis of Heart Beat. A. W. Downs, Philadelphia.

81. Abstracted in THE JOURNAL, August 3, p. 397.

83. **Cholesterin Reaction in Serodiagnosis of Lues.**—The cholesterin test is, in theory, very similar to the Wassermann test, an antigen being used, except that the latter is an artificial antigen, and not a natural antigen as in the original Wassermann reaction. The test depends on the flaking or precipitation of sodium glycocholate in the presence of syphilitic sera. But the sodium glycocholate precipitated is generally so insignificant that it could easily be overlooked or shaken up. A substance must be added that will increase the amount of precipitation or will be thrown down with the precipitate of sodium glycocholate without disturbing the reaction by its presence. Cholesterin is used for this purpose. The 200 cases reported by Matlack were from all classes as they were sent in for the Wassermann test, and include the various stages of syphilis, latent syphilis, paresis, and non-syphilitic but suspected cases. In determining the percentage of correct and incorrect results he used the Wassermann test as a standard. In 169 cases the reaction was the same as with the Wassermann test. In thirty-one cases the reaction differed from the Wassermann test. Of the thirty-one tests which resulted differently from the Wassermann test, twenty-three were negative when the Wassermann was positive, while only eight went positive when the Wassermann was negative, showing that in only about 3 per cent. of cases could the test go wrong in denoting syphilis when none was present. Therefore Matlack concludes that the cholesterin test is valuable as a control to the Wassermann test, for when both tests result likewise, either positively or negatively, we do not think it necessary to repeat. If they differ, we repeat the Wassermann test with a watery antigen and abide by the result. The cholesterin test can never be used as a simple test for syphilis in the physician's office, as it demands just as accurate a technic as the Wassermann test, and a large experience in reading the results is required before one becomes expert enough to decide the extremely important question of "Has or has not this patient syphilis?"

West Virginia Medical Journal, Wheeling

July, VII, No. 1, pp. 1-34

- 85 A Breath. G. W. Swimley, Bunker Hill.
- 86 Radioscopy in Abdominal Diagnosis. W. A. Quimby, Wheeling.
- 87 Paroxysmal Pulmonary Edema. J. T. Thornton, Wheeling.
- 88 Posture in Labor. T. R. Evans, Huntington.
- 89 Anonymous vs. Personal Journalism. C. A. Wingerter, Wheeling.
- 90 Lymphatic Leukemia. M. A. Bowers, Hansford.
- 91 Dyspepsia in Infants. J. H. Hess, Chicago.
- 92 Fever of Newborn. E. Boise, Grand Rapids, Mich.

Journal of Experimental Medicine, New York

August, XVI, No. 2, pp. 103-247

- 93 *Vasodilator and Vasoconstrictor Properties of Blood-Serum and Plasma. H. A. Stewart and S. C. Harvey, New York.
- 94 *Experimental Bronchopneumonia by Intrabronchial Insufflation. M. Wollstein and S. J. Meltzer, New York.
- 95 Thoracic Duct Lymph After Injection of Oil of Turpentine into Peritoneal Cavity of Dog. R. I. Dixon, Ann Arbor, Mich.
- 96 *Changes in Tissue Surrounding Growing Tumor and Significance of Precancerous State. I. Levin, New York.
- 97 Tumor Inoculation into Organs and Analogy Between Human Cancer and Tumors of White Mice and White Rats. I. Levin, New York.
- 98 *Pure Cultures of Cells. A. Carrel, New York.
- 99 Influence of Isoagglutinins on Final Results of Homoplastic Transplantations of Arteries. R. Ingebrigtsen, New York.
- 100 Studies in Glycosuria: Glycosuria Following Anesthesia Produced by Intravenous Injection of Ether. J. H. King, R. D. Moyle and W. C. Haupt, Baltimore.
- 101 *Treponema Mucosum (New Species), Mucin-Producing Spirochaeta from Pyorrhea Alveolaris, Grown in Pure Culture. H. Noguchi, New York.
- 102 *Method for Cultivating Treponema Pallidum in Fluid Media. H. Noguchi, New York.
- 103 Preventive Action of Diphtheria Antitoxin in Serum-Sensitized Rabbits. P. A. Lewis, Philadelphia.
- 104 Selective Bactericidal Action of Gentian Violet. J. W. Churchman, Baltimore.
- 105 Pure Cultivation of Spirochaeta Duttoni, Spirochaeta Kochi, Spirochaeta Obermeieri and Spirochaeta Novye. H. Noguchi.

93. **Properties of Blood-Serum and Plasma.**—The authors found that in plasma there exists a vasodilator substance specific for the vessels of the kidney. This substance is a protein of the albumin class and is precipitated by boiling and by alcohol. It is present also in the serum. It acts directly on the muscle coats of the arteries. The process of clotting of the blood liberates a constrictor substance that acts on the renal vessels and also on the vessels of the limb. This constrictor substance is not a protein; it resists boiling, is soluble in alcohol and acts directly on the muscle coat.

94. **Experimental Bronchopneumonia.**—When intrabronchial insufflation of pure cultures of the streptococcus or of the influenza bacillus was properly carried out by Wollstein and Meltzer it produced without fail a pneumonic lesion. This lesion is similar in its nature to the one known in human pathology as bronchopneumonia, and differs materially from the pneumonic lesion produced experimentally by the intrabronchial insufflation of pure cultures of the pneumococcus. Considering the fact that none of the dogs used in the experiments with the pneumococcus and none of those used by the authors were selected or prepared in any way, the conclusion seems to be unavoidable that the proper invasion of the microorganism is the determining factor in the development of pneumonia, the condition of the animal being only a minor element in this regard. Furthermore, since different organisms introduced in the same way and under conditions which are apparently the same, produced distinctly different pneumonic lesions in animals of the same species, the further conclusion presents itself that the different types of pneumonia are produced by specifically different bacteria. However, the differences in the nature of the lesion may be due rather to the degree of virulence of the causative microorganism than to differences in the species. The condition of the animal and of the affected organ which, in the onset and development of the pneumonic disease, is, perhaps, unimportant, may be the leading factor in determining the course and outcome of the disease.

96. **Changes in Tissue Surrounding Growing Tumor.**—Levin succeeded in producing artificially a true "precancerous state," i. e., an abnormality within an organ of the white rat which favored the subsequent growth of an inoculable cancer. The aim was to determine experimentally whether an abnormality in the tissue surrounding a growing tumor may be created under the influence of the tumor and subsequently to its development. An analysis of the results of Levin's experiments shows that the changes so frequently observed in tissues surrounding a growing tumor may be caused by different conditions. The development and growth of a malignant tumor depends on a local interaction between tumor cells and organ cells. When the cells of a normal organ are capable of inhibiting tumor growth, then an impairment of the normal state of the parenchymatous cells of this particular organ is essential for the growth of the tumor. This "precancerous state" does not consist primarily of an inflammatory change in the adjacent connective tissue, as Ribbert and his followers maintain, but in a degeneration of the parenchymatous cells of the organ.

If, in another instance, the cells of the normal organs are unable to inhibit the proliferation of the tumor cells, then no preparation of the cells of the organ for the tumor is necessary, i. e., no "precancerous state" is needed to enable the tumor to grow. On the other hand, the proliferating tumor cells injure normal cells, either mechanically or chemically, producing a condition that appears on superficial examination like that described as the "precancerous state." In reality, however, this condition is the resultant effect of the tumor growth and may be more correctly designated the "postcancerous state." Of still greater importance is the fact demonstrated in the last series of experiments; namely, that the general condition of resistance or immunity to cancer growth exerts a greater influence on the organism of the animal than any of the local conditions described above. The local resistance of a testicle to tumor growth in a generally susceptible animal may be overcome, but if an animal is made generally immune to the growth of cancer, neither the animal as a whole nor a single organ or tissue in it can be made susceptible to the growth of the tumor.

98. Pure Cultures of Cells.—In one experiment Carrel isolated a group of ameboid cells from a culture of cardiac muscle sixty-three days old, and cultivated in plasma. After several passages, they formed a dense tissue from which ameboid cells radiated. The culture was divided into two parts. The part cultivated in plasma alone kept its morphologic characters and continued to produce ameboid cells. The part cultivated on silk in plasma became modified; the cells lost their ameboid characters, and were transformed into large elongated cells which were united in chains, or interlaced to form a network. In a second experiment the round cells taken from a culture of connective tissue seventy-four days old multiplied rapidly. They transformed themselves into elongated cells and produced, after a few passages, a mass of dense connective tissue. From the tissue a large number of elongated cells were constantly growing. In both experiments the tissues originated from the ameboid or round cells extirpated from cultures that were sixty-three and seventy-four days old, respectively. These cultures were still growing actively thirty and forty days later; that is, more than one hundred days after the extirpation of the original fragments from the organism. These experiments show that from old cultures it is possible to isolate and propagate cells that belong to a definite type. A tissue, formed by a pure strain of cells, can be obtained in this way, and this new method may be of value in cytologic investigations.

101. Treponema Mucosum, Grown in Pure Culture.—A mucin-producing spirochete has been obtained in pure culture from a case of pyorrhea alveolaris by Noguchi. This organism is an independent species of the genus *Treponema* and, as it is recognized for the first time, he proposes for it the name *Treponema mucosum*. Morphologically the mucosum is difficult to separate from the pallidum and microdentium, but, through its biologic properties and animal reactions it is easily differentiated from all the rest of the spirochetes. The mucosum is not parasitic in the strict sense of the term, but exerts a certain pyogenous action when the tissue has been so injured by foreign substances as to enable it to survive. The strong fetid odor in the discharge from pyorrhea alveolaris is due, at least in part, to the presence of the mucosum in the affected tissue.

102. Method for Cultivating Treponema Pallidum.—The principle of Noguchi's method is based on the superposition of a favorable culture medium on a less favorable one. It is not suited to the growth of spirochetes when they are admixed with contaminating bacteria.

Illinois Medical Journal, Springfield

July, XXII, No. 1, pp. 1-138

- 106 Physician Considered as Economic Factor. W. K. Newcomb, Champaign.
- 107 *Demonstration of Lactic Reactions. H. Noguchi, New York.
- 108 *Essential Factors in Development of Surgery. D. P. Allen, Cleveland.
- 109 Seven Hundred General Anesthetics by Drop Method. S. Dodds, Cairo.
- 110 Venereal Diseases in Children. C. P. Seippel, Chicago.
- 111 Obscure Tuberculosis. W. B. Metcalf, Chicago.

107. Published in THE JOURNAL, April 20, p. 1163.

108. Abstracted in THE JOURNAL, June 1, p. 1708.

Laryngoscope, St. Louis

June, XXII, No. 6, pp. 797-916

- 112 Nature, Cause, Diagnosis and Principles of Surgical Relief. S. J. Kopetzky, New York.
- 113 Surgical Treatment of Meningitis, Its Scope and Accomplishment. L. S. Haynes, New York.

Boston Medical and Surgical Journal

August 1, CLXVII, No. 5, pp. 145-180

- 114 Institutions for Prevention and Cure of Tuberculosis as Elements in the Social Defense Against Disease. E. O. Otis, Boston.
- 115 *Specific Treatment Against Pulmonary Tuberculosis and Its Complications. J. A. Lyon, Rutland, Mass.
- 116 Some Recurrent Febrile Attacks in Chronic Pulmonary Tuberculosis. C. E. Edson, Denver, Colo.
- 117 Laboratory Course in Physiology Based on Daphnia and Other Animals. G. V. N. Dearborn, Boston.
- 118 Argument for Large State Insane Hospitals. W. Channing, Brooklyn.
- 119 *Prognosis in Dementia Præcox. A. W. Stearns, Boston.
- 120 Gastro-Intestinal Disturbances Observed in Pernicious Anemia. J. Friedenwald, Baltimore.

115. Treatment of Tuberculosis.—Inasmuch as mixed infection is usually present in progressive pulmonary tuberculosis and its complications, Lyon says the use of appropriate vaccines is essential, either before the administration of tuberculin or conjointly with the latter. In many catarrhal cases great benefit is derived from polyvalent colon vaccine or, where this fails, an autogenous one made from the *Bacillus coli communis* found in the feces. In the later stages of tuberculosis or in toxemic cases, the purified tuberculin, if given in appropriate dosage and under due precautions, is a useful adjunct to sanatorium treatment. The improvement in the general condition, due to the checking of the intercurrent infection, enables the tuberculin to act favorably on processes which, had the concomitant bacteria been disregarded, would certainly be more refractory, if amenable at all. For some time past specific treatment has been administered by Lyon both against the tuberculous process and the secondary infection, the appropriate bacterial vaccines being given jointly with tuberculin. Very frequently the debilitating complications have been successfully combated by the vaccines, and the relief thus given to the host from the corresponding part of its bacillary load has enabled the tuberculin to cope more effectively with the primary disease. Of the patients thus treated, one hundred have so far been discharged. The one hundred cases were made up as follows: Incipient, eight. Two of these cases complicated; one ischiorectal abscess (cured); one lupus with keratitis (cured). The pulmonary process was apparently cured in three, arrested in two, improved in two and one died. In twenty-nine complicated cases of moderately advanced tuberculosis, the pulmonary process was apparently cured in four, arrested in eleven, improved in seven, unimproved in three and four died. In the forty-four uncomplicated cases of tuberculosis, the pulmonary process was apparently cured in twelve, arrested in eighteen, improved in five, unimproved in seven and two died. In ten complicated advanced cases, the pulmonary process was arrested in two, improved in three, and five died. In nine uncomplicated advanced cases the disease was arrested in one, improved in four, unimproved in three and one died. As to sputum, tubercle bacilli were found in eighty-six of the one hundred cases before treatment. During the last three months of residence, it was positive in fifty-five of these eighty-six cases. Hemoptysis had occurred in thirty-five of the one hundred cases previous to specific treatment, and occurred in only ten of them during treatment. Hence 72 per cent. of all patients improved, 15 per cent. remained unimproved and 13 per cent. died.

119. Prognosis in Dementia Præcox.—As the result of investigation Stearns says the following facts seem worthy of notice: 1. The apparent hopelessness of the disease, dementia præcox, as far as mental health is concerned. 2. The high mortality, especially from pulmonary tuberculosis and other pulmonary affections. 3. The probability of subsequent relapse, even though the patient apparently recovers from the first acute attack. 4. The large number of cases requiring permanent hospital-care. 5. The danger of mistaking atypical depressions for catatonic dementia præcox.

New York Medical Journal

August 3, XCVI, No. 5, pp. 205-256

- 121 *Advantages of Cold Dry Climate in Treatment of Some Forms of Disease. A. D. Blackader, Montreal.
- 122 Sexual Crimes. A. Flint, New York.
- 123 Eclampsia: How Shall We Treat It Most Effectively in General Practice? G. W. Kosmak, New York.
- 124 Modern Ocular Surgery. T. J. Moran, Pittsburgh.
- 125 Pellagra Sine Pellagra. E. J. Wood, Wilmington, N. C.
- 126 Epithelioma. R. H. Boggs, Pittsburgh.
- 127 Tumor Genesis. G. L. Rohdenburg and F. D. Bullock, New York.
- 128 Edema of Orbits, Secondary to Facial Dermatitis. H. F. Hansell, Philadelphia.
- 129 Tissue Density Factor. H. Wakefield, New York.
- 130 Relation of Pelvic Disease in Women to Mental Disturbances. E. A. Schumann, Philadelphia.

121. Abstracted in THE JOURNAL, August 3, p. 394.

Medical Record, New York

August 3, LXXXII, No. 5, pp. 185-230

- 131 Effect of Specific Treatment on Cerebrospinal Fluid. W. F. Lorenz, Mengota, Wis.
- 132 Examinations of Eyes of College Students. M. Dresbach, Ithaca, N. Y.
- 133 Problem of Venereal Prophylaxis. R. A. Bachmann, Newport, R. I.
- 134 Rectal Administration of Salicylates in Influenza of Infancy. G. W. Beatty, Brooklyn.
- 135 Modern Medical Clinic: Its Purpose and Its Requirements. W. H. Sheldon, New York.
- 136 Physical Signs of Pulmonary Tuberculosis Caused by Nasal Stenosis. M. E. Lapham, Highlands, N. C.
- 137 Ice-Bag and Appendicitis. A. M. Fauntleroy, U. S. A.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

July 20, II, No. 4638, pp. 135-208

- 1 Intractable Constipation Treated by Operation. P. L. Mumery.
- 2 Causes Leading to Educational Deafness in Children. M. Yearsley.
- 3 *Treatment of Diphtheria Infection by Means of Diphtheria Endotoxin. R. T. Hewlett and A. T. Nankivell.
- 4 Recent Advances in Our Knowledge of Heart Disease. A. J. Whiting.
- 5 Relation of Iron to Anemia in Infancy and Childhood. H. T. Ashby.
- 6 *Improved Classification for Cases of Pulmonary Tuberculosis. F. R. Walters.
- 7 Observations on Neuron. H. Campbell.

3. Treatment of Diphtheria.—Ordinary cases of faucial diphtheria are not, as a rule, free from infection for a month or five weeks after the onset of the attack. The authors gave diphtheria endotoxin to five such patients while the membrane was still present on the tonsils; all these patients gave practically pure cultures of *B. diphtheria*. Between ten days and a fortnight from the date of injection of the endotoxin four of these five patients were free from diphtheria bacilli, and the fifth was free a fortnight later. Most of their patients had harbored the diphtheria bacilli for many weeks or months. After one or more injections of the endotoxin all the patients showed definite improvement. In many the diphtheria infection ceased entirely; in some it persisted, and the patient remained uncured; but even in these unsuccessful cases they noted invariably a diminution in the number of bacilli present microscopically; where previously the swab had given almost a pure culture of the diphtheria bacillus, a few isolated clumps only were found.

With regard to dosage, they began with small quantities of the endotoxin, 0.5 mg. and 1.0 mg.; but their patients treated with these doses did not do so well as subsequently, when they employed an initial dose of 2 mg. At the end of a week or ten days, if the swab was still positive, a dose of 5 mg. was given; and this, if necessary, was repeated later. The dose was the same for children and for adults. No ill effects, except some redness and tenderness around the site of injection, follow the administration of the endotoxin. Only one patient showed any general disturbance, and that merely by a transitory rise of temperature and a feeling of malaise.

6. Classification of Cases of Pulmonary Tuberculosis.—Walters suggests as a basis for the constitutional classification to take the temperature, pulse-rate and weight, making the points of division for temperature at 38 C. (like the American Medical Association) and 38.5 c. (as in the addenda to the Turban classification); for pulse-rate at 90 and 120; loss in

weight, being less important, might be subdivided at 10 or 15 kilos. Any case, then, in which the temperature was not over 38 C. per rectum, the pulse-rate not over 90 and the loss of weight on admission not over 10 kilos would fall into the A class of slight constitutional impairment. Any case with temperature over 38.5 C., or pulse-rate over 120, or loss of weight on admission over 15 kilos would fall into the C class of severe constitutional impairment. Intermediate cases would be placed in the B class of moderate constitutional impairment. For inclusion in the A class all three criteria must be favorable. In the same way if one of these exceeds the limits of the B class the case falls into the C class.

Constitutional and local results should be stated separately. Whenever the patient has not been long enough under treatment to insure arrest of the disease, removal from Class B to Class A might be regarded as evidence of moderate improvement, from Class C to Class A as marked improvement, lesser degrees of improvement being recorded as slight. As regards local improvement, disappearance of adventitious sounds, even on cough, from an area the extent of one lobe (provided this be not caused by blocking of bronchial tubes) might indicate marked improvement, from half a lobe moderate improvement, smaller degrees slight improvement. Patients remaining long enough for apparent arrest should pass a test modeled on that of the American Medical Association, viz., absence of constitutional symptoms of disease beyond such dyspnea as is inseparable from loss of lung tissue, permanent absence of râles and crepitations even on cough, free entry of air everywhere, and absence of expectoration ever containing tubercle bacilli. Continuance of these conditions for a twelvemonth to indicate apparent cure.

British Medical Journal, London

July 20, II, No. 2690, pp. 105-156

- 8 Operations for Cancer of Tongue. W. G. Spencer.
- 9 *Oxygenation and Tuberculosis. B. Moore.
- 10 Experience of Dioradin Treatment. C. Wall.
- 11 Anesthesia by Intratracheal Insufflation of Ether. R. E. Kelly.
- 12 Acute Epiphysitis. C. M. Kennedy.
- 13 Appendicitis in Private and Public Hospitals for Insane. J. F. Briscoe.
- 14 Gastric Adhesions as Cause of Sudden Death. G. H. Winch.

9. Oxygenation and Tuberculosis.—It is the increased movement of the lungs, leading to increased lymph-flow, and hence increased rate of oxygen access to the actual site of the tubercle, which, in Moore's opinion, gives the beneficial action of the fresh air treatment in tuberculosis. Without such a stimulus a patient cannot by voluntary effort in any breathing exercises keep up for any length of time an increased ventilation; he becomes apneic, and the respiration diminishes automatically. For this reason some experimentation would appear necessary on the subject of how best to administer the cool air in draft or puffs over the face so as to keep up the stimulus most effectually and for the longest period, and as to what alternations are of most advantage in such administrations of fresh air. The same effects are at work in the treatment of phthisis by high altitudes, where the oxygen supply is considerably less than at sea-level. Here the patient is compelled vigorously to ventilate the lungs in order to obtain sufficient oxygen, especially if any light exercise be taken. It is certainly not in this case an enrichment of oxygen. But the changed conditions are such as to give more oxygen locally where it is wanted, namely, in the lymphatic spaces of the lungs where the tubercle bacillus is situated. The over-ventilation alternately distending and collapsing the lung tissue sends a rapid stream of lymph along bearing more oxygen in solution past the tubercles. At a high altitude the cooler air also plays its part in inducing increased ventilation of the lung, and the two effects work together.

If this view be the correct one, Moore says the things to be aimed at in treating phthisis are such as will secure increased oxygenation at the site of the tuberculous lesion. This is obtainable by hyperemia of the affected area and increased lymph-flow at that part. The body of the patient should be kept warm, and the face, if possible, subjected to rhythmic applications of cool air at such a rate as to stimulate respiration. Exercise should be indulged in to that extent to which it will somewhat stimulate ventilation without load-

ing up the system with unoxidized products, by making too great a demand on oxidation, and this exercise possibly might best be in the open air, alternated with the cold air applications.

Australasian Medical Gazette, Sydney

May 18, XXXI, No. 20, pp. 517-540

- 15 Importance of Symptoms in Diagnosis of Phthisis. A. Stewart.
- 16 Appendicitis in Children. R. B. Wade.
- 17 Congenital Hypertrophic Pyloric Stenosis. A. A. London.
- 18 Congenital Pyloric Stenosis. P. L. Hipsley, Waverley.

May 25, XXXI, No. 21, pp. 541-564

- 19 Romance of Medicine. J. W. B. Bean.
- 20 Hypernephroma. H. S. Stacy.
- 21 Still's Disease. W. T. Chenhall.

June 1, XXXI, No. 22, pp. 565-592

- 22 Osteogenesis Imperfecta. R. B. Wade.
- 23 *Ectopic Gestation and Transplantation of Human Embryo. J. P. Hastings.
- 24 Method of Treating Congenital Club-Foot. W. F. Quaife.
- 25 Thrombosis of Cavernous Sinus; Unusual Complication of Pregnancy. W. Hull.
- 26 Cesarean Section Following Suspension of Uterus. J. K. Couch.

June 8, XXXI, No. 23, pp. 593-620

- 27 Hodgkin's Disease in the Light of Modern Research. A. E. Finch.
- 28 Lymphadenoma. S. Gillies.
- 29 *Treatment of Hodgkin's Disease by the Roentgen-Rays. H. Harris.

June 15, XXXI, No. 24, pp. 625-648

- 30 Muscular Control. N. D. Royle and H. R. G. Poate.
- 31 Case of Typhoid with Late Infection by Diplococcus. R. Bowman.
- 32 Septation of Female Reproductive Organs. C. Hall.
- 33 Treatment of Infantile Club-Foot. M. Herz.
- 34 Case of Yellow Ochre Dermatitis. W. McMurray.

23. **Ectopic Gestation.**—Under modern aseptic and antiseptic conditions, can we not, asks Hastings, save the fetus? In these early unruptured cases can we not transplant the embryo into the uterine cavity? Let us suppose, he says, that we have exposed, by abdominal incision, an unruptured ectopic sac. Immediately remove it *in toto* and place it in a bowl of normal saline at blood-heat. Open the sac and demonstrate the presence of the embryo. Now place a light clamp on both sides of the uterus, temporarily controlling the blood-supply through the broad ligament. Bisection the uterus in the middle line, exposing its cavity. Now place the embryo in the cavity and close the incision in the uterine wall, as in cesarean section. Hastings has not performed this operation, but he thinks it is quite practical, and would mark a great advance in the conservative treatment of unruptured cases. That it will succeed in suitable cases he is convinced.

29. **Treatment of Hodgkin's Disease.**—About thirty cases diagnosed as Hodgkin's disease have been subjected to the therapeutic effects of the Roentgen rays, either by Harris or under his supervision, during the past fourteen years. In every case arsenic, in varying doses, had been administered beforehand, and the patients were all on the downward grade before they presented themselves for treatment. Improvement followed the rays in practically every case, although several relapsed shortly afterwards. These cases were generally of a very acute type. The most successful cases were those involving single groups of glands and these good results varied in inverse ratio to the number of areas affected. In several cases when the disease was generalized, although one or two localized groups disappeared, the general condition of anemia and asthenia steadily progressed. Again it was noticed that when the mediastinum was involved and consequent dyspnea followed, irradiating the thorax afforded great temporary relief.

British Journal of Children's Diseases, London

July, IX, No. 103, pp. 289-336

- 35 *Renal Infantilism: Report of Cases. R. Miller and L. Parsons.
- 36 Hereditary Absence of Patella and Deformity of Nails. A. C. D. Pirth.
- 37 Destruction of Uvula in Vincent's Angina. J. D. Rolleston.
- 38 Sacral Teratoma Removed from Female Infant Two Days Old. H. A. Ledlard.
- 39 Case of Ulcerative Endocarditis Produced by Pneumococcus in Child Aged Three Years. H. R. Dean.

35. **Renal Infantilism.**—From the consideration of recent cases reported, the authors hold that there can be recognized a type of infantilism associated with, and apparently due to, a perversion of the renal functions. The cases to be included in this group are alike only in that they appear to be due to the perversion of the renal functions, for the evidence shows that

the actual condition of the kidneys is not the same in all cases. They think it best, therefore, to adopt for this type of infantilism the title of "renal infantilism." This has the advantages of being sufficiently broad to include all the cases and of bringing the nomenclature of this class into line with that of other known types of symptomatic infantilism which are dependent on the abnormal functioning of other organs, e. g., intestinal, pancreatic or hepatic infantilism. The degree of infantilism present is variable. In most of the cases in which organic renal disease is present it has been marked, the child being of a stature corresponding to a considerably younger age. The mental development usually corresponds to the stature rather than to the age of the patient. Where no organic disease is present in the kidneys the infantilism is of a less severe grade. Genu valgum has been noticed in several of the cases. It may be regarded as evidence of the imperfect osseous development which obtains in other types of infantilism.

Of more interest are the special characteristics of the renal class of infantilism. Of these the most prominent are polydipsia and polyuria. The thirst is severe, and may be the cause of the patient's coming under observation. The polyuria is marked, sometimes extreme, as in one case in which the patient passed in twenty-four hours a weight of urine equal to one-fourth of his body-weight. Bed-wetting, repeated two or three times nightly, is likely to be present. As the result of the polyuria the skin of the patient is very dry and the face rather characteristically wrinkled. The complexion is often of a pale yellow tint. In some cases marked anemia is present. In the group of cases without organic renal changes (diabetes insipidus) all the symptoms are of a less severe type than when chronic renal disease is present. Cardiovascular changes are present in some cases. They consist of hypertrophy of the left ventricle of the heart, heightened blood-pressure, and thickening of the arterial walls, which may be first recognizable in the brachial arteries. Hitherto no case has been materially affected by treatment.

Australian Medical Journal, Melbourne

May 18, I, No. 44, pp. 489-500

- 40 Electrocardiograph and Its Clinical Application. M. D. Silberly.
- 41 Case of Ovarian Pregnancy. A. A. London.

May 25, I, No. 45, pp. 501-512

- 42 Recent Series of 100 Consecutive Celiotomies Performed in Private Practice. J. W. D. Hooper.

June 1, I, No. 46, pp. 513-524

- 43 Surgical Treatment of Infantile Paralysis. W. K. Hughes.
- 44 Familial Element in Thyro-Toxicosis (Exophthalmic Goiter). S. Pern.

June 8, I, No. 47, pp. 525-536

- 45 Glaucoma and Iritis: Differential Diagnosis. J. P. Ryan.
- 46 Vertex Presentations. W. L. Potter.
- 47 Case of Heart Massage. L. Lambert.
- 48 Protracted Labor: Antepartum Sepsis, Death. R. T. Sutherland.

June 15, I, No. 48, pp. 537-548

- 49 Railway Accidents: Medical Aspect. J. W. Springthorpe.
- 50 Some Surgical Aspects of Railway Injuries. D. A. Shields.

June 22, I, No. 49, pp. 549-560

- 51 Value of Temperature Readings in Administration of Diphtheria Antitoxin and Value of Large Antitoxin Dosages. C. V. Mackay.

Dublin Journal of Medical Science

July, I, No. 487, pp. 1-75

- 52 Remote Effects of Syphilis. H. C. Drury.
- 53 *Case of Meningitis Due to Bacillus Typhosus. J. O'Carroll.
- 54 Clinical Report of Rotunda Hospital for One Year, Nov. 7, 1910, to Oct. 31, 1911. H. Jellett, B. A. H. Solomons and D. G. Madill.

53. **Meningitis Due to B. Typhosus.**—This case was one of meningitis due to the *Bacillus typhosus*, but, the authors say, it was one of meningitis primarily, and not a mere complication of a common enteric fever. This is borne out by the post-mortem findings, the absence of ulceration in the intestinal lymphoid tissue three weeks after the illness began and a fortnight after the agglutination test was positive; the absence of enlarged mesenteric glands, and the normal appearance of the spleen. But in the absence of a bacteriologic examination of the stools during life and of the spleen and lungs after death this view cannot be positively maintained. In any event the case is a very unusual one, for though symp-

toms pointing to involvement of the nervous system, such as headache, backache, delirium and tremor, are of common occurrence in typhoid, the number of cases is small in which actual inflammation has been demonstrated in the central nervous system or its ensheathing membranes.

Glasgow Medical Journal

July, LXXCIII, No. 1, pp. 1-79

- 55 Two Cases of Glandular Enlargement (1) Hodgkin's Disease; (2) Endothelioma. W. K. Hunter and J. H. M'Nicol.
- 56 *Albumin-Reaction of Sputum in Pulmonary Tuberculosis. R. S. Fullarton.
- 57 Effects of Chloroform. G. H. Clark.
- 58 Ether Anesthesia by Intravenous Infusion. F. L. Napier.

56. **Sputum in Pulmonary Tuberculosis.**—The method followed by Fullarton was practically the same as that employed by previous observers. In every case the sputum, besides being tested for albumin, was also examined for tubercle bacilli. The results obtained suggest the following conclusions: 1. In the great majority of cases of pulmonary tuberculosis the expectoration contains albumin in considerable amount; but in a small proportion of cases little or no albumin is found. 2. In acute bronchitis and pneumonia during the febrile stage, in most cases of pneumonia during the stage of resolution, and in bronchiectasis, albumin is present in the sputum in considerable amount. 3. In cases of bronchial catarrh, in cases of acute bronchitis during the stage of convalescence, in a few cases of resolving pneumonia, and in most cases of chronic bronchitis, whether accompanied or not by asthma or emphysema, the expectoration contains little or no albumin. In a small proportion of cases of chronic bronchitis albumin is present in considerable amount. 4. In cases other than acute (febrile) bronchitis, pneumonia and bronchiectasis, the finding of albumin in considerable quantity in the sputum is, therefore, suggestive of the existence of pulmonary tuberculosis, though it cannot be held to prove it. 5. On the other hand, the absence of albumin from the sputum, or its presence in inconsiderable quantity, suggests, but does not establish, a negative diagnosis. 6. The albumin-reaction is, therefore, not entirely reliable as a test in diseases of the respiratory system and is of only limited value in the diagnosis of tuberculous disease of the lungs.

Malaya Medical Journal, Singapore

May, X, No. 2, pp. 1-57

- 59 Etiology of Beriberi. A. Holst.
- 60 Some Factors in Etiology of Insanity. H. J. Gibbs.
- 61 Beriberi in Pigs. B. D. Mehta.
- 62 Case of Hepatitis Cured by Ipecacuanha. H. H. King.

Archives Générales de Chirurgie, Paris

June, VI, No. 6, pp. 621-748

- 63 *Technic for Resection of Rectum and Sigmoid. (Nouveau procédé opératoire pour rétablir la continuité intestinale dans les résections recto-sigmoïdiennes étendues.) Q. Vignolo.
- 64 *Recurrence of Ulcers After Gastro-Enterostomy. (De la récurrence des ulcères après la gastro-entérostomie pour sténose non néoplasique due pylore.) C. Moreau.
- 65 Blood-Borne Erysipelas. (L'erysipèle hématogène.) D. G. Zeeas.
- 66 *The Knee-Chest Position in Treatment of the Vicious Circle Following Gastro-Enterostomy; Two Successful Cases. (2 cas de cercle vicieux traités par la position genu-pectorale.) P. Maclaure.

63. **Plastic Operation With a Stretch of the Ileum After Resection of Rectum.**—Vignolo has found that it is possible to mobilize the ileum where its mesentery is longest, and utilize it to substitute the stretch of lower bowel after the rectum and sigmoid flexure have required extensive resection. He gives an illustrated description of the method as he has worked it out on the cadaver and on dogs and applied it in the only clinical case in which conditions called for it. In his clinical case the outcome was excellent although metastasis into the liver forbids hope of long survival. The feces must be completely diverted from the lower bowel by an artificial anus high up, possibly in the transverse colon, to permit the healing of the raw surfaces left from the resection and then after invagination of the stretch of ileum. The interval between the resection and the plastic operation should not be too long, and the latter requires abdominal incision.

64. **Recurrence of Gastric Ulcer After Gastro-Enterostomy.**—Moreau insists on the grave prognosis when a gastric ulcer

recurs after a gastro-enterostomy. The interval is generally five or seven years. Among sixty-three cases on record of recurring ulcer, the ulcers were multiple in four; in eight the recurrence followed the operation, and in three there was ulceration after a second or third operation. The operation for recurring ulcer must conform to the special indications in the individual cases. Moreau has had the ulcer recur in eight of his own twenty-seven operative cases of non-malignant stenosis of the pylorus. In his cases as well as in all on record the patients were men. The persistence or return of the conditions which induced the ulceration in the first place is the explanation of the recurrence, and the technic which favors reflux of intestinal juices removes the cause by neutralizing the excess of acid. Two of his patients have had two recurrences of the ulcer after a Y gastro-enterostomy. One was apparently cured by a second gastro-enterostomy but the other has required four operations and a fifth is now contemplated. These cases are described in detail.

66. **Vicious Circle After Gastro-Enterostomy Cured by Knee-Chest Position.**—Maclaure was impressed with the resemblance between conditions in the vicious circle and those of acute postoperative dilatation of the stomach. This analogy between them suggested that possibly turning the patient on his stomach, which measure has proved so successful in certain cases of acute dilatation, might remedy also the vicious circle. The correctness of this reasoning was brilliantly confirmed in two recent cases. Both patients seemed to be doing well until the third and sixth days after a posterior gastro-enterostomy but then they began to vomit bile in constantly larger amounts, one vomiting two liters of bile a day. In two days the condition had become alarming, but Maclaure then had the patients put in the knee-chest position, with a bolster under the abdomen, and the relief was immediate, the vomiting being arrested almost at once and permanently. There was no fever at any time and the stomach region did not protrude as in case of acute dilatation. To enhance the effect of the position, the trunk was twisted to right and left alternately in addition to being lower at the shoulders. The trouble was evidently of mechanical origin, and he urges a trial of this postural treatment for twenty-four hours before opening the abdomen again in all such cases.

Journal d'Urologie Médicale et Chirurgicale, Paris

May, I, No. 5

- 67 Temporary Diversion of the Urine in Operations on the Urethra. (La dérivation urinaire temporaire—par l'hypogastre et le périnée—dans les opérations sur l'urètre.) Rochet.
- 68 What to Do in Cases of Renal Tuberculosis in Which the Condition of the Bladder Prevents Exploration of the Kidneys. (Sur la conduite à tenir dans les cas de tuberculose rénale où toute exploration des reins est rendue impossible par l'état de la vessie.) G. Marion.
- 69 Reflex Incontinence of Urine as Early Symptom of Tuberculosis of the Kidneys. Constantinesco.
- 70 Ultimate Outcome of Resection of Pelvis for Intermittent Hydronephrosis. (Résection orthopédique du bassin pour hydronephrose à crises intermittentes.) G. Gayet.
- 71 Horseshoe Kidney. (Considérations sur la pathologie et la chirurgie du rein en fer à cheval.) G. Botez. Commenced in No. 2.
- 72 New Cause of Error in Radiography of Kidney Calculi. G. Marion.
- 73 Hydronephrosis in Horseshoe Kidney. (Hydronephrose dans un rein en fer à cheval. Urétéropexie; guérison.) R. Grégoire.

Lyon Chirurgial, Lyons

July, VIII, No. 1, pp. 1-120

- 74 Cancer of the Floor of the Mouth. (Traitement chirurgical du cancer du plancher de la bouche.) M. Vallas and L. Lambert.
- 75 Cancer of the Cecum. (Cas de cancer coecoappendiculaire observé sur un cœcum anormalement mobile et invaginé.) M. Cantas.
- 76 Cancer of the Prostate. (Traitement opératoire du cancer de la prostate.) G. Gayet.

Presse Médicale, Paris

July 3, XX, No. 54, pp. 569-576

- 77 Syphilitic Mediastinitis. (La médiastinite syphilitique considérée dans ses rapports avec l'anévrisme de l'aorte.) E. Sergent.

Revue de Chirurgie, Paris

July, XXXII, No. 7, pp. 1-116

- 78 Extravasated Blood Responsible for Facial Paralysis After Fracture of the Petrous Bone. (Pathogénie de la paralysie faciale secondaire et temporaire dans les fractures du rocher.) H. and A. Mimier.

- 79 Tuberculous Elephantiasis. H. Gougerot.
80 *Spontaneous Rupture of the Spleen. (Etude des ruptures spontanées de la rate.) S. Johansson.
81 Intramammary Angiomas. P. Gorio.
82 Temporary Disarticulation of the Last Two Metatarsal Bones in Treatment of Tuberculosis of the Foot. P. Hallopeau.

80. Spontaneous Rupture of the Spleen.—Johansson's patient was a previously healthy house painter of 39, free from constitutional taint, who had never been out of Sweden. During the last six months he had felt weak and tired, but there was no pain or vomiting. Finally pains developed below the chest, aggravated by deep breathing, but the man kept at work for a week and then sought the hospital on account of the increasing pain. The spleen was found much enlarged and tender, and in the next two weeks he had three chills followed by fever. An ice-bag was placed on the epigastric region and aceto-salicylic acid was given, with enemas of 100 c.c. of 5 per thousand solution of collargol. An hour after one of these enemas, the pain in the abdomen became intense and the general condition grew rapidly worse, the pulse weak and 140, the abdomen hard as wood, extremely tender, especially low down but there was no distinct localization of the pains. On diagnosis of peritonitis from perforation and internal hemorrhage the abdomen was opened three hours after the onset of the acute phase, and the findings were interpreted as cancer of the stomach which had perforated, with much hemorrhage. Necropsy, however, three days later, revealed spontaneous rupture of the spleen. No cause could be found for it unless the small enema an hour before could be incriminated. There was a concomitant gastric cancer with metastasis, but the hemorrhage came from the jagged surfaces of the ruptured spleen which was four times the normal size. The ulcerating and gangrenous gastric cancer had evidently set up a septic splenitis in an already hypertrophied organ. Death occurred less than seven months after the first symptoms of lassitude and weakness, but the stomach had caused no symptoms until the commencement of the acute disturbances and the man died sixteen days later, three days after the exploratory operation. Johansson reviews a number of cases which he has found in the literature in which a hypertrophied spleen ruptured without external trauma, but the patients had typhoid, malaria or were in advanced pregnancy; his is the only case he has found in which an infected spleen ruptured spontaneously. In most cases the rupture proves suddenly fatal; the patients drop as if an aneurysm had ruptured. A spontaneous cure is possible, but extremely rare; Hengeler found at a necropsy evidences of such an occurrence and Kernig has reported a case of spontaneous cure. The danger of rupture should turn the scale in favor of splenectomy in case of a very much enlarged malarial spleen, and the possibility of rupture of the spleen should be borne in mind when symptoms suggest peritonitis from perforation or intra-abdominal hemorrhage in case of much enlargement of the spleen, especially in typhoid.

Revue Mens. de Gynécologie, d'Obstétrique et de Pédiatrie, Paris

June, VII, No. 6, pp. 353-399

- 83 *Sea Water Injections in Summer Diarrhea in Infants. (Le plasma marin en injections sous-cutanées dans les gastro-entérites infantiles.) O. Macé and R. Quinton.
84 Sarcoma of the Uterus: Seven Cases. P. Bégouin.
85 Serodiagnosis of Pregnancy. (Intoxications gravidiques et déviation du complément.) E. Vayssiére.

83. Sea Water in Treatment of Summer Diarrhea in Infants.—Macé and Quinton here bring down to date their report on the treatment of infantile gastro-enteritis by subcutaneous injection of "marine plasma" as they call the sterilized sea water they use for the purpose. They give full page photographs of twelve infants before and after the treatment, and insist that their technic should be followed exactly, as it has given them such good results. They give milk at once with the injections, and regard the strengthening from the milk as an integral part of the treatment; the children are transformed by the injections so that they are able to take care of the milk. Between each feeding they are given a bottle of water or it is fed to them with a spoon, giving as much water as the child will take readily. The amounts of sea water to be injected vary with the nature of the trouble.

With enteritis causing constipation, they inject from 10 to 30 c.c. twice a week, feeding the child with from one-eighth to one-sixth of its weight. With athrepsia and ordinary diarrhea, they inject from 30 to 100 c.c. two or three times a week, and feed from one-seventh to one-fifth of the weight. Their photographs are certainly eloquent testimony to the recovery of almost moribund children under this régime. They published in 1905 a series of experiments including 2,592 days of tests to determine the superiority of sea water over ordinary salt solution for these injections in infants. They found that the infants increased in weight twice as fast under the sea water, and this increase is not due to the weight of the sea water as the increase in weight was out of all proportion to the amount of sea water ingested. Quinton has further published the account of extensive experimental research on dogs. In choleric enteritis the sea water is injected morning and night in a dose of 200 c.c. or 300 c.c. in the severest cases. From the start the child is given from six to eight bottles of milk a day, each representing 100 gm. of milk to which 20 gm. of water have been added. A bottle of pure water between the feedings completes the treatment, as much water being given as the child will drink. This is kept up for a week and then one injection a day is sufficient. During this first week the child must not take over one-tenth of its weight in milk, but then the amount can be increased to one-eighth or one-seventh. They say that the injected sea water almost invariably restores the digestive capacity in less than two hours so that the infant stretches out its arms for the bottle it previously rejected. The material is tabulated, showing the results in various groups of infants: fourteen brought to the hospital on a strict water diet; twenty-one with frequent vomiting and twenty-one with watery stools free from any matter. One of the tables shows the prompt gain in weight of sixteen infants apparently in the last stage of summer diarrhea. The stools may persist watery even after the child is seen to be thriving well under the sea water treatment. [No directions for procuring or sterilizing the sea water are given. Macé is accoucheur of the hospitals of Paris, and R. Quinton is assistant at the laboratory of pathologic physiology of the Collège de France. The two have worked systematically together. The first communication from them on this subject was summarized in THE JOURNAL, Oct. 28, 1905, p. 1367.]

Revue Pratique d'Obstétrique et de Gynécologie, Paris

May, XX, No. 5, pp. 129-156

- 86 *The Retinitis of Pregnancy. (La rétinite gravidique.) Roehon-Duvigneaud.
87 *Oxygen in Resuscitation of Asphyxiated New-Born Infants. C. Paul and J. Delmas.
88 *Nascent Iodine Fumes in Gynecology. (L'enfumage iode en gynécologie.) H. Reynès.

86. Retinitis of Pregnancy.—Duvigneaud cites statistics to show the rarity of retinitis of pregnancy and that it generally occurs in primiparae and in 70 per cent. of the cases it develops during the first four months of the pregnancy. The women have generally had albuminuria for several weeks, with or without prodromal symptoms of eclampsia. He has found records of only four cases in which the poison causing the trouble affected at one and the same time the liver, the brain, the kidneys and the eyes. The prognosis is more serious the earlier the retinitis occurs, as the vision generally grows progressively worse until delivery or until the death of the fetus. If the retinitis becomes aggravated or first develops after delivery, the fundamental cause may be sought in the kidneys. Blindness or very defective vision was the outcome in 13.33 per cent. and death in 11.2 per cent. The nineteen fatal cases were in eight women at term, in four after spontaneous premature delivery, and in three after premature delivery had been induced; the mortality, therefore, in the latter group was only 4.4 per cent. Blindness persisting after delivery is recorded in only 6.1 per cent. of the induced delivery cases, while the proportion was 24 per cent. in the term cases and 13.3 per cent. with spontaneous premature delivery. Detachment of the retina is a frequent complication but it is generally curable; it was bilateral in 78 per cent. of the cases in which it occurred. The women were left with more

or less impairment of vision after the retinitis in 130 cases, that is, in 77 per cent. In nineteen cases the retinitis recurred at a later pregnancy and then entailed blindness in five, and nine patients died. Treatment is mainly prophylactic; the ophthalmologist is frequently able to detect signs of retinitis before albumin appears in the urine. With established retinitis, the treatment should be the same as for eclampsia; venesection, sedatives and restriction to milk or water, but the indications for immediate interruption of the pregnancy are much more imperative with retinitis than in eclampsia alone. The uterus must be evacuated to save vision or even life. The child has only 20 per cent. chances for survival at best.

87. Already summarized in these columns July 6, 1912, p. 73.

88. **Iodin Vapors in Gynecology.**—Reynès reports very favorable experiences with Louge's method of generating nascent iodine in the vapors of burning iodoform, recently described in these columns. It is proving effectual in treatment of torpid ulcerating lesions, lymphadenitis, caries, etc., old ear disease, syphilitic ulcerations and soft chancres. The torpid ulcers are first curetted. The results have been so good that Reynès has been striving to apply the method to gynecologic lesions, as he describes in detail. The simplest technic for this is to dip a wad of cotton, held with forceps, into the iodoform and take up as much as it will readily hold. The cotton is then lighted and as soon as the iodoform has burned away the tampon sending out the amethyst vapors is pushed deep into the vagina and held in place with a gauze or cotton plug. Or the vapors can be applied through a tube. He repeats the procedure twice a week.

Archiv für klinische Chirurgie

XCVIII, No. 3, pp. 579-842. Last indexed July 20, p. 230

- 89 Gangrene After Resection of Rectum. (Zur Frage der Gangrän des oralen Darmstumpfes nach Mastdarmresektion.) K. Veber.
- 90 Operative Treatment of Nephritis. (Zur Chirurgie der Nephritis.) H. Kümmell.
- 91 Experimental Gastric Ulcer. (Experimentelle Erzeugung der Magengeschwüre.) T. Suzuki.
- 92 Treatment of Traumatic Injury of the Hip Joint. (Zur Behandlung der Coxa vara traumatica mittels Reposition und Extension.) O. Sprengel.
- 93 Colon-Bacillus Infection of the Kidney. (Coliinfektionen der Niere.) Münnich.
- 94 Combined Technic for Removal of Rectal Cancer. (Die kombinierte Methode der Exstirpation des Mastdarmcarcinoms mit präventiver peritonealer Abdeckung.) E. R. Goepel.
- 95 Operative Treatment of Sagging and Dilated Stomach. (Ueber die chirurgische Behandlung der mit Erweiterung einhergehenden Ptosis des Magens.) S. F. Dejrushinski.
- 96 *Ultimate Outcome After Resection of Middle Segment of Stomach; 18 Cases. (Das jetzige Verhalten von 18 wegen Ulcus curvat. min. mit Entfernung des mittleren Theiles vom Magen behandelten Kranken.) B. Riedel.
- 97 *The Two-Route Method of Treating Wounds and Ulcers. (Erfahrungen über Wund- und Geschwürbehandlung mit der Pfannenstiell'schen Methode bei nichttuberculösen Affectionen.) A. von Reuterskiöld.
- 98 Free Transplantation of Tendons. (Verwerthung der freien Sehnen transplantation.) E. Lexer.
- 99 Pressure on the Brain. (Zur Frage des Hirndrucks.) O. Tilmann.
- 100 Physiology and Pathology of the Circulation in the Lungs and Its Importance for Operations on the Thorax. M. Cloetta.

96. **Ultimate Outcome After Resection of Gastric Ulcer.**—Riedel has been examining eighteen patients anew to determine whether a new ulcer or cancer developed in any after resection of an ulcer in the lesser curvature. Four were found entirely well and fourteen wrote, or their physicians wrote for them, that they were healthy. All have their earning capacity unimpaired. One woman, now 72, was operated on eleven years ago. The middle segment of the stomach had been resected in each case; in some this had been done after a gastro-enterostomy which had failed to relieve. The details of the cases are tabulated and the technic described.

97. **The Two-Route Method of Treating Wounds and Ulcers.**—Reuterskiöld reports systematic application of Pfannenstiell's method in infectious affections of non-tuberculous origin and extols the results as extremely satisfactory. It acts on both acute and chronic processes transforming the infections into aseptic lesions. Rhinologists and lupus specialists have found the method remarkably effective in their work and it is especially useful for superficial abscesses, felons, etc., as an adjuvant to operative measures. (See THE JOURNAL, Aug. 5, 1911, p. 520.)

Deutsche medizinische Wochenschrift, Berlin

July 11, XXXVIII, No. 28, pp. 1313-1360

- 101 *Goiter and Its Treatment. (Ueber Kropf und Kropfbehandlung.) T. Kocher. Commenced in No. 27.
- 102 *Roentgenoscopy of the Intestines on a Test Bismuth Daily Ration. (Röntgenuntersuchung des Darmes auf Grund einer Kontrast-Normal-Diät.) G. Schwarz.
- 103 Action of Opium Alkaloids on the Intestine Living Outside of the Organism. (Wirkung der wichtigsten Opiumalkaloide auf den überlebenden Darm.) E. Popper and C. Frankl.
- 104 *Sterilization of Bacillus Carriers by Active Immunization. (Erfolgreiche Versuche zur Entkeimung von Bazillenträgern durch aktive Immunisierung und die hygienischen Konsequenzen.) J. Petruschky.
- 105 Intra-Partum Infection. (Ueber Infektion und Infektionsfieber intra partum.) E. Sachs.
- 106 Premonitory Symptoms of Thrombosis. (Zur Frage der prämonitorischen Symptome der Thrombosen bzw. Embolien.) F. Kraemer.
- 107 Cultivation of the Spirochaeta Pallida. (Reinzüchtung der Spirochaeta pallida.) H. Nakano. (Reinzüchtung der Syphilisspirochäten.) J. Schereschewsky.
- 108 Sanatorium Treatment of Surgical Tuberculosis. O. Vulpius.
- 109 Anesthesia of the Tympanic Membrane. (Trommelfellanästhesie.) N. R. Blegvad.
- 110 Frequent Transient Loss of Consciousness in Aviation. (Bewusstlosigkeit im Luftschiff.) F. J. Flemming.

101. **Goiter.**—This postgraduate lecture by Kocher, the great authority on goiter, brings the subject down to date. He emphasizes the importance of early differentiation of thyroid disease, saying that he has encountered many cases in which patients had been treated for months or years for anemia, and had taken all kinds of treatment for the symptoms of the supposed anemia, the white tint around the eyes, nose and mouth, the puffy aspect of the face, the chilliness of which they complained, the constant lassitude which rendered all physical or mental effort too much of a strain, the small pulse and a certain irritability—all of which form part of the syndrome from defective thyroid functioning and have nothing to do with anemia. All the tonics in the world cannot supply the missing thyroid secretion, while such patients begin to thrive at once on thyroid treatment. On the other hand, persons with incipient exophthalmic goiter, excitable, inclined to insomnia and ready fatigue, palpitations at the least effort or emotion, are regarded as neurasthenic, and are treated with sedatives and heart tonics which are of little if any help as they are unable to arrest the flooding of the organism with the toxic products of the perverted thyroid functioning. The proper differentiation of thyroid disturbances throws light on many conditions and gives the clue to treatment for which we have long been seeking in vain. Rapid growth of a goiter is usually a sign of malignant disease, as also when it grows tough and hard, possibly only at certain points of the goiter. When both of these are observed at the cancer age, the diagnosis is almost certain, especially when they follow disturbance in swallowing and pains in the back of the head, shoulder and behind the ear. Local tenderness and recurrent or sympathetic paralysis are also important signs of cancer. Kocher remarks that not only the postponing of an urgent operation is a sin, but that it is a sin to give iodine treatment without discrimination or concern in every case of thyroid disease. The iodine treatment not only wastes time and allows the day for successful operative measures to slip past, but the iodine itself is liable to do direct harm and bring on the symptoms of exophthalmic goiter, actual iodine Basedow. He states that he has not lost a patient in the course of 736 operations for ordinary goiter for which the operation could be considered in any way responsible. In March of this year he did his five thousandth operation on the thyroid. He says in concluding that the physician can advise an operation with a quiet mind in every case of goiter increasing in size and causing stenosis or accompanied by heart disturbances, and it is his duty to advise the operation early and not wait until complications develop which render the outlook less promising. Still more urgent are the indications when the blood-picture, radiography and other diagnostic measures show abnormally exaggerated functioning of the thyroid. Iodine treatment and thyroid extract should be reserved for the cases free from stenosis, the goiter not growing rapidly, and the symptoms indicating deficient thyroid functioning. Here a rational and specific internal treatment gives as brilliant results as surgical treatment in the thyrotoxic cases.

102. **Improved Technic for Roentgenoscopy of the Intestines.**—Schwarz thinks that much better oversight of intestinal

functioning is possible if, instead of the bismuth or other contrast suspension being given at one time, it is given with three test-meals in one day. He applies roentgenoscopy again and again until the last trace of the bismuth has been eliminated. The findings on this test ration are thus far more instructive, as he shows by the radiographs over several days of a healthy young man on test diet.

104. Sterilization of Typhoid-Bacilli Carriers.—Petruschky is director of the hygienic institute at Danzig and city physician, and he has succeeded in having the rule made that patients convalescent from diphtheria shall be kept at the hospital until the throat and nose are free from diphtheria bacilli. This he regards as great progress, the town having had sad experience on various occasions of the necessity for the measure. When the bacilli persist in the nose and throat beyond the usual period and the patients are seen to be becoming chronic carriers, he has succeeded in banishing the bacilli by two or three injections of a suspension of the patient's own bacilli killed by fumes of chloroform applied for several hours. In eight cases described in detail the desired effect was realized in every instance; in the recent cases only two or three injections were necessary and the patients were permanently sterilized. But in one chronic carrier, a child of 9, who had no history of diphtheria but had been subject to colds, coughs and pains in the chest for years, diphtheria bacilli were found on and in the tonsils, and necrotic plugs expelled from the tonsils invariably contained bacilli, showing that the bacteria were ensconced within. This case was most discouraging and he had long given up all hope but still made an occasional injection and finally, fourteen months after the first of the twenty-one injections, no further traces of diphtheria bacilli could be found in the child. She had been suspected of tuberculosis but no tubercle bacilli were found at any time. In another chronic carrier, a man of 23, four months and eight injections were required before the diphtheria bacilli disappeared from throat and nose. He had no history of diphtheria and applied for examination on account of symptoms suggesting tuberculosis. Petruschky in a more recent case has applied the bacillus suspension by rubbing it into the skin, suspended in glycerin or in the form of a salve, and in six weeks the bacilli had disappeared. This patient was a frail woman of 31 with no history of diphtheria but with symptoms suggesting tuberculosis; the tuberculin reaction was positive but there were no tubercle bacilli or lung findings. A test injection of a neutral fluid proved so painful that this method was abandoned and two drops of the glycerin suspension were rubbed into the forearm at a different point on alternate days. By the sixth week no further diphtheria bacilli could be discovered and the patient gained ten pounds in three months. He advocates applying this simple inunction method for active immunization of every child whose bacilli linger in the throat after convalescence and two weeks of the ordinary gargles and other measures. The parents would seldom object to this inunction method. Petruschky adds further that for ten years he has been applying this active immunization method in prophylaxis when conditions seemed to compel special preventive measures. No untoward by-effects were observed in any instance, but he does not discuss this phase of the subject in detail. In conclusion he reports application of the same principle to typhoid; in his experience to date, none of the typhoid patients treated in this way was left a carrier.

Medizinische Klinik, Berlin

July 14, VIII, No. 28, pp. 1139-1180

- 111 Diuretics. (Diuretische Heilmittel.) A. Mayor.
- 112 Syphilis and Contracted Kidney. (Syphilis und Schrumpfnieren.) C. Hirsch.
- 113 Roentgenoscopy of Non-Surgical Disease of the Stomach. (Die röntgenologischen Symptome der nichtchirurgischen Magenkrankungen.) F. M. Groedel and E. Schenck.
- 114 Asthma. R. Cholewa.
- 115 Radium Emanation and Radio-Active Waters. (Radiumemanation und Brunnengeist.) P. Lazarus.
- 116 Necrosis of Hand from Aluminum Acetate Dressings. (Nekrosen an der Hand infolge Anwendung von Umschlägen mit essigsaurer Tonerde.) Esau.
- 117 Infant Mortality in Connection with Housing Conditions. (Die Lokalisation der Säuglingssterblichkeit in Berlin und ihre Beziehungen zur Wohnungsfrage.) H. Liefmann and A. Lindemann. Commenced in No. 27.

- 118 *Symposium on Decapsulation of the Kidneys. (Umfrage über die Entkapselung der Niere bei akuter und chronischer Nierenentzündung.) Commenced in No. 27.
- 119 Cholin in Chemotherapy of Cancer. (Ueber die chemische Imitation der Strahlenwirkung und Chemotherapie des Krebses.) R. Werner. (Wirkung von Cholinsalzen auf das Blut und über die Beeinflussung von Mäuse Tumoren durch kolloidale Metalle.) S. Szeesi.

118. Decapsulation of the Kidneys in Acute and Chronic Kidney Disease.—This is a symposium on the subject, the editors having sent a question blank to a number of surgeons in Germany asking them what success they had had in this line and how they explained it. Favorable reports were received from Kümmell, Friedrich, Ritter and Pels-Leusden, but the others have little to say in favor of the measure, the effects in their cases having been transient or no benefit apparent. Anschütz states that no improvement was realized in any of his ten cases, neither the anuria, the uremia or acute nephritis showing any benefit, and no benefit was apparent in a case of chronic nephritis from double decapsulation.

Münchener medizinische Wochenschrift

July 9, LIX, No. 28, pp. 1529-1584

- 120 Iron Content of Milk. (Ueber den Eisengehalt der Frauen- und Kuhmilch.) F. v. Soxhlet.
- 121 *Early Operation in Exophthalmic Goiter. (Die Frühoperation bei Morb. Basedowii.) B. Riedel.
- 122 Diagnostic Intracutaneous Reaction to Extract of Spirochetes. H. Kämmerer.
- 123 Anaphylactic Reaction of the Lungs. H. Ströbel.
- 124 *Connection Between the Lungs and Genital Organs of Tuberculous Women. (Beziehungen zwischen Lunge und Genitale tuberkulöser Frauen.) H. v. Bardeleben.
- 125 Action of Opium. (Zur Opiumwirkung.) H. Schmidt.
- 126 Success of Combined Physical Measures in Treatment of Cancer; One Hundred Cases. (Therapeutische Erfahrungen an 100 mit Kombination von Röntgenstrahlen und Hochfrequenz, resp. Diathermie behandelten bösartigen Neubildungen.) C. Müller.
- 127 Hyperpyrexia; Two Cases. (Einige bemerkenswerte Fälle aus der Prosektur.) R. E. v. Pessl.
- 128 By-Effects with Hormonal and Pituitrin. (Ueber unerwünschte Nebenwirkungen bei Hormonal und Pituitrin-injectionen.) H. Bovermann.
- 129 Brace for Scoliosis. (Eine elastische Bandage zur Behandlung mobiler Skoliosen.) B. Baisch.
- 130 The Eclampsia Toxin in the Placenta. (Das Eklampsiegift in der Placenta.) W. Liepmann.
- 131 The Campaign Against Quackery. (Was nun in der Bekämpfung der Kurpfuscherei?) O. Neustätter.

121. Importance of Early Operating in Exophthalmic Goiter.—Riedel protests against regarding operative treatment of exophthalmic goiter as only to be undertaken after failure of all other measures. In his experience with over a hundred operative cases the patients find after an operation in an advanced stage that their nervous excitement subsides, as also the tremor, the heart gradually becomes more tranquil and the patients gain rapidly in weight but the eyes still protrude, so that although the patients feel well yet others do not regard them as cured. The outcome is entirely different when the operation is done in an early stage. This restores the patients to apparently complete health, as in two of his recent cases in which the attending physician diagnosed the affection early and the patients were willing to be operated on at once—a rare combination. They were women of 28 and 30; each was at the head of a large boarding house and their trouble began with a sense of weakness and loss of weight. In the younger woman the affection made rapid progress, the patient losing forty pounds in weight and becoming extremely depressed and the heart irritable. There was no tremor or exophthalmos and only a moderately enlarged thyroid when the patient was operated on, three months after the first disturbances had been noted. In the second case the only symptoms were weakness and the "blues" with recent enlargement of the thyroid in the course of a few months to the size of an egg on one side, but no exophthalmos and only slight participation on the part of the heart. The weakness and depression had been noticed for three or four years and the operation followed a few months after the thyroid had showed signs of increasing. The reaction to the operation in this second case was very slight; it was more pronounced in the first, more acute case. Both patients have been entirely cured for years. Another patient, a man of 40, was taken sick first with the other members of the family with a diarrheic trouble for a week; it left him with great weakness and a tendency to intense sweats, and aphonia for three weeks. Then palpitations followed and the eyes

became more prominent and the man was unable to work. Physicians consulted treated him for "neurasthenia" and sent him to a watering place where he lost ten pounds and was tormented with extreme thirst, tremor in the hands, pains in the legs, especially in the knees, and great depression. Then a physician suggested exophthalmic goiter but this was negatived by the surgeon consulted as there was no sign of a goiter. Various methods of treatment were applied but to no avail and finally the thyroid was resected, which placed the patient on the direct road to recovery at once. If he had been watched while he was swallowing, the small tumor formed by the retrosternal enlarged thyroid would have been detected. Even without any signs of goiter, the possibility of goiter should always be suggested when a patient complains of weakness and mental depression for which no other cause can be discovered. The blood should be examined for the increase in lymphocytes and decrease in leukocytes characteristic of exophthalmic goiter. The diagnosis made, Riedel advises operating at once without waiting for violent palpitations and exophthalmos to develop. He has become more and more radical in his resection with greater experience, now cutting away fully nine-tenths of the thyroid but always leaving some thyroid tissue on both sides. In conclusion he describes the case of a woman of 35 who found she was losing weight and growing weak but there were no palpitations. The third month she noticed a small lump in the suprasternal fossa one morning; by noon it was the size of two fists and during the afternoon she had palpitations for the first time and felt a distinct buzzing in the thyroid. The eyes began to protrude and the hands to tremble, all in the course of a few hours. After a week in bed the symptoms were somewhat mitigated but grew still more severe after she had been up two weeks; the heart was especially rebellious. Under thyroid extract the palpitations grew still worse, and there were occasional chilliness and pain in the eyes but prompt and progressive improvement followed thyroidectomy. Riedel has observed a similar buzzing in the thyroid of a man of 50 who also developed acute enlargement of the thyroid with goiter symptoms.

124. Summarized in THE JOURNAL, Aug. 3, 1912, p. 404, abstract 3.

St. Petersburger medizinische Zeitschrift

June 14, XXXVII, No. 11, pp. 161-177

- 132 Psychotherapy in Daily Practice. (Die Psyche des Patienten.) H. Hirsch.
- 133 Hygiene of the Nursing Mother. (Die stillende Mutter.) V. Schroppe.
- 134 Vasomotor Influences Responsible for Pulsus Differens with Mitral Stenosis. (Eine neue Ansicht über die Entstehung des Pulsus differens bei Stenose des linken venösen Ostiums.) D. O. Krylow.

June 28, No. 12, pp. 179-191

- 135—Unerosed Paralysis After Gunshot Wounds; Eight Cases. (Ungelähmte—kollaterale—Lähmungen.) O. Holbeck.
- 136 Tapeworm and the Gastric Secretion. (Der breite Bandwurm und die Magensaftsekretion.) J. Grünberg.
- 137 Injury of Eyes from Watching Eclipse. (Ueber Blendungsveränderungen durch Sonnenlicht.) G. Isehreyt.

Wiener klinische Wochenschrift, Vienna

June 27, XXV, No. 26, pp. 991-1034

- 138 Experimental Research on the Pulsus Paradoxus. E. Hoke.
- 139 *Sarcoma of the Stomach. (Fall von primärem Sarkom des Magens. Resektion. Heilung.) E. von Graff.
- 140 The History of Vaccination Against Small-Pox. (Zur Frage der Impfbefehlung.) R. W. Raudnitz.

139. **Gastric Sarcoma.**—The case reported is stated to be the fifty-sixth on record in which the stomach was resected on account of a primary sarcoma. The outcome is known for only three of the eight patients who survived the operation or its complications among the twelve treated by radical resection of the growth. Among them is Dock's patient (THE JOURNAL, 1900, xxxv, 156), known to be in good health four years afterward. Of the twenty-eight patients treated by resection of an exogastric sarcoma, the outcome is known in only nineteen cases, and only three of these patients were free from recurrence after a three-year interval. The patient in the present case was a woman of 27 who began to have occasional attacks of weakness but felt otherwise well and perfectly healthy at other times. After two years her waist grew larger while she found she had lost fifteen pounds. By the end of the third year a large tumor had made itself

apparent in the lower abdomen, reaching to the umbilicus, but there was no anemia, dyspepsia or constipation. The tumor grew out of a small segment of the greater curvature of the stomach and had developed between the sheets of the gastrocolic ligament. It was easily removed by resecting a small part of the stomach with it, and the patient has seemed quite well during the four months since, but the enlarged lymph-nodes in the region give cause for concern.

Zentralblatt für Chirurgie, Leipsic

July 13, XXXIX, No. 28, pp. 945-984

- 141 Resection of Tuberculous Knee. (Zur Technik und Nachbehandlung der Resektion tuberkulöser Kniegelenke.) B. Riedel. (Zur Nachbehandlung nach Knierektion.) W. Merckens.
- 142 *A New Esophagoscope. R. Lewisohn (New York).

142. **Esophagoscope.**—Described with illustrations in THE JOURNAL, Nov. 18, 1911, p. 1681.

Zentralblatt für Gynäkologie, Leipsic

July 13, XXXVI, No. 28, pp. 913-942

- 143 Pregnancy Dermatoses Cured by Serum from Umbilical-Cord Blood. (Mit Nabelschnurblutserum geheilte Schwangerschaftsdermatose.) R. Franz.
- 144 Operative Treatment of Extensive Genital Prolapse. G. A. Wagner.
- 145 Primary Echinococcus Cyst in Space of Douglas Interfering With Delivery. (Echinokokkus retrocervicalls extraperitonealis als Hindernis zur Spontangeburt.) L. Gussakow.
- 146 Mixed General Anesthetics for Gynecologic Operations. (Pantopon-Skopolaminarkose bei gynäkologischen Operationen.) Putjatina.

Zentralblatt für innere Medizin, Leipsic

July 13, XXXIII, No. 28, pp. 693-716

- 147 Determination of Pentoses in Diabetic Urine. (Nachweis der Pentosen in diabetischen Harnen.) A. Jolles.

Semana Medica, Buenos Aires

June 6, XIX, No. 23, pp. 1045-1088

- 148 *Paraffin Prothesis. (Protesis nasal externa.) J. de la Cruz Correa.
- 149 Examination of the Stools. (Examen de las heces.) M. Acuña.
- 150 Syphilis of the Stomach. (Caso de sífilis del estomago.) L. Villaeian and F. A. C. Bazan.

148. **Paraffin Prothesis.**—Correa gives illustrations of several patients three or four years after he had injected paraffin to correct deformity of the nose. The outcome has been excellent, the paraffin deposits showing apparently no change during the years that have elapsed. He uses paraffin with a melting point of 45 C., softened by pressure for the injection. The pressure is exerted by the special syringe used in which the piston is pushed inward by turning a thumb screw. No complications were observed in any of his seventy-five patients injected with the paraffin to restore the shape of the nose or aid in the cure of ozena.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 4, XXXIII, No. 80, pp. 825-832

- 151 *Intermittent Fever in Tertiary Syphilis. (Sulla febbre intermittente nella sifilide terziaria.) P. Pozzilli.

July 7, No. 81, pp. 833-848

- 152 Normal Production of Lymph and Edema. (La linfogenesi normale e l'edema.) F. Bottazzi.
- 153 Aortic Aneurysm. (Grosso aneurisma della regione diaframmatica.) M. Pavesi and E. Curti.

151. **Intermittent Fever in Tertiary Stage of Syphilis.**—Pozzilli has found intermittent fever not a rare occurrence in the tertiary phase of syphilis, and he reports three cases in detail. He applied mercurial treatment by intravenous injection of mercuric chlorid, and the patients were promptly cured. In one case the syphilitic lesions involved the lungs, in the others the liver or bones. The long interval since the infection and the intermittent fever rendered the diagnosis very uncertain until the success of the mercurial treatment cleared up all doubts. Pozzilli thinks that mercury in this form acts like a vaccine, the opsonic index and the leukocytes showing marked changes under it.

Hospitalstidende, Copenhagen

July 10, LV, No. 28, pp. 785-808

- 154 Alimentary Levuloseuria Unreliable Test in Diagnosis of Liver Disease. (Om Frugtsukkerets alimentære Forekomst i Urinen og Betydningen deraf ved Leversygdommes Diagnose.) K. A. Heiberg.

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THE TRAINING OF THE DESIRABLE PRACTITIONER AND HIS MISSION *

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NEW YORK

To you this occasion is very significant; it marks an epoch in your life. Finally you are out of school, out of man-made schools. Only a little more cramming for the state board examinations and you are free, free from compulsory studies, free to learn afresh that which you ought to know well, and to forget that which is only a disturbing haze in your mind. But you ought to be aware that this occasion does not mark the end of all schooling. You have not arrived at the terminus; you are only at a station where the roads change. You are not celebrating the termination of your medical school days. It is your commencement day; you are passing the entrance examination into the school of life; into that particularly difficult life which the medical practitioner has to live. In that school you stand under the supervision of no other schoolmaster than yourself. You will not have to pass examinations. But remember that your markings will be made nevertheless, not only by your own conscience, if you cultivate one, but by that high court composed of your professional brethren, your patients and the public at large—a court from whose judgment there is no effective appeal. Your advanced standing is in the community at large; but so are also your failures. After years of attendance in that tutorless school of life, many who had their eyes open learned a lesson or two from the penalties they had to pay and the rewards they occasionally received. Such veterans are in a position to know the good which the knowledge of such lessons could do his junior brothers in the freshman class of the school of life. I have passed a score of years in that medical school without a dean and without medical instructors. I have my scars and my medals and, I believe, I learned a thing or two in the battles of medical life. When I was honored by the request of the authorities of your medical school to address you on your commencement day, it therefore occurred to me that a discussion of some of the unwritten rules of the school of life of the practitioner might be most appropriate for the occasion.

The title of my address reads: "The Training of the Desirable Practitioner and his Mission." You can now see that I did not intend to include under this title the discussion of the preliminary training of the practitioner, of the training which he received or ought to receive in his medical school. The character of this training is certainly a very important factor in the pro-

duction of desirable practitioners. In recent years a great deal has been written and said on this subject, and judging by the results, there is still room for more saying and writing on that important topic. But you are not concerned in this subject, or I shall hopefully rather say, you are not yet concerned in it; you are just out of the preliminary medical training, and it is not my intention to talk above your heads to others, to teachers and makers of medical schools. It is my wish to talk to you of that which you can do and ought to do, in order to become desirable practitioners. I mean to discuss the perpetual self-training of the school-made medical man. Now I wish to be understood at the outset that my remarks are not directed to that small fraction of you who are destined to become leaders in the medical profession. I hope there are such candidates among you. I am at this occasion not interested in their fate; they will take care of themselves without my advices or perhaps still better in spite of them. We are not in danger in the United States of not getting medical generals. We have leaders in medicine of world-wide renown who received their medical education in some of the lowest of the 150 medical colleges of the United States. We had such brilliant medical generals as Beaumont or Marion Sims, great names well known to your school, at a period when the medical knowledge and medical practice of the rank and file were miles behind that of the present generation. The standard of medical practice cannot be measured by the greatness of our leaders. It is the level of the general practitioner, of the rank and file, which indicates the exact position occupied by medical professions in the various sections of this vast country. Our interest, therefore, centers in the great majority of you who are going to be general practitioners, and it is my fond wish to be able to indicate to you some of the procedures which may assist you in becoming efficient and desirable practitioners.

In suggesting to you to strive to become desirable members of the medical profession, I am not going to deliver a sermon from the top of a mountain. I shall not preach such unusually high ideals which might seem to you to be unattainable. I do not deny that I wish to elevate the standard of the practitioner; but in offering an advice I shall not leave the earth. I shall discuss the solution of practical questions from a practicable point of view.

One of the important questions with which you shall soon be confronted is the proper utilization of time. It is highly probable that for two or three years you will have plenty of leisure. Use it now to the best of your ability. You will never have such an opportunity again. Use it in the first place to make yourself solid practitioners. No matter what shape your medical activities may assume in the future, you must try at the very outset of your career to acquire the fundamental knowledge

* Address delivered on Commencement Day to the Graduating Class of St. Louis University Medical School, May 31, 1912.

and skill indispensable to the success of the efficient physician.

As to the method of acquiring it, I confess to some heretical views. You hear and read frequently in addresses of leading medical scientists and clinicians that you must acquire a thorough theoretical and practical knowledge in chemistry, physiology, pathology, etc., before you can raise the claim to be an efficient physician. Assuming you have all the gifts, energy, willingness and perseverance to comply with this ideal requirement, how long will it take you to attain all this wisdom? Surely not less than fifteen or twenty years. What are you to do during this long preparation, and what shall be the fate of the patients which you are bound to acquire in the first decade after your graduation? They, too, are entitled to the treatment of an efficient practitioner. And who of those high priests who preach these sermons master all these sciences? I feel confident that there are extremely few great physicians who really master even a single one of these sister sciences, besides his own, the science of medicine proper. It is one of those sermons which exhorts you on a Sunday morning to be saints, while preacher as well as listeners are conscious that they will remain for the rest of the week simple mortals, afflicted with all the sins to which flesh is heir. The worst of it is, that by asking too much, you do not get even a little. The truth of the matter is that 95 per cent. of the work of the busiest physician can be done, and done well, by a very modest quantity of medical knowledge. But this modest quantity must be thoroughly mastered and mastered early, if you wish to become a successful, desirable physician.

The time for acquiring the mastery of it is during that interval of liberty between the termination of your medical education and the acquisition of a supporting medical practice. I am speaking in the first place, to the majority of you who are not going to have hospital appointments. To you I say: Do not lose any time. Proceed at once to acquire methodically that knowledge of the fundamental facts with which the busy practitioner has to be thoroughly familiar in most of his daily work. And let me make this confession of faith. Although you had to study a goodly number of more or less thick books, I feel certain that the indispensable knowledge which you will have to master in your immediate future could be put into a book of very modest proportions. It would be a service to younger physicians—and to some older ones, too—if busy, substantial practitioners would publish detailed tables of their daily work occurring during a week or two at the various seasons of the year. It would show how much of the practitioners' time is taken up by comparatively insignificant ailments and would also show the percentage and the character of the more serious diseases which claim the attention of the busy practitioner. The knowledge of these ailments and diseases the young beginner should have on the tip ends of his fingers. Such a list you could perhaps obtain from members of the faculty.

To me it seems that of the more serious diseases you ought to know well all about tuberculosis, the pneumonias and pleural effusions; about endocarditis and myocarditis, about gastric and duodenal ulcer, about biliary and renal colic, about appendicitis, volvulus, intussusception and incarcerated hernia; about typhoid, diphtheria, meningitis, and otitis and its possible complications; about the eruptive diseases and their complications and sequelæ; about erysipelas; about malaria, the various forms of syphilis, gonorrhea and rheumatism; about

diabetes and nephritis. Of course, this is by no means a complete list. You must know further all about alarming symptom-complexes; about gastric and intestinal perforations; about pulmonary and cerebral emboli; about pulmonary, gastric, intraperitoneal and cerebral hemorrhages; about pulmonary edema and laryngeal stenosis; about eclampsia and coma. You must acquire a thorough knowledge of how to meet various emergencies, how to stop hemorrhages, how to perform artificial respiration, and you must know the poisons and their antidotes. I do not mention here the incidents of surgery, gynecology and obstetrics, with some of which every practitioner must be well acquainted.

When I said, you must know all about these diseases and conditions, I did not mean that you ought to study up the theoretical side of it, the physiology, pathology and etiology. On the contrary, I advise against all theoretical studies until you have thoroughly mastered the indispensable practical side. Study thoroughly the symptomatology, course and treatment of the frequent diseases. Do not read your text-book from page to page. Pick out the necessary chapters. You probably have your notes and books; it is best, however, to read on the same subject in various books; you gain a deeper and more judicious knowledge of things. But be careful in your selection of text-books. We have many uncritical writers who do not possess even good judgment as to what to copy. Do not use large hand-books at the beginning; a translation of Strümpell's text-book is greatly to be recommended. I shall repeat, I advise that you acquire a thorough book-knowledge of the essential things a busy practitioner has to deal with. I believe that this knowledge, which is not very extensive, can, by diligent work, be mastered in three or four months. Do not believe that you know it now, because you passed examinations in all these things. You do not know them "for power," and you will soon forget them all. And even if you know them, by singling out the essential things and studying them well, you create in your mind a very valuable ready-working capital.

But now, after all these acquisitions, do not believe that you have already real knowledge. Book-knowledge becomes valuable only after it has been thoroughly tested in practice; it makes the testing easy and very profitable. Now the time has come for you, when you must try hard to come in contact with actual practice; this is absolutely indispensable. Try to connect yourself with some dispensary, even if it is as only the third or fourth assistant. But be on your guard. Dispensary work, with the large number of patients, the careless routine procedures, the hasty, superficial examinations and the prescribing by numbers, breeds inefficiency. But with your careful preparation and with a clear notion of that which you want to acquire, you run no danger. Try not to have too many patients, and if you can not avoid it, try to select a few patients for a more careful study; you and the patients will benefit by this. Perhaps you could take some patients home for a more careful examination; but avoid any possible suspicion that you wish to use them for any material benefit, or for advertisement; that would be the beginning of the destruction of your reputation. In these studies, learn first of all how to observe without any preconceived notions, how to elicit and collect symptoms. Try to master the art of percussion and auscultation and to identify all these symptoms with your theoretical knowledge of them. You had better not trust yourself at the

beginning as to your recognition of the nature of your observations and the correctness of your conclusions; ask your neighbor for his opinion. Do not be ashamed to ask and do not mind if it happens that your neighbor looks down on you on that account. If you continue asking, it will not take long before everybody around you will know your mettle. Incidentally, do not try to show your neighbors that you know more than they; let them find it out for themselves. For the few patients whom you are studying in particular do not employ the dispensary method of prescribing; learn how to prescribe in a specific way for the specific trouble of that particular patient.

Besides the service in a dispensary, try to attach yourself to such an out-patient service in which you could call on poor patients at their homes; in this way you will have an opportunity of studying acute diseases. Gradually you will acquire private patients of your own. Let us hope for your ultimate success that your private practice will grow slowly. An early and rapid growth of practice interferes greatly with the proper growth in efficiency of the young practitioner. In the early years of growing experience each patient must be examined slowly and thoroughly. The diagnosis should be arrived at only after a careful analysis of anamnesis and symptoms. Do not look for pathognomonic symptoms. Pathognomoncity is conducive to mental decay. Every case which requires thinking, analysis and conclusions contributes to your mental and practical training. Make notes of your cases, and at home in your library, go over your conclusions again consulting the corresponding chapters in your text-books.

During this period of growth fill up gradually the gaps of your knowledge regarding the less frequent diseases. Learn and acquire gradually a tolerable mastery of the manual execution of indispensable diagnostic and therapeutic measures, like spinal puncture and intraspinal injection, laryngeal intubation, the dexterity in the proper use of the stomach tube and the introduction of a urethral catheter. Acquire one after another a certain degree of mastery of the technic of microscopic and chemical analysis of the gastric contents, urine and feces, of the microscopic examinations of blood and of some clinical methods of bacteriology. Learn to use a blood-pressure apparatus and learn to decipher the meaning of a sphygmogram, cardiogram, phlebogram, electrocardiogram and x-ray pictures. Obtain also some knowledge and dexterity in laryngoscopy and ophthalmoscopy. When you will become a very busy practitioner, you will have most of these manipulations done by others, who may be experts in these lines. But if you have acquired some decent knowledge about these things yourself, the laboratory experts will not talk to you above your head, you will know how to reduce each statement to its proper level, and many an erroneous diagnosis will thus be avoided. It is pitiful often to listen to old leading practitioners, using terms of modern medicine, with the fundamentals of which they have neglected properly to familiarize themselves.

So far I have talked to you from a purely practical point of view. The advice which I have given is, I believe, not hard to follow, and if you are serious in your purpose and diligent in your work, you will develop within seven or eight years into a competent, trustworthy physician. But a desirable physician must be more than that, and I have a few more things to say.

In the first place, any and every practical physician ought to try to keep up some affiliations with the scientific side of medicine. Of course, he must try to see now

and then autopsies which often clear up the nature of some obscure disease. But physicians of the newer generation ought to become familiar with the idea that the changes found after death from a disease are often merely the consequence of the disease and not its cause or its nature. A disease is a functional disturbance and physicians must accustom themselves to think in functional terms. It would be of great help to them if, now and then, they would study up one chapter or another of modern physical or chemical physiology or physiologic pathology. Besides the acquisition of knowledge and the training of the mind in the practice of thinking in functional terms, such occasional occupation with purely scientific problems elevates the standard and the general tendencies of such physicians.

Moreover, you ought to be aware that the medical knowledge which you have acquired in your medical education presents only a phase in medical history. That which you consider now in medicine as conservative, safe and indispensable was once new and met with violent opposition from the leading conservative men of that time. In the face of the rapid progress medicine is making in our day, the efficient physician must make up his mind to be ready to pick up such new things which have definitely proved their right of existence. Metabolism, immunity, anaphylaxis and chemotherapy present such functional problems of which the desirable physician ought to obtain a broad understanding.

In discussing the self-training of the young practitioner I would like to say a frank word on therapeutics. Many of our leading solid clinicians think lightly of therapeutics—unless it be water or air—and a good many of our fine, well-trained pharmacologists often speak sneeringly and contemptuously of the drugging habit of the busy practitioner. But let me say this: Our great medical teachers received their training in clinics closely adjoining the autopsy-room, and won their spurs by making brilliant diagnoses of such pathologic conditions which permitted early their verification on the autopsy table. "Interesting" cases of this type, which naturally rarely benefit by drugs, and which form mostly the bulk of the work of the great clinician in his hospital activities as well as in his consultation practice, give a wrong impression of the importance of drugs in general medical practice. In the work of very busy and efficient practitioners, however, who trust drugs and know when, how and which of them to use, such classical cases as above mentioned form only a small fraction. It is instructive to know how some of these great clinicians treat their patients when they have to deal with them all alone from start to finish. In a long experience I came across prescriptions by some of our great men which were a revelation to me. I could fill a page or two with such indiscreet gossip. Polypharmacy, incompatibilities and even notorious patent nostrums were there.

As to my friends, the pharmacologists, I risk to say that it would have been better for therapeutics as well as for themselves, if they would have had in addition to their scientific training an actual training in medicine, at the bedside of patients, and not of patients in hospitals, where there are practically no responsibilities to any one in particular, but at the bedside of a private patient, whose mother or wife, with eyes red from sleeplessness and crying stares at you, watches every movement of yours and begs you for help. You will then cease to be a hypercritical philosopher. It is well enough for pure science to restrict your interests to such state-

ments only, the validity of which has been definitely proved, according to your notion of proof. In medicine there is human life and happiness at stake, and you ought to recognize the undeniable fact that some claims may be true, even if you with your methods have not yet been able to prove them. The history of the use of iron in the treatment of chlorosis ought to be a lesson. While every physician could tell you from his own knowledge that, say, Bland's pills act in these cases like a charm, great laboratory men like Bunge and Schmiedeberg denied persistently that inorganic iron can be absorbed and thus capable of supplying the iron deficiency of the anemic patient. The struggle lasted nearly a quarter of a century. The trouble with the men, trained exclusively in laboratories, is twofold. First, they do not seem to see that a medical fact, observed critically by a capable physician, deserves as much credence and consideration as a fact developed by laboratory methods, and, second, that the laboratory man offers here positive opinions in a field in which he has had no experience.

I may say here that great physicians, like Traube and Kussmaul, who were busy general practitioners before they entered on their brilliant scientific clinical careers and whose training has been more in the experimental laboratory than in the dead-house, were never infected with therapeutic nihilism, though they dwelt then in the midst of this mental epidemic.

While I thus caution you against teachings which speak contemptuously of treatment by drugs, I have to warn you against the danger of uncritically accepting statements made in favor of numerous drugs. Not only are there a great many old medical compounds which the sound practitioner will do well to eliminate from his list, but he ought to be very discriminative in accepting new drugs which are backed up by seemingly reliable laboratory or clinical authorities. Here you will be often confronted with premature, uncritical statements which do not stand verification. This, however, is still comparatively innocent. The greatest danger threatens you from much worse quarters. There are base, unscrupulous individuals and concerns abounding in this country, and apparently not few of them in your city, who select the sick and the suffering as the easiest prey for their greed. The drugs which they offer, some worthless, some dangerous, are praised beyond measure. They are after you, the young practitioner, to become their innocent tool. They spare no money to trick you into it. They employ all sorts of talents, journalistic, clinical and laboratory. They publish their own journals, which they offer you for one dollar a year or for less. They smuggle their articles into some of the five-dollar journals; their hirelings present papers in low and high medical and scientific societies. They are for science, for progress in medicine, if that is a good bait, and they are for medical liberty. They have their men in the United States Congress, and in some governmental departments. They are everywhere; and when you are not on your guard, they will get you. But a desirable physician should do more than resist passively; he should actively assist in the war which the united profession of this country is trying to wage against this great danger to the physical, moral and mental life of the nation.

In the selection of the drugs which you wish to employ, do not be influenced by the advertisements, no matter in what journal; neither by the literature which is sent to you, whether with or without samples of the drug. Select carefully the medical journals which you

are reading, and be also on your guard in the selection of the articles which you wish to read with care. By attentive frequent perusals of medical periodicals you will soon acquire a knowledge of who is who in the medical profession in this country, from whom you can and ought to learn, and whose statements you may trust. Besides the dividing line between knowledge and ignorance, there is the line which separates the decent from the indecent physician. This division is more important than the first one. Throw your indifferent brethren to the indecent ones and stick closely to the class of decent physicians. They need not be saints; every-day common decency is good enough. Be sure that they do not sell themselves, their science or their patients to the highest bidding physicians and surgeons or to drug manufacturers.

Those who are in the practice of medicine, and those whose task and duty it is to make the practice efficient, ought to become imbued with the idea that the treatment of the patient is the paramount object of the practitioner. The very fact that great stress is to be laid on treatment will assist greatly in the development of its efficiency. The enlistment of men of genius in behalf of therapeutics brought us in recent years the marvelous new facts and principles of the serum treatment and chemotherapy. The actual curative remedies are still small in number, but on the basis of these principles more may be expected. But the prevention of the fatal outcome of a grave disease is not the only aim of therapeutics. Treatment covers a variety of objects, to be attained in various ways. The patient must be made comfortable even in hopeless diseases. Self-limiting diseases must be attended in order to obviate errors of nature or of attendants, and an attempt must be made, where possible, to accelerate the recovery. All sufferings, even of only temporary nature, must be alleviated. Our old clinicians had and have too much contempt for the treatment of symptoms. Salicylates which surely relieve rheumatic pains should be given even if they do not accomplish a cure, or even if the rheumatic fever would have gotten better without salicylates—if the sufferer could have waited long enough. Of course, no treatment should be given which could diminish the patient's chances of recovery, and no such treatment should be given which increases the patient's suffering and discomfort without having reliable evidence that it increases his chance for life. It is an interesting psychologic phenomenon that some medical men who are drug nihilists would insist on giving cold baths to typhoid patients who beg to be left alone, with flimsy statistics as the only proof for the usefulness of the method. I hear that some of our confrères became milder in their requirements after they had to take a dose of their own medicine. The story repeats itself in the cold-air treatment; an ardent advocate of the method recovered from his pneumonia without its aid.

Lighter than air is psychotherapy. Do not practice it consciously; you are training yourself to be a humbug. Have a thorough knowledge of your subject which entitles you to speak with conviction; be sincere in your dealings with your patient so as to gain his confidence; have sincere sympathy with your client which ought to manifest itself without obvious demonstration; be practical in your advice, and talk to the patient and his surrounding in common-sense terms—and you will have practiced psychotherapy honestly and successfully.

During health the human being is his own guide. When he becomes sick he loses his bearings and the physician is called on to lead him through and out of

the wilderness. But the physician is and ought to be more than a guide to the patient; he ought to be his natural protector, now more than ever. In the years gone by patients, with rare exceptions, had no adversaries. With the discovery that most of the acute diseases are infections, the recognition came to light that each patient is more or less a menace to his surrounding, and it became the painful duty of the community to look out for the protection of its healthy members. The poor patient, besides his affliction and helplessness, has now an official enemy, and the health officer is the prosecuting attorney for the community. It is, therefore, now the natural duty of the physician to be the attorney for the patient. It is certainly the duty of every enlightened physician to assist in the protection of the community against the spread of diseases. But at the same time he ought to see to it that no measures, and especially no harsh measures, should be taken against stricken patients, based only on whims and ephemeral theories of half-baked sanitarians, and that the measures should not be carried out with harshness but with charity and kindness.

A desirable practitioner ought to be aware also that the particularity of his calling requires of him a higher standard of ethics. A physician who is ethically not higher than the average man is ethically lower than the average man. I shall offer two reasons for this dictum. The activities of the ordinary man are in most cases susceptible to supervision by his fellow men. The greatest part of the activities of the practitioner, however, are not accessible to outside control. Such an office of trust requires a higher standard of morals. Then there is the fact that the physician deals with situations which very frequently have tragic elements of distress in them. In disasters humanity asks for altruism, the legal laws of selfishness are suspended, you are asked why you have saved your life in preference to that of a woman or a child, strangers to you. Now, my young friends, I do not propose to you to be a hero every day of your life. I am afraid I could not be one even on one day of my life. But it is not a sacrifice to be every day of your life a desirable practitioner; on the contrary, it is a great pleasure. I congratulate you all and wish you great success.

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THE ADDITION OF A FIFTH YEAR TO THE MEDICAL CURRICULUM*

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The remarkable advance in medical education in the last quarter century has concerned both the kind and the amount of the training demanded of the medical student. Laboratory and practical courses, in which the students, in small groups, are brought into immediate contact with the materials to be studied, and thus obtain knowledge at first hand, have largely supplanted the didactic lecture and recitation, especially in the fundamental branches. Unfortunately the introduction of similar methods—of objective teaching—in the clinical subjects has made little progress, excepting in a few schools, and the lamentable deficiency of our medical students in practical experience at the bedside, is keenly realized. How serious and deplorable is this deficiency

has been graphically set forth by Mr. Flexner, of the Carnegie Foundation, in his Report on Medical Education.

The amount of education demanded has been increased at two points—the extent of preparation exacted for admission to the medical school, and the length of time required to be spent therein. As the successive steps in advance have been taken, the decision as to where the increase should be made has not always been wise. When, for example, about fifteen years ago, a general increase was made in the curriculum from three to four annual sessions, it would have been better if, in lieu of this, the advance had been in the premedical requirement, this requirement being at that time in most schools, about two years of high-school work, rather loosely enforced. Much more would have been accomplished in the direction of elevating the standards of the medical profession had the emphasis been placed at that time on a fairly adequate preparation for medical study.

Fortunately, during the last five or six years, rapid progress has been made in this direction, and with about thirty medical colleges now exacting two years of college work for admission, with five of the state boards of medical examiners demanding the same as a prerequisite for licensure, it seems pretty certain that this will be the uniform standard of the medical schools, in the northern states at least, within the next decade. With the present conditions in most of the secondary schools, and while so large a proportion of students enter college at 21 or older, and the medical school at 24 or later, it seems unwise to contemplate any further advance in the requirements for admission to the medical schools, as a universal standard, in the near future. Nothing less than this, however, will suffice to give the student adequate preparation for the study of medicine under existing conditions. One year of college work is not enough to afford the requisite training in English, mathematics, physics, chemistry, biology and foreign languages, notwithstanding the fact that the Council on Medical Education of the American Medical Association has recommended such a curriculum of one year.

If the premedical curriculum may be regarded as satisfactorily determined for the present, the next step in advance in medical education, at once the most needed, and, under the right conditions, the most feasible, is the addition of a fifth or practical year to the present course of study, this year to consist of service as an intern in a hospital, under supervision of the faculty or, in exceptional cases, for those who look forward to a career of teaching and investigation, of advanced and research work in one or more departments of the college. This fifth year should precede the conferring of the degree.

The feeling is universal among medical educators that medical graduates are entering into practice with too meager first-hand knowledge of disease—such knowledge as can only be gained by actual experience, at the bedside under careful supervision. In the earlier years of medical education in the United States, such experience was secured by an apprenticeship with a preceptor. This, indeed, constituted the sole means of preparation of a considerable proportion of medical practitioners until well after the middle of the last century. For the remainder, the one or two sessions of medical lectures, of four or five months each, was the incidental rather than the chief part of their training. The rapid development and growing importance of the fundamental medical sciences led to a steady increase in the amount of time required of the student in the college, while the changing conditions and methods of practice made it

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more and more difficult for the preceptor to give his student-apprentice effective instruction, and so his function in the training of the student became gradually less, and the title of preceptor merely nominal. The passing of the preceptor, and of the excellent practical training which the student received at his hands, was a real loss in medical education, but one which seems to have been inevitable. Meanwhile the opportunities for practical experience in the hospital have enormously increased. The hospital idea has grown rapidly. The public is becoming educated to the fact that the hospital is the best and most economical place for the sick—medical, surgical or obstetric. Few cities of 15,000 or more inhabitants are to-day without one or more hospitals.

I have sought to ascertain the number of hospitals and of hospital beds in the United States which do, or which should, admit interns and afford them reasonably good opportunities for practical experience. I have taken the following figures from the American Medical Directory, third edition. The data these supplied are not perfect, as many institutions fail to report the number of beds or to indicate clearly the character of the hospital. With the data at hand the hospitals having twenty beds or more, may be grouped as follows:

1. Hospitals associated with, and more or less completely controlled by medical schools; of these there are 104, with 22,365 beds.

2. Hospitals located in cities where medical schools are situated, but not at present controlled by them; of these there are 645, with 73,535 beds.

3. Maternity hospitals, located, with few exceptions, in cities having medical schools; seventy-one, with 4,115 beds.

4. Hospitals, public and semi-public, located in cities not having medical schools; of these there are 1,381, with 82,320 beds.

5. Public hospitals for the insane, of which there are 173, with an aggregate of 183,665 patients.

6. County and state infirmaries; 267, with 30,100 beds.

7. Private hospitals comprising (a) those for nervous and mental diseases of which there are 124, with 12,285 beds; and (b) those for medical and surgical and special disorders of which there are ninety, with 4,990 beds.

8. Hospitals for contagious diseases; there are fifty-nine, with 6,795 beds.

9. Hospitals and sanatoriums for tuberculosis; of these there are 266, with 21,550 beds.

10. United States marine, Army and military hospitals, of which there are 79, with a total of 8,255 beds.

Each one of these institutions, with the exception of those for the insane and some of the infirmaries for chronic diseases, needs an intern for every twenty or twenty-five beds. Even with our present excessive output of medical graduates each year (at least 50 per cent. in excess of the needs of the country), there should be a vacant internship awaiting every graduate in medicine.

Several of the stronger medical schools report that not only has every graduate from these schools for the last four or five years been able to secure an internship in a good hospital, but the demand for their graduates to fill such positions has exceeded the supply.

In 1906, one medical school added a fifth year to its curriculum, made optional and leading to a *cum laude* degree. Five other schools have since added a fifth year as an optional addition to the course of study, and one, the medical department of the University of Minnesota,

now requires this year for graduation. In Germany a practical year has recently been made compulsory and a similar requirement obtains in some other foreign countries. The uniform adoption of a curriculum extending over this hospital year is recommended by the Council on Education of the American Medical Association. Is it feasible? If so what steps are necessary to put it into operation? What regulations should be prescribed in reference to it?

The plan is desirable and practical for the school which is prepared for it and which can secure the necessary hospital connections and control to insure a place, under the right conditions, for all of its students during this intern year. A serious mistake will be made, however, by any medical college which rushes into the scheme hurriedly, just because the idea is "in the air," unless it is able to meet these essentials.

In the first place, no school should add a compulsory fifth year until its entrance requirements have been made equal to those now demanded by the conditions of the time as exemplified by the twenty-nine colleges now exacting two years of college work beyond the high school. One year is not sufficient, and especially will any attempt on the part of the detached medical school to give instruction in the required physics, chemistry, biology and modern languages, be a serious step backward.

The necessity of securing the proper connection with hospitals involves the large question of the relation of the medical school and the hospital—quite the most vital question to-day in medical education in the United States. What should that relation be? It goes without saying that the dispensary and hospital constitute the laboratories for the clinical branches, as do the dissecting-room for anatomy, the morgue for pathology, and the laboratories of physiology, biologic chemistry, pharmacology, histology, embryology and bacteriology for these several sciences. Mr. Flexner says in his report, in reference to control and utilization of the hospital for teaching and research, that the medical school should bear exactly the same relation to the hospital as it bears to these other laboratories. It is obvious, however, that there are very important differences from the nature of the case. The dissecting-room, the morgue and the other fundamental laboratories serve exclusively the purposes of investigation and teaching. There are practically no limitations on the use of their materials for these purposes. The hospital is primarily a place for the care and cure of the sick. Whatever other purposes it may serve, its use, therefore, must always be conditioned on, and subordinate to, that one vital fact—the welfare of the patients. No use of these patients for any purpose can for an instant be tolerated which is in any degree prejudicial to their welfare, entails unnecessary suffering or delays their restoration to health. Moreover, in the long run, it is in the best interest of science, as well as humanity, that no patient should be used as a clinical subject against his will. The use of a pauper patient against his will for instruction or investigation on the theory that he, in this way, makes return for his free treatment, is wrong in principle and pernicious in practice. On the other hand, it is seldom difficult for the tactful, kind physician to secure the consent of a patient, rich or pauper, to serve as a clinical subject.

While the use of the sick for purposes of investigation and instruction must ever be subordinated to their welfare, when conducted under suitable regulations and

supervision, such use is not only not inimical to the patient, but decidedly in his best interest. The hospitals where complete and accurate clinical histories are written, where thorough diagnostic methods are carried out by modern methods, in a well-equipped pathologic laboratory, are, almost without exception, hospitals under the control of a high-grade medical school and in which instruction and research are daily carried on. On this point there is unanimity of opinion by all who are most competent to speak. Says Dr. Keen:

I speak after an experience of forty years as surgeon to a half-dozen hospitals, and can confidently say that I have never known a single patient injured, or his chances of recovery lessened by such teaching. Moreover, who will be most slovenly and careless in his duties, he who prescribes in the solitude of the sick-chamber, and operates with two or three assistants only, or he whose every movement is watched by hundreds of eyes alert to detect any false step? I always feel at the Jefferson Hospital as if I were on the run with a pack of lively dogs at my heels.

Miss Barfield, after an ample experience as nurse and patient, speaks as follows:

As a matter of fact, in a properly administered hospital, medical schools are a protection to the patient rather than otherwise, for it usually means that the hospital is a very live one. In teaching hospitals I think that, on the whole, patients are generally better nursed, for everyone is kept up to the mark, including the professors.

And the committee appointed in 1905 to inquire into the financial relations between the hospitals and the medical schools in London says:

We find that the pressure of a body of eager young men watching the proceedings of their teacher has a tendency to keep the medical men on the alert and to counteract the effects of the daily routine of their duties.

Indeed, the hospital needs association with the medical school quite as much as the college needs the clinical material of the hospital. Hospital boards are beginning to realize this, and some significant demonstrations of this awakening are of recent occurrence. About three years ago the board of directors of a children's hospital, which had been in existence several years, voluntarily sought and entered into affiliation with the faculty of a medical school which had for several years controlled another hospital to the mutual satisfaction and advantage of all concerned. The board asked the faculty of the college to assume entire responsibility for the medical conduct of the hospital; the existing medical staff resigned, and the faculty was given full power to nominate a new staff, which, by the special request of the board, was to include no physician who was not a member of the faculty; clinical instruction and research to be conducted in the wards as directed by the faculty. Within a year another institution has voluntarily sought and secured a similar relation to the same college. These facts are, to my mind, a pretty certain indication of the trend of the times in reference to the relation of existing hospitals and medical schools in some of the cities of the United States. And does it not offer a more satisfactory and feasible solution of the needs of the medical school for clinical material than does the proposition that the medical school must own and maintain its own hospital?

The hospital being primarily an institution for the care and cure of the sick, its maintenance is not properly a function of the medical school, whose business is specifically educational—including research. In most

instances the medical school has come into existence to find the surrounding community already abundantly supplied with hospitals—the evidence of which is furnished by the fact that these hospitals are much of the time clamoring for patients to fill empty beds. True, the conditions in these institutions are usually far from satisfactory, but even so shall the medical college duplicate hospital accommodations already equal to or in excess of the demands of the community, at enormous expense for construction and endowment, or shall it seek to establish the right relations, and secure the necessary control of existing institutions, which control, as has been pointed out, would be to the great advantage of both hospital and school? The great medical schools of European countries, where the control of clinical material is most satisfactory and where the best scientific work has been done, do not as a rule own and maintain hospitals. They use the great municipal or state hospitals maintained by the city or state. The corresponding hospitals in our own country, the management of which, tainted by ward politics, has been up to the present time so unsatisfactory from every point of view, nevertheless contain, and will continue to command, the best possible clinical material, such as no non-public institution can hope to duplicate.

In those rare instances in which a large provision has been made for research, either in the medical school or in an institution devoted solely to scientific investigation, there is advantage in having a relatively small hospital, liberally endowed, in which can be collected groups of cases of this or that disease, primarily for the purpose of an exhaustive and protracted study. Into such institutions patients enter with the express understanding that they are to be made the subjects of investigation—not, of course, to their detriment. Here the purpose of investigation supplants the care and cure of the sick as the primary motive, and the burden of maintenance falls properly on the endowment for research.

It seems to me, therefore, that even for the purpose of securing clinical material for the necessary instruction in the junior and senior years of the present curriculum, the medical school, with rare exceptions, must find it through affiliation with existing or to-be-established hospitals, on a pecuniary foundation distinct from that of the medical school itself, and with persistent and intelligent effort, I believe, this can be done. When it comes to the question of finding places for all of its students in their fifth or intern year, there can be no question about which course the college must pursue. No one, surely, would contemplate the possibility of a medical college undertaking the ownership and maintenance of a hospital of such magnitude as to supply internships to all of its graduates. To supply places for all of its students the students must find places as they are now doing, in detached hospitals, in the cities where the colleges are located, as well as in other cities, more or less distantly removed from the medical schools. It is of course not possible, nor is it necessary, that the medical school should have the same degree of control over the hospital for this purpose as is indispensable for the clinical work of the earlier years, and for the conduct of research by faculty and students. Certain things it must insist on, however, if this fifth year is to be of the largest possible value to the student. The mere securing of an internship in a nondescript hospital, in the perfunctory manner in which it is so often done, does not suffice.

The hospital must have or, not having, must institute a good system of clinical records that the intern may write accurate and thorough case histories.

It must have a well-equipped clinical laboratory convenient to the wards where he may make the necessary examinations of urine, blood, sputum, etc., examine blood cultures, and carry out, in short, all of the approved modern methods of laboratory diagnosis.

Some one or more members of the staff must be able and willing to supervise closely the work of the intern, correct his mistakes, and give him needed instruction in the details of the practice of medicine which he has not yet mastered. These members of the staff will cooperate most cordially and effectively with the faculty if they are made extramural members of the faculty of the school. They should attend faculty meetings as often as possible, and should feel themselves to be an organic part of the teaching body.

It will, of course, be of great advantage if the hospital has a school for nurses, and conducts the nursing work of the institution along approved modern lines. It will greatly enhance the quality of the service rendered by the hospital to its interns, and not less to its patients, if it has a trained, salaried pathologist who gives all or most of his time to the work of the hospital, and who is doing original investigation as are other members of the staff. In time all of these things must be insisted on, but for the present trained nursing and research work are unknown in so many otherwise acceptable hospitals, that their general introduction may be secured only in the course of time.

The regulations prescribed by the faculty for the intern should be such as to insure that this hospital year be of the largest possible educational value to the student. The rules drawn up by the faculty of Rush Medical College in 1905 were set forth in a circular announcing the installation of the fifth year leading to the *cum laude* degree. As this announcement may not be without interest in this connection I quote it in full.

FIFTH YEAR

Beginning with the sessions of 1905-6 a fifth year is added to the curriculum, which, for the present, will be optional. The work of this year will be that of

A. Graduate work in one of the departments of the college; or

B. An internship in a hospital.

On the successful completion of this fifth year he will receive the degree of Doctor of Medicine *cum laude*.

A. The year of graduate work may be taken either

1. In a fellowship, by students who may be appointed to such positions; or

2. As a graduate student.

In either case the candidate must be in residence at least three quarters and complete the equivalent of seven majors of work in some one department, or of nine majors in three or more departments, and present a satisfactory thesis. The candidate must be recommended to the faculty as entitled to the degree by the department in which the graduate work has been done.

B. Fifth year in an internship.

CANDIDATE

1. Every student wishing to take the fifth year as an intern shall announce his intention in writing to the dean of medical students before the last term of the quarter in which he expects to graduate.

2. The internship may be procured by competitive examination or by appointment.

3. Each candidate shall, during his service, be under the frequent and close supervision of a member of the faculty, to be designated as hereinafter provided.

4. He shall make report to this supervising member of the work he is doing, at least once a month. Such report shall state the number and nature of the cases he has had under

his care during the month, and the number of days (if any) that he has been absent from his work, and for what cause.

5. At the end of his year of service he shall submit to his faculty supervisor copies of the complete original histories of at least ten (10) of the cases that have been under his care, and which were written by him, the patients' names to be omitted. These shall be submitted to the committee of examinations for the *cum laude* degree.

6. At the end of his term of service either (a) he shall present a typewritten thesis embodying the thorough study of a case or group of cases, including their thorough examination by modern clinical tests, which must be satisfactory to the committee; or (b) he shall pass an oral and practical examination before the committee at a time and place to be designated by the committee.

7. He shall be present at the commencement when the degree is conferred; no degree is conferred *in absentia*.

FACULTY SUPERVISION

1. During the winter quarter of each year the president of the university, the dean of the faculty, and the dean of students, as a committee, shall designate

(A) A committee on examination for the *cum laude* degree consisting of five of the faculty members, selected from at least five of the clinical departments (medicine, surgery and obstetrics to be always represented), who shall serve for the college year, beginning with the succeeding summer quarter; and

(B) Such a number of supervisors as can most conveniently take charge of the work of the candidates for the ensuing year, for the *cum laude* degree by internships. No faculty supervisor shall have charge of more than five candidates.

2. The interns to be thus supervised shall be assigned to the faculty supervisors by the committee on examinations for the *cum laude* degree, as above provided for.

3. It shall be the duty of the faculty supervisor:

(A) To direct and advise the interns under his charge as to the conduct of their work, to the end that it may be of the greatest possible educational value to him or them. Such advice must be so given as in no way to conflict with the desires and authority of the staff of the hospital in which the intern is serving.

(B) He shall receive from the intern a monthly report of his work.

(C) He shall visit, in person, the hospital or hospitals in which the candidates under his supervision are serving, and acquaint himself thoroughly with the physicians of the staff (especially as to their ability and efficiency), with the equipment and the character of its service.

(D) Before the close of the year he shall, with the approval and consent of the staff of the hospital, select from the history-sheets written in regular daily routine by the candidates under his charge, twenty histories taken at random, and shall examine the same carefully.

(E) He shall make inquiry of the attending staff as to whether or not the service of the intern has been satisfactory, and make a report to the committee when the candidate under his charge has completed the necessary period of service, as to the manner in which he performed his duties—whether satisfactorily or otherwise—accompanied by his recommendation as to whether or not the candidate should be given the *cum laude* degree.

HOSPITALS

1. The hospitals in which service as an intern may be considered acceptable for the *cum laude* degree shall be selected by the committee on relations with other institutions, and be approved by the faculty.

2. Such hospitals shall have at least twenty beds.

3. The officials of the hospital shall be notified that such and such persons, whom they have selected as interns, are to perform their services also as candidates for the *cum laude* degree, and the assent of the officials to the arrangement must be secured before the service is entered on.

4. There must be on the staff of such hospital at least one physician who is a member of the faculty of Rush Medical

College—either intra- or extramural—unless exception be made by the vote of the faculty.

5. A list of the hospitals approved by the faculty shall be kept in the hands of the deans who will advise inquiring students whether any particular hospital is or is not included in the list.

The requirements imposed by these rules were not unreasonable for a *cum laude* degree which, it was planned, should be the equivalent of the master's degree (A.M., or M.S.), conferred by a college or university for one year of graduate work. I am inclined to think that they are somewhat too rigid an exaction, at least in the beginning, for a fifth year which is made a prerequisite for the degree of M.D., and, therefore, for licensure to practice medicine. The amount of routine work now demanded of the intern in many hospitals so consumes his time as to make it very difficult and often impossible for any but the exceptional student to prepare a thesis. This ought not, however, so to be. The intern should have time to study the cases assigned to him thoroughly and carefully, and also pursue exhaustively the study of some disease or condition as presented by some interesting case, or group of cases, to explore the literature relating to that topic, and to set down in orderly fashion the results of his investigation. No instruction or experience in his career as a student of medicine is so potent an educational measure as this one of independent creative work. As previously indicated, I believe it is possible to extend this plan of cooperation and affiliation to hospitals located in cities more or less remote from the medical school. In such case, also, the members of the hospital staffs selected to supervise the work of the intern should be made extramural members of the faculty of the school. Needless to say, no such appointments should be made of physicians simply because they are members of the staff of the hospital. They must be carefully chosen because of their known ability and willingness to instruct the student, and to direct his work carefully, and no hospital should be affiliated unless there are such persons on its medical staff. In most of the smaller cities such men are to be found, fundamentally as capable of high-grade work, in practice, teaching and research, as are many of the members of the intramural faculty. These men would find, in an intimate, vital connection with the medical school and in the work of instructing students, an inspiration and stimulus that would be to their advantage and that they would keenly appreciate. They should visit the medical school from time to time, attend an occasional faculty meeting and become acquainted with its ideals and methods. Their connection with the school should be recognized by the appearance of their names and titles in its bulletins or announcements.

There is no inherent difficulty in the plan of having two or three schools associated with the same hospital, interns from each working side by side, as they do at present in some of the larger hospitals, each intern under the supervision of some member of the staff who owes allegiance to the school from which the intern comes, and from which he is to receive his degree. Indeed, there are important advantages in having interns from two or more schools working side by side in the same hospital, with a common purpose, but stimulating and broadening each other's views and knowledge by the diversity of their previous education.

In these hospitals students in the earlier stages of the medical curriculum—that is in the long vacations

succeeding the sophomore and junior years—could, with advantage to the hospital, as well as to themselves, serve as externs, performing the simpler duties in the wards and laboratories under the supervision of the staff and the older interns. These long, four to six months' vacations, under the custom which has prevailed since the preceptor became obsolete, are a sad waste of time and inertia. Under the four-quarter system in Rush Medical College, the students may, if they choose, continue in residence about ten and one-half months each year. In my observation of many students who have pursued this plan during the last twelve years, I have yet to learn of one who has been harmed physically, or otherwise, by continuous work during the four quarters of one or more years of his course of study.

The division of expense between the hospitals and any college with which it is affiliated should not be difficult of adjustment. The hospital, as a place for the care and cure of the sick, should bear the expense of its maintenance for that purpose. The medical school, as an educational institution, must meet any additional expense entailed by the use of the patients for teaching or research, over and above that which would be required to give the best possible service to the patient in the effort to restore him to health. By no sort of logical reasoning can it be concluded that it is a just obligation of the college to pay for free beds because the patients occupying them are used for clinical demonstration. It is the function of a charitable hospital to maintain as many free beds—free wholly, or in part—as its income will permit. The hospital, as an institution, is entitled to credit for benevolence just in proportion to the amount which it expends on the hospital care of its patients over and above that which they pay for such service. Credit for free medical service rendered belongs to the medical staff of the hospital and to the college furnishing the staff—not to the hospital as such. The staff should utilize as clinical material any and every patient in the hospital, be he pauper or pay patient, who does not object to being so utilized. Of course the interests of the medical school and every affiliated hospital are mutual; both are engaged in rendering service to the sick, and each should assist the other in friendly cooperation to secure the necessary endowments to carry on their work.

I am not unmindful of the difficulties to be encountered in securing the effective cooperation of hospitals and medical schools, along the lines suggested. Local jealousies among practitioners, keen rivalry between neighboring medical schools, parsimonious economy on the part of hospital boards, "ward politics" which dominate the control of many public hospitals, the lack of adequate endowment for both medical school and hospital—these and other hindrances to good work by both groups of institutions and, therefore, to effective cooperation, must be met and overcome.

It is because of the magnitude of these difficulties that great care and deliberation is necessary on the part of any medical school which proposes to make a fifth or intern year a compulsory addition to its curriculum. The diploma issued by any medical school should stand for thorough, careful education at every stage of the required course of study, and it should not be made to cover a fifth or intern year until the school can give to the student and to the world assurance of the same effective instruction, closely supervised under proper conditions, during this fifth year that is given during the preceding years of the curriculum.

THE RELATION BETWEEN PRACTITIONER
AND INVESTIGATOR IN MEDICINE*LEO LOEB, M.D.
ST. LOUIS

In the meetings of the Sections of the American Medical Association, we mean to record our work and accomplishments in the advancement of medical science, and our experiences in applying the facts which science has established at the bedside of the patients. This is the primary aim of our meetings. And yet it is well that there are provided certain occasions when we may interrupt our work for a short while and look backward to recognize the principles in our work and, perhaps, even to inquire into the conditions under which we are working, in order to remove difficulties and to achieve the greatest possible efficiency.

Our Section is one of those that represent, if we may thus express it, the pure medical science in contradistinction to the applied medical science, preponderating in the majority of the other sections. The Section on Pathology and Physiology is the meeting-place of those members of the Association that devote their time almost exclusively to investigation and to teaching. It might, therefore, not be inappropriate to discuss some of the relations as they actually exist between the investigator and the practitioner in medicine. When I speak here of investigator, I have in mind principally the specialist in the so-called fundamental sciences of medicine.

The time at my disposal does not permit me to treat fully of this subject. I have to omit all historical considerations. I cannot dwell on the increasing importance of science in modern medicine and the many contributions to medical science which we owe to the practitioner in medicine who, striving after the highest ideals, finds it possible, after hours of responsible and unselfish efforts in the interest of his patients, to devote a part of his day to the furtherance of medical science. I wish rather to restrict myself to the consideration of certain difficulties and misunderstandings which undoubtedly still exist in the relation between the investigator and the practitioner in medicine, in order to help somewhat in removing those difficulties and in making the common work of the practitioner and the investigator still more pleasant and fruitful. And even here I shall have to be brief, omitting any detailed discussion, trusting that my remarks will rather stimulate a discussion of these problems than present a final statement of the issue.

There can be no doubt that certain difficulties exist; they are noticeable in the medical schools, in the institutions for general or specialized medical research; they can be seen among the profession at large. In the medical school, the point of controversy is not infrequently as follows: The clinicians, objecting to a certain way in which physiology, pathology and pharmacology are taught, demand that these branches of science be considered as a direct preparation for clinical work, and that only those parts of the theoretic sciences which are of special interest to the clinician be considered more in detail. The teacher and investigator, who is inclined to favor the field of general physiology or pathology, is especially liable to call forth criticism on the part of the clinician.

Let us now enter into a critical analysis of this clinical point of view. We may at once concede that a medical

school is a school of applied science, intended for the training of men who are to be, principally, not investigators, but practitioners, who apply scientific experience to the solution of practical problems in the life of the community. Just as in an engineering school mathematics and physics are taught with a view of preparing the student for the building of electrical apparatus, of bridges and other structures, just as in an agricultural department chemistry is taught so as to prepare the student to cope with the problem of soil fertility, so the student of medicine ought to be taught physiology, pathology and pharmacology in such a way that he can both diagnose disease of the various organs and understand the essential characters of disease, and at the same time appreciate the principles of treatment.¹ Apparently the analogy between the principles of instruction for the medical and engineering student is perfect, but in reality there exists an essential difference to which, perhaps, due consideration has not always been given.

The engineer is given a definite problem which he knows he can solve in accordance with the well-known principles of his science. Nothing unusual or impossible is ordinarily demanded of him. He is at once in a position to recognize whether or not his task can be accomplished, and if it should not be feasible he will decline. There is no uncertainty about the character of his work. Either it can or it cannot be done. Furthermore, the number of variable factors the engineer has to consider in his work is relatively small as compared with those in the work of the physician. The engineer is presented with a physical or chemical problem, the physician with a biologic problem. And it is well understood how infinitely larger is the number of variable factors in the latter kind of problems.

Thus it is brought about that in a very large number of cases the physician cannot even state offhand whether the task assigned to him can be accomplished or not. As a result of analysis and investigation of the conditions in many cases he will find that, while certain parts of his problem are typical model factors, other parts are made up largely of unknowns. From the beginning, therefore, the work of the physician is that of a biologic investigator and not merely that of a technician brought face to face with a certain routine work. He has to investigate first the character of his problem, whether it is an old or a new problem, and then he will find in the majority of cases that there is, at least in part, a new problem involved. He cannot refuse to treat a patient because there is a new and, so far, unsolved problem involved. An engineer could refuse his services in such a case. A physician cannot. The patient desires and needs help. The physician, therefore, must marshal before him the known parts of the various branches of medical biology, and then he must decide in which direction a solution of the new problem may be attempted. In many cases he will find no indication for any procedure. He is in the dark as to the best mode of attacking the problem. But, however the situation may be, the principal requirement is that he be perfectly clear about the character of the problem he has to face, what part of it has been solved and what part remains unsolved. This process of thinking must be in the highest sense scientific. Very much is demanded of him in the clear analysis of complicated biologic facts. The physician must face his problem in the spirit of a scien-

* Chairman's address before the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. The educational value of laboratory teaching is clearly stated in the excellent address by E. P. Lyon, Equipment and Instruction of the Laboratory Years, *THE JOURNAL A. M. A.*, May 27, 1911, p. 1536.

tific investigator of the highest type. But here a great lack, due, perhaps, to insufficient training, becomes apparent.

It is just here that the physician often fails; he is not able to circumscribe sharply the known and the unknown parts of his problem. He usually assumes that more is known than is actually the case. In other words, he frequently does not recognize the great number of variable factors that present themselves. He proceeds in a routine manner, ignoring the unknown variables in his diagnostic and his therapeutic work. How much better it would be if he should recognize his limitations and acknowledge that so far he can act as a technician, curing or giving definite relief, and from here on he has to act merely as a friend, sustaining the patient in his suffering through his sympathy to the best of his ability! And in this latter capacity as a friend, again a knowledge of biology in the broadest sense will be a most valuable asset for the physician. It will supply him with the philosophic point of view which enables him to elevate the spirit of his patient, to make him as much as possible forget his own difficulties by leading him into a consideration of a larger world of which he forms a part.

We see thus how essential it is for the physician to be truly trained in the spirit of investigation and scientific analysis and how emphatically his daily task calls for a philosophic conception of the universe, a conception which can be best supplied to him through a broad study of biology and the natural sciences in general, of which medical science forms only a part. There is another difference between medicine and other applied sciences. Owing to the enormous size of the unexplored field, to the multiplicity of variable factors and to the most diligent search of many investigators, frequent corrections and additions are made to the fundamentals of our science every year; light is suddenly shed on hitherto dark fields, and in consequence our views not rarely have to be modified, or even to be changed radically to a much greater extent than in the engineering or agricultural sciences. The practitioner has to adapt his diagnostic methods, his conception and even his treatment of disease to this development of our theoretic knowledge. He can do so only if the scientific training he received as a student was broad. The more his training was merely technical, directed only to the application to practical medicine of the scientific principles evolved at the time of his student years, the less will he be prepared to follow the further development of medicine, the more stereotyped will be his activity in the practice of medicine and the more liable will he be to apply occasionally methods which in the end might prove injurious rather than beneficial.

It is to some extent a chance effect of historic development in physiology and pathology and pharmacology which determines what is deemed essential in the curriculum of a medical student. Thus, in pathology the teaching is to a great extent anatomic and histologic; in physiology and experimental (or physiologic) pathology the teaching of the mechanical factors in disease is very much favored, as, for instance, the dynamics of the circulation and mechanism of the heart action, while the chemie and toxicologic pathogenic factors which are all important, but the study of which is of more recent development, are, perhaps, not yet quite considered as of equal rank. Courses in experimental pathology, especially, seem to emphasize the mechanical factors in disease; on the other hand, I believe that an experimental

study of general pathology must have a broadening effect on the mind of the student.² Much of that which is apparently of purely theoretic interest to-day will be of great practical interest to-morrow. As an example, I might cite the laws of surface tension and the practical application made of them in diagnosis in recent years. The investigator and teacher who to-day will deviate somewhat from the usual field not rarely lays the foundation for that which will become routine to-morrow, and he may often be more able to impart to his students the spirit of scientific analysis and an appreciation of the theoretic foundation of medicine than another teacher who gives to his students the more conventional course. I fully concede that the student must be well prepared to understand all problems which the clinical study of medicine offers and, also, that he ought especially not to neglect the study of the mechanical factors in disease, but I would on the other hand plead for a much greater consideration of the more general conceptions of biologic science in its relation to medicine, and for great liberality in making it possible for the teacher to express his individual tendencies in scientific medicine.

I now turn to the relation between the practitioner and the investigator in research institutions, and here I must be still briefer. Here again the practitioner, the clinician, not infrequently is dissatisfied with the attitude of the investigator. In the first place, the practitioner feels that he does not receive sufficiently direct assistance in his work from the laboratory worker. He expects the latter to be at his disposal whenever he wishes help in the diagnosis of the disease, and in other ways in the study of the case during life and especially after death. Secondly, he is inclined to make the criticism that the work of the investigator is too theoretic, has not sufficient bearing on those aspects of disease in which he is especially interested and does not bring immediate practical results.

Inasmuch as the medical department of a university represents a combination of a teaching and a research institution, the difficulties encountered in the research institutions may be found to exist in the medical schools. In the first-named special research institutions, it is especially the pathologist against whom the criticism is directed. There is no doubt that the clinician needs assistance and that he himself is usually not in a position to carry out certain pathologic and biochemic examinations which would aid him much in the diagnosis and the treatment of the disease. It appears, however, very doubtful to us whether it is desirable that the professor of pathology and biochemistry or the director of the laboratory, essentially intended for the furtherance of scientific knowledge and research in medicine, should undertake such work. He would be obliged to scatter his efforts and could not accomplish his essential tasks. During a relatively long period in the history of pathology the careful study of material obtained at autopsies was the principal field for research in pathology. These investigations laid the foundation for our knowledge of pathologic anatomy and histology. At that time the cooperation between clinician and pathologist at the post-mortem table was equally in the interest of clinical medicine and pathology.

Although considerable work undoubtedly remains to be done in this direction, still the principal structure of

2. It may, perhaps, be of interest to mention that in a course in experimental pathology which I prepared and gave in 1904 and in the following years I embodied much work in general pathology. I would also like to refer in this connection to the address of Dr. Yandell Henderson, the chairman of this section at the Los Angeles meeting of the A. M. A., THE JOURNAL, Sept. 9, 1911, p. 1857.

this part of pathology has been erected, and new fields of research that have already given important results and promise still greater results have since been opened, and now claim the best efforts of the investigator. Under these conditions it seems, in general, preferable that this part of pathologic and biochemic work, which is in the main subsidiary to the practical needs of the clinician, should be entrusted to special workers. There is no doubt that here, also, results of interest to science may be obtained, so to say, as a by-product, but this work is not primarily undertaken from this point of view and such results cannot be counted on as certain. Whether these workers in what, in a wider sense, we might call clinical pathology ought to be attached to the department of pathology or of clinical medicine depends on the special character of the different institutions. As a general rule, the clinical pathologist ought to be connected with that department which can use, to the greatest advantage in science, the data obtained through his efforts.

While we thus find that the demand for scientific assistance on the part of the practitioner is justified and that a way can be found to satisfy his needs without impairing the work of the investigator, I believe that the solution for the second difficulty, expressed in the criticism that the work of the investigator is too theoretic, must be looked for in another direction. We all desire results that diminish the suffering of mankind, but they are not best obtained by decrying the efforts of the worker who follows apparently purely theoretic lines of research. I believe that the urgent demand for practical results in scientific research ought to be counteracted through a brief course on the development of human knowledge, which each medical student should receive at some time early in his studies. Perhaps a few lectures given on that subject in connection with the course on biology or physics, in the first or second year of college, or perhaps a few introductory lectures given with the course in chemistry or physiology in the medical school, and a few additional lectures on the modern history of medical science given in the third or fourth year might produce the desired effect. Such lectures might create an appreciation of the fact that although progress in science is continuous and connected, yet the making of a valuable discovery depends to a great extent on a certain lability of thought in the mind of the investigator.

In definite instances the element of happy accident has, of course, to be taken for granted. Individual peculiarities on the part of the investigator in the selection of problems and in the way of attacking the problem must not only be tolerated on the part of the practitioner, but must even be encouraged. History has shown that the development of science is continuous and connected, but it has also shown that this development does not, usually, take place in such a direct and straight line that we are in a position to foretell its course. Much depends on the personality of the investigator. It is only the highest type of investigator who may appreciate in which direction the solution of a problem may be expected, and he, also, frequently depends on the aid of favorable constellations in the development of his work. Dictation from the outside will lead to the use of stereotyped methods which have given some results in the past, but may not be adapted to new problems. Frequent criticism on the part of the outsider is liable to dampen the enthusiasm which is a valuable asset in the work of the investigator.

It has been repeatedly pointed out in the past how the most far-reaching results, also from a practical point of view, were obtained through often long and tedious work of a very theoretic character, apparently without connection with medical practice. We might even assert that the practical problems given by the practitioner are frequently of such a specialistic character, restricted in their general significance, that with some preparation the practitioner might best be suited to undertake such investigations himself. The more far-reaching results which benefit wider circles are usually the outcome of biologic, physiologic or chemical investigation originally undertaken without a direct view for practical application. We may assert that in the natural course of its development a branch of science may be treated purely from a theoretic point of view. In the course of this theoretic development, the point will be reached at which the possibility of practical application will become apparent. Not only the general research laboratories of the medical department, but also the research institutions devoted to the pursuits of special problems must shape their policy in accordance with these facts and encourage investigation on the broadest possible basis; otherwise they may undermine their most valuable source of intellectual supply.

But we must go even farther and state that the obtaining of results, practical in the sense in which this term is usually applied, is not the only aim of investigation. It is well understood that physics, chemistry and biology are not cultivated merely from the point of view of the discovery of methods of use in the daily life. They all serve besides a philosophic purpose; they give us an understanding of the universe and of man's rôle in the universe. What holds good of zoology and botany holds good also of physiologic and pathologic study. They are at least as important for our philosophic understanding of life as botany and zoology. And this applies not only to physiology and pathology in general, but even to special branches in these sciences. They all have to serve a double purpose, namely, to contribute to the solution of a practical problem and to our understanding of life in all its physical, intellectual and moral aspects. There does not need to be any dispute as to how far one aspect of investigation ought to be favored at the expense of the other. Both sides of investigation go in reality hand in hand and, as we pointed out, the road of purely theoretic research will ultimately lead, also, to the most far-reaching practical results. Theoretic investigations in physiology and pathology are therefore necessary as instruments with which to obtain practical results which can be directly applied in the treatment of disease. Theoretic investigations are also necessary, as we pointed out, in order to satisfy our philosophic needs. If we oppose here practical and philosophic aims, we must recognize that such a division does not altogether do justice to the real state of things, for investigations in physiology and pathology are of a practical character in proportion as they subserve philosophic needs.

And it is the practitioner in medicine, daily confronted with the experience of the greatest physical and mental suffering in patients asking for his help, who will appreciate the assistance which a philosophic study of the sciences will give him; it will sustain him in his daily difficult task, increase his sympathy with human suffering and add to his power to give consolation and strength to his patients by raising their thoughts to higher spheres. The investigator, in his turn also, depends to some extent on the moral support of the general prac-

itioner who is not directly connected with a medical-teaching or research institution. His task will be made more easy and more fruitful if he finds a sympathetic understanding on the part of the practitioner. Furthermore, the practitioner might come into closer touch with the work of the investigator, adopting the latter's attitude of mind in those cases in which he is confronted with new situations and new problems in his practice, and at the same time he might add to his usefulness and to the dignity of his position by becoming a source of intellectual and moral help to the community by fortifying himself in his difficult task through the philosophic study of science, and by communicating the spirit of science to the circle of those who are under his care. The realization of this conception will effect a very close union between investigator and practitioner. The physician can be and ought to be thus a bearer of the message that science has for mankind.

Barnard Free Skin and Cancer Hospital.

EXPERIMENTAL DEVASCULARIZATION OF SEGMENTS OF INTESTINE WITH AND WITHOUT MECHANICAL OBSTRUCTION *

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AND

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Any experimental work dealing with intestinal obstruction as one of its chief features requires a preliminary statement of the present status of obstruction. The exact cause of death in obstruction of the bowel has never been definitely determined. The three theories advanced are: (1) the nervous theory, which holds that the nervous system is affected in somewhat the same way as in shock; (2) the bacterial theory, which holds that death is due to the bacteria contained in the obstructed intestine; (3) the toxemia theory, which holds that death in obstruction is due to some perversion of intestinal metabolism. Metabolic toxins may be formed in the epithelium of the intestine, or the mucosa may permit the direct absorption of peptones and products from the intestine that are normally changed by the epithelium before being discharged into the circulation. The nervous theory has few advocates, but the bacterial theory and the theory of toxemia have many champions.

RECENT EXPERIMENTAL WORK

It is not our purpose to review the literature on this subject, which can be found in a number of recent articles, particularly those by Hartwell and Hognet,¹ Murphy and Vincent,² and J. W. Draper,³ to say nothing of the German and French work, which in the last few years has been quite extensive. We desire, however, to call attention to some of the deductions made from recent experimental work. It does not seem probable that the chief cause of death in intestinal obstruction is a lesion of the intestinal mucosa as Hartwell and Hognet believe, though this may be a contributing cause. If a

lesion of the mucosa is chiefly responsible, it would be difficult to explain why the symptoms of ileus do not develop after any ulceration of the bowel, or after any wound in which a raw surface is necessarily left in the mucosa, as in intestinal resection. It has been pointed out by Roger and Garnier and by others that the normal products of intestinal digestion, particularly the peptones, are poisonous if directly injected into the circulation. The intestinal mucosa exerts some chemical change on this material during the process of absorption, which not only renders it non-toxic, but converts it into nutrition for the body cells. Experiments, then, which depend on the fact that material taken from a strangulated loop of intestine and injected into an animal produces illness and death, do not by any means prove that this material is peculiar to the strangulated intestine. The normal products from the normal intestinal tract when injected will also produce marked toxic symptoms and death.

It is generally recognized that a high intestinal obstruction, within 12 inches of the pylorus, is more rapidly fatal than an obstruction low down in the ileum. This is elassed by Draper, Roger and Garnier and others as proof of the fact that some vital secretion of the duodenum and no bacterial product is the toxic substance in obstruction, for it is well known that the upper part of the intestinal tract contains fewer bacteria than the lower part of the ileum. The experiments of Murphy and Vincent emphasized this difference in bacteria in the duodenum and the ileum as they found that when material from normal unobstructed bowel of cats was injected within the peritoneal cavity, necropsy revealed a peritonitis which corresponded with the level of the intestine from which the material was taken; that is, the most marked peritonitis was found when the contents of the ileum were used and the mildest when the contents of the duodenum were injected. This does not sustain the theory that the toxic substance is due solely to bacteria, for a low obstruction with a large amount of bacteria should be more rapidly fatal than a high obstruction with a small amount of bacteria.

The fact that the toxic material of obstruction can be reproduced in a section of removed intestine, as was done by Murphy and Vincent, does not exclude the possibility of this material being formed by the cells of the intestinal mucosa. In pathologic conditions of the thyroid gland, as hyperthyroidism, the toxic products may be prepared from the gland after it has been removed and when injected reproduce to a large extent the symptoms of hyperthyroidism. In like manner, a toxic substance might be formed in the intestinal mucosa and extracted after the bowel had been removed from the body, or might be produced by body heat and devascularization, which would be the condition of the intestinal loop placed in an incubator. The careful work of Murphy and Vincent has thrown much light on obstruction, but the rapid death and marked symptoms which they report from intraperitoneal injection of the unsterilized material from an obstructed intestinal loop may be due to septic peritonitis. It is at least conceivable that the peculiar toxic product of acute ileus may be formed from the epithelium of the intestinal mucosa of the obstructed loop under the stimulus of a perverted circulation, of an excessive amount of bacteria, or of both. If toxic products sometimes occur in the thyroid under stimulation of excessive nervous impulses, we cannot dismiss the possibility of some stimulation of the mucosa of the intestine by excessive bacterial toxins or altered circulation causing toxic products here.

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Hartwell, J. A., and Hognet, J. P.: Experimental Study of High Intestinal Obstruction, *Am. Jour. Med. Sc.*, March, 1912.

2. Murphy, F. T., and Vincent, B.: Experimental Study of Cause of Death in Acute Intestinal Obstruction, *Boston Med. and Surg. Jour.*, Nov. 2, 1911.

3. Draper, J. W.: Experimental Intestinal Obstruction, *THE JOURNAL A. M. A.*, Oct. 21, 1911, p. 1338.

AUTHORS' EXPERIMENTS

Our experiments were originally undertaken with the idea of determining, if possible, the difference in the effect on an animal when devascularized segments of intestine were obstructed at both ends and when such segments were unobstructed and their products allowed to flow freely into the normal bowel. As the work proceeded other problems arose, such as the ultimate fate of the devascularized segment, the cause of death in obstruction, and the absorption of the toxic material. While no attempt has been made to cover such large subjects as the last two, we have noted everything we

eight hours. The intestine was converted into a jelly-like mass and had ruptured. The omentum was not adherent but was held in position by sutures. In the remaining three experiments in which tapes were used, 2 inches of the intestine were separated from the mesentery and the procedure was the same as in the experiment just described on Dog 4. In these three experiments Dog 2 lived fourteen days; the other two died, one, Dog 5, after thirteen days and the other, Dog 8, after three days.

Of the five that had no tapes one, Dog 3, died twenty-seven days after operation. Necropsy showed that this

TABLE 1.—SEPARATION OF MESENTERY WITH TAPES ON DEVASCULARIZED INTESTINE

No. of Dog	Number of Inches of Intestine Devascularized, and Operative Notes	Postoperative Notes	Length of Life After Operation	Post-Mortem Notes
1	Eight inches. No omentum wrapped around devascularized segment.	Dog looked sick twenty-four hours after operation; abdomen distended; respiration rapid.	Died after 36 hours.	Large amount of bloody fluid; bowel proximal to tapes greatly distended; omentum adherent to abd. incision but not to intestine; segment of bowel black, jelly-like, with large perforation near proximal tape.
2	Two inches. Omentum wrapped around segment of bowel and fastened with silk sutures.	Dog apparently well for four days; for three days quite sick; then better for three days, when he became worse.	Died after 14 days.	No free fluid but coating of lymph on peritoneum; bowel proximal to tape greatly distended, distal firmly contracted; segment of bowel thickened and contracted and surrounded by densely adherent omentum.
4	Two inches. Operation same as in Dog 2.	Dog appeared very sick from time of operation.	Died after 48 hours.	Large amount of free bloody fluid, marked distention of proximal bowel, contraction of distal; omentum adherent to abd. wall but not to bowel; segment black, jelly-like; large perforation.
5	Two inches. Operation same as in Dog 2.	Dog did well for three days, then appeared very sick for one day; again seemed better until two days before death.	Died after 13 days.	No free fluid; no distention of intestine either above or below tapes; omentum firmly adherent to segment, which showed but little change. The coats of this segment are somewhat discolored and swollen but sharply outlined. Evidently the omentum has preserved the nutrition of the devascularized intestine.
8	Two inches. Operation same as in Dog 2.	Dog appeared quite sick from time of operation.	Died after 3 days.	Small amount free bloody fluid; proximal bowel distended; omentum adherent to segment of bowel, which was dark, reddish and thickened.

could in our experiments that might have any bearing on these features of intestinal obstruction.

We have done ten experiments, all of them on dogs. As far as possible the conditions under which each experiment was performed were similar. The dogs had no food for two days before being operated on, though they had water freely. All had water freely but no food after operation except two, Dog 9 and Dog 10, and to them food was also given freely for ten days before they were killed. The experiments were done under full ether anesthesia and with the usual aseptic precautions. Every effort was made to reduce the amount of pain and suffering to the minimum. In no instance was there any evidence of inflammation in the abdominal incision, the wound always healing by first intention. In all of these experiments the mesentery was cut after doubly ligating it in sections at the border of the intestine. In five experiments tapes were applied at each end of the devascularized segment to obstruct, but not injure, the bowel and so cut off its lumen from the healthy intestine (Table 1). In all experiments the last part of the ileum was used. In one instance, Dog 1, there was no effort to protect the intestine with omentum. Here the mesentery was separated for a length of 8 inches. The dog was quite sick from the time of operation and died within thirty-six hours. Necropsy showed that the affected intestine had become gangrenous and was mostly converted into a jelly-like mass which had ruptured and extruded its contents into the peritoneal cavity. In Dog 4 the experiment was similar to that in Dog 1, except that only 2 inches of the intestine were devascularized and the omentum was wrapped around this segment and fastened in position with sutures. The omentum also covered the tapes and extended over on the intestine on each side about 1 inch. This dog also was sick soon after operation and died within forty-

dog had obstruction just above the devascularized segment, where a large hair-ball had accumulated. The obstruction was caused by adhesions and volvulus. There was no perforation. In this dog and in two others of this series of five about 2 inches of intestine were devascularized according to the method mentioned above. Of these two one, Dog 7, was in excellent condition when killed and had apparently lost but little weight. The other, Dog 6, was considerably emaciated. Necropsy showed the intestines in Dog 7 in good condition. The nutrition of the segment was well carried on by the very adherent omentum. In Dog 6, killed twenty-two days after operation, necropsy showed no perforation; but the intestine was quite thin and gave evidence of malnutrition. In none of these three dogs was any food given after operation, so in order to test the nutrition of the bowel more thoroughly two other dogs were operated on by similar technic, except that in Dog 9, 4½ inches, and in Dog 10, 4 inches were devascularized instead of 2 inches. The omentum was wrapped round as in the other cases. These dogs received food, Dog 10 at the end of five days after operation, and Dog 9 at the end of eight days after operation. Each was then given food and water freely for ten days. In neither instance was there any indication whatever of obstruction and the dogs were gaining weight quite rapidly when killed.

In considering the points brought out by these experiments they may be divided into: (1) the nutrition of the devascularized segment; (2) the cause of death; (3) the absorption of the toxic products; (4) the practical deductions that may be applicable to clinical surgery.

NUTRITION OF DEVASCULARIZED SEGMENT

Of the five dogs in which the segment of intestine was devascularized and tapes applied, two died within

forty-eight hours. Of those that lived, one died after three days, one after thirteen days and one after fourteen days. Necropsy in Dog 2, that lived longest, showed that the intestine between the tapes was densely adherent to the omentum and had become thickened and contracted. Its coats were distinct and apparently well nourished, though slightly darker in color than normal. There was some distention of the intestine proximal to the upper tape. In Dog 8, which died after three days, the omentum was found closely adherent to the devascularized intestine. The intestine between the two tapes was very thick, dark red in color, somewhat distended and contained a brown, foul-smelling material. In Dog 5, which lived thirteen days, there was but little change in the segment of bowel, though the only nutrition possible must have come from the adherent omentum. In the dogs in which no tapes were applied the results were interesting. As has been mentioned above, in three of these five 2 inches of intestine were devascularized and in two 4 and 4½ inches were devascularized. In the last two food was given freely for the last ten days without any deleterious effect. All of these five dogs lived and were in good condition when they were killed, except Dog 3, which died from obstruction. The intestines of the others, including those that had food and in which 4 inches or more were devascularized, were in excellent condition and showed little evidence of lack of nutrition.

If the omentum becomes closely adherent it appears to be capable in many instances of nourishing the segment of bowel. If this does not happen the bowel becomes necrotic and perforates and the dog dies within a few hours of septic peritonitis. The question of dosage has much to do with these cases, of course, as segments of more than 2 inches would most likely develop

devascularized segment when the lumen is unobstructed; or again, to the fact that the tapes cut off some nutrition from each end of the segment.

ABSORPTION OF TOXIC PRODUCTS

The dogs with tapes lived a much shorter time than those without tapes. If any peculiar toxic substance was formed in the gangrenous intestine it should apparently be swept on and absorbed if the lumen is unobstructed and should produce more serious symptoms than if the lumen had been closed with the mesentery severed. This, however, is not borne out by these experiments and the result seems to correspond with experiments of Murphy and Vincent, which show that this toxic material is not absorbed from the healthy mucosa. In our own experiments no attempt was made partially to obstruct the circulation of a loop of bowel, but in every instance the total circulation was cut off by double ligatures of the mesentery near the intestinal border. Consequently we have no observations on obstruction to the venous circulation only, which, according to Murphy and Vincent, seems so rapidly fatal.

PRACTICAL DEDUCTIONS

The view usually held that bowel with impaired nutrition can be easily permeated by bacteria has not been borne out in our experiments. In no instance did the dog die under three days except when perforation had occurred and the bacteria and other intestinal contents were thrown in an overwhelming amount into the abdominal cavity. In such cases death took place in a few hours.

A short segment of intestine in a dog, when deprived of its nutrition, if thoroughly protected by omentum,

TABLE 2.—SEPARATION OF MESENTERY WITHOUT TAPES ON DEVASCULARIZED SEGMENT

No. of Dog	Number of Inches of Intestine Devascularized, and Operative Notes	Postoperative Notes	Length of Life After Operation	Post-Mortem Notes
3	Two inches. Omentum wrapped around segment and sutured intestine.	Dog looked sick day after operation; recovered and was better until two days before death; no food.	Died 27 days after operation.	Dog much emaciated; no free fluid in abdomen; segment adherent and in a partial volvulus, causing mechanical obstruction; segment well nourished; intestine above segment dilated and filled with hair for about two inches.
6	Two inches. Omentum wrapped around segment and sutured intestine.	Dog did well; never very sick; no food.	Killed 22 days after operation.	Dog much emaciated; segment very adherent; bowel proximal to segment dilated and contained fecal matter; distal bowel contracted, but contained fecal matter also; segment dilated, very thin, but no perforation.
7	Two inches. Omentum wrapped around segment and sutured intestine.	Dog never appeared sick; no food.	Killed 21 days after operation.	Dog fairly well nourished; segment buried in mass of adherent omentum and mesentery; segment well nourished; no evidence of obstruction.
9	Four and a half inches. Omentum wrapped around segment and sutured intestine.	Dog never very sick; no food for eight days; then food given freely for ten days.	Killed 18 days after operation.	Dog in fair condition; omentum adherent to segment; otherwise there were few adhesions; vessels in adherent omentum much enlarged; nutrition of segment apparently normal; no evidence of obstruction.
10	Four inches. Omentum wrapped around segment and sutured intestine.	Dog never very sick; no food for five days; then food given freely for ten days.	Killed 15 days after operation.	Dog in fair condition; omentum adherent to segment; otherwise very few adhesions; vessels in adherent omentum were enlarged; nutrition of segment good; no evidence of obstruction.

such a large amount of toxic material and be such a tax on the nutrition supplied by the omentum that a fatal result would follow more regularly.

THE CAUSE OF DEATH

In the series of Table 1 death is due either to septic peritonitis or to obstruction of the bowel. Septic peritonitis resulted fatally in a few hours. In the devascularized intestine without tapes, that is, without mechanical obstruction, there was no perforation. This may be due to the fact that saprophytic germs form gas and produce marked distention in the segment that is closed; or that the normal intestinal contents sweep away some of the excessive bacteria and toxins of the

may be nourished through the omentum and maintain its integrity. It has been taught that if even a small portion of intestine becomes detached from its mesentery, gangrene and a fatal result necessarily follow. In a dog this does not appear to be true. The occurrence of mechanical obstruction along with gangrene, as would occur in many clinical cases such as strangulated hernia, intussusception and volvulus, adds a great deal to the gravity of the situation. Devascularization of a segment of bowel without obstruction, as when the intestine is severed from its mesentery by a wound, seems much less serious than when there is obstruction. If such a segment is short and is protected by omentum, the condition appears to be compatible with recovery.

THE INJURIOUS EFFECTS OF THE X-RAY AS A THERAPEUTIC AGENT*

A. RAVOGLI, M.D.
CINCINNATI

Physiotherapeutics in recent years has made wonderful progress through the discovery of new agents, and dermatology more than any other branch of medicine has profited thereby. It comprehends phototherapy, Finsen, photochromotherapy, radium therapy, high-frequency current, fulguration and roentgenotherapy which deserves a great place in medicine. Nobody would or could diminish the value of the great services rendered to medicine by the application of the *x*-rays. They are firmly established as a therapeutic factor of the greatest power.

It is undeniable that the *x*-rays have certain chemical properties, which in their early applications and even to-day in the hands of inexperienced practitioners resulted injuriously and in some cases really disastrously. Nearly every one who had to do with *x*-ray applications suffered some alterations of the skin, hair and nails, which they were compelled to nurse for years, if indeed they have ever healed up. This prompted the use of shields to protect the operator and the parts of the body of the patient which were not to be exposed. The best means is found in lead plates.

PHYSIOLOGIC ACTION

The peculiar chemical action of the rays is a radio-active one and difficult to explain. It produces a reaction of the skin, whereby the biochemical properties of the cells are destroyed. The therapeutic action is the result of this change induced in the cells. If a mouse is exposed to the *x*-ray for a short time, it loses its hair, but if the rays be continued till erythema is produced the animal dies. In man after eight or ten doses of 3 *x*¹ for a short duration an erythema is produced, which lasts for some time, disappears and leaves a brown pigmented discoloration. An early reaction may occur after 1½ to 3 *x* in two or three days. It is not due to a peculiar individual susceptibility or to a more delicate condition of the vascular system of the skin. The reaction sooner or later takes place in everybody so exposed, as a result of the necrosis of the epithelial cells of the horny layer, and of the action on the walls of the capillaries and small arterioles of the skin. That some patients have idiosyncrasy against the *x*-ray is erroneous.

The first alterations are shown in the hair, as Williams and Bogrow² have first described. After a few applications of the rays to parts covered with hair, the bulb of the hair changes, assuming the shape of a brown pigmented cone. When applications are continued the hair falls off, the bulb and the pigment disappear; some hairs are broken, some are in the way of regeneration. The alopecia from *x*-ray resembles that due to alopecia areata. Yet no parasiticide action in *x*-rays has been proved. This action on the hair has been utilized for epilation purpose in cases of extended hypertrichosis, and in the treatment of tinea favosa and trichophytina, and in sycosis barbae, when the removal of the hair is necessary to obtain the recovery. Yet it carries with it the danger of radiodermatitis and of permanent alopecia. In some

hospitals in Europe, where large numbers of boys and girls have to be treated for favus capillitii the *x*-rays are used quite extensively with great benefit, but always with great fear and once in a while with permanent loss of the hair. The same necrotizing effect which causes radiodermatitis on the normal skin affects efficiently epithelial neoplasms of the skin, causing destruction of their cells and consequently their reabsorption and disappearance. This beneficial action is displayed in all cases of epithelioma of a vegetating nature, and also in the ulcerated sort, but not in those cases in which the edges are very hard and callous. In the latter cases with the *x*-ray treatment an improvement is obtained, but nothing more. On persisting with the rays under such conditions, the disease takes on an invading character and gangrene sets in with more rapid destruction. In these cases it is best to stop the rays and apply radium.

The same results have been noticed in the treatment of lupus, which is beneficially influenced by the rays; the ulcerations heal up easily, but in order to remove the hard deep tubercles the Finsen light must be resorted to, or else applications of radium. Roentgenotherapy is also applied in cases of deeply seated tumors, not with the idea of obtaining a cure, but in order to check somewhat their course and diminish the pains. In some cases it is used as a preparatory treatment for a surgical operation; at other times it is used after the operation with the intention to destroy all infectious foci which may have escaped the surgical knife. It has been advised in stubborn cases of eczema and psoriasis. It has been used in chronic inflammatory infiltrations of the joints, in elephantiasis, in enlargement of the glands. It has been used with benefit in tuberculous lesions, not only of the skin, but also of the deeply seated tissues, especially in children. In granuloma fungoides, leproma and rhinoscleroma it has been found a valuable therapeutic agent, and recently Pellizzari³ has found it useful in the treatment of the granulomas of the nose and palate caused by leishmaniasis. This treatment has been found in those diseases the only means, if not to effect a cure, at least to diminish the sufferings and prolong life.

In the *x*-ray there is a radio-active action capable of causing reaction which destroys the life of the pathologic cells and, if continued, also of the normal cells. This is what produces the injurious effects, which we know under the name of Roentgen dermatitis, or commonly the *x*-ray burn. This dermatitis must be divided into three stages.

The first stage somewhat resembles sunburn—a diffused redness with enlargement of the blood-vessels accompanied by itching and a burning sensation. In the face the affection may invade the lips and the mucous membrane of the cheeks and of the oral cavity simulating a stomatitis. The most prominent injurious effect on the skin is the enlargement of the blood-vessels. It seems that the rays have a direct action on the walls of the capillaries and of the small arteries, diminishing their elasticity. When the dermatitis is repeated or has lasted for some time, the blood-vessels remain so enlarged. The radiodermatitis may assume a form of mild chronic reaction lasting for a long time. This may cause an atrophic condition of the skin, which with the dilatation of the blood-vessels causes a hideous and irreparable injury to the skin. One of the many cases of the kind I have seen was in a young lady, who had had her face treated for a stubborn eczema with the *x*-ray, and the whole chest was affected with chronic radiodermatitis.

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. *X*-ray units.

2. Bogrow: Ueber einige Veränderungen der Haare nach Roentgenization, Russ. Ztschr. f. Haut. u. Ven. Krankh., xvii; abstr. in Monatsh. f. prakt. Dermat., 1909, xlix, 68.

3. Pellizzari, C.: Inst. Fototerapico di Firenze, 1912.

causing diffused atrophy, with dilated blood-vessels of the skin.

Indeed, in some cases of eczema treated with the *x*-ray the eruption was not improved and some parts of the skin attained a high degree of hypersensitiveness, while other parts began to show signs of third-degree reaction. In a general way an ordinary first-degree radiodermatitis lasts from three to twenty-one days, leaving some pigmentation of the affected skin.

When the *x*-rays have been applied for a longer time and persistently, a second-degree burn may occur, with the formation of blisters on a brownish-red and badly swollen skin. In one patient who had been treated for an eczema of the hand, after ten exposures to the rays prolonged for ten minutes, a violent dermatitis developed with unbearable pain, and formation of deep blisters filled with brownish bloody serum. From this condition, although painful and more serious, the patient may recover in from three to eight weeks' time.

The third-degree *x*-ray burn is found when the ulcerative process begins; it takes a long time to heal and at times is very difficult to be brought to recovery. Every one of us has seen such unfortunate cases and some of us have even suffered excruciating tortures ourselves. To-day, fortunately, thanks to the better apparatuses and to the better care of the operators, these unfortunate cases

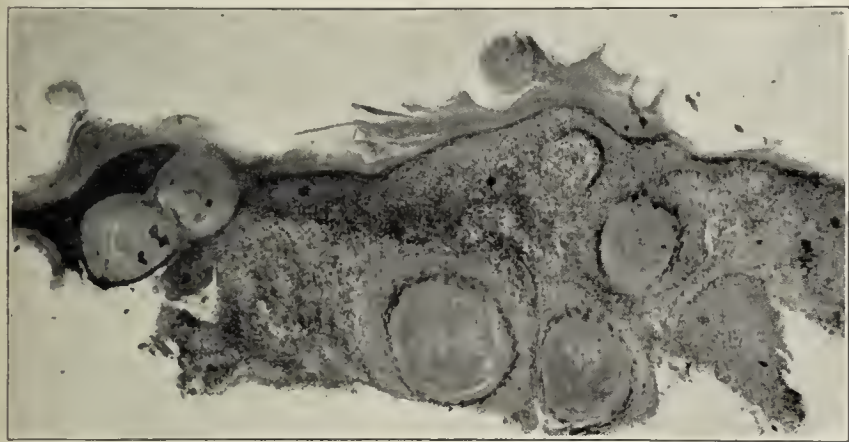


Fig. 1.—Low-power view of epitheliomatous pearls (made out of epithelial cells) formed in small nodules vegetating on a chronic *x*-ray dermatitis. The photographs were made by Dr. Goosmann.

are greatly diminishing in number. I saw one case of *x*-ray ulcer on the hypogastric region produced by *x*-ray exposure for the purpose of taking the radiograph of a stone in the bladder. Another *x*-ray ulcer I saw on the back of a patient's neck (he had been treated for furuncles), and another in a girl on the internal malleolar region.

Cases of this kind are related in great numbers in the medical journals, but it would be a long and tedious task to go over such an extensive literature. I shall refer to two cases in my own practice: one of lupus erythematoses, and the other of lupus vulgaris, which were rayed for a long time, with resulting *x*-ray dermatitis, which to-day is more hideous and deforming than the disease itself.

CASE 1.—A young Russian woman, aged 25, in good health, was affected with lupus erythematoses of the nose and cheeks in a discoid form. She was first treated in Europe before emigrating; then having another relapse she was treated in the United States. The treatment has consisted mostly in the application of the *x*-ray. She had a great many exposures to the rays, in round numbers about forty or fifty. When she came to my office, the lupus erythematoses was still bad and was complicated with the atrophic condition of the skin together with the telangiectasia characteristic of the chronic *x*-ray dermatitis. The skin was reduced to a dry parchment-

like membrane, thin, white, scar-like, hard, brilliant, in some places darkly pigmented and studded with a net of enlarged blood-vessels. The cartilages of the nose seemed to be bare, as if they had been eroded, and were destroyed at the edge of the nostrils, causing deformity in the shape of the nose. On the atrophic skin, very small nodules had formed, brownish red, rising out from the depths of the tissues and covered with dry scaly crusts. Some of these nodules had been excised and prepared for biopsy. Under the microscope they proved to be small epitheliomas (Figs. 1 to 4). Roentgen rays in this case did not give satisfactory results, and the injurious effects, if they do not exceed those of the disease, are equal to them.

CASE 2.—Mrs. K. W., aged 40, German by birth, has been affected with lupus vulgaris of the left side of the face for twenty years. In these last years she was advised to have the *x*-ray applied. This was done often and persistently for ten to fifteen minutes twice a week. In the beginning it seemed that she was benefited, but on persisting in the use of the rays, a deep necrotic radiodermatitis developed. The

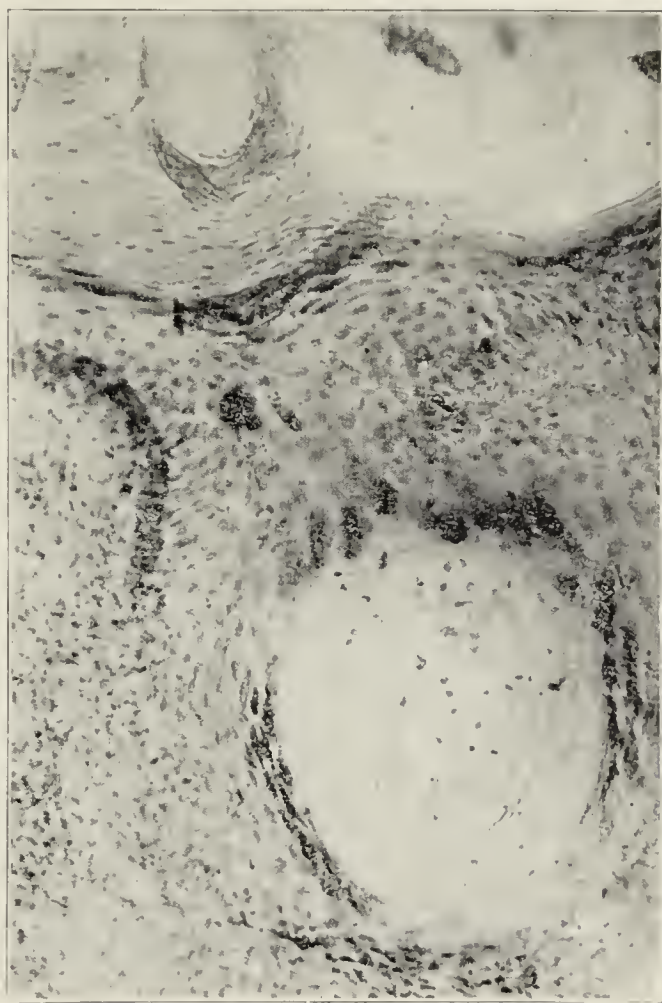


Fig. 2.—Pearl connected with surface epithelium.

process spread to the whole left side of the face, the auricle and the upper portion of the neck, producing several deep ulcers. At present the skin is very red, studded with red enlarged blood-vessels; in some places it is atrophic and shows cicatricial spots. The deep cicatrix has drawn the mouth so much that she can scarcely move her lips. In the center of the affection there remains a crateriform vegetating ulcer of the size of a silver dollar, elevated on the normal skin, which shows the character of a vegetating carcinoma.

The occurrence of malignant tumors after the application of the *x*-ray was noted by Kanitz,⁴ Rowntree,⁵ Dieffenbach⁶ and many others. Indeed, the nodules formed on the hands as a consequence of the chronic *x*-ray dermatitis under the microscope proved to be typical carcinomas of the squamous kind. The production of carcinomatous growths in consequence of the *x*-ray is

4. Kanitz, H.: *Budapesti orv. ujsag*, 1909, No. 29; abstr. in *Monatsh. f. prakt. Dermat.*, li, No. 3.

5. Rowntree, C. W.: *Lancet*, London, 1909.

6. Dieffenbach, W. H.: *Med. Rec.*, New York, March 27, 1909.

used by Dieffenbach as an argument that carcinoma is not infectious, or of parasitic origin. It seems that new growths are formed where the normal formation of cells is impaired, either by trauma or by pressure, chronic inflammation or by constant irritation. These conditions influence the life of the cells to a constant proliferation and to the production of cells of their own kind. In my specimens pearls can be seen, formed by large scaly epithelial cells, which in this case act like a foreign body, and the other cells are involving them in order to protect the other tissues. The trophic nerves have also much to do in the healing of these burns, so much so that when the irritation is removed the restored circulation may change the cells into the normal condition; but when the vasomotor nerves have no more control of the circulation; necrosis continues and proliferation of cells induces carcinomatous growths.

The application of the *x*-ray has caused hyperkeratosis of the finger-nails. Wehrsig⁷ reported his own case. In a surgical station he had charge of the *x*-ray department. After two months his hands showed an eczematous condition like that following the use of corrosive sublimate.

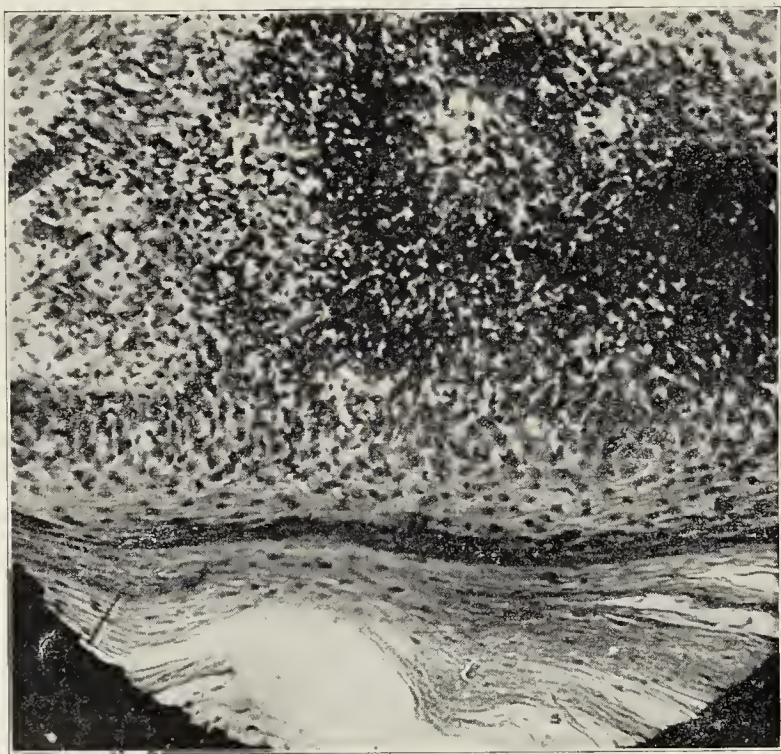


Fig. 3.—Infiltration of an epitheliomatous growth on an *x*-ray dermatitis.

This improved, but the finger-nails lost their glossiness, began to break and became thick and bulky; when the use of the rays was stopped the affection improved somewhat but very slowly.

Another dangerous consequence of the *x*-ray in tumors is the production of metastasis endangering the life of the patients. Councilman and Magrath⁸ reported two cases of xeroderma pigmentosum in two sisters, respectively 8 and 10 years old, who were treated with *x*-ray and both died. The autopsy showed several lesions from *x*-ray and metastasis of generalized carcinomatosis.

Kanitz⁹ reported a case of sarcoma in a lady 65 years old, in the left scapular region. After some strong *x*-ray applications a local reaction followed, with necrosis and gangrene of the tissues of the tumor associated with

severe general toxic symptoms. Surrounding the first sarcoma, innumerable nodules of sarcoma type had formed. In my own practice an engineer, who had a carcinoma of the right arm near the elbow-joint, was treated with the *x*-rays and a deep phlegmonous inflammation resulted in gangrene of the whole mass. The patient had high fever and symptoms of general toxemia. The amputation of the arm was necessary to save the patient's life, but eight months thereafter he died with secondary cancer of the subaxillary glands.

From the above considerations we may conclude that roentgenotherapy is accompanied with more or less danger. This statement is not made for the purpose of discouraging anybody from the use of so powerful a physical remedy, which can bring about a great deal of benefit in a great many diseases, but only to call the attention to the great care which has to be used in giving the *x*-ray. In some cases the patients have been trusted to inexperienced office attendants, and the physician has noticed

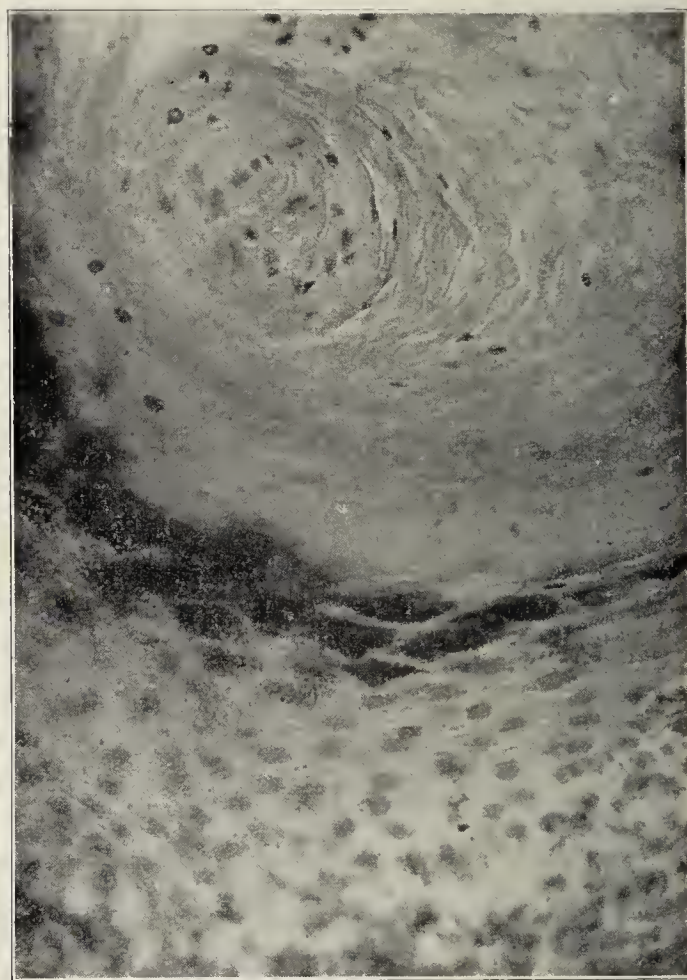


Fig. 4.—High-power view of epitheliomatous pearl; different types of epithelial cells.

the danger only when dermatitis had already set in. When with the *x*-ray no improvement or no progress is obtained in the treatment of a disease, it is better to stop and change to some other method of treatment; otherwise danger is lurking and will soon be looming up.

When a radiodermatitis has begun, if it is of first degree, a bathing with 2 per cent. solution of aluminum subacetate or of sodium bicarbonate will diminish the itching and the burning sensation, and the skin in a short time will return to the normal condition. If the burn is of second degree with formation of blisters, the continuous bathing with soothing solutions, the opening of the blisters and the treatment as for any other burn will be sufficient. When ulceration sets in recovery is difficult. The best way for a speedy recovery is the excision of the whole ulcerated surface, and consequent surgical treatment.

No. 5 Garfield Place.

7. Wehrsig: München. med. Wehnschr., 1909, No. 32; abstr. in Monatsh. f. prakt. Dermat., 1, No. 5, p. 223.

8. Councilman and Magrath: Fifth Report of the Cancer Commission of Harvard University; abstr. in Monatsh. f. prakt. Dermat., li, No. 6, p. 266.

9. Kanitz, H.: Schwere Toxämie und Metastasenbildung nach Roentgen-Behandlung eines Haut-Sarkoms. Med. Klin., 1909, No. 14; abstr. in Monatsh. f. Derm. u. Syph., 1910, 1, 271.

ABSTRACT OF DISCUSSION

DR. WILLIAM ALLEN PUSEY, Chicago: It is of course a truism that you can produce most disastrous effects with *x*-rays or with any other agent similarly powerful by its over-active use. On the other hand, my experience has convinced me that you can use *x*-rays with as much freedom from danger as you can use any other powerful agent. All of the effects that Dr. Ravogli mentioned, I think I have seen, and yet, in spite of that experience, I still feel that *x*-rays constitute probably the most useful single means of treatment in the service of the dermatologist. I have long been impressed with the fact that the chief difficulty about the therapeutic use of *x*-rays in skin diseases is that the *x*-ray specialists know nothing of dermatology, and on the other hand, most dermatologists know very little about *x*-rays. Both of these facts have helped to bring *x*-ray treatment into disrepute. Many dermatologists find *x*-rays inefficient because they are afraid of their agent, and they fall short in their results because they are uncertain of their technique. Of course, I would not advise the careless use of *x*-rays, but I would urge their usefulness when carefully employed. I have never in my experience observed that *x*-rays produced an increased tendency to metastases in malignant growths, nor have I ever seen epithelioma stimulated by their use. I am just as willing to undertake to destroy epithelioma in the skin with *x*-rays as I would be by the actual cautery or by any powerful chemical or mechanical agent, and I have never seen any evidence to substantiate the statement that the danger of metastases is increased by the use of *x*-rays. I recently read a paper on the use of *x*-rays in selected cases of epithelioma of the lip. This paper gave the histories of thirty-six or thirty-eight cases of epithelioma of the lower lip which were treated by means of the *x*-ray more than three years ago and whose subsequent histories are known; in only two instances were there subsequent metastases under the jaw—approximately 5 per cent. of failures—which does not nearly approach the percentage of metastases occurring under the jaw after surgical interference. I do not advocate *x*-rays as a substitute for operation except in selected cases of epithelioma of the lip and I do not say that the use of *x*-rays diminishes the danger of metastases under the jaw, but I offer my experience to indicate that they do not increase it.

DR. M. L. RAVITCH, Louisville: There is no doubt that much of the disrepute into which *x*-ray treatment has fallen has been due to its improper application, either through carelessness or ignorance. I believe that Dr. William S. Gottheil was very much opposed to its use a few years ago, but that he has since been converted, though conservatively, to a realization of its value. The physician who uses the *x*-ray should also be a good dermatologist. I have employed *x*-rays for the past eleven years, and can recall only one instance in which I had a bad result. The patient was a woman suffering from tic douloureux. Her skin was unusually thin, and four minutes' exposure to the *x*-ray produced a severe dermatitis, but luckily she made a perfect recovery. I think certain individuals possess an idiosyncrasy for the *x*-rays just as certain others have for certain drugs, and it is the duty of the dermatologist to proceed carefully, giving the remedy in small doses, until the possibility of such an idiosyncrasy, which I think is due to anaphylaxis, is eliminated.

While the *x*-ray as a therapeutic measure has been abused, it has in that respect a similar history to tuberculin. Tuberculin was first heralded as a cure for all the ills on earth; then it was abandoned and condemned, and now it has come into use again and apparently found its proper place. So it is with the *x*-ray. Used conservatively and in selected cases, it is of great benefit.

DR. E. S. LAIX, Oklahoma City: During the past two years, two of our leading surgeons in Oklahoma have referred all their cases of epithelioma of the lip to me for *x*-ray treatment, although it was only a few years ago that they attacked me in our state association for venturing to use the *x*-rays in such cases. I regard the *x*-ray as one of the most important remedies in the hands of the dermatologist to-day. The abuses to which it was subjected are gradually disap-

pearing, as all of us who have been working with it know. I have used it for over ten years; in some of my earliest cases I used it on epithelioma of the lip, though I now use it in such cases only if the glands are not involved. I have three cases of epithelioma of the lip so treated, which have now gone for more than three years without a recurrence. Some years ago, I adopted sole leather to prevent burns, but the use of this foul-smelling, septic material never appealed to me, and subsequently I adopted a moistened sterile towel or gauze pad, applying it over the radiated area, and since that time I have not had even a secondary dermatitis, excepting when intentionally made. I believe that the use of such a moistened towel or gauze pad increases evaporation, keeps the skin cooler, and absorbs the actinic rays, to which the burns are largely attributed.

DR. WILLIAM S. GOTTHEIL, New York: I think we do harm by calling these *x*-ray lesions burns. They resemble burns, but they do not act like burns and they are not burns. There is no relationship, in my mind, between a radial dermatitis with its progressive changes and its almost insuperable tendency to persist, and an ordinary burn, in which, after the noxious influences have passed off, the tendency is for repair. A radial dermatitis represents a peculiar, unknown change in the tissues and cells, entirely different from that produced in the traumatism resulting from the application of heat. In New York City we have two classes of radiotherapists; one, of which Dr. MacKee is an example, advocates the use of one tremendous dose. In making his application, Dr. MacKee employs various measuring agents to secure accuracy in his dosage, and tries to get the necessary therapeutic effect with one large dose. I do not know of anybody else who has had the courage to adopt this method. Dr. Geyser uses a tube that many others think is inefficient because it is too small. This simply illustrates the conflicting opinions that are held on this subject. I think the men who know most about it are the ones who absolutely refuse to use the *x*-rays for therapeutic purposes. They are thoroughly afraid of it. There is no doubt that you can get an effect from the *x*-ray, the same as from any other irritant, and what little therapeutic good I have seen from it, I am inclined to ascribe to that. I have seen cancer get well under a wet dressing, and I am convinced that what little good we do get from the use of the *x*-rays is simply due to their irritant effect, and that we can get in many other ways.

DR. JOSEPH ZEISLER, Chicago: While I continue to consider the *x*-rays as one of our mightiest therapeutic weapons at the present time, I believe that papers like the one presented by Dr. Ravogli are wholesome lessons, which ought to be repeated from time to time, reminding the profession at large of the injurious effects that may follow their application. I do not believe that there is a man living who has used the *x*-rays to any extent and who has not seen their use followed at times by some kind of damage. It is simply impossible to foretell what will happen in some cases after the use of radiotherapy. After subjecting a patient to a series of radiations and losing sight of him, he may subsequently return with a distinct atrophy of the skin. I was recently asked by a dermatologist in Omaha whether I considered it safe for him to attempt to remove an extensive growth of beard from the face of a young lady with the *x*-rays, and I replied by saying "Don't monkey with the buzz-saw." I have had a few cases of hypertrichosis which I have successfully treated with the *x*-rays, but this method should never be employed without constant regard for its great dangers.

DR. WILLIAM A. PUSEY, Chicago: While I am willing to admit that I have at times produced an *x*-ray atrophy, I can recall but a single case in which the patient resented the results of the *x*-ray treatment. That was a case of very extended lupus of the face which had existed for many years, and in which, after repeated exposures to the rays, a small, painful burn developed, which was afterward successfully treated by means of a plastic operation. The *x*-rays can be employed with reasonable freedom by one who knows how to use them. Dr. Gottheil said he has seen an epithelioma heal under a wet dressing. That may at times happen but we should not confuse a covered epithelioma with a cured epi-

thelioma. At a meeting about a year ago one of the members said he had never seen a squamous-celled epithelioma healed by the *x*-rays. I recently showed the photograph of a squamous-celled epithelioma of the tip of the nose in which there had been no recurrence for over three years. I consider such a case one of cured epithelioma—not a healed-over epithelioma.

DR. C. A. MACMINN, Schenectady, N. Y.: After using the *x*-rays for six years for skiagraphic and therapeutic work, my experience with them has been very satisfactory. We would not, because the abuse of morphin and strychnin would lead to disastrous results, condemn those drugs, and the same is true of the *x*-rays. In many cases of epithelioma you can remove the lesion with the *x*-rays, with a smooth cicatrix or no resulting scar, such as you would have even with the best surgical measures. This applies particularly to lesions about the eyes and nose. I recall one case of lupus in which the lesion involved the side of the nose and the region underneath the eye. This man, when I first saw him about two years ago, had been unsuccessfully treated with ointments and cancer pastes, with radium, the ultraviolet rays and skin-grafting. I gave him three *x*-ray treatments a week until a reaction occurred, and then discontinued the treatments until it had subsided. After forty exposures, the lesions healed completely, leaving a smooth, healthy cicatrix, which remained that way for about eighteen months. About a month ago the patient had a slight recurrence on the lower eyelid, which healed after nine exposures. I do not know of any other method of treatment in a case of this kind in which I could obtain the results I did, lengthening the patient's life and giving him comparative comfort.

DR. A. RAVOGLI, Cincinnati: In reply to Dr. Pusey, I believe that I can recall several unfortunate cases in which the occurrence of metastases was at least hastened by the use of the *x*-rays. In one case, that of a woman with carcinoma of the breast, which was removed, I was subsequently requested by the surgeon to apply the *x*-rays for a number of recurrent nodules in the region of the scar. The result of the *x*-ray treatment was apparently good, but the patient died suddenly, and at necropsy an enormous reproduction of the cancerous nodules was found in the pleura. In another case, a man with a diffuse epithelioma on the dorsum of the hand, the *x*-rays were applied and there rapidly developed a severe inflammatory process of the hand, with a gangrenous condition, necessitating amputation; death occurred five months later as the result of a metastatic process in the axillary glands.

In another case of cancer involving the elbow the use of the *x*-rays was followed by an inflammatory process, with gangrene and death. My paper was presented as a caution against the occurrence of cases like these, which have been observed not only by myself, but by others. The production of an *x*-ray dermatitis in certain individuals can scarcely be ascribed to an idiosyncrasy, any more than we could ascribe a sunburn due to exposure to the sun's rays to an idiosyncrasy. As to protection against *x*-ray burns, I have used in the beginning the gutta-percha screen and have been very much disappointed with the results. Now for a long time I have been using lead plates. I have never used applications of a moistened towel or gauze, and will be pleased to give the method a trial. I believe that Dr. Gottheil is right in his contention that these lesions are not burns, but rather dermatitis; still, they are usually referred to as burns. After using the *x*-rays for a certain length of time without benefit, I believe that a change of treatment, such as the application of the cautery or some other method, is advisable.

Motorcycle X-Ray Machine.—A new use for the motorcycle in time of war has been invented by a United States medical officer, namely, carrying a complete *x*-ray outfit, which may be used by physicians for examining injured persons on the battlefield. The dynamo, spark coils and all necessary apparatus are carried on the rear guard. The current is generated by connecting the dynamo to the motorcycle by means of a belt.—*Automobile Trade Journal*.

OBSERVATIONS ON KERATOSIS FOLLICULARIS

WITH REPORT OF FIVE CASES IN THE SAME FAMILY *

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NEW YORK

The immortal bard asks "What's in a name?" but if any one heeded him, that one certainly was not a dermatologist, as from time immemorial the investigators in this department of medical science have clogged up the literature with names to the point of redundancy. It is nevertheless necessary to have a proper cognomen for a definite entity, be that a state or disease, and this title refers to that malady sometimes known as "Darier's disease," "psorospermiosis," etc.

A full description can be found in all the well-known text-books on dermatology; suffice it to say in this instance that the disease is a keratosis, follicular, as a rule, but not necessarily so.

It was first described in 1889, independently, by White of Boston and Darier of Paris. The latter author pointed out histologically some small, round, double contoured bodies, which he termed "psorosperms," hence

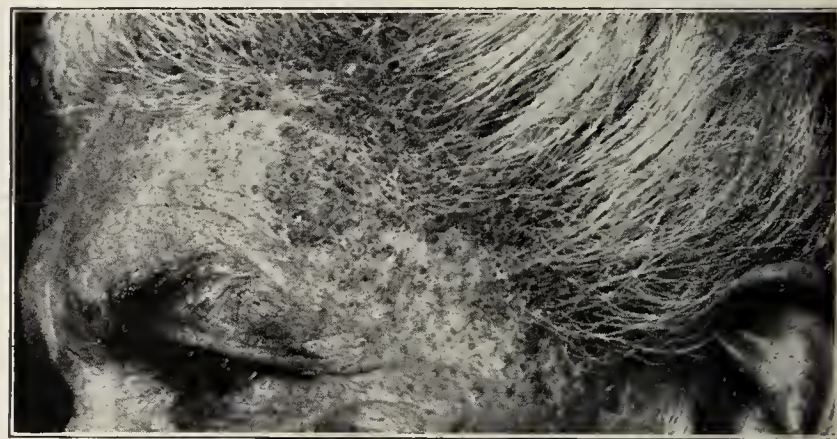


Fig. 1.—Case 1. Keratosis follicularis, showing lesions on scalp and temples.

the name "psorospermiosis;" these he thought to be the etiologic factor. This was later disproved by Bowen, who found the so-called psorosperms to be degenerated epithelial cells, or cells in some state of transformation. So much for the historical sketch; now for the subject.

I have five cases to report, all occurring in the same family, covering three generations, a mother, three children and one grandchild. In this group there are three males and two females; the diagnoses have been confirmed by histologic examination except in the case of the grandson, but the lesions in his case are clinically distinct, though the case is a very mild one at this writing. To prevent confusion in the literature, it seems best to state that Patient 1, the mother of this family, was a patient on the Bulkley service of the New York Skin and Cancer Hospital about twelve years ago; and that Patient 2, one of the sons, has been under my care in the Fordyce clinic (University and Bellevue) for eighteen months.

CASE 1.—S. A., a widow, aged 63, an American engaged in housework, is not very clear in her memory as to her ancestors. The cause of death or whether they ever suffered from a

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Dermatologic Department of the University and Bellevue Hospital Medical College.

dermatologic complaint is unknown. The duration of the condition in her case is about twenty-five years. She has never had a serious illness, and at present is in excellent health and the steadiest worker in the family. She has given birth to three children, all alive and in good health, except that all three have keratosis follicularis. The main locations in her case were the scalp, forehead, temples and legs. She attached no significance to them, but applied to the New York Skin and Cancer Hospital about twelve years ago for a very marked and severe keratosis plantaris. She remained an inmate of this institution a great number of months, and was eventually relieved of the plantar keratosis by the Roentgen ray, used over a long period. At present the disease flourishes on the scalp and temples, as can be easily seen in Figure 1; she also has some scattered lesions on the back, face and chest. They are light brownish in color and vary in size from that of

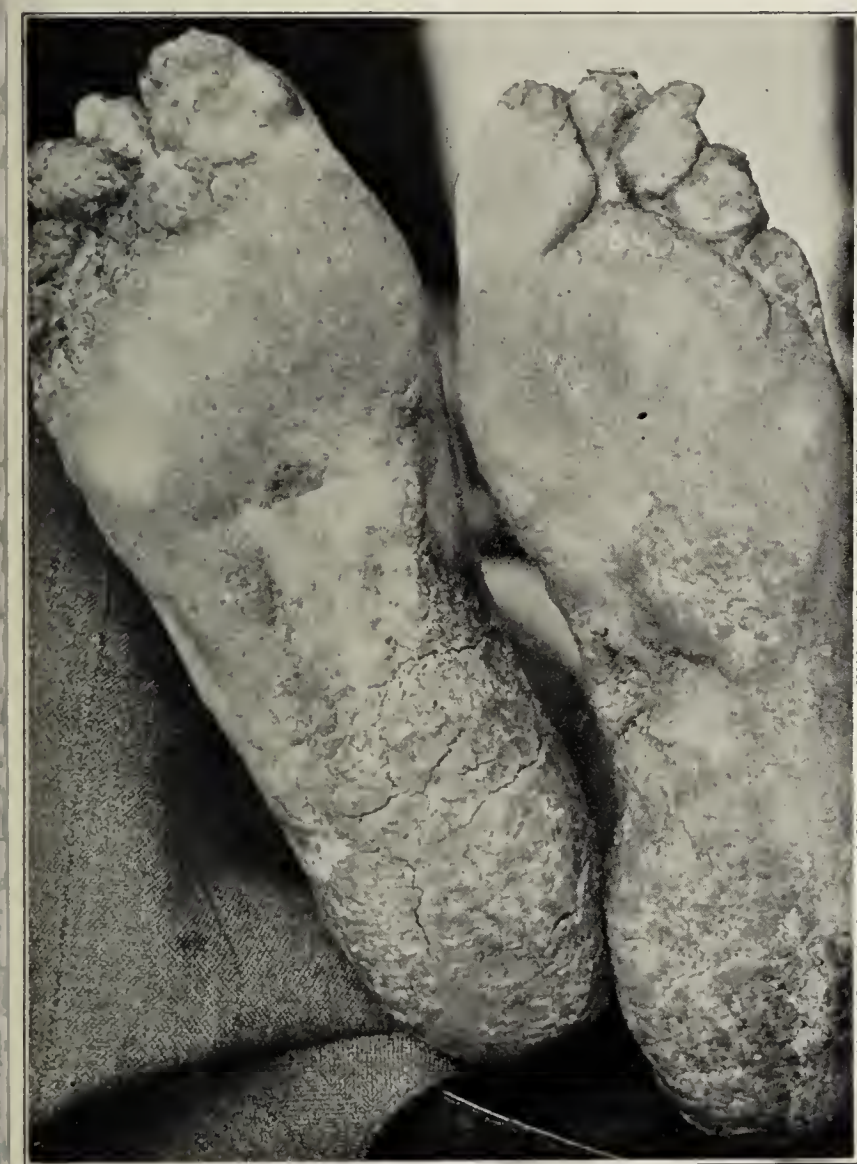


Fig. 2.—Case 2. Keratosis follicularis, showing lesions on soles of both feet.

a pinhead to the head of a small match. The individual lesions are rounded off on top and are neither flat nor acuminate. They are so closely set in some places that they appear to have coalesced, and where this has occurred they give the appearance of an aggregation of small papilloma. The disease has invaded the auricle, and in this location and along the edges of the hair there is some scaling, similar to that seen in seborrheic eczema. Many of the lesions show a central small pit-like depression; this can also be seen in Figure 1.

CASE 2.—S. A., is an American, single, aged 36, driver. The patient's father is dead and his memory is very deficient in regard to the cause, or whether he ever had a skin disease. The mother (Patient 1) is alive. The patient came to the clinic, complaining of a marked keratosis plantaris, and although he had noticed the other skin lesions, he attached no importance to them. He had suffered from some of the diseases of childhood, and exhibited a long scar on one leg, which is evidently the sequel of a former osteomyelitis. Except for this he had enjoyed good health. The duration of the condi-

tion, according to his statement, was about four years, but it seems reasonable to suppose from the general appearance that it existed longer. The locations were the face, neck, back, chest, dorsum of hands, extensor side of forearms and axillae. The lesions were much more numerous on the face and neck than on other parts. They were mainly of sizes varying from that of a millet-seed to that of a match-head. The sides of the face, that is, the temples, jaw and upper lateral half of the side of neck were so thickly studded with lesions that hardly any healthy skin intervened. They were, as a rule, about the same hue as the normal skin, but many of the larger ones were pigmented. In the main they were discrete, but in the locations in which they were most numerous, a tendency to coalescence was observed. In some regions, notably the axillae, a characteristic pearl-like formation was noticed, with central dot or depression, but in other parts the lesions showed a verrucous appearance. Many of them were rather flat, but others were rounded on the top and some were acuminate. The horny spines frequently seen protruding from the follicles were noticeable only on the back. The man was of dark type, but the pigmentation seemed markedly increased. There

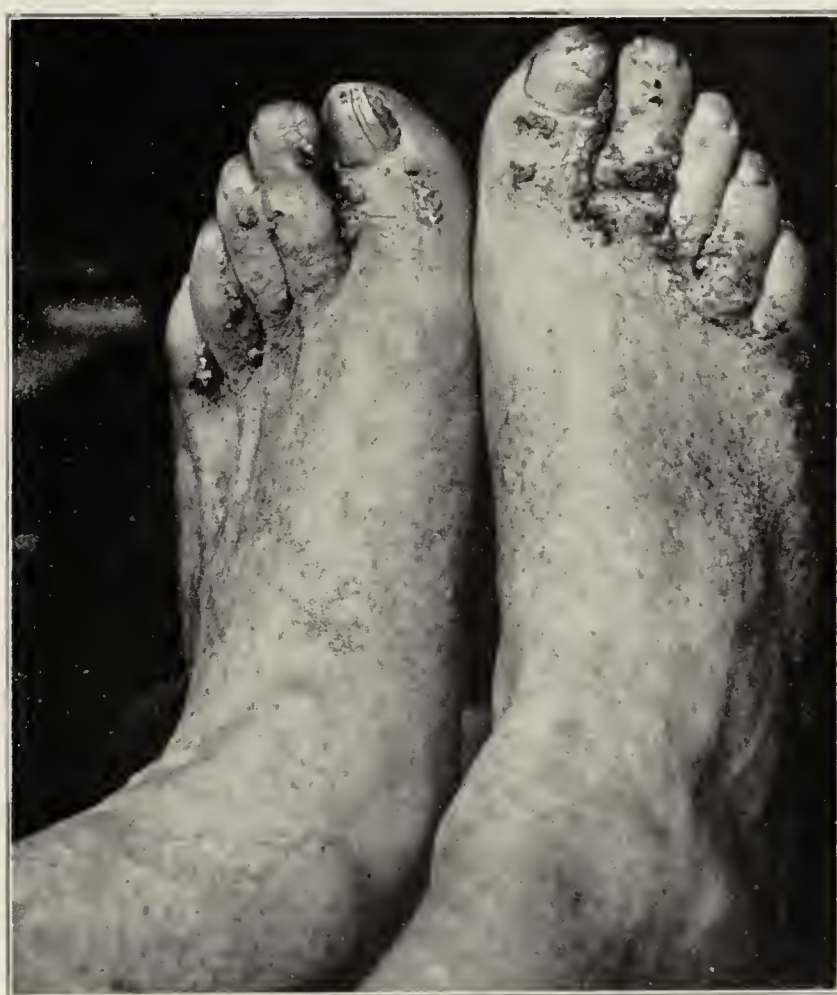


Fig. 3.—Case 3. Keratosis follicularis, showing lesions on toes of both feet.

was a moderate amount of scaling on the face, along the border of the hair line; this may have been due to a pityriasis capitis which was apparent. The soles were the seat of a marked keratosis; in some places (Fig. 2) as much as $\frac{3}{4}$ of an inch in thickness. They were calloused and fissured and extremely painful when walking.

CASE 3.—The patient, a man, aged 38, butcher, single, is a brother of Patient 2. The duration of his disease is five years. The locations are the chest, back, forearm, hands, face, dorsum of feet and toes. The lesions are exactly like the two previous cases and need no further description. They are follicular on the chest and back, and take on a warty appearance on the forearms. The lesions on the toes are associated with a great deal of moisture, and give off a penetrating and offensive odor. (Fig. 3.) There is some keratosis of the soles, but it is not severe.

CASE 4.—A. S., woman, married, aged 41, engaged in housework, is a sister of Patients 2 and 3. The lesions in this case are the same as in the others, and need no further descrip-

tion. The locations are the face, scalp, auricle, forehead, temple, chest, back and forearms. (Fig. 4.) Plantar keratosis is practically absent in this case. The duration is rather indefinite, but is about eight years.

CASE 5.—The patient, a schoolboy, aged 14, is the son of Patient 4 and the grandson of Patient 1. The disease is a very mild one at this time. The locations are the feet and dorsal aspect of the hands and wrists. The duration is six months; that is, his mother first noticed the lesions six months ago. The integument shows a slight thickening on the palms and is probably a beginning keratosis. The lesions are small, brownish, and give the appearance of minute flat warts. The body with the exception of the locations mentioned is free.

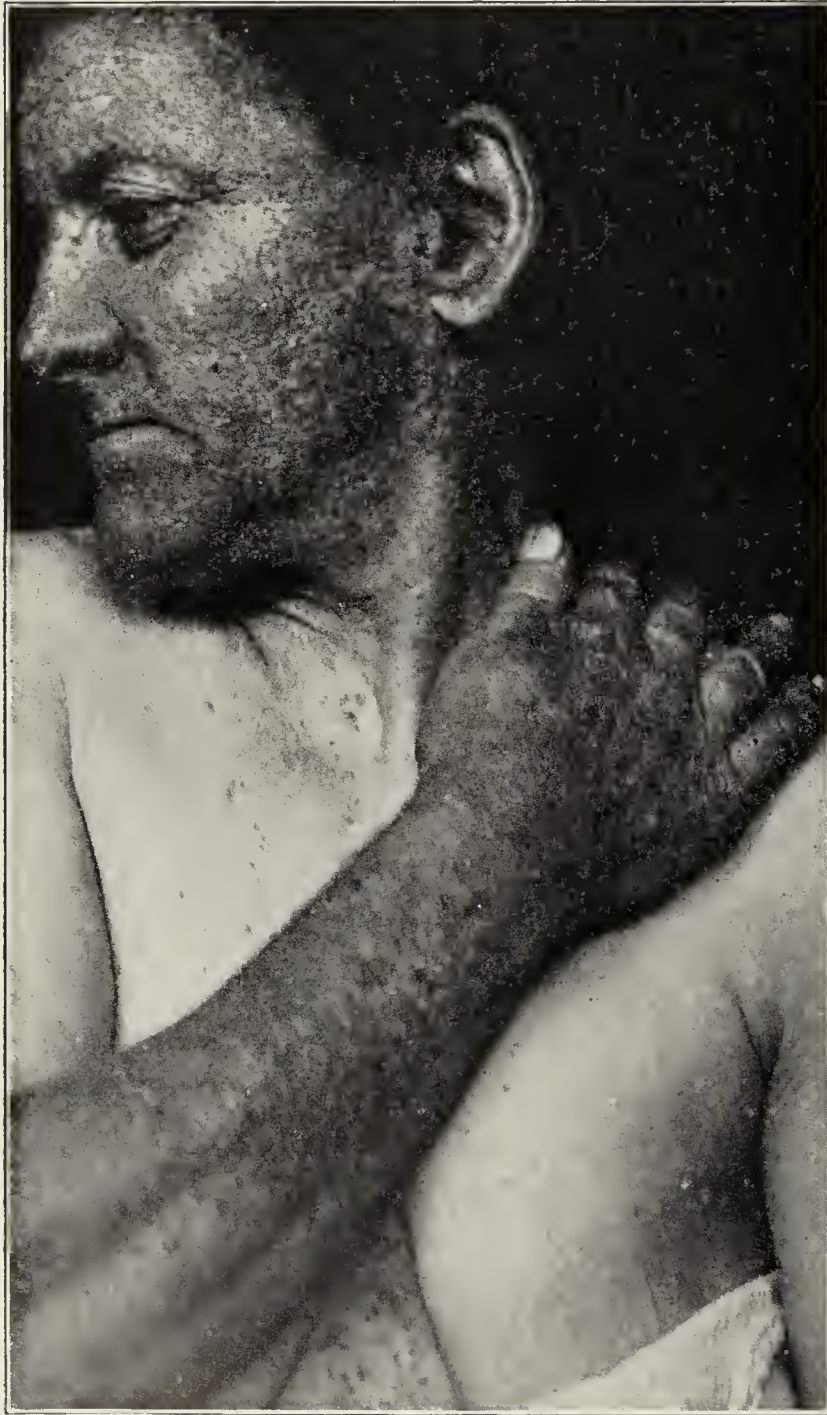


Fig. 4.—Case 4. Keratosis follicularis, showing lesions on face, scalp, auricle, forehead, temple, chest and forearms.

One or two lesions were removed from each patient for microscopic examination. With the exception of minor and unimportant individual differences the pathologic picture was practically the same. Under the low power the main changes were seen to be in the epidermis. A mild degree of hyperkeratosis was present, alternating with areas of parakeratosis.

Corresponding to the center of the section the epidermis seemed as though it were folded on itself, and long cords of epithelium dipped deeply down into the corium. Scattered through the epithelium, but especially in the prickly layer, were many cellular structures, which by their morphology stood out from normal cells of the

epidermis. Under the high power these structures were seen to be cells round or oval and larger than the normal epithelial cell (Fig. 5). They lay in a narrow, non-staining, clear zone. The protoplasm stained somewhat paler than the surrounding epithelium, but the nucleus was definitely more prominent, and a centrally placed nucleolus was a marked feature of each cell.

The entire cell seemed to be surrounded by a thin capsular membrane. Immediately underneath the distorted portion of the epidermis was a rather sharply defined infiltration of small round cells, with a few large, fixed, connective-tissue cells. There were also a few mast cells, but otherwise the corium and adnexa were quite normal in appearance.

It can be easily seen that the peculiar cells described in this brief summary of the histology are the so-called psorosperms of Darier. As before stated, they are not now supposed to bear any relation to the etiology of the disease, but they are of great diagnostic import, although it must be confessed that the diagnosis is comparatively easy from the clinical standpoint alone. One of the

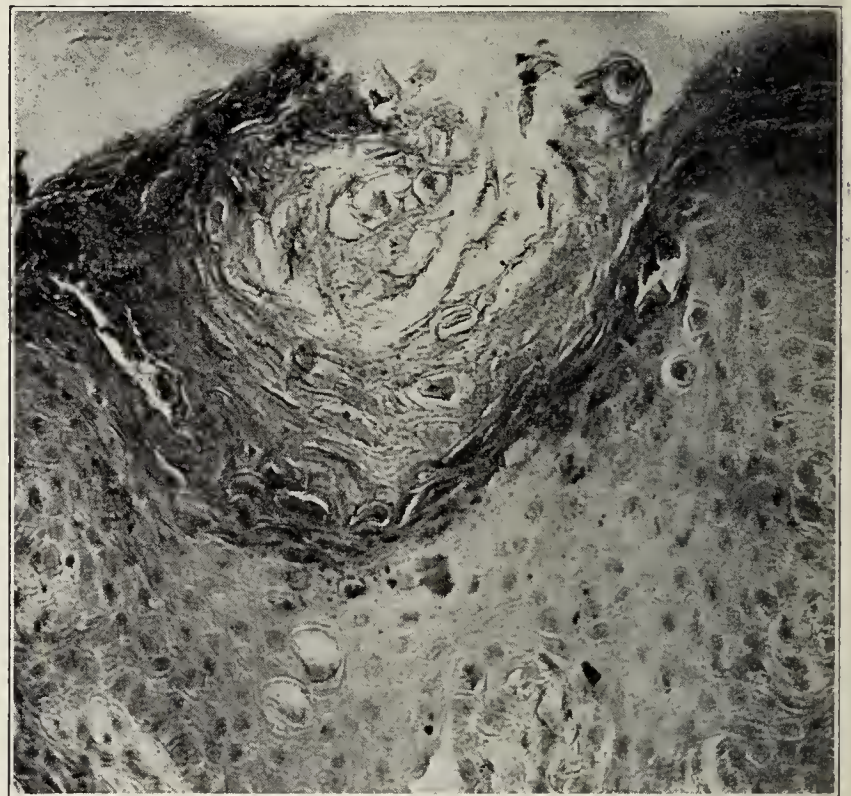


Fig. 5.—Section of a lesion from patient with keratosis follicularis, showing so-called psorosperms.

features of the greater number of cases heretofore reported is that the malady usually began before the sixteenth year. By a glance at the duration in these case reports, it will be observed that the disease began long after the sixteenth year in the first four patients. No great reliance can be placed on these patients' statements, however, as they have rather sluggish intellects, and the disease may have been present in a mild form long before it was observed.

So far as can be learned from the literature, there have been three other instances, in which more than one member of a family was affected. Boeck reports three cases in the same family. White, two cases and Ehrmann, two cases.

Both heredity and contagion have been casually spoken of in connection with this disease; whether any scientific efforts have been undertaken to prove either of these theories is unknown to me. It does not seem without the range of possibility that one of these suppositions is correct, since it is not exceedingly uncommon to find more than one member of a household affected.

With the theory of contagion in mind, some animal inoculation experiments were undertaken. With the cutaneous punch two small pieces of integument were excised from the back of one of these patients.

Each section contained three to five small but typical lesions. Under strict aseptic precautions one of these sections, after maceration in normal saline solution, was grafted into the skin of the shaved abdomen of a guinea-pig. The other section of tissue was made into an emulsion with normal saline, and injected both subcutaneously and intraperitoneally into a second pig.

The third experiment was made on a rabbit, by vaccination with the contents of several diseased follicles. They were all negative. The animals are still being watched, but the inoculations were performed six weeks ago, and no sign of disease has been observed.

The contents of a number of lesions were forcibly expressed for culture experiments. They were planted on plain agar, blood agar and serum agar, and under aerobic conditions showed nothing but staphylococci, but when planted on glucose agar and grown anaerobically for six days, two apparently different bacilli could be made out in the smears, one a somewhat granular Gram-positive that we take to be *acne*; the other a short thick bacillus that we cannot classify. Up to the present time, I have been unable to separate them in pure culture, but the trials are still going on.

Whether this bacillus has anything to do with the disease in question it would, of course, be impossible to say. It is realized fully that nothing positive can be stated without much further work and study, which we shall endeavor to do in the near future.

In conclusion, I desire to call attention to the severe and marked keratosis of the soles that is present in a majority of these patients. This symptom, although mentioned in some of the text-books, is spoken of only casually. It was present in all the cases herein reported, except the young boy. Since the disease is a keratosis, this symptom is no doubt directly connected with the pathologic process; at any rate, it is a very frequent concomitant.

My thanks are due to Dr. U. J. Wile for the pathologic examination, and also to Dr. Bennett for material assistance with the culture experiments.

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ABSTRACT OF DISCUSSION

DR. L. DUNCAN BULKLEY, New York: I can recall a case of this affection mentioned, that we saw at the New York Skin and Cancer Hospital, and I also remember that our remedies had little or no effect on it. Subsequently we tried the *x*-ray, and, to our surprise, it had a remarkable effect on the eruption. Within a month the patient was out of bed, to which he had been confined for several months by the excessive eruption on the soles, rendering them exquisitely painful.

DR. RICHARD L. SUTTON, Kansas City, Mo.: Since taking up dermatologic work, I have seen several cases of keratosis follicularis, and I can confirm what has been said regarding the lack of results following the use of the various methods of treatment that have been suggested from time to time. Recently, I saw a case which had been thoroughly treated with the *x*-rays, and by the application of resorcin, salicylic acid and similar remedies, all without any resulting benefit. The only method that proved even partially successful was the one recommended by Herxheimer (*Dermat. Ztschr.*, 1908, p. 45), actual cauterization of the nodules by means of the actual cautery (*Microbrenner*), thus substituting cicatricial tissue for diseased structures.

DR. W. B. TRIMBLE, New York: I have never been able to do much with these cases in the way of treatment. Under

the *x*-ray I saw one woman practically cured of the plantar keratosis at the Skin and Cancer Hospital, while the same treatment, applied to one of her sons, had no effect whatever, although the *x*-ray treatment was continued for a year. The use of strong salicylates and shaving of the skin produce only temporary benefit.

KÉRATODERMIE BLENNORRHAGIQUE

WITH REPORT OF A CASE *

FRANK E. SIMPSON, M.D.

CHICAGO

Although described by Vidal, in 1893, as a unique and well-characterized disease, keratosis blennorrhagica has hitherto attracted little attention. So far as I can find, the disease is not mentioned in any modern text-book on dermatology except in the recent work of Sequeira in which one case is reported and reference is made to several others. For the history of the following case and the privilege of reporting the skin condition, I am greatly indebted to Dr. H. B. Thomas, who treated the patient for the associated gonorrheal arthritis.

History.—The patient, a man aged 28, had had specific urethritis in 1908. Gonococci were demonstrated in smears from the urethra. About six weeks later he suffered from pain in the left hip. Smears from the urethra at this time again showed gonococci. Five weeks later both ankles and the left great toe showed evidences of gonorrheal arthritis. A few weeks later the knees, wrists, metacarpals, vertebrae, elbows, shoulders and right hip were affected. The patient was bed-ridden and practically unable to move. He brushed his teeth and fed himself with utensils tied to a long stick. About six months from the date of the first joint-trouble, a generalized rash appeared, which was most abundant on the anterior surfaces of the legs, the forehead, the hands and the fingers. In September, 1909, the patient was admitted to St. Luke's Hospital, Chicago. He came under my observation in January, 1910, a few months after the first appearance of the rash.

Examination.—The eruption, which was widely distributed, bilateral, and in the main symmetrical, consisted of two general types of efflorescences. The bulk of the eruption was made up of variously sized crust-like lesions of a remarkable appearance. The smallest and evidently the earliest efflorescences of this type were 3 or 4 mm. in diameter, of round or irregular shape, of yellowish color, sharply circumscribed, and elevated 2 or 3 mm. above the general level. There was no inflammatory base to the lesions, and when one of them was scraped off a smooth, pink, slightly moist surface was found underneath. After removal, the efflorescences, in two or three days, reformed themselves.

The largest lesions of the crusted or "scab-like" type resembled in appearance the "rupial syphilid," but an inflammatory base was lacking. Many of these lesions, which were composed of stratified epidermal layers, were from 1 to 3 cm. in diameter, of conical shape, with pointed apex, enlarging gradually toward the base, which was round or oval. The color of the older and larger lesions was a brownish or dirty grayish-yellow. There was noted, especially on the anterior surface of the legs, a number of crust-like lesions, in which, either by involution taking place in the center, or by the peculiar arrangement of individual lesions, circinate and serpentine configurations were formed.

Situated about the wrists, the internal malleoli of both ankles and on the soles, the second general type of lesion was seen. Here were a number of convex pustules, with hard horny caps, roughly resembling in appearance and consistence the pustules of small-pox.

The palms of the hands were remarkable in appearance, exhibiting an enormous thickening of the epidermis which

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

formed a plate-like covering. There were numerous "scab-like" efflorescences, 5 to 10 mm. in diameter, on the backs of the fingers, and the nails of both hands were elevated by subungual, gum-like, yellow crusts. The nails were much thickened, showed a yellowish discoloration and were eventually exfoliated.

The soles of both feet were affected similarly, but the epidermis covering them was even thicker, forming an irregular, horny carapace, which extended beyond the sole and upward toward the internal malleoli. There were, in addition, a number of horny nodules and pustules along the internal borders of the soles anteriorly. The toe-nails resembled the nails of the hands, and like them were finally exfoliated.

The trunk was the seat of more than a dozen scattered lesions, a centimeter in diameter, of the crust-like type. These were most numerous over the sternum and around the umbilicus, while the umbilicus itself was reddened and slightly moist.

The hairy scalp was affected by numerous horn-like crusts, varying in diameter from 1 to 3 cm. The forehead and both upper limbs were the seat of numerous similar lesions. A large rupial-like scab was situated at the "vaccination" area on each arm. Both forearms were affected by numerous lesions of both types, i. e., by horny crusts and pustules. On the penis a marked balanitis was noted.

The visible mucous membranes were free.

The course of all the lesions was a prolonged one. If left to themselves they showed little change from day to day, some slowly, others more rapidly, increasing in size, but showing little tendency toward spontaneous involution. The pustular

process. Around the scanty small blood-vessels of the subcutis are seen perivascular inflammatory areas, composed of mononuclear cells; polynuclear leukocytes are not seen. In the center of the nodules where the epithelial hypertrophy is most marked, the corium and the papillae show considerable inflammatory infiltration; here are also seen polynuclear leukocytes and cells with a more or less eccentrically placed nucleus and a somewhat square protoplasm which takes the nuclear stain (hematoxylin) well.

"These cells are very probably plasma cells. There was also seen in the area under description a small vessel, cut longitudinally and completely filled with polynuclear leukocytes. Where the inflammatory infiltration is best marked in the corium and the papillae, it has extended into the epidermis, and a moderate number of polynuclear leukocytes are seen between the epithelial cells. Those of the thickened malpighian layer are quite normal in appearance. Their prickles are well developed and distinct. A few karyokinetic figures are seen, not only in the innermost cells of the malpighian layer, but also more externally, and this in spite of the fact that the tissue had not been fixed in a fluid particularly favorable to the observations of karyokinetic figures. The outermost cells of the stratum



Fig. 1.—Kératodermie blennorrhagique.



Fig. 2.—Kératodermie blennorrhagique. $\times 90$.

lesions gradually desiccated and changed to the horn-like crusts which have been described.

The eruption was attended by no symptoms except at times a slight itching.

Histologic Examination.—A small lesion was removed from the anterior surface of the patient's leg. For the following report I am greatly indebted to Dr. Maximilian Herzog: "Transverse hematoxylin and eosin-stained sections of the nodule removed show a considerable thickening of the epidermis, particularly in the center of the mass. Here the interpapillary epithelial pegs are wide and they dip to a more considerable distance into the corium. The marked hypertrophy of the epithelial structures is gradually lost toward the edges of the nodule, and the epithelial covering toward one side is thinned out and indeed atrophic, with a complete loss of the interpapillary pegs, a change brought about by a peculiar condition of the corium and subcutis. The latter shows a powerful development of coarse hyaline connective-tissue fibers, between which are seen remnants of sweat-glands, bundles of involuntary muscle fibers of the arrectores pilorum, but neither hair follicles nor sebaceous glands. The appearance of the hyaline connective tissue of the derma somewhat approaches the picture seen in keloid, though the fibers are neither quite as coarse nor as completely hyaline as in the latter pathologic

Malpighii in some places are spindle shaped; the nucleus has remained vesicular; it is contained in a distinct vacuole, but keratohyalin is not demonstrable. In other places, however, finely granular keratohyalin is visible and next to such cells a rather thin stratum lucidum. A detached stratum corneum is found over most of the surface of the sections; it contains granular detritus and numerous infiltrating, compressed and deformed polynuclear leukocytes."

Course of Disease.—The patient's general condition at this time was deplorable, although mentally he was very intelligent and alert. There were emaciation, decubitus and almost complete restriction of motion from ankylosis of the swollen and painful joints. Blood-counts in the early part of the disease were practically negative; later anemia was present. Repeated attempts at culturing the gonococcus from the blood and from fluid aspirated from the joints gave negative results.

In order to exclude syphilis, several Wassermann tests had been made, but these resulted negatively. Antisyphilitic treatment had also been tried without effect. The urine at times showed slight traces of albumin.

The urethral discharge was finally free of gonococci.

Considerable amelioration of the skin condition was brought about by the use of a sulphur and resorcin ointment. As the lesions disappeared under treatment a slightly pigmented or

hyperemic macule marked their site. Everything possible was done for the joints. The measures used included "bakes," Bier's treatment, serums, vaccines, bowel flushing, tonsil treatment, orthopedic appliances, massage, passive motion, manipulation under an anesthetic and injections of formaldehyd and glycerin solution into the joints.

In May, 1911, iritis developed in the right eye, and in July, 1911, loss of sight occurred. In September, 1911, having been bedridden nearly two years, the patient committed suicide. At this time only a few efflorescences on the scalp and fingers remained.

Necropsy.—A complete necropsy with the following anatomic diagnosis was made by Dr. Eggers: chronic deforming polyarthritis; passive hyperemia of the lungs; left hemothorax; passive hyperemia of the stomach, liver and intestines; moderate hypertrophy of the heart; left fibrinous pleuritis; localized fibrinous pericarditis; fibrinous adhesions between the spleen and the diaphragm; atrophy of the testicles; seminal vesiculitis and prostatitis.

Bacteriologic examination of fluids removed from the prostate, seminal vesicles and ankle-joint revealed no organisms.

LITERATURE

So far as I can find, the present case is the first reported in America. Twenty previous cases have been recorded in the literature, brief abstracts of which follow. Moulages of the disease have been made by Vidal and photographic reproductions by Stanislawsky,¹ Baermann,² Sequeira³ and Chauffard.⁴

Vidal⁵ described the first case in 1893.

A man, aged 24, was admitted in May, 1890, to St. Louis Hospital, Paris, suffering from blennorrhagia, polyarthritis, blepharitis, anemia, cachexia and a remarkable dermatosis. The rash was symmetrical and generalized and without traces of moisture or oozing. It was composed of horny crusts situated on the head, face and trunk, but especially on the lower limbs and around the malleoli. The palms and soles were covered with isolated and confluent horny crusts. The smallest lesions resembled, in coloring and semitransparency, little drops of yellow wax. The larger ones, yellowish brown in color, were formed by a gradual extension of the smaller lesions and were more than a centimeter in diameter. A cross-section showed a stratification of epidermic layers, not unlike a cutaneous horn. If a crust was scraped off a slightly moist papule was laid bare.

In places, reddish and brownish macules indicated the site of horny crusts which had fallen off. Only rarely were the horny crusts preceded by vesicles and vesicopustules.

Thick, horny crusts formed beneath the nails, from beneath which also pus could be expressed, exfoliation of the nail plate finally taking place.

The eruption strongly resembled the horny syphilid, but antisiphilitic treatment had no effect. Bacteriologically the lesions were negative.

The right knee is shown in the Baretta moulage No. 1544, and the right foot in moulage No. 1523, of the St. Louis Hospital collection in Paris. With the subsidence of the blennorrhagia and the arthritis, spontaneous involution occurred. Two years later, under the same conditions, i. e., a blennorrhagia and polyarthritis, Vidal observed a recrudescence of the eruption in the same individual.

1. Stanislawsky: Ueber einen Fall von gonorrhöischer Urethritis mit Affection der Gelenke, symmetrischem, hornartigen Ausschlag und Ausfallen der Nägel. Monatsbericht ueber die Gesamtleistungen u. d. Gebiete der Erkrankungen des Harn und Sexualapparates, 1900, p. 643.

2. Baermann, G.: Ueber hyperkarotische Exantheme bei schweren gonorrhöischen Infectionen, Arch. f. Dermat. u. Syph., 1904, lxi, 363.

3. Sequeira, J. H.: Kératoderme Blennorrhagique, Proceedings of the Royal Society of Medicine, London, iii, Part 1, p. 77.

4. Chauffard, A., and Fiessinger, N.: Deux cas de kératose blennorrhagique. Reproduction expérimentale et de la lésion cutanée. Bull. de la Soc. Fr. de Dermat. et Syph., May, 1909, No. 5, p. 162; also Ikonographia Dermatologica, 1910.

5. Vidal, E.: Éruption généralisée et symétrique de croûtes cornées avec chute des ongles, d'origine blennorrhagique, coïncidant avec une polyarthrite de même nature. Récidive à la suite d'une nouvelle blennorrhagie, deux ans après la guérison de la première maladie, Ann. de dermat. et de syph., 1893, p. 3.

Jeanselme⁶ reported one case.

A man, aged 24, had gonorrhea, but continued his rough work as a driver during treatment. Gonorrheal arthritis, involving the right hip, the knees and the feet, occurred three or five weeks later. Characteristic papules then appeared on the feet and around the toe-nails. Two months later, the papules and other symptoms were disappearing but complete recovery had not taken place when the report was made.

Jaquet and Ghika⁷ reported the third case.

In this patient, a fourth attack of gonorrhea was accompanied by arthritis, cardiopathy and numerous horny crusts on the feet; a fifth gonorrhea, with the same symptoms. A sixth gonorrhea with deforming arthritis of the feet was accompanied by aortitis, cachexia and large keratotic plaques.

Chauffard⁸ reported one case.

In his patient there was polyarthritis involving the knees, left ankle, and metatarsophalangeal articulation of the great toe. Acute ophthalmia, nephritis, marked cachexia, and considerable azoturia were present. There were cutaneous horny lesions on the inner upper part of the thigh in plaques, on the back, on the right hand (two lenticular protrusions) and on the sole.

Robert⁹ reported two cases.

In the first case, an ophthalmia of the right eye was accompanied by cone-shaped, discrete growths on the knees. There was no arthritis. In the second, a child of 4, corneous lesions occurred on the dorsal surface of the feet. There was no arthritis.

Launois¹⁰ reported a case.

In this patient, a gonorrhea was accompanied by general arthritis, iritis and profound cachexia. Corneous papules appeared in successive crops, on the plantar surface of the feet. Recovery. Horny papules then appeared over the sacral region and inner surface of the left ankle, later involving the legs, both feet, scrotum and prepuce. On the soles, thirteen or fourteen brown papules appeared, resembling nail-heads. Some of the lesions were pustular. The nails were also involved. When the dark yellow, horny crusts were removed, slightly moist, rosy skin appeared beneath. The diagnosis of syphilis was made at first but when specific treatment failed, the true nature of the disease was recognized.

Stanislawsky¹ reported one case in 1901.

In this patient there was gonorrheal urethritis with joint involvement, a symmetric horny exanthem, and falling off of the nails. The patient, aged 28, complained of severe pain in the left ankle, three weeks after infection with gonorrhea. During the next two weeks the right ankle and the right knee were involved.

Malherbe¹¹ reported a case.

The patient had chronic gonorrhea and a general arthritis. There were a dozen horny cones on both feet.

Two cases were reported by Baermann.²

In the first patient, during a third gonorrhea, there was arthritis of the left foot and hands. Horny cones developed on the sole of the right foot. In a fourth gonorrhea, arthritis of the right knee, of the vertebrae and of the great toe developed. There were conjunctivitis of the left eye, scaly cones

6. Jeanselme, E.: Troubles trophiques dans la blennorrhagie, Ann. de dermat. et de syph., 1895, p. 525.

7. Jaquet and Ghika: Sur un cas d'arthro-blennorrhagisme avec troubles trophiques, Soc. méd. des hôp. de Paris, Jan. 22, 1897.

8. Chauffard, A.: Infection blennorrhagique avec productions cornées de la peau, Soc. méd. hôp. de Paris, April 23, 1897.

9. Robert, E.: Contribution à l'étude des troubles trophiques cutanés dans la blennorrhagie, Thèse de Paris, April 28, 1897.

10. Launois, P. E.: Arthropathies récidivantes, Amyotrophie généralisée, troubles trophiques multiples d'origine blennorrhagique, Soc. méd. des hôp. de Paris, July 21, 1899.

11. Malherbe: Uréthrites à gonocoques récidivantes, arthropathies multiples, troubles trophiques cutanés, cornés, Gaz. méd. de Nantes, 1901, No. 6.

on the feet and diffuse keratosis of the palm of the left hand. Recovery.

In the second case, there was arthritis of the knees, foot and hand. The patient was in a cachectic state and had double ophthalmia and generalized, sealy horny lesions. The soles of the feet were much thickened. Recovery.

Roth¹² reported one case.

A man, waiter, aged 35, with his second attack of gonorrhea, which was accompanied by balanitis and fever, developed synovitis of the right metatarsus. About fifteen small, hard, dark brown papules, like little cones of wax-like transparency, developed on the right foot, especially around the great toe. They were situated on sound skin and could be peeled off, leaving a succulent and blood-tinged base. Similar papules developed on the left foot. In five or six weeks, the gonorrheal urethritis subsided, and simultaneously the skin lesions receded and disappeared.

Chauffard and Froin¹³ reported two cases.

In the first, a urethritis was accompanied by a general arthritis which involved the temporomaxillary articulations, the vertebrae, limbs, hands and feet. Cachexia was present. Horny cone-like lesions appeared on the feet. Recovery. In the second case, there was gonorrheal arthritis of the right knee and shoulder and profound anemia. Horny papules on the right big toe. No gonococci were found in the skin lesions. Recovery.

Chauffard and Fiessinger⁴ reported two cases.

In the first patient, a gonorrhea was accompanied by arthritis of the knees and ankles. There were small horny papules on the back of the foot, predominating on the first phalanx of the big toe. The sole was very hard and horny and not painful on pressure. In the second case, a gonorrhea was complicated by extensive arthritis involving the knee, ankles and temporomaxillary articulation, a horny eruption, particularly extensive on the back of the foot and in the region of the instep and a thickened sole. The authors made experiments with the view of reproducing the cutaneous lesions. Subcutaneous injections of gonorrheal pus gave negative results, but when the skin surface was abraded and the serum underneath the crusts of gonorrheal keratosis was inoculated on the prepared surface, the clinical and histologic picture of the spontaneous keratosis was produced. It was found necessary to cover the experimentally inoculated area with a glass shield.

Rivet and Bricout¹⁴ reported a case of gonorrheal keratosis.

In the first, and again in a second, attack of gonorrheal keratosis eight years later, the patient developed polyarthritis. The second attack was more severe and was ascribed to neglect of treatment. About four weeks later gonorrheal keratosis developed.

In March, 1910, Sequeira³ presented a case to the Royal Society of Medicine in London, the first instance of the disease shown in England. The patient had gonorrheal arthritis of both knees, right elbow and right sternoclavicular articulation. He was very anemic, cachectic and wasted. Soles of both feet presented a remarkable appearance. The rash had begun about two months after the appearance of specific urethritis and simultaneously with the arthritis, as small "pimples" or swellings on both soles. Along the inner border of each sole was an irregular horny mass with a nodular surface. Smaller masses were situated along the outer side of each sole and the intervening areas were covered with a brownish-yellow, parchment-like thickening of the epidermis. The nodules were of a dark brown or purplish brown color. The individual swellings measured 0.3 cm. to 2 cm. across from base to base. The excrescences had crept toward the dorsum on both inner and outer aspects of the feet. The affected area

was sharply limited by a narrow zone of hyperemia. The toes were free except for small isolated nodules at the root of the great toes. The lesions felt like horn. The palms were not affected. The patient had been treated with vaccines and the arthritis was better. Later a portion of the earpiece on the right sole separated, leaving a reddish brown patch.

Turnbull reported on the histologic structure of an excised early nodule. The nodule was covered by a very thick horny cap. The interpapillary processes beneath this were much lengthened. Papillae were very edematous and much infiltrated. There was no edema in the subjacent derma but a little infiltration, especially around the vessels. Infiltration in the derma consisted of lymphocytes with many mononuclear and binuclear plasma cells. (Unna Pappenheim.) There were a few neutrophilic polymorphonuclear leukocytes in the upper part of the papillae and many in the capillaries. Only one or two eosinophils were found. No mast cells seen. In the epidermis the lower part of the malpighian layer showed clear prickly borders; karyokinetic figures were present in the basal layer. A varying number of neutrophil leukocytes were seen in these layers. A stratum granulosum was only recognizable in places. At this level, very large numbers of neutrophil polymorphonuclear leukocytes in masses occupying rounded spaces formed by the degeneration of epithelial cells. The superjacent horny layers contained many flattened nuclei and collections of neutrophil leukocytes lying in strands between the horny layers. A superficial layer of horny substance without nuclei was present in part of some of the sections.

Williams¹⁵ reported a case of gonorrheal keratosis of the hands and feet.

A man, aged 21, had previously had hyperidrosis pedis and keratosis of the feet. He then developed a urethritis which was followed in one month by arthritis of knee and ankle. One month later, a diffuse plate-like keratosis of the soles developed together with a few corn-like nodules. A few days later the hands showed yellow horny cones.

Little and Douglas¹⁶ reported a case.

The patient, a policeman, aged 30, in a second attack of gonorrhea developed arthritis of both knees. Temperature, 102 and higher, was present and he became weak and unable to stand. The soles of the feet showed numerous conical, translucent, brown horny lesions, raised $\frac{1}{4}$ to $\frac{1}{2}$ inch above the niveau. On the dorsum of the feet and on the hands and elbows were several rupia-like scabs. The nails were exfoliating. An eruption of warty scabs had appeared on the elbows during a similar attack two years before.

ETIOLOGY

Gonorrheal arthritis has been present in all but two of the reported cases of keratosis blennorrhagica. While the etiologic relation of the gonorrheal general infection to the eruption is not absolutely proved, the probability that there is such a relation is very great. Baermann² believes an etiologic connection is established beyond all doubt: (1) because of their constant association, the eruption waxing and waning with the infection; (2) because a similar eruption in other diseases or as an idiopathic affection has not been described.

Chauffard and Fiessinger⁴ state that in the presence of severe and resistant gonorrheal arthropathies we may assume the existence of gonococcus septicemia. The gonococcus undoubtedly invades the skin and is the direct cause of the eruption of keratotic crusts. As accessory causes, which act by preparing the ground successfully, they mention the following factors:

1. Confinement to bed with inhibition of motion.
2. Abundant perspiration with infrequent ablutions and change of dressings.

12. Roth, V.: Zur Kasuistik des "hyperkarotischen" gonorrhoeischen Exanthems, München, med. Wchnschr., May 30, 1905, p. 104.

13. Chauffard, A., and Froin: Sur la kératose blennorrhagique, Arch. de méd. expér. et d'anat. path., September, 1906, No. 3.

14. Rivet, L., and Bricout, C.: Sur un cas de Kératose Blennorrhagique, Bull. méd., 1909, p. 851.

15. Williams, W.: Proceedings of the Royal Society of Medicine, London, 1911, iv, Part 1, p. 12.

16. Little, E. G. G., and Douglas, S. R.: Proceedings of the Royal Society of Medicine, London, 1911, v, Part 1, p. 8.

3. The wearing of rubber stockings and the prolonged application of Bier's band.

These factors act by favoring the accumulation of scales and the maceration of the epidermis. The authors were led to this view by the results of their inoculation experiments. Having abraded the epidermis, they rubbed in the serum obtained from beneath a keratotic crust, covered the inoculated area with a watch crystal, and reproduced the eruption macro- and microscopically.

This was only possible, however, in a keratotic subject and was unsuccessful in a healthy subject and in animals. These authors discard the trophic theory of the eruption held by the earlier French writers for the following reasons:

They were unable to confirm Jaquet's observation that the reflexes were always increased, and after a lumbar puncture in one of their cases the results were negative. From this they inferred the integrity of the nervous centers. The same authors discard the gonotoxic theory and the hypothesis that the staphylococcus is the cause of the keratosis.

PATHOLOGY

The histologic structure has been examined by Chauffard,⁸ Baermann,² Chauffard and Froin,¹³ Chauffard and Fiessinger,⁴ by Turnbull in Sequeira's³ case, and in the present case, with similar, but not characteristic, findings. A. Chauffard,⁸ in 1897, made the first biopsy. He showed the existence of a papillary dermatitis with leukocytic infiltration and immigration of the leukocytes into the malpighian interstices. Subsequently, Baermann² stated that the horny formations characteristic of the disease were not true keratoses but were the results of a parakeratosis. On this account, he proposed the title, "dermatitis papillaris parakeratotica," a name which has not, however, been generally accepted.

In their latest article, Chauffard and Fiessinger⁴ corroborate Baermann and state that the leukocytic infiltration, deep and epidermic, composed of polynuclear leukocytes and mast cells, together with parakeratosis, are the distinguishing features of the histologic picture. Gonococci have never been found in the lesions.

CLINICAL CHARACTERISTICS

Buschke¹⁷ has made a complete study of the eruptions observed in gonorrhea. He differentiates four groups.

1. Simple erythema. This form is the most frequent. Among these cases, there are naturally some balsamic erythemas, but excluding these, there are some cases that cannot be brought into etiologic relation with the medication.

2. Urticaria and erythema nodosum. Skin lesions exactly simulating urticaria and erythema nodosum have occurred in gonorrheal infections. Joint pains and arthritis have been present in some of the cases. Endocarditis and pericarditis have also been observed.

3. Hemorrhagic and bullous exanthems. These lesions have usually been associated with evidences of gonococcus septicemia and are possibly of embolic origin.

4. Hyperkeratosis. In this group, in which may be included the present case, the lesions are probably specific. Baermann,² who has made a special study of this group, divides the cases of gonorrheal keratosis into:

A. A generalized form. Here the lesions may occur anywhere — in one case even on the mucous membranes. The extremities are the sites of predilection. The legs and forearms are involved more commonly than the thighs and arms, while the face and scalp are the rarest sites.

B. A localized form, involving especially the feet and hands. This is much more the common type.

Of the twenty previous cases, four were of the generalized and sixteen of the localized type. Chauffard and Fiessinger point out the special preference of the disease for the internal borders of the feet and the dorsum of the big toe in the vicinity of the nail matrix.

When occurring on the head, trunk or extremities, the lesions are, as a rule, isolated, sometimes confluent, horn-like crusts, 0.2 cm. to 3 cm. in diameter.

On the soles or palms, a diffuse, often irregular, dirty yellowish thickening of the epidermis, with projections like a "relief map," is the usual finding.

In the present case the circinate and serpentine configurations, noted especially on the legs, were an interesting feature.

Destruction or ulceration of the skin never occurs. Hence there is no scarring, the site of former lesions being marked only by a slight hyperemia or pigmentation which finally disappears.

In the diagnosis, syphilis must be considered. Some of the lesions look not unlike a peculiar psoriasis with a complicating seborrhea. The general picture, however, is quite unlike any of the ordinary dermatoses and in connection with a gonorrheal arthritis could scarcely be mistaken.

TREATMENT

Chauffard and Fiessinger¹² recommend the use of soap and hot water for its macerating effect on the lesions.

In the present case a resorcin and sulphur ointment was of benefit. Spontaneous involution of the eruption takes place with the subsidence of the arthritis.

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ABSTRACT OF DISCUSSION

DR. JOSEPH ZEISLER, Chicago: Most of us are acquainted with *kératodermie blennorrhagique* merely by having seen some of the illustrations of that rare condition when occurring on the soles of the feet. We have reached the point where we understand the systemic effects of the gonococci better than before, and Irons' experiments in regard to the allergic reaction after cutaneous vaccination with dead gonococci have certainly been noteworthy in this respect. That the gonococcus may exert a peculiar local irritating effect on the skin can be seen in the well-known production of venereal warts. The rarer form of blennorrhagic keratoderma might be explained as an analogous formation.

DR. M. L. RAVITCH, Louisville: In these cases we may have the same process as we see in syphilis. In syphilis, when the infected individual has the spirochetes deposited in the neighborhood of the glans penis, Nature does her utmost to overcome the foreign invasion and sends out serum and other defensive fluids. These agents try to envelop the spirochetes and kill them, and thus we have a chancre. The spirochetes, in the majority of cases, are not killed; they invade the deeper tissues, are absorbed by the lymphatics and blood-vessels, and the entire system becomes impregnated with them. Nature makes another effort to kill them, sending out defensive fluids, and we have the secondary eruption. Nature having failed, the physician comes to the rescue and applies chemical means, such as mercury and different preparations of arsenic. In the majority of cases, the spirochetes are destroyed, but in some instances they remain lodged somewhere in the system, or rather become encysted. They become latent enemies, as we might call them. In a year or in many years they may be gradually revived and become quite active, as the system becomes less active in defensive power; we get, then, a fresh syphilitic development, or, as some may think, a reinfection. A similar theory can be applied in Dr. Simpson's case. The patient's system being very susceptible to the invasion of microorganisms, the gonococci might have entered

17. Buschke: *Arch. f. Dermat. u. Syph.*, 1899, xlviii, 181 and 385.

into the circulation, sensitized the tissues and produced the phenomena described.

DR. FRANK E. SIMPSON, Chicago: The relation of the gonococcus to this form of dermatitis is very interesting. The gonococci have been looked for in the lesions very often, but have never been found, which, perhaps, is simply due to the fact that they were not looked for at the proper time. If they should be found eventually it would tend to uphold the contention that all the parakeratoses are due to a microbic agent.

APPENDICITIS COMPLICATING PREGNANCY

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It is my purpose to present briefly the debatable points of interest in relation to appendicitis as a complication of pregnancy, labor and the puerperium. Obstetricians were slow to appreciate the frequency and gravity of appendicitis as a complication of pregnancy. This was so because appendicitis was not clearly recognized until Fitz, in 1886, substituted the term appendicitis for typhlitis and perityphlitis. Eight years later, Paul F. Munde¹ reported three cases of appendicitis complicating pregnancy and two years later R. Abrahams² added twelve cases. The clinical deductions of Munde and Abrahams are generally accepted to-day. In fact there has been little of importance that has been contributed by later writers. The most elaborate contribution to the subject is that of H. H. Schmid who collected 486 cases of appendicitis complicating pregnancy from the literature of the past twenty years.

Appendicitis occurs with greatest frequency during the child-bearing period, hence it is not strange that it should be found to complicate pregnancy. But we are not to conclude that the combination is a coincidence in all cases. Nearly all authorities agree that a primary attack is not incited by the pregnant state but that there is a very great liability to recurrent attacks during pregnancy, labor and the puerperium.

As to the frequency with which women who have suffered from one or more attacks of appendicitis prior to pregnancy experience a recurrent attack in event of pregnancy I quote the observations of Goedecke.³ He reported sixteen cases of pregnant women who had suffered from an attack of appendicitis prior to their pregnancy and of this number five went through pregnancy and puerperium with no trouble from their appendix, while eleven had a recurrent attack during their pregnancy.

The explanation for recurrent attacks in pregnancy, lies in the vascular engorgement of the appendix, in the constipation which is so commonly associated with pregnancy, in the toxemias of pregnancy, in the encroachment of the uterus in the early months of pregnancy, and in the puerperium and, finally, in the occasional presence of adhesions binding the appendix to the uterus and its appendages. While these factors doubtless tend to incite a recurrent attack of appendicitis they cannot be said to create a primary attack.

I am unable to arrive at any estimate of the frequency of the complication. Treves, in 1895, reported six cases

of appendicitis complicating pregnancy out of a total of 1,000 cases of appendicitis in women. Norris⁴ operated on 445 women of appendicitis, six of whom were pregnant. Sonnenburg performed 2,000 appendectomies, in four of which the appendicitis occurred in pregnancy and the puerperium. Baldwin had six pregnancies in 1,800 appendectomies; Vineberg nine in 731 and v. Eiselberg thirteen in 520. E. Fraenkel⁵ found five cases in 40,000 pregnancies; Schauta four in 34,000; v. Rosthorn⁶ two in 27,000; Fellner none in 4,000; v. Oordt four in 10,000 and Chrobak and v. Rosthorn thirteen in 13,000.

The gynecologist and obstetrician doubtless find a much larger percentage of appendicitis complicating pregnancy for the very good reason that they see more pregnancies and fewer cases of uncomplicated appendicitis.

Appendicitis complicating pregnancy presents a serious problem because of the occasional difficulties encountered in making an early diagnosis. It is true that both mild and severe attacks of appendicitis often go unrecognized in the course of pregnancy, in labor and in the puerperium. Mild attacks are interpreted as the ordinary discomforts of pregnancy and the severe cases occurring in the puerperium are frequently regarded as types of puerperal sepsis. Again, we find these attacks interpreted as intestinal colic, renal colic, ureteropyelitis, threatened miscarriage, salpingitis and tubal pregnancy.

While mild attacks do not alter the course of pregnancy, severe attacks will usually result in the interruption of pregnancy, and not infrequently in the death of the fetus *in utero*. The infection may extend to the uterus by way of the fallopian tubes or by way of the broad ligaments and uterine wall to the placenta. In this manner, the colon bacillus has been conveyed to the placenta and fetus. The large percentage of fetal mortality observed in the reports of cases is due in part to the interruption of pregnancy prior to the period of viability and in part to fetal toxemia. In eighty-nine appendectomies on perforated appendices there were thirty-three abortions after operation. In fifty non-perforated cases seven abortions followed operation. Boije⁷ referred to eighteen cases in Engstrom's clinic in which pregnancy was not interrupted. A gangrenous appendix with general peritonitis was operated on in the fourth month of pregnancy by T. K. Holmes⁸ and pregnancy went to term with the delivery of a healthy child. Several such cases are on record.

Falk⁹ drained an appendiceal abscess containing two liters of pus without interrupting a six months' pregnancy. It is incumbent on the surgeon, therefore, to employ every possible means of preventing miscarriage after operating. When a viable fetus is born early in an attack the chances for the life of the child are not greatly influenced by the appendiceal infection but when the delivery occurs late in the course of a severe attack of appendicitis the fetal mortality is great as the result of sepsis. It has been frequently observed that death of the mother rapidly follows the interruption of pregnancy. While miscarriage is regarded as a contributing factor to the fatal issue, sepsis is the chief determining factor.

It is generally conceded that appendicitis complicating pregnancy and the puerperium runs a more rapid

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Munde, P. F.: Med. Rec., New York, Dec. 1, 1894; Oct. 26, 1895; March 23, 1895.

2. Abrahams: Am. Jour. Obst., 1897, xxxv.

3. Goedecke: Zentralbl. f. Gynäk., 1912, No. 15.

4. Norris: Am. Gyn. and Obst. Jour., xiv, 425.

5. Fraenkel, E.: Samml. klin. Vortr., 1898, No. 229, S. p. 1335.

6. Von Rosthorn: Med. Klin., 1907, S., p. 339.

7. Boije: Chap. XXIX, Frommell's Jahrb. über Geb. u. Gyn., 1903.

8. Holmes, T. K.: Am. Jour. Surg. and Gynec., February, 1903.

9. Falk, Otto: Zentralbl. f. Gynäk., 1900, xl, S. p. 193.

and destructive course than in the non-gravid state. It is true that appendiceal abscesses are particularly liable to rupture into the free peritoneal cavity. The explanation lies in the fact that the growing uterus of pregnancy and the contracting uterus of labor and the puerperium form the inner boundary of the abscess, hence the great liability of the abscess to rupture.

Myers¹⁰ reported nine cases of appendiceal abscesses with three deaths from general peritonitis, and again Meyers collected the records of sixty-nine cases of appendicitis in which the patient was operated on in the course of pregnancy. Of these patients forty-nine (71 per cent.) developed a gangrenous appendix with abscess formation. Babler¹¹ collected 235 cases of appendicitis complicating pregnancy and the puerperium. In a total of 207 cases the appendix perforated in 103; eighty-nine patients were operated on with thirty-six maternal deaths. In fourteen of the perforated cases no operation was done; all the patients died. There were fifty non-perforated cases in which operation was done with one maternal death. Twenty-eight cases occurred in the puerperium, eighteen were perforated, in twelve the patients were operated on with four maternal deaths. Two of the five patients not operated on recovered after rupture of the abscess into the rectum. In all of the non-perforated cases occurring in the puerperium the patients recovered. Babler very pertinently concludes: "The mortality of appendicitis complicating pregnancy is the mortality of delay."

The evidence is convincing that appendicitis runs a more rapid and destructive course when complicating pregnancy and the puerperium and therefore demands prompt consideration at the hands of the surgeon.

If it be true that appendicitis is particularly liable to recur in event of pregnancy it follows that women in the child-bearing period who have suffered one or more attacks of appendicitis present a very special indication for the removal of the appendix.

I would not go so far as does Fraenkel⁵ in advising the removal of the appendix in all attacks, both mild and severe, occurring in the course of pregnancy. When the attack is mild, unless oft repeated, it would seem advisable to postpone operation until the end of the puerperium. When there is a definite pronounced attack in the course of pregnancy or the puerperium the demand for immediate operation is imperative in view of a possible rapid and destructive course. The earlier in the course of both pregnancy and appendicitis the operation is performed the better will be the result. When an appendiceal abscess is recognized drainage should be established without delay because of the great liability of rupture of the abscess into the peritoneal cavity. This applies as well to abscess formation at the beginning of labor when the contracting uterus would be so liable to disseminate the pus. The greatest caution must be exercised to prevent the contamination of the genital tract by the escaping pus.

It is seldom that pregnancy is interrupted in the course of a mild attack of appendicitis but it is the rule that pregnancy is interrupted in the course of severe attacks. When operation is performed in such cases, every precaution should be taken to prevent miscarriage. In operating the uterus should be carefully guarded from undue handling and exposure and after operation opiates should be administered to the patient and absolute rest enjoined.

In severe attacks occurring at the end of pregnancy and without evident abscess formation, the rule should be to induce labor and to remove the appendix at the completion of labor.

In the past six years I have had fifteen cases of appendicitis associated with pregnancy, labor and the puerperium. The first seven of these cases were reported in the *American Journal of Obstetrics*;¹² the others are given here:

CASE 8.—Mrs. H., aged 32, quartipara, had a severe attack of appendicitis two years before the present attack and had since suffered from tenderness and pain in the appendiceal region with gastro-intestinal disturbances. Her fifth child was born at term, March 2, 1911, and six hours after the completion of labor the temperature reached 101.5 F.; in forty-eight hours it was 105.6 F., and the pulse was 120. There was intense pain in the region of the appendix, rapid distention of the abdomen, nausea, obstipation and muscular rigidity over the right lower quadrant. I first saw her at the end of the third day of the puerperium and operated within two hours. The appendix was not adherent but was large, congested and contained a small amount of pus. Recovery followed.

CASE 9.—Mrs. S., aged 22, secundipara, first complained of pain in the region of the appendix three years before. In these three years she had had several moderately severe attacks of appendicitis; the last was not severe but her physician advised the removal of the appendix in view of the fact that she was again pregnant. I operated on her in the fifth month of gestation. The appendix was thickened, but contained no pus and no adhesions existed. Recovery followed and the pregnancy proceeded to term with the delivery of a healthy child.

CASE 10.—Mrs. W., aged 28, primipara, entered the hospital in the twelfth week of gestation. Five years previously, she had her first attack of appendicitis. Since then she had had several recurrent attacks of moderate severity; the last was in the fifth week of her present pregnancy. These attacks were of moderate severity. She suffered from the usual gastro-intestinal disturbances of chronic appendicitis, and the pain in the right iliac region had been steadily increasing as the pregnancy advanced. I removed a thickened non-adherent appendix. Recovery followed without the interruption of pregnancy.

CASE 11.—Mrs. S., aged 22, primipara, was about ten weeks pregnant when she experienced her second attack of appendicitis, the first having occurred six months before. I operated on her a few days after the acute symptoms of the second attack had subsided and removed a thickened, congested appendix which was not adherent and did not contain pus. Recovery followed and the pregnancy proceeded to term with delivery of a healthy baby.

CASE 12.—Mrs. E., aged 31, primipara, had never experienced an attack of appendicitis until her present pregnancy. One week before admission to the hospital she had a moderately severe attack. The appendix was removed in the ninth week of gestation; it was in the subacute stage of a catarrhal inflammation. Recovery followed. The pregnancy proceeded to term.

CASE 13.—Mrs. K., aged 24, nullipara, miscarried at the seventh month of gestation. She experienced great pain in the region of the appendix throughout labor. I saw her three weeks after the miscarriage when I drained an appendiceal abscess through the right lateral incision. The abscess contained fully two quarts of pus. The records were not kept for the first three weeks following the miscarriage, but it was stated by her physician that her temperature was elevated to 101 F. by the end of labor and ranged from 101 F. to 105 F. to the time of operation. So far as known, this was her first severe attack, but there were several preceding mild attacks. Recovery followed.

CASE 14.—Mrs. S., aged 29, secundipara, referred to me by Dr. Peters of Stanton, Neb., was then believed to be about

10. Myers, Max: *Am. Jour. Obst.*, March, 1906, p. 358.

11. Babler: *THE JOURNAL A. M. A.*, Oct. 17, 1908, p. 1310.

12. *Am. Jour. Obst.*, 1909, iv, 6.

three weeks pregnant. Two days after her first confinement she experienced her first attack of appendicitis which was moderately severe. This was three and one-half years ago. Since then, she has had more or less discomfort in the neighborhood of the appendix. In her second pregnancy this discomfort was increased. She gave birth to her second child eighteen months ago. For two or three days preceding labor and for a week following labor, the pain in the right side was very intense. The abdomen became distended, there was elevation of temperature and the bowels were moved with great difficulty. She continued to suffer from pain in the right side to the time of operation. I removed an appendix which was distended throughout its entire course with bloody feces; there were no adhesions. Recovery ensued without miscarriage.

CASE 15.—Mrs. B., aged 24, primipara, referred by Dr. Sullivan of St. Edwards, Neb., is in the seventh month of gestation. She has had four severe attacks of appendicitis—the first eighteen months ago, the second one year ago, the third three months ago, when she was about four months pregnant and the last one week ago. All these attacks were typical and severe. At no time since her first attack has she been free from discomfort referable to the appendix. Her last attack has completely subsided, leaving nothing but some localized tenderness. In the effort to save the child I am keeping her under observation in the hospital and should another attack set in she will be operated on without delay.

CONCLUSIONS

These fifteen cases present several points of interest:

1. In all but one of the fifteen cases there had been previous attacks of appendicitis.
2. Six of the cases were mild attacks, in which all the patients recovered without the interruption of pregnancy. Ten were severe attacks in which seven patients recovered and three died. In all there were three deaths in fifteen cases and in one of the fatal cases the patient was not operated on.
3. In the fifteen cases the attacks occurred in labor in one, in the puerperium in five, and in pregnancy in nine cases.
4. The five cases occurring in the puerperium were of unusual severity.
5. Of the fifteen cases two patients died of septic peritonitis and one of bronchopneumonia. One of these patients was not operated on.
6. In the majority of cases the attacks recurred in the early months of pregnancy.
7. Mild attacks showed no disposition to disturb the pregnancy.
8. In Case 15, the patient refused operation in a severe attack which occurred in the third month of gestation. She had recovered from her last attack before entering the hospital and inasmuch as she was in her seventh month of pregnancy it was thought advisable to delay operative interference in the interest of the child, but with the understanding that she would be operated on at the onset of a subsequent attack.
9. In Cases 4 and 6¹¹ the fetus was dead *in utero*, the latter at term, the former in the early weeks of its development.
10. In Cases 2 and 6¹¹ there was a gangrenous appendix with abscess formation which rapidly spread to the general peritoneal cavity and resulted fatally.
11. In no instance was pregnancy interrupted after the removal of the appendix.
12. These experiences lead me to the conclusion that pregnancy probably has no influence in creating a primary attack of appendicitis but has a very great influence in creating renewed attacks.

13. Of women who have had appendicitis prior to pregnancy 50 to 60 per cent. will suffer more or less disturbances referable to the appendix in subsequent pregnancies.

14. Inasmuch as appendicitis complicating pregnancy and the puerperium tends to run a rapid and destructive course, it is particularly hazardous to delay operative interference in sharp attacks.

15. The earlier in the attack and the earlier in the course of pregnancy the operation is performed, the better will be the results.

16. Wagner estimates the mortality of non-operative severe cases at 77 per cent. as contrasted with a mortality of 6.7 per cent. in cases of all grades of severity in which operation is done within the first forty-eight hours, a record that is not exceeded in operating appendicitis that is not complicated by pregnancy. Doubtless this record of 6.7 per cent. maternal mortality in all cases in which operation is done within forty-eight hours from the beginning of the attack would be materially reduced were these patients operated on within the first twenty-four hours.

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ABSTRACT OF DISCUSSION

DR. JOHN B. MURPHY, Chicago: The mortality of appendicitis is enormously greater than the mortality of any other condition. What are the anatomic and the pathologic conditions that contribute to this mortality? The anatomic conditions that contribute to the mortality are, as shown, the fact that as the uterus enlarges during pregnancy it removes from the appendix its natural protectors, the omentum and the intestine. There are two opportunities for infection to occur: hematogenous conditions in the bladder and rectum, and a severe attack of appendicitis. In miscarriage or labor, infective material is scattered all about. One focus of infection is close to the outlet of the pelvis; infection may occur either through the blood-vessels or by direct transmission from the vagina. We must determine how to avoid these dangers. Dr. Findley emphasizes these two facts, that when the condition was diagnosed and remedied early, the mortality was practically *nil*; when the condition was diagnosed late and the endeavor to remedy it was also late, the mortality was colossal. Therefore, we go back to the proposition: Can we diagnose the condition early? If we can diagnose the condition early, what is the excuse for waiting? We can diagnose the condition early even in the presence of pregnancy. What are the conditions that we have to differentiate? Hematogenous infections of the kidney; infection of the bladder; obstruction to the ureter. Lesions of the kidney can easily be differentiated from acute appendicitis, with and without pregnancy. The onset of pain is the same in both. The reflexes are normal in both; leukocytosis occurs in both, particularly in the metastatic variety of infection. You have, therefore, the principal symptoms, except the local manifestation, the same in both. One of the important points in the differentiation is the exclusion of kidney and gall-bladder infection. It is easy to exclude gall-bladder disease from infection of the appendix, but it is not always easy to exclude renal complications. You can do it, however, in all cases. You must resort to fist percussion. Have the patient sit on the side of the bed and let the hands come clear down, so as to force the kidney high up. Then place the hand over the left kidney and strike it with the closed fist. If there is an acute obstruction the patient will immediately spring up, and it may be all he can do to keep from striking you. If there is any one thing that a man of experience has concluded, it is that he does not know what is going to occur in the ten or twenty or forty hours following the onset of the appendicitis. If you do not know what is going to happen, what justification have you for taking the hazard which Dr. Findley has accentuated?

CARE OF SCARLET FEVER PATIENTS

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NEW YORK

At present there is no generally accepted treatment for scarlet fever. It is a self-limited disease and nothing that we now know will shorten its course or abate its severity. Our work consists in the prevention of complications as far as is in our power and in so assisting Nature in her efforts at repair as to make convalescence as rapid as possible and recovery complete. Such is the number of possible complications and the scope of care desirable that an anatomic division has seemed a logical method of presentation of treatment. Therefore after a brief discussion of diet, the untoward possibilities will be taken up in this way rather in the order of frequency.

DIET

As long as the patient has a temperature above normal, the diet consists entirely of water, milk and malted milk or milk-sugar. This diet is also adhered to when the febrile albuminuria persists as a faint trace, with or without casts, after the fall in temperature. While it is realized that the weight of the patient should be the index to the number of calories given, the accompanying table has proved of great service as a rapid, rough guide to the amount of milk and water desirable and to its reinforcement with sugar. As some patients will be on this diet for three or four weeks, the amount of food given during this time has an important bearing on convalescence.

TABLE SHOWING AMOUNT OF MILK AND SUGAR GIVEN
DURING FEBRILE STAGE (SEVEN FEEDINGS A
DAY, AT TWO-HOUR INTERVALS)

	Age, Years	Calories	Amount Each Feeding, Ounces	Total Ounces Milk	Total Ounces Water
Children..	1- 2	600	4	28	28
Children..	2- 6	1,000	6	42	42
Children..	6-15	1,350	8	56	56
Adults....	....	2,000 to 5,000	10	70	56

To the milk given to adults it is necessary to add 3 to 7 ounces of milk-sugar to make up the calory content.

The number of feedings will of course have to vary in different cases as the arrangement of sleeping hours, the amount of milk borne well at a time and the appetite of the patient are determined. If milk-sugar is well taken it provides a slight diuretic and slight aperient action. In cases in which milk is not well borne, butter-milk may be given. Orangeade, lemonade and cream of tartar drink flavored with lemon may be used freely in place of water.

When the temperature is normal and has been normal for twenty-four hours, farinaceous foods may be given. A satisfactory way is to add new foods gradually: for example, cream soups with crackers are given the first day the diet is increased, milk toast the second, rice or farina pudding the third and so on. As the patient is given farinaceous foods, and these come more and more to replace the milk, it is necessary to exercise some care that the total amount of fluid in twenty-four hours be kept up. It is desirable that in patients over 6 years old not less than 100 ounces of fluid be given. As solid foods are added, the milk can be replaced by water.

It is not wise to take further liberties with the diet until the twenty-first day. The danger of giving nitrogenous foods increases as the twenty-first day is approached and should not be risked no matter how mild the case. On the twenty-first day fish may be given, then green vegetables, then bacon, to which are then added other red meats, chicken, meat soups, tea, coffee or cocoa and last of all eggs. The diet list in use at present at the hospital follows:

Milk Diet.—When specially ordered, milk-sugar, malted milk, buttermilk, cream soups and top milk mixtures.

Farinaceous Diet.—Crackers, bread, toast, zweibach, arrow-root, rice, cornstarch, farina, and preparations of these, baked potatoes, barley jelly, other cereals, stewed prunes, and baked apple with cream.

Light Diet.—In addition to the above, fish, green vegetables, bacon.

General Diet.—Red meats, fowl, meat soups, pastry, tea, coffee, cocoa and eggs.

SKIN

For the discomfort during the rash, the skin may be anointed with cocoa butter or cold cream. If the itching be excessive, there is nothing which gives as much relief as gently sponging with 0.5 per cent. dilution of liquor cresolis compositus. At the hospital a proprietary emulsion of soap with tincture of benzoin and boric acid is used a great deal. No greasing is done during desquamation unless there is discomfort. Control of the desquamated epithelium is not so much a factor in a contagious-disease hospital, as the excretory function of the skin is deemed more important.

Means to hurry the process of desquamation are many. It is impossible to give any one best method. As the soles of the feet are the last to desquamate, it is their treatment with which we are concerned. As soon as patients are up and about they are encouraged to soak their feet well each day in hot water, after which the feet are rubbed with a rough towel or moist pumice stone. The bottoms of the feet may be painted with tincture of iodine. Salicylic acid ointment, 6 per cent., may be bound on over night.

HAIR

Itching of the scalp during the first three weeks is treated and prevented by washing with alcohol. This should be followed by rubbing in a small amount of white petrolatum. At the end of the fourth week and twice during the fifth and sixth weeks the hair and scalp are washed with tar soap, then with the following hair lotion:

R	Gm. or c.c.	
Hydrargyri chloridi corrosivi.....	5	gr. iv
Boricæ acidi	20	gr. cl
Glycerini	30	ʒ i½
Alcoholis	120	ʒ iv
Aquæ .....q. s. ad	250	ʒ viij

The hair and scalp are then dried thoroughly and the following hair tonic well rubbed in: •

R	Gm. or c.c.	
Quinina sulphatis	4	gr. lx
Olei ricini	30	ʒ j
Olei bergamotæ	5	ggt. v
Olei neroli	5	ggt. v
Spiritus ammoniæ aromatici q. s. ad	250	ʒ viij

Mix and dispense with "shake" label.

EYES

For the conjunctival injection seen in many cases during the first week, cold boric acid compresses and exclusion of any bright light from the room are sufficient.

In the more severe cases, a drop of epinephrin chlorid in each eye followed by a drop of 5 per cent. argyrol is indicated.

THROAT

The care of the throat can well be summed up in one word—cleanliness. This is best accomplished by irrigations of 4 per cent. solutions of sodium bicarbonate, or lime-water, or normal saline. At the hospital the last is used. The irrigations are given at a temperature of 110 F. with a fountain syringe, the bag of the syringe held about one foot above the head of the patient. The patient is turned on his side, protected by a rubber blanket, and the saline at low pressure allowed to run over first one, then the other, tonsil. The head is turned enough so that the fluid after bathing the tonsil runs out of the mouth and into a pus basin. Sometimes a little practice is necessary before this can be done satisfactorily, but on the third or fourth attempt usually the irrigation is borne very well and the patient experiences immediate and marked relief. Irrigations should never be given with much force as the exudate may be forced back into the pharynx and so to the ears. In children too young to cooperate with the nurse, a sheet is pinned about the patient securing the arms and legs, a small roll of gauze bandage placed between the teeth and the irrigations given on a small dressing table. Sometimes with mild throats it is sufficient to cleanse the tonsils gently with a cotton pledget, soaked in sodium bicarbonate solution, wound about the nurse's finger.

Gargles are not used. Some relief is often obtained by a lozenge of the following composition:

R	Gm. or c.c.	
Mentholis	007	m 1/80
Olei anisi	002	gr. 1/35
Acidi benzoici	005	gr. 1/12
Eucalyptolis	004	m 1/16

Small pieces of ice held in the mouth sometimes give distinct relief.

External treatment may be in the form of heat, cold or wet dressing. For routine treatment the throat-bag filled with cracked ice is used. This seems to give more relief and better results in most cases than any other measure. There is, however, the exceptional case in which large, hot poultices of flaxseed are to be preferred. The use of wet dressings will be discussed under "Lymph-Nodes."

NOSE

The nose should never be irrigated unless both middle ears are involved. Drainage of the nose is accomplished by keeping the secretions as fluid as possible and by blowing the nose properly. Rendering the secretions fluid is best accomplished by putting in each nostril white petrolatum, which is made slightly more fluid by placing the tube in hot water before each application. This should be done four or five times in twenty-four hours. The patient should be taught to blow the nose gently and frequently and not to sniff secretions back into the nasopharynx. In conjunction with the petrolatum treatment, if there is congestion and swelling of the mucous membrane, the nose is sprayed with eucalyptol and menthol 1 per cent. in liquid petrolatum. When this treatment does not suffice and the patient does not breathe readily through the nose, a cotton swab on an applicator, the swab soaked in epinephrin chlorid or adrenalin inhalant, is applied to each side of the nose. This is followed by a similar application of 20 per cent. argyrol.

When the acute stage is over and swelling of the mucous membrane with exudate persists, the glycerite of tannin either full strength or diluted with water often gives good results. This may be used to advantage in a similar condition of the throat.

EARS

Proper care of the nose and throat is the best preventive of middle-ear trouble. Patients should always be warned against inflating their ears, as many discover that this is temporary relief from the sense of fullness they experience as a result of swollen eustachian canals.

Daily examination of the tympanum should be made by the physician. This is very important. The onset of many cases is very insidious and indeed the first warning may be a discharge from the ear. The tympanum may rupture and pus be discharged from the middle ear with no warning of pain or rise of temperature.

If otitis media does occur, incision of the tympanum should be performed early. This may or may not be followed by irrigations of warm sodium bicarbonate solution every two hours. If irrigations are not given, the canal should be kept open by cleaning thoroughly with cotton on an applicator, the frequency depending on the amount of discharge.

The prophylaxis of mastoiditis is the proper treatment of the otitis media. Throat-bags filled with ice should be applied to the mastoid as soon as the tympanum is incised. Or cold may be applied to the mastoid region by means of the Leiter coil. With tenderness over the antrum relief is often obtained by means of leeches placed over the mastoid. Cases of otitis media should be seen daily by someone familiar with the ear conditions of scarlet fever. It is such a person who should decide when to operate.

LYMPH-NODES

With the onset of scarlet fever there is a polyadenitis of varying intensity. Nodes other than the cervical rarely need attention. Care of the nose and throat contribute to preventive treatment of these nodes. At the Hospital for Scarlet Fever application of the ice-bag to the throat during the first week of scarlet fever may be said to be almost a routine procedure. This treatment is sufficient for most cases. Occasionally there is a case which does better with poultices. For the case which does not improve with hot or cold applications, dressings of the following are given:

R	Gm. or c.c.	
Plumbi acetatis	60	3 iv
Aluminis pulveris	60	3 iv
Alcoholis	250	3 xvi
Glycerini	120	3 viii
Aquæ	1000	3 lxiv

Mix and dispense with "shake label."

Huge, very wet dressings of this are kept on the enlarged nodes continuously. These dressings are most efficacious at the temperature of melting ice. With this treatment there has not been a case of suppurative adenitis in nearly 400 cases of scarlet fever at the hospital. If suppuration takes place, incision and free drainage are indicated.

LUNGS AND PLEURÆ

Bronchopneumonia, which may exist, is usually an additional focus in a severe general infection, and should be treated as when occurring elsewhere.

Pleurisy is a troublesome complication, usually occurring in the third or fourth week. All effusions, no matter how small, should be aspirated early. Pleurisy

in scarlet fever is likely to become suppurative, when operative interference is indicated.

Scarlet fever in a tuberculous subject is a very serious thing. There is usually a lighting up of the tuberculous process. In such cases the danger of the tuberculosis becomes greater than the risk of nephritis and a more liberal diet should be given. Bacon which has been soaked in cold water several hours can be given early with little risk. Cod liver oil, if borne well, should be given. In many cases it seems desirable to give two eggs in milk per day. One egg can be beaten up in a pint of milk to be taken in two instalments, two hours apart with a glass of water in between. Fresh air is important. The rooms at the hospital are supplied with fireplaces which give forced ventilation. The roof of the building is available for patients at all times of the year.

HEART

The systolic murmur heard over the precordium, which is described by many authors as a symptom of scarlet fever, may be readily prevented in most cases. It is due to one of, or a combination of, three causes, anemia, relative mitral insufficiency and endocarditis. The anemia may give a hemic murmur, or be a contributing factor in a relative insufficiency by throwing extra work on a heart muscle, the tone of which has been diminished by the virus of the disease. If the hearts of the patients who are allowed to get out of bed the second and third weeks of the disease are watched, they will be seen in many cases to dilate slightly and a systolic murmur will appear at the apex. An active endocarditis, either simple or infective, may appear. This is more likely in cases which are very septic, with high temperature.

It is the custom at this institution to give iron to all patients after the temperature has remained at normal for twenty-four hours. The preparations used are either ferrous carbonate powder in capsule, five grains three times a day, or the following:

R

Iron and potassium tartrate.....	1 part
Glycerin	2 parts
Water enough to make.....	12 parts
Mix. One teaspoonful in water three times a day.	

Patients should be kept in bed until the twenty-fourth day of the disease, with one pillow until the eighteenth. It is desirable that the patient should attain the sitting position gradually. Two pillows may be allowed on the nineteenth day, three the twentieth, and so on, five pillows being so arranged as to allow sitting up in bed. On the twenty-fourth day an hour in a chair beside the bed may be allowed. Progress from here on should also be gradual, permitting a little longer time up each day, and a little more activity, the heart and pulse being carefully watched meanwhile as a guide to latitude in this direction. It is rare that digitalis is indicated. For routine use, as has been advised, it is surely too much of a kidney irritant.

During the early weeks of the disease the patient not only should be kept in bed but also should be kept quiet. This depends a great deal on the nursing. The allaying of discomfort and the prevention of consequent tossing and turning by sponge baths, by hot water bottles to cold feet, by frequent smoothing of a well-made bed and by the many things that comprise nursing comfort do much to conserve the heart. Insuring a proper amount of sleep in twenty-four hours is also important. The

bowels should move freely, daily, by catharsis if necessary. Fresh air should be provided in abundance. At the Hospital for Scarlet Fever a screen is placed between the window and the bed and the window always kept open. This, with the open fireplace, gives forced and adequate ventilation. At this hospital also convalescent patients are moved to a different floor in the building as soon as up and about. A recreation-room is provided with sound-proof doors separating it from the rest of the hospital.

If endocarditis, either simple or infective, occurs, the period of rest is of necessity longer. Salicylates are of doubtful value in simple endocarditis. Vaccines and serums may be tried in the infective variety. Pericarditis either simple or purulent may occur. The treatment is the same as when coming in the course of any other acute infection. Myocarditis is rare. When it does exist the treatment is as elsewhere.

BLOOD

Just what blood condition we have to deal with in scarlet fever in the so-called septic cases, we shall probably know better when we know what the infective agent of scarlet fever is. That there is a specific virus apart from the streptococcus is suggested by the different courses of very serious cases when large doses of polyvalent streptococcus serum are injected. Some cases seem to show very marked improvement, while others show no reaction whatever. This suggests that where there is streptococcus septicemia the serum in sufficient dosage is of value, and that where the symptoms are due to another infective agent the serum is useless. At present we can say that the serum should be administered in all septic cases by someone experienced in its use.

STOMACH AND INTESTINES

Nausea and vomiting are very constant symptoms at the onset of scarlet fever. The nausea may be slight, the patient vomiting once or twice the first day, with immediate relief. Or the nausea may be marked and the vomiting severe and prolonged. In the latter cases there is pain over the epigastrium and the area of the stomach; hyperesthesia is very marked, sometimes so severe that the patient cannot bear the weight of the bedclothes. Bismuth subcarbonate in doses of 60 grains usually relieves these cases. If this fails 6 drops of 1 per cent. solution of cocain in a wineglassful of water every fifteen minutes for four doses will help.

During the latter part of the fourth week and the fifth week heartburn is sometimes a very distressing symptom. This is relieved readily by milk of magnesia in teaspoonful doses. It is well to cut down the diet somewhat for a few days, particularly such food as may be taken after 6 p. m.

Constipation is the rule in scarlet fever, though in some cases there is diarrhea at the onset. Our choice of a cathartic should be one which does not irritate the kidney, and one which does not reduce too much the bulk of the urine. A tea made of senna leaves fills these requirements and is very useful during the febrile period. Rhubarb, aloes and cascara sagrada are other anthracenes which may be used. Castor oil may be used alternately with one of the anthracenes. As a general thing salines are not desirable, as they decrease too much the bulk of the urine. The jalapin and colocynthin groups, the mercurials and the aromatic preparations of the anthracenes should all be avoided, as they produce kidney irritation.

KIDNEY

The diet outlined above has been selected with the idea of keeping up the weight and strength of the patient with the smallest possible amount of kidney irritation. The amount of fluid recommended is designed to keep the amount of urine between 70 and 80 ounces for twenty-four hours. The specific gravity of the urine should be maintained below 1.010. There can be no doubt in the mind of anyone who has watched and examined the urine in a large number of scarlet fever cases in which all kinds of diet have been tried that a diet high in proteid, particularly a diet with eggs, during the first four weeks of scarlet fever is very dangerous. The urine should be examined each day for albumin and casts. Cream of tartar lemonade should be given to make the urine bland. If with a sufficient amount of fluid taken by the patient the urine continues to be of a specific gravity of over 1.010 or of a small amount or both, the acetate, bicarbonate and citrate of potassium, $7\frac{1}{2}$ grains of each, in water may be given every three or four hours. Another procedure which may give warning of kidney insufficiency, even before urinary findings are significant, is the daily taking of blood-pressure.

Many figures have been published as to the frequency of nephritis during scarlet fever. One reason for the great variation in results may be due to the undoubtedly different character of different epidemics. Another reason may be that different reporters have different things in mind when they speak of nephritis. It is likely that there is cloudy swelling of the kidney in most cases of scarlet fever, while a nephritis that lasts for weeks or from which the patient does not recover is rare when proper precautions are taken. When nephritis does occur treatment should be begun early, the accessory channels of elimination being made use of to relieve the kidneys, the urine made bland with saline diuretics and increased by forcing fluids, the diet restricted to milk.

JOINTS

As the temperature falls it is a common thing for the patient to complain of transient pains and stiffness in the joints. The small joints of the hands, shoulders, knees and ankles are the joints most often affected and in this order. Occasionally the pain is severe and there is heat, redness and swelling. Prevention of this condition is attempted by the use of outing flannel night clothes, the administration of alkalies and proper catharsis. When it does occur a brisk saline purge should be given. Alkalies should be administered until the urine is alkaline. Salicylates may be given to allay pain. Unlike rheumatism friction helps these joints and if the following lotion be rubbed into the joint well two or three times a day there will be considerable relief.

R	
Olei gaultheriae	1 part
Mentholis	50 parts
Petrolati liquidi	1 part

Rarely these joints will go on to suppuration. Surgical procedure is then indicated.

NERVES

The nervous symptoms follow roughly the height of the temperature as to their severity. For the milder cases with slight nocturnal wandering, with bad dreams and night starts, a warm sponge bath and 15 grains of the ammonium bromid are usually sufficient. For the more severe delirium the patients are packed in blankets wrung out in hot water. This may be supplemented by

5 grains of acetphenetidin with $\frac{1}{2}$ grain of codein. If a patient with a temperature of 106 F. is packed for ten minutes in blankets wrung out in water 103 F. his temperature will fall and his nervous symptoms be lessened. The temperature of the disease never requires treatment.

DIPHTHERIA

All patients with scarlet fever are kept in separate rooms. They are given individual bed-pans, urinals, thermometers, atomizers, medicine-glasses, irrigating-bags, solution-basins, feeding-tubes, all of these being marked with the patients' room numbers. A culture is taken from the throat of each scarlet fever patient on admission and again if a suspicious patch later appears in the throat. If Klebs-Löffler bacilli are present, anti-toxin is given and the patient is removed to an isolated part of the hospital.

Foot of East Sixteenth Street

NEPHRITIS IN PREGNANCY *

JOSEPH B. DELEE, M.D.

CHICAGO

Internists distinguish the following principal forms of renal diseases: acute nephritis and chronic nephritis. Of the latter there are two grand divisions, the parenchymatous, with its three forms, large white kidney, large red kidney and the secondary contracted kidney; and the chronic interstitial or primary contracted kidney, which is accompanied by cardiac hypertrophy and general arteriosclerosis. The accoucheur, in addition to these, must consider the kidney of pregnancy, its aggravated form, the so-called pregnancy nephritis, and the kidney changes which are a part of eclampsia. Since even the internists are not in perfect accord regarding the classification of their physical findings, and admit that the various recognized varieties of disease may be associated or co-related, it is not to be expected that clinically the accoucheur will be able to identify absolutely the many conditions presented for treatment.

Primary acute nephritis may develop during gestation from the same causes which operate outside of it; for example, exposure to cold, chemical poisons, ptomainemia, scarlatina, angina and septic affections. Antecedent septic processes make the kidney more vulnerable, a tendency which is aggravated by pregnancy. Acute nephritis cannot be clinically differentiated from the "pregnancy nephritis" which often leads to eclampsia. That a previously healthy pregnant woman, after a severe angina or exposure to cold, develops nephritis and convulsions is an observation I have made twice. The discussion of such cases properly belongs to eclampsia, with which it is practically though not pathologically identical.

Chronic nephritis may exist before pregnancy, the patient being hardly aware of the fact, until the strain thrown on the kidneys by advancing gestation brings the latent disease to the surface. Again, repeated abortions in a woman cause an examination of the urine to be made, and a slumbering nephritis is discovered. In other cases a known nephritic becomes pregnant. In all these instances, the results are the same and may be considered under two headings, the effects of gestation on nephritis, and the influence of nephritis on the reproductive function.

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

EFFECTS OF PREGNANCY ON NEPHRITIS

Chronic parenchymatous nephritis is always unfavorably affected by the advent of gestation, and an acute exacerbation is almost always observed. It begins to show in the early months, which is contrary to nephritis incidental to pregnancy the concomitant of eclampsia. At first there are puffiness of the eyelids and of the ocular conjunctiva and general anasarca, which does not disappear in the recumbent position. The edema affects the legs, which may be elephantine in size and the vulva, which may be transfigured into two immense, white, translucent, watery glistening tumors. Hydroperitoneum, hydropleura and pulmonary edema may occur; pallor, and waxy, pasty skin, high pulse tension (even in this form) are also to be noted. Headache, neuralgias, epigastric pain, disorders of the special senses, especially amaurosis, nausea and vomiting are found, but not so marked or so commonly as in pre-eclamptic toxemia. Albuminuric retinitis is very serious and may leave permanent blindness. Convulsions occur, but in less than one-third of the cases. The urinary findings are similar to those of pre-eclamptic toxemic nephritis, albumin, hyaline, granular, cellular casts, renal epithelium, white and finally red blood corpuscles. Urea is diminished, the total solids reduced, the daily amount of urine much less than normal.

Labor has a noxious influence on the disease and often produces alarming symptoms: pulmonary edema, collapse, which may simulate pulmonary or cerebral embolism, also apoplexy and suppression of urine. Anemia is badly borne by nephritics. If anesthetics are given and if the labor is protracted and exhausting, extensive damage may be done to the kidneys.

The puerperal processes do not exert a good influence either; sepsis is more common and nephritics do not bear infection well. While the urine usually clears up rapidly after delivery, the restitution of the kidneys is never complete, permanent structural damage having been wrought, and the action of repeated pregnancies is so bad that death is hastened.

Chronic interstitial nephritis is more frequent than the parenchymatous and is characterized by polyuria of low specific gravity, with little urea and a small amount of albumin, few casts, and these usually of the hyaline variety. It is accompanied by high arterial tension (200 to 240 mm.), thickening of the vessels and hypertrophy of the heart. The effects of this form usually appear later in the pregnancy, but the symptoms of urinemia already mentioned occur with almost equal frequency, and, especially in the latter months the distinctions between the various forms of nephritis become blurred. Retinitis, apoplexy and heart collapse are more frequent with cirrhotic kidney; extensive edema and convulsions are less frequent. I have as yet seen no convulsions with this form of Bright's disease, but several cases of pure uremic coma.

EFFECTS OF NEPHRITIS ON GESTATION

All forms of nephritis have a very bad influence on the pregnancy, abortion and premature labor being common (66 per cent. Hofmeier), and Seitz found that only from 20 per cent. to 30 per cent. of the children survived. One of the causes of habitual death of the fetus, and abortion and premature labor is chronic nephritis.

Labor in nephritics is slow, the uterus is indolent, the edema of the vulva predisposes to perineal lacerations, and in one of my cases the edema of the pelvic structures prevented the head from engaging in the pelvis. Even

after the delivery, which was very laborious, the cervix could not be drawn down to the vulva as usual because it was anchored up high by the infiltrated broad ligaments. Abruptio of the placenta is not infrequent. Postpartum hemorrhage is common because of the atony of the uterus. Involution is slower.

Many of the children are born dead and more or less macerated. The death of the fetus is caused: (1) by the hemorrhages, the white infarcts and the sclerosis of the blood-vessels of the placenta, which cut off the fetal circulation and are frequently found (80 per cent.) (Simpson and Fehling called attention to these facts, and the French called the condition *placenta albumenurique*); (2) by the frequent abruptio of the placenta in labor; (3) by the accumulation of toxins in the blood which alter the villi, making them unfit for the function of nourishing the child, or which change the decidua making their blood-vessels brittle and thrombotic and the placenta liable to separation (a degenerative endometritis); in the first instance death of the fetus occurs, in the latter hemorrhages into and separation of the decidua with abortion resulting; (4) by poisoning of the fetus by the toxins which pass over from the mother; (5) by interruption of the pregnancy by eclampsia.

The children of nephritics are usually puny and pale, they thrive poorly at first and may show albuminuria with casts. The infarcts and hemorrhages have so reduced the active area of the placenta that the fetus does not receive enough food — it starves *in utero*. The placenta may be edematous.

DIAGNOSIS

Nothing need be said here on the diagnosis. I would, however, express my own views on a few special matters. First, on the significance of albuminuria. Schroeder found albuminuria in 5 per cent. of pregnant women; Fisher in 25 per cent.; Jaeger in 70 per cent., using the finest tests. The latter believed it to be due to the lordosis of pregnancy, on Jehle's theory. My experience is that renal albuminuria — by the coarser tests, hot and cold nitric acid — does not occur in healthy pregnant women. Whenever I have found it and proved its renal origin there have been other evidences of renal disease, and I always regard it with suspicion, and guide treatment accordingly. In all my cases the outcome has justified the course of procedure. Second, the tests of the efficiency of the kidneys, especially the phenolsulphonephthalein, have all been unsatisfactory indexes of renal functioning in the medical cases. In surgical kidney, pyelonephritis, etc., they may be of more value.

Low urea output is of relatively little importance, but if the amount excreted persists below 6 gm. daily, a careful search is to be made for evidences of renal involvement. In one case, I induced labor near term because of a persistently low urea output without albuminuria. In the next pregnancy, signs of a real nephritis appeared early, requiring the induction of abortion. It is usually impossible to differentiate the various forms of nephritis from each other during gestation because the urinary and clinical pictures are blurred, and it is not essential for treatment.

PROGNOSIS

Both mother and child are seriously jeopardized by chronic nephritis, the mortalities being about 30 and 70 per cent., respectively. Reserve must be exercised in promising a cure by the induction of abortion or premature labor, because the condition may not be the simple kidney of pregnancy but a real, latent nephritis which has been awakened into activity. The main dangers of

nephritis are edema of the lungs, hydropericardium, hydropleura, enormous anasarca, retinitis, which may lead to permanent blindness, apoplexy, convulsions and acute heart collapse. A combination with heart disease is very fatal. Hyperemesis is also bad, and Basedow's disease takes on a foudroyant course.

TREATMENT

Women with chronic nephritis should not marry, and if married should not conceive. If a woman had eclampsia or symptoms of renal inefficiency in her first pregnancy, a second should not be allowed until all the evidences of renal disease have remained absent for at least a year. Should pregnancy occur with diseased kidneys, redoubled watchfulness is required.

One may divide the cases into two groups.

1. Nephritis is discovered after the twenty-eighth week of pregnancy.

While a cure cannot be affected during gestation, most authors advise tiding the patient along to term if possible, but to induce premature labor in the presence of threatening symptoms. The details of the medical treatment need not be gone into here. I wish only to express my disapproval of hot sweats and baths. Two cases of cardiac failure with death have changed my view of this procedure. Further, I never could convince myself that they ever do any good.

In eclampsia the imminence of convulsions or coma decides the question of the induction of labor, but in nephritis other dangers may indicate interference. Albuminuric retinitis is a positive indication for the immediate termination of gestation. Immense anasarca and a laboring heart which does not respond to treatment also are good reasons. Then the dangers which threaten the child must be considered — abruptio placentæ and hemorrhages into it — though to discover these accidents in time to save the infant is not always possible. For this reason and because our knowledge of nephritis is so uncertain and our reliance on treatment so insecure, I usually interrupt pregnancy as a matter of principle when the child has fully passed the period of viability. The exceptions of course are those cases in which very satisfactory improvement ensues under treatment. The usual methods of inducing labor are employed but in critical cases vaginal cesarean section may be indicated.

2. Nephritis is discovered before the child is viable.

Some authorities (Schroeder, Fehling, Billings, Tyson, Edwards, Sehauta and others) recommend the induction of abortion, holding that the injury to the kidneys, which is inevitable before the child is viable and, too, the poor chances of the fetus anyway make the continuance of the pregnancy precarious and useless. With these opinions mine agrees, but if the woman is near the period of viability I try to tide her along for a few weeks, to give the child a better chance for its life. Of course the woman must stay in bed, on a milk and cereal diet, and a careful daily urinalysis must be made. In the early months, the pregnancy is interrupted on the first indication of renal trouble and, too, if the disease of the kidneys, while not retrogressing, remains stationary under treatment. My experience has shown that these patients always grow worse and require interference before viability of the child; it is, therefore, injudicious to wait, because the kidneys will suffer irreparable damage in the meantime, while also the child very frequently dies from the effects of placental infarcts, thus defeating the object of the expectancy.

During labor, nephritics require especial care. It is wise to watch the heart action closely and to be pre-

pared for the same emergencies that occur with heart lesions. Sudden edema of the lungs, or attacks resembling cerebral embolism, may require rapid extraetion. It may be necessary to puncture the swollen labia to allow delivery. Antiseptic douches may not be employed; bichlorid of mereury especially should be avoided. Ether is the anesthetic of choice, but as little of it as possible is to be used.

In the puerperium the usual treatment is kept up. Nursing is to be permitted only if the puerpera is in good condition and the renal symptoms are disappearing.

15 East Washington Street.

ABSTRACT OF DISCUSSION

DR. HENRY SCHWARZ, St. Louis: Dr DeLee has failed to differentiate between the cases of nephritis which have existed before pregnancy occurred and between those which originate during pregnancy. While I agree with him that the "kidney of pregnancy" is never a normal condition, I insist that it is a condition peculiar to pregnant women, as has been pointed out by Leyden; it differs entirely from parenchymatous nephritis, because the kidney can return to a perfectly normal condition after pregnancy is terminated; the treatment called for by a "kidney of pregnancy" is altogether different from that which is indicated by true nephritis pre-existing to pregnancy or arising during its course. Dr. DeLee is right in stating that for cases of true kidney disease complicating pregnancy no hard and fast rule of treatment can be laid down; each case has to be sized up individually. As in the case of women with tuberculosis or heart disease, women with kidney disease had best not marry, and if they are married, should avoid becoming pregnant. If, however, such patients become pregnant, we watch them closely and do the best we can for them. I have never seen a case of pre-existing nephritis lead to true eclampsia; there may be convulsions in such cases, but these are of the uremic type. It is a different matter when kidney complications arise during pregnancy; at present, we are all trying to keep pregnant women under close observation in order to recognize the first symptoms of such complication. At the Washington University Dispensary we employ a so-called prenatal nurse, who visits prospective mothers at frequent intervals as soon as they have registered at the dispensary; the frequent examinations of the urine, along with the instruction which the nurse gives our patients, regarding the hygiene of pregnancy, enables us, I am quite sure, to prevent many of the so-called renal complications of pregnancy, and we do find that, whenever there is albumin in a urine which before was free from albumin, a strict regulation of diet and other measures will in most cases cause that urine to clear up.

DR. J. B. DELEE, Chicago: Most of the books say that 3 to 5 per cent. of so-called healthy women in pregnancy have albuminuria. Fisher found 25 per cent., and during labor, 50 to 60 per cent. While not disputing this, I wish to state my own experience. A normal woman during pregnancy should not have albuminuria. The athlete after much exercise may develop albuminuria. Hyperlordosis is said to produce albuminuria. When a woman develops albuminuria, discovered by the ordinary tests, there has always been, in my experience, a pathologic foundation for it.

The Physician as a Business Man.—For attending a case of pneumonia, typhoid, appendicitis, childbirth, or plain imagination, a physician is entitled to reasonable compensation, depending, first, on his personal valuation of his own services, secondly, on the time devoted to the effort, and finally, on the prevailing standard of fees in the community. The patient's prominence or wealth has little or nothing to do with the amount of the fee justly charged; it should not affect the doctor's fee any more than it should affect the price of an automobile or a pair of shoes. A doctor must be either a business man or a beggar.—*Delaware State Med. Jour.*

A PLEA FOR MORE CAREFUL TECHNIC IN
DOING INTRAPELVIC RECON-
STRUCTIVE WORK *W. FRANCIS B. WAKEFIELD, M.D.
SAN FRANCISCO

One of the most valuable lessons that I have learned is that extensive adhesions can result from simple intrapelvic work, without infection playing any recognized part. Several times I have had to reopen the abdomen in patients on whom I had previously performed some simple operation, such as shortening the round ligaments, and have been amazed at the extent of the anatomic distortion found in the pelvis.

Until comparatively recently, I failed to realize the extent to which peritoneal surfaces could glue themselves together through the agency of the serous exudation that follows such simple trauma as that produced by multiple needle and volsellum puncture. The fact that simple serous exudation can terminate in vicious multiple adhesions is denied by some who believe infection to be the necessary causative factor in their production. Those who defend this view have not given the subject sufficient experimental study. Adhesions, indubitably, may follow infection; they do so, however, because of the serous exudate that is engendered. Mechanical trauma, often of the simplest character, will produce the same fundamental conditions. Correlation of facts, deduced from private work performed under ideal environment, as well as from animal experimentation, has clearly demonstrated to me that very consequential massing together of pelvic viscera can occur in non-infected cases along suture lines or wherever serous surfaces are punctured, lacerated or abraded. If we accept this as a fact, we are then called on to alter some of our practices.

In much pelvic work where diseased structures have to be resected or removed, intrapelvic suturing and other mechanical trauma cannot be avoided. The best that can be done in this class of work is to inflict the least possible amount of injury. If intrapelvic structures are not roughly handled, if natural lines of cleavage are carefully followed, and if peritoneal planes are brought together with fine Lembert sutures so that all the raw edges are turned in, it is remarkable how much can be accomplished without material damage to the visceral surface of the pelvic peritoneum. And the future functional condition and anatomic relation of the pelvic viscera will bear direct ratio to the extent of peritoneal injury exposed to visceral contact. The opening in the parietal peritoneum should be closed by a running back and forth suture placed below the cut edges, so that they are turned outward.

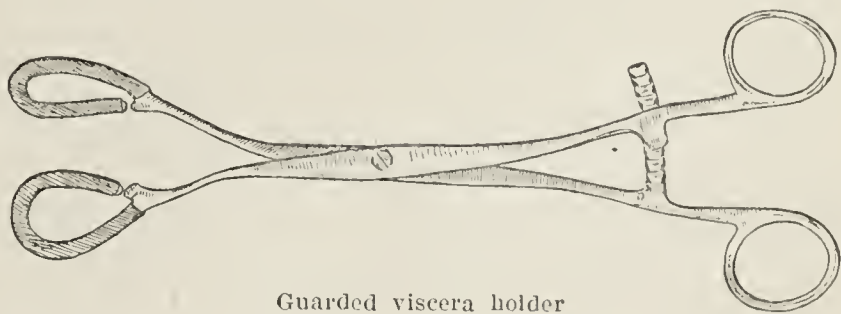
Operations performed for the removal of pathologic structures that menace life and health are vitally imperative, and whatever trauma is necessary is justified by the end attained. In minimizing the amount of peritoneal injury the importance of deft and gentle manipulation of the pelvic viscera cannot be overestimated. Sharp-pointed instruments, which puncture and lacerate, should have no place in pelvic surgery. They should be replaced by an altogether different type of instrument. For instance, for general manipulation of the pelvic viscera, other than the uterus, the safest and most efficient instrument is the ring sponge holder, with the blades protected by a piece of rubber tubing. It can be used with impunity to handle the intestines, the fallopian

tubes, the ligaments, or the peritoneal reflections. It holds firmly but without damage. For manipulation of the uterus, I had constructed, for my own use, an instrument similar in principle, made to conform to the shape and size of that viscus.¹

Turning from what might be called essential operations, we come on a class of operations which are not necessary but expedient, and are designed to correct mechanical defects. The best example of this type of operation is found in the surgical treatment of uncomplicated retroversion.

These operations, if done at all, should at least afford reasonable guarantee against postoperative consequences which may be more serious in their nature and effects than the original faulty dynamics. And, let me state here, some of our intrapelvic methods for shortening the round ligaments may be followed by adhesions as extensive as I have ever seen subsequent to any operative procedure.

To obviate the possibility of pernicious adhesions resulting from this class of work, it becomes almost imperative that in performing these operations we choose some method which will permit of the correction of the malposition without creating any intrapelvic injury. This eliminates from consideration all those manifold procedures which shorten the round ligaments, or other ligamentary structures, intrapelvicly. There are many excellent ways of shortening the round ligaments extra-



Guarded viscera holder

pelvicly. I do not presume to suggest the exact method; that is a matter of individual choice. I only urge that whatever method be adopted care be exercised to strip back the peritoneal reflections thoroughly on to the ligament, so that the patient will not subsequently suffer from the nerve-racking "dragging" sensation that is so often experienced when the peritoneum has been pulled up into the abdominal wall. Further, I urge that the ligamentary loops be given secure anchorage and be smoothly disposed of beneath the aponeurosis of the external oblique.

Some surgeons prefer not to open the pelvic cavity at all; others think wisely of combining intrapelvic inspection with extrapelvic operation. The latter course seems preferable, provided we can refrain from being unduly meddlesome; we are inclined to be surgical vandals when we get inside the pelvis.

The ovaries are the chief objects of attack. The so-called cystic ovary has been the excuse for much surgical mutilation. Retroversion of the uterus and cystic ovaries go hand in hand. The impaired pelvic circulation produces chronic inflammatory conditions in the ovary which result in a limited number of small graafian follicle or corpus luteum retention cysts. In the majority of instances they are not really pathologic. Little, if anything, is gained by resecting them. Other retention cysts may form on the resected ovary; besides which

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912

1. Since writing this paper I learn that Schonenberg of Chicago has been using a uterine elevator similar to mine and I gladly accord him priority.

we are likely to have adhesions form round and about the site of mechanical insult which will transform a free ovary to a fixed one. With the pelvic organs restored to normal position, mechanotherapy may usually be relied on to enable the cystic ovary to take care of itself without surgical interference. I was formerly a very enthusiastic advocate of ovarian resection. After resecting about two hundred ovaries and carefully studying the results, I am forced to the conclusion that resection of an ovary is rarely advisable. If an ovary is grossly pathologic, remove it; if it is not grossly pathologic, leave it alone.

Operations of expediency, then, should be so planned and so performed that the patients, many of whom are young girls, will not suffer any deleterious consequences therefrom. They must be reconstructive, not destructive; by means of them healthfulness must be engendered, not endangered.

1525 Sutter Street.

ABSTRACT OF DISCUSSION

DR. FRANK T. ANDREWS, Chicago: The things I do in the matter of preventing adhesions class themselves under several heads. In the first place, prevention is what Dr. Wakefield speaks of in the use of his new retractors as opposed to the forceps. Then the repair of injuries done either instrumentally or otherwise in the handling of the peritoneum. That repair may be, of course, either the closing of lacerated surfaces or punctured surfaces or the burying or concealing of such points. Then again we have great planes of bleeding surfaces such as we get in digging out great pus tubes. We do not wish exactly to repair these; we do not wish to sew them up. These planes fall together and we use them because we want the adhesions. We have certain adhesions which we wish to sew and we deliberately go to work to irritate the peritoneum because we have at times certain uses for these adhesions which produce adhesions of other organs.

DR. T. J. WATKINS, Chicago: I concur in all that Dr. Wakefield has said and wish to call attention to two or three points. One is to emphasize the importance of this paper. One is to state that postoperative adhesions are usually more difficult to deal with than postinfective adhesions, which emphasizes the importance of using the greatest amount of care to avoid adhesions. Another is the question of the relation of strangulated tissue to adhesions. My associate, Dr. Curtis, did some experimental work on about 150 rabbits last year and made numerous observations regarding adhesions. He found that long pedicles practically always produced bad adhesions. When tissues were studied to note the effect of strangulation on adhesion formation the strangulated tissue was found to be the part that became the most firmly adherent. Since then it has been our plan never to leave long pedicles and never to use a suture that leaves blanched tissue. If the tissue becomes blanched we take out the suture and replace it or cut off the tissue whose circulation has been much affected.

DR. W. O. HENRY, Omaha: I think it wise to do the least possible damage to the abdominal and pelvic organs in operation. In the second place, we should cover up, as far as possible and as carefully as possible, all raw surfaces; and, in the third place, I use freely the sterile olive oil which I have found to be very helpful in preventing adhesions.

Pulmonary Tuberculosis and Chronic Appendicitis.—E. Sergeant calls attention to the frequent difficulty of a differential diagnosis between pulmonary tuberculosis and chronic appendicitis, and cites the work of Faisans and Brunon of Rouen in this line. His article is published in the *Presse Médicale Belge*, 1912, lxiv, 427. He maintains that chronic appendicitis often leads to conditions favoring the development of tuberculosis, and that the overfeeding of tuberculous patients causes intestinal irritation that may bring on a chronic appendicitis or aggravate one already existing.

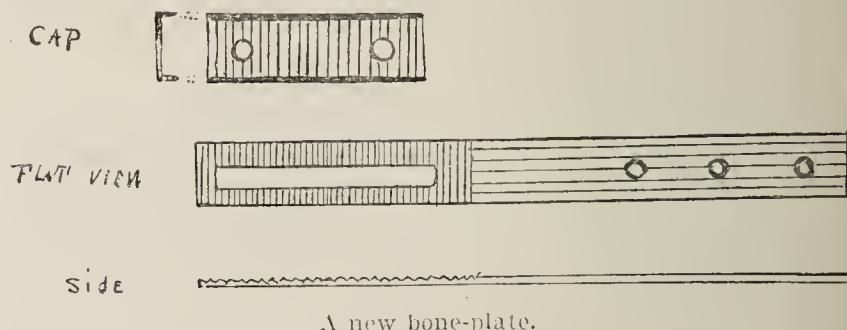
A NEW BONE-PLATE

P. T. GEYERMAN, M.D., HOT SPRINGS, S. DAK.

Surgeon to Our Lady of Lourdes Hospital

I trust that this modified plate will prove of undoubted value in certain cases. It is simply a modification of the well-known Lane bone-plate and has all the good features of the Lane plate with a well-merited improvement.

In the experience of most surgeons who have made use of the Lane plate, there has been more or less difficulty in getting an exact approximation of the fractured ends and unless extreme care is exercised in placing the screws there is likely to be a small space intervening. While this is not always



objectionable, yet at times it may determine the difference between union and non-union. This I have had quite clearly demonstrated to me in two cases during the past six months.

This plate differs from the Lane plate in that it is adjustable at one end, the upper surface of which is corrugated and has a slot in place of screw-holes. Over this end fits a cap in which are located the screw-holes. The under surface of the cap is also corrugated, in order to give a firm hold when the screws are tightened. From this it can readily be seen that when the screws are driven nearly home the fractured ends may be tightly adjusted and the screws tightened.

This plate has been used in fourteen cases and in none of these has there been any slipping.

SALVARSAN IN PREGNANCY

HAROLD J. LEVIS, M.D., ROCHESTER, N. Y.

It seems to me that the following case is of interest in showing the possibilities of salvarsan as an eradicator of hereditary syphilis, abortion and still-birth.

The patient, Mrs. S., aged 30, married, has had two previous pregnancies; both children are healthy. The patient's husband acquired syphilis from an extramarital intercourse when she was about four months pregnant. He received two intravenous injections of salvarsan of 0.6 gm. each. After his second injection he informed me that his wife was showing marked symptoms of the disease. I told him that it was his duty to have treated his wife first, if not for her sake, for the sake of the unborn child. He said that his family physician (a homeopath) had told her that an injection of salvarsan in her condition was not to be thought of. Nevertheless, they talked it over and decided to consult another physician. He argued strongly in favor of an injection.

May 11, 1912, the patient presented herself and received 0.6 gm. of salvarsan intravenously. At that time she was about eight months pregnant. Her condition was pitiable, both mentally and physically—mentally because of her diseased condition, for which she was not to blame. Physically she presented a skin eruption, intense angina, osteoepic pains and a persistent cephalalgia. Her husband had to help her into the office. Four days later she presented herself to report progress. The transformation was truly marvelous. She stepped into the office unassisted. Her symptoms had completely disappeared.

She received a second intravenous injection June 6, 1912, at 9 p. m. The next day at 5:45 and 6 a. m. twins were born, both healthy. I examined them again on July 25, and at that time they showed none of the classical symptoms of hereditary syphilis.

660 Lake Avenue.

DISAPPEARANCE OF ANGIONEUROTIC EDEMA AFTER
APPENDECTOMY

C. P. OBERNDORF, M.D., NEW YORK

In connection with the issues raised by Wiel¹ in regard to angioneurotic edema, namely, the symptomatic character of the affliction, the association of disturbances of the gastro-intestinal tract and the consideration of surgical interference which demands the most delicate judgment, the following case, which I was able to observe very closely, is of interest.

The patient, aged 37, has a negative family history with the exception of a slightly neurotic tendency in the mother. He has never suffered from any other sickness with the exception of scarlet fever and chicken-pox in early childhood. Though physically of a hardy and strong development, mentally his make-up is high-mettled, volatile and tense.

Although from the age of 8 he had suffered intensely from chilblains, there were no other vasomotor disturbances until 1904, when, while working under some stress, he suddenly developed a large circumscribed swelling on the lower lip. Thereafter, at irregular intervals but practically always when the patient had been subjected to some emotional strain or unusual application to his work, these suddenly appearing, red, tense, fairly well-circumscribed swellings reappeared, located most frequently on the extremities but also occasionally affecting the eyelids and lips. While on the face the edema caused only an extremely annoying sensation of itching, on the legs and forearm it produced severe pain.

While the patient had never suffered from constipation, the attacks of edema yielded quite promptly to saline purgatives or castor oil, followed by vigorous treatment with intestinal antiseptics, such as salol, betanaphthol or resorcin in large doses.

All the attacks were confined to the exterior of the body until September, 1907, when a sharp pain in the right iliac fossa, with appreciable tenderness and rigidity of the right rectus muscle and a rise of temperature to 101 degrees, strongly suggested an attack of appendicitis. Dr. J. A. Hartwell, who saw the patient in consultation at that time, was of the opinion that, while the attack had probably been one of appendicitis, an intestinal angioneurotic edema could not be excluded. The patient was advised that a recurrence would probably occur, but operation was deferred until a more pronounced attack indicating involvement of the appendix should be observed.

Following this abdominal attack the course of the angioneurotic edema continued unaltered, but there were no further indications of affection of the gastro-intestinal tract until August, 1910, when the patient was suddenly seized with intense pain in the right iliac region, with symptoms so typical of a severe appendicitis that an emergency operation was undertaken by Dr. C. W. Du Bouchet at the American Hospital in Paris. The laparotomy disclosed a perforating appendix; with abscess formation and a localized peritonitis. After a prolonged convalescence due to a fecal fistula the patient regained his normal excellent physical health.

Curiously enough, since this operation two years ago the attacks of angioneurotic edema have entirely disappeared though the emotional strains to which the patient has been subjected have not altered to any extent. More remarkable than this is the disappearance of the chilblains which had caused the patient intense pain since childhood, so that he has discarded his woolen socks in winter for low-cut shoes. Moreover, the hair of the scalp, which had been falling out in alarming quantities, grew in with renewed vigor following the appendectomy. It seems most certain that in this instance the angioneurotic edema was a symptom of a chronic intestinal toxic irritation and disappeared with the removal of the cause.

I must confess, however, that for the past three years I have been treating a very intractable case of angioneurotic edema, of six years standing, in a young woman of 28, in

which I can find no evidence of intestinal irritation. The attacks usually follow an emotional strain and seem, after having been treated with the entire gamut of therapeutic agencies ever suggested, to yield most rapidly to arsenic and pituitary extract, each in small doses; but the effect is very transient. In this instance I am compelled, for want of a more accurate determination, to consider the case one dependent on an unstable vasomotor system—undoubtedly an entirely unsatisfactory explanation of the phenomenon.

249 West Seventy-Fourth Street

Therapeutics

THE CARE OF INFANTS

(Continued from page 543)

NUTRITION

If the mother is ill or becomes ill, the child must be artificially fed. If the child loses weight, or does not gain weight on the mother's milk, it must be artificially fed. The child may hold its own weight while growing, and yet be deficient in general nutrition. In other words, it may be actually losing in strength and yet gaining in height. It has been shown that young animals may continue to grow on insufficient nutriment, and the child may grow tall and yet lose its fat and have its organs deteriorate from improper nourishment.

It is not sufficient to watch the child's weight; it is necessary to study carefully the mother's nutrition and add to her nourishment and to her periods of rest as seem indicated.

If the child must be artificially fed, it is necessary for it to have protein, sugar, fat and lime, besides various other salts that are found in mother's milk.

It has been shown by long-continued research at the Wisconsin Agricultural Experiment Station that different kinds of food given to animals for years do not alter the nutritive status much, provided the foods are sufficient. In other words, the animal and the human being can use almost any kind of fat and almost any kind of protein for its recuperative and constructive processes. It makes little difference of what molecular construction the fat or protein is. It is broken down and resynthesized into what is needed for the particular structure. This subject is being carefully studied in laboratories, and scientific findings will doubtless before long be presented.

The laboratory that has recently furnished data concerning the breaking down and building up of food structures is that at Halle, Germany. Professor Abderhalden,¹ in this laboratory, has shown the ability of animal organisms to take dissociated nutrition elements as amino-acids, sugar, fatty acids, glycerol and inorganic salts and build them up or synthesize them into products necessary for nutrition and growth. In other words, the animal may take complex foods, break them down into the above-named elements, and build them up into what is required; or it may take the broken-down products and assimilate them into what nutritives are required.

The need of the body for sugar is recognized, and the course from sugar and starch ingestion can be traced through the stage of glucose absorption to the liver, where glucose is changed into glycogen and stored as such, to be again changed into glucose when leaving the liver by the blood, in which, in the lungs, changes seem to take place that cause some of the glucose to enter into

1. Wiel: Angioneurotic Edema, THE JOURNAL A. M. A., April 27, 1912, p. 1246.

1. Abderhalden, E.: Fütterungsversuche mit vollständig abgebauten Nahrungsstoffen, Ztschr. f. physiol. Chem., 1912, lxxvii, 22; Synthetic Food and Artificial Nutrition, Editorial, THE JOURNAL A. M. A., May 4, 1912, p. 1378.

a combination with lecithin and to circulate with the lymph. It is then carried to the muscles where glycogen is again either analytically or synthetically formed and is utilized in producing muscular energy. The sugar metabolism is therefore fairly well understood.

Another necessary element of the food is fat, which is the most economical way of giving energy. The only question to decide is the amount that the child needs or can digest. Lime is another necessity. It and fat are essential to the production of soaps in the intestines. If there is too much fat or insufficient lime, fatty acids may be formed which irritate the intestines and may prevent normal saponification. Certain kinds of diarrhea may be due to these fatty acids and are cured if the fat is removed or the lime increased or the diet changed to carbohydrate, to buttermilk or to albumin.

Each child should be individualized and the food prescribed be made to fit the child, the same as a prescription is written to fit the individual patient. Stock proprietary mixtures are rarely advisable. The points to consider in individualizing the child are its age and its weight relatively to what the weight of a child the same age ought to be.

Dr. D. J. Levy² gives some valuable suggestions and advice which have been corroborated by his own experience. He offers as a rough working rule for the first six months of life to dilute the milk (not top milk) with an equal part of water and add 5 per cent. sugar. When the child is 6 to 9 months of age, two-thirds milk and one-third water are used with 5 per cent. of sugar; and from 9 months on undiluted milk is used. As to calories, he quotes Heubner and Rubner, that for the first three months 100 calories per kilogram (a little more than two pounds) of body-weight are needed; for the second three months, 99 calories per kilogram of body-weight; the third three months 80 calories per kilogram of body-weight; the fourth three months 70 calories per kilogram of body-weight. The caloric value of a quart of milk (liter) is approximately 600. Levy states that the new-born babe may be roughly estimated to weigh 3,000 gm., or 3 kg., and that each normal child should gain 500 gm. per month, or half a kilogram. A normal child at this rate should weigh at birth 3 kg.; at 3 months 4.5 kg.; at 6 months at least 6 kg. With the gradual increase in weight the food is gradually increased in quantity, and hence in caloric value.

The following represents the calories of food prepared as above suggested: One pint of milk equals 300 calories. Dilute this with a pint of water and add 5 per cent. of sugar, which equals 200 calories, and the mixture will represent 500 calories. As the child becomes older, take two-thirds quart of milk, which equals 400 calories, and dilute with one-third quart of water, with 5 per cent. of sugar added (representing 200 calories), making the total represent 600 calories. With these data the proper estimated nutriment can be arranged for each child.

Levy also urges that Czerny's advice to give longer feeding-intervals than generally allowed is valuable, even to five or six feedings in twenty-four hours. He also advises that the child should not be fed at night, but should be given all the water that it will drink at night, if it needs anything.

In the choice of sugars, Levy believes maltose dextrin is the best. Lactose may be used, but is not quite so satisfactory as it may cause dyspepsia or constipation. If it seems that the child needs more nutrition, and yet it is not thought best to give a milk of less dilution, 10 gm.

(2½ ounces) of ordinary wheat flour may be added to the day's feeding, and Levy believes the weight will be increased, and often a constipation be cured. This flour diluent should be used after the third month only. If constipation persists, he thinks an oatmeal water (one-half to 2 ounces to a quart of water) may be used as a diluent instead of plain water. The bulk of the feeding, he thinks, should be less than a quart up to the fourth month, and no more than a quart from that time until the end of infancy; of course giving the child what extra water it requires.

Levy believes that after the sixth month one feeding a day of a simple broth of chicken, mutton or beef is advisable, and he suggests even a little stewed simple fruit, especially if the child is constipated. He finds that with these broths there is less demand of the infant for a large bulk of milk, and the child is better nourished and has better digestion.

He believes in simple instructions, and his first instructions to the nurse are to take a pint of milk and a pint of water, add 1½ ounces of maltose dextrin or milk-sugar, divide into five feedings, and give every four hours.

Dr. T. G. Allen³ well discusses standards of infant-feeding. If a baby is uncomfortable and fretful immediately after feeding, the probability is that there is likely to be something wrong with the quantity of the food, that it is either too much or too little. If the discomfort occurs some time after a meal, other causes being eliminated, the trouble is probably with the quality of the food. A normal infant should fall asleep directly after eating. As not sufficiently recognized, a baby cries most frequently because the food is insufficient or not satisfactory, or because its digestion of it is at fault.

A normal baby will have a homogeneous, mustard-colored stool, of not unpleasant odor, of salve-like consistence, and free from admixture with curds or mucus; and as above stated, a healthy baby will gain weight pretty regularly on an average of an ounce a day during the first three months. From this time on the gain is not so rapid.

Allen believes that the child should have more protein in proportion to its weight than the adult, because it not only has to repair the tissue waste, but also must have protein with which to build. He has come to the conclusion, by careful studies, that the baby should have at least 4 per cent. of protein, represented by 2 or 3 ounces of mother's milk, or 1 to 1½ ounces of good cow's milk in each twenty-four hours. This he terms his "protein standard."

Heubner, as elsewhere referred to in this article, has shown that a normal baby requires 100 calories of energy for each kilogram (1,000 gm., about 2 pounds) of weight. This means that the baby should have 45 calories of energy for each pound of its weight, every twenty-four hours, which Allen says is roughly represented by a level tablespoon of milk-sugar, or 3 level teaspoons of cane-sugar, as the amount of energy required for each pound of baby. This ratio is much larger than the ratio required for an adult. A man of 150 pounds, at ordinary work, has been found to require 3,300 calories per day, while the 20-pound baby would require 900 calories. As Allen states, the greater amount required by the child is probably because of its growth, its greater metabolic activity and its proportionally greater amount of surface for heat radiation.

(To be continued)

2. Levy, D. J.: THE JOURNAL A. M. A., June 22, 1912, p. 1925.

3. Allen, T. G.: THE JOURNAL A. M. A., June 8, 1912, p. 1687.

MEDICAL COLLEGES OF THE UNITED STATES

ANNUAL PRESENTATION OF EDUCATIONAL DATA BY THE COUNCIL ON MEDICAL EDUCATION

Below are given brief descriptions of the medical colleges in the United States and Canada that are legally chartered to teach medicine, several of which do not grant degrees. The name, address, year of organization, history and date when first class graduated are given in each instance. Unless otherwise stated, a class graduated each subsequent year. Where official reports have been received from the college, information regarding faculty, entrance requirements, length of term, fees, students (excluding specials and postgraduates), graduates, name of dean and next session is given without discrimination, regardless as to whether the college is sectarian or not. In a few instances in which such reports were not received the information published is from other reliable sources. Figures for graduates include all who graduated since July 31, 1911. Extracts of rules and the membership of the Association of American Medical Colleges are shown following the list of colleges. Figures showing population of cities and states are taken from the United States Census Bureau's returns for 1910.

ALABAMA

Alabama, population 2,138,093, has two medical colleges, the Medical Department of the University of Alabama and the Birmingham Medical College, located, respectively, in Mobile and Birmingham. The population of Mobile is 51,521 and of Birmingham 132,685.

Birmingham

BIRMINGHAM MEDICAL COLLEGE, Avenue F and Twentieth Street.—Chartered in 1894. The first class graduated in 1895. There are 25 professors and 15 assistants, total 40. The course of instruction embraces four separate sessions of eight months each. The fees are \$105 for each of the first three years and \$130 for the fourth. The Secretary is Dr. E. P. Hogan. Registration, 1911-12, 183; graduates, 31. The nineteenth session begins Sept. 25, 1912, and ends May 16, 1913.

Mobile

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE, St. Anthony and Lawrence Streets.—Organized in 1859 as the Medical College of Alabama. Classes were graduated in 1861 and in all subsequent years except 1862 to 1868, inclusive. It was reorganized as the Medical Department of the University of Alabama in 1897. All property was transferred to the University of Alabama in 1907, when the present title was assumed. The faculty consists of 20 professors and 37 lecturers and assistants, a total of 57. The course of study covers four years of thirty-two weeks each. The total fees for each of the first three years are \$135; for the fourth year, \$160. The Dean is Dr. Eugene DuBose Bondurant. The total registration for 1911-12 was 137; graduates, 35. The forty-seventh session begins Sept. 23, 1912, and ends May 22, 1913.

ARKANSAS

Arkansas, population 1,574,449, has one medical college, the Medical Department of the University of Arkansas, located in Little Rock, a city of 45,941.

UNIVERSITY OF ARKANSAS MEDICAL DEPARTMENT, Second and Sherman Streets.—Organized in 1879 as the Medical Department of Arkansas Industrial University. It assumed the present title in 1899. In 1911 the College of Physicians and Surgeons united with it and the new school was made an integral part of the University of Arkansas. The first class graduated in 1880. The faculty consists of 25 professors and 23 lecturers and assistants, total, 48. The course of study covers four years of thirty-one weeks each. The fees are \$125 for each of the first three years and \$150 for the fourth year. The Dean is Dr. Morgan Smith. Total registration, 1911-12 was 145; graduates, 52. The thirty-fourth session begins Sept. 16, 1912, and ends May 9, 1913.

CALIFORNIA

California, population 2,337,459, has eight medical colleges. Four are located in San Francisco, a city of 416,912 inhabitants. They are Leland Stanford Junior University College of Medicine, Medical Department of the University of California, Hahnemann Medical College of the Pacific and the College of Physicians and Surgeons. The College of Physicians and Surgeons and the California Eclectic Medical College and the Los Angeles Clinical Department of the University of California are situated in Los Angeles, population 319,198. The Oakland College of Medicine and Surgery is in Oakland, population 150,174. The College of Medical Evangelists is located at Loma Linda, a village of 110 people.

Loma Linda

COLLEGE OF MEDICAL EVANGELISTS.—Organized in 1909. The faculty numbers 10. The course extends over five years of nine months each, but includes a study of the Bible, pastoral training and other non-medical subjects. The total fees each year are \$101; matriculation fee, \$5, payable but once; graduation fee, \$10. The Dean is Dr. George Knapp Abbott. The total registration for 1911-12 was 56; no graduates. The fourth session begins Sept. 26, 1912, and ends June 25, 1913.

Los Angeles

COLLEGE OF PHYSICIANS AND SURGEONS, 516 East Washington Street.—Organized in 1903, first class graduated in 1905; became Medical Department, University of Southern California August 11, 1909. The course covers four years of nine months each. The faculty consists of 15 professors and 44 associate professors, lecturers and instructors, a total of 59. The fees for the four years respectively are \$160, \$157, \$155 and \$182. The Dean is Charles W. Bryson, Delta Building, Los Angeles. The registration for 1911-12 was 126; graduates, 24. The next session begins Sept. 9, 1912, and ends June 12, 1913.

CALIFORNIA ECLECTIC MEDICAL COLLEGE, 846 Lyon Street.—Organized in 1879 at Oakland as the California Medical College. Removed to San Francisco in 1887. Suspended in 1906. Reorganized at Los Angeles with the present title in 1907. Classes were graduated in 1880, and in all subsequent years except 1907. It has a faculty of 30. The Dean is Dr. J. A. Munk. The registration for 1911-12 was 28; graduates, 4. The thirty-fourth session begins September 16, 1912, and ends May 22, 1913.

Oakland

OAKLAND COLLEGE OF MEDICINE AND SURGERY, Thirty-First and Grove Streets.—Organized in 1900, opened in 1902. The first class graduated in 1906. The faculty numbers 34. The course covers five years of nine months each, and the classes are limited to ten students each. The total fees for each of the five years respectively are \$210, \$200, \$175, \$175 and \$175. The Registrar is Dr. Edward N. Ewer. The total registration for 1911-12 was 22; graduates, 6. The eleventh session begins Aug. 12, 1912, and ends May 17, 1913.

San Francisco

HAHNEMANN MEDICAL COLLEGE OF THE PACIFIC, Homeopathic, Sacramento and Maple Streets.—Organized in 1881 as the Hahnemann Medical College. The first class graduated in 1884. In 1888 it became the Hahnemann Hospital College of San Francisco. It assumed the present name in 1902. It has a faculty of 12 professors and 23 lecturers, instructors, etc., a total of 35. The course covers four years of thirty-four weeks each. Total fees for the first year are \$155, and \$100 for each of the other three. The Dean is Dr. James W. Ward, 391 Sutter Street. The total registration for 1911-12 was 35; graduates, 5. The thirty-first session begins Aug. 1, 1912, and ends April 20, 1913.

COLLEGE OF PHYSICIANS AND SURGEONS, 344 Fourteenth Street.—Organized in 1896. The first class graduated in 1897. The faculty numbers 39. The course covers four years of nine months each. The fees for each of the four years respectively are \$165, \$160, \$160 and \$185. The Dean is Dr. Ethan H. Smith. Registration for 1911-12 was 16; graduates, 3. The sixteenth session begins Sept. 4, 1912, and ends June 1, 1913.

San Francisco-Palo Alto

LELAND STANFORD JUNIOR UNIVERSITY, DEPARTMENT OF MEDICINE, University Campus, Palo-Alto, and Sacramento and Webster Streets, San Francisco.—Organized in 1908 when, by an agreement, the interests of Cooper Medical College were taken over. By the terms of this agreement Cooper Medical College continued to teach until the classes which entered prior to August, 1909, had been graduated. The last class graduated in 1912. During the last session the work of the first, second and third years was given by Leland Stanford University Medical Department, but hereafter all four years will be conducted. The faculty consists of 27 professors and 24 lecturers, assistants, etc., a total of 51. Three years of collegiate work are required for admission. The course covers four years of nine months each. The total fees for each of the first and second years are \$160, for the third and fourth years, \$150 each. The Dean is Dr. R. L. Wilbur, San Francisco. The total registration for 1911-12 for the two colleges was 70; graduates (Cooper), 36. The next session begins Aug. 26, 1912, and ends May 14, 1913.

San Francisco-Berkeley-Los Angeles

UNIVERSITY OF CALIFORNIA MEDICAL DEPARTMENT, University Campus, Berkeley; Second and Parnassus Avenues, San Francisco, and Buena Vista and Alpine Streets, Los Angeles.—Organized in 1863 as the Toland Medical College. The first class graduated in 1865. In 1872 it became the medical department of the University of California. In 1909 it absorbed the College of Medicine of the University of Southern California, which became a clinical department at Los Angeles. Two years of collegiate work are required for admission. The work of the first two years is given at Berkeley and the work of the last two years at both Los Angeles and San

Francisco. The faculty is composed of 58 professors and 75 associates and assistants, a total of 133. The course covers four years of nine months each. The fees are: Matriculation, \$5; fees for the four years respectively are approximately, \$200, \$195, \$190 and \$165. The Dean at San Francisco is Dr. Herbert C. Moffitt, at Los Angeles, Dr. W. Jarvis Barlow. Total registration of the two schools for 1911-12 was 88; graduates, 27. The fortieth session at San Francisco begins Aug. 8, 1912, and ends May 10, 1913. The next session at Los Angeles begins Sept. 16, 1912, and ends June 20, 1913.

COLORADO

Colorado, with a population of 799,024, has one medical college, the University of Colorado, School of Medicine. The first two years of the course are given at Boulder, the seat of the university, while the last two, or clinical years, are given in Denver, which has a population of 213,381.

Boulder-Denver

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged Jan. 1, 1911, when the legal right to teach the last two or clinical years in Denver was secured. The faculty embraces 60 professors and 13 lecturers and assistants, a total of 73. The work embraces a graded course of four years of nine months each. The entrance requirements are two years of college work counting toward a degree in arts in an accredited college or university. The tuition is \$75 per year; there are no other fees. The Dean is Dr. William P. Barlow. The total registration for 1911-12 was 118; graduates, 39. The thirty-first session begins Sept. 9, 1912, and ends June 5, 1913.

CONNECTICUT

Connecticut, with a population of 1,114,756, has one medical college, located in New Haven, population 133,605.

New Haven

YALE MEDICAL SCHOOL, York and Chapel Streets.—This is the Department of Medicine of Yale University. In 1810 a charter was granted for the establishment of this school, and in 1813 it was organized as the Medical Institution of Yale College. The first class graduated in 1814. The faculty consists of 16 professors and 54 lecturers and assistants, a total of 70. The requirement for admission is two full years of collegiate work plus evidence of satisfactory preparation in physics, general inorganic chemistry and general biology. The course covers four years of nine months each. The fees for the four years respectively are approximately \$220, \$168, \$150 and \$163. The Dean is Dr. George Blumer. The total registration for 1911-12 was 63; graduates, 29. The 100th session begins Sept. 26, 1912, and ends June 18, 1913.

DISTRICT OF COLUMBIA

Washington, population 331,069, has three medical colleges; George Washington University Department of Medicine, Georgetown University School of Medicine and Howard University School of Medicine.

Washington

GEORGE WASHINGTON UNIVERSITY DEPARTMENT OF MEDICINE, 1325 H Street, N.W.—Organized in 1825 as the National Medical College, Medical Department of Columbian College. Classes were graduated in 1826 and in all subsequent years, except 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1904, by an act of Congress, it received its present title. The faculty is composed of 30 professors and 45 instructors, demonstrators and assistants, a total of 75. The course covers four years of thirty-two weeks each. The total fees are \$150 per year. The Dean is Dr. William C. Borden. The total registration for 1911-12 was 92; graduates, 37. The ninety-first session begins Sept. 25, 1912, and ends June 11, 1913.

GEORGETOWN UNIVERSITY SCHOOL OF MEDICINE, 920 H Street, N.W.—Organized in 1851. The first class graduated in 1852. The faculty contains 19 professors, 43 instructors and assistants; total 62. The course of study covers four terms of eight and one-half months each. The fees for the first year are \$165, and for each of the other three years, \$150. The Dean is Dr. George M. Kober. The registration for 1911-12 was 155; graduates, 23. The sixty-second session begins Sept. 27, 1912, and ends June 13, 1913.

HOWARD UNIVERSITY SCHOOL OF MEDICINE, Fifth and W Streets, N.W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Colored students compose a majority of those in attendance. The faculty comprises 14 professors and 28 lecturers and assistants, 42 in all. The admission requirements are one year of collegiate work including physics, chemistry, botany and zoology and a reading knowledge of one modern language besides English. The course covers four years of thirty weeks each. The fees of each of the four sessions respectively are \$107, \$102, \$102 and \$109. The Dean is Dr. Edward A. Bulloch. Registration for 1911-12 was 170; graduates, 36. The forty-fifth session begins Sept. 25, 1912, and ends June 4, 1913.

GEORGIA

Georgia, population 2,609,121, has five medical colleges; Medical College of Georgia, located in Augusta, population 41,040; Atlanta College of Physicians and Surgeons, Atlanta School of Medicine, the Georgia College of Eclectic Medicine and Surgery, and the Southern College of Medicine and Surgery are in Atlanta, a city of 154,839 population.

Atlanta

ATLANTA COLLEGE OF PHYSICIANS AND SURGEONS, Butler and Armstrong Streets.—Organized in 1898 by union of the Atlanta Medical College, organized in 1855, and Southern Medical College, organized in 1878. The first class graduated in 1899. It has a faculty of 23 professors and 32 assistants, a total of 55. The course of study covers four years of thirty weeks each. Fees: \$125 each year. The Dean is Dr. W. S. Elkin, 29 Luckie Street. Total registration of students for 1911-12 was 372; graduates, 61. The fifteenth session begins Sept. 18, 1912, and ends May 7, 1913.

ATLANTA SCHOOL OF MEDICINE, Luckie, Barton and Cain Streets.—Organized in September, 1905. The first class graduated in 1906. The course covers four years of seven months each. It has a faculty of 14 professors and 28 lecturers and assistants, a total of 42. The fees each year are \$105; graduation fee, \$30. The Dean is Dr. George H. Noble. The total registration for 1911-12 was 233; graduates, 45. The seventh session begins Sept. 20, 1912, and ends May 1, 1913.

GEORGIA COLLEGE OF ECLECTIC MEDICINE AND SURGERY, Tanner Street, near Edgewood Avenue.—Organized in 1877 as the Georgia Eclectic Medical College. In 1884 it acquired the charter of the College of American Medicine and Surgery. It assumed its present name in 1886. The first class graduated in 1878. The faculty consists of 13 professors and 6 assistants, a total of 19. Tuition is \$80 per year; graduation fee, \$25. The Proctor is Dr. E. B. Thomas. Total registration for 1911-12 was 70; graduates, 39. The next session begins Sept. 20, 1912, and ends April 13, 1913.

SOUTHERN COLLEGE OF MEDICINE AND SURGERY, McDaniel Street.—Organized in 1911. The faculty numbers 13. Total registration for 1911-12 was 20; graduates, 11. The Dean is Dr. E. O. Stuckey. Reported not in good standing by the Georgia Board of Medical Examiners.

Augusta

UNIVERSITY OF GEORGIA, COLLEGE OF MEDICINE, Sixth and Telfair Streets.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia. Entire property transferred to the University in 1911. Classes were graduated in 1833 and in all subsequent years, except 1862 and 1863. The faculty includes 23 professors and 34 assistants, 57 in all. The course is four years of eight months each. Fees for each of the four years are \$100; graduation fee, \$25. The Dean is Dr. W. H. Doughty, Jr. The total registration for 1911-12 was 126; graduates, 38. The nineteenth session begins Sept. 18, 1912, and ends May 20, 1913.

ILLINOIS

Illinois, population 5,638,591, has eight medical colleges, one of which is a night school, all located in Chicago, a city of 2,185,283 inhabitants, and are as follows: Rush Medical College, Northwestern University Medical School, University of Illinois College of Medicine, Hahnemann Medical College, Bennett Medical College, Hering Medical College, Jenner Medical College and Chicago College of Medicine and Surgery.

Chicago

RUSH MEDICAL COLLEGE.—This school was founded in 1837, organized in 1843, was the medical department of Lake Forest University from 1887 until 1898, when it became affiliated with the University of Chicago. The first class graduated in 1844. The faculty is composed of 97 professors, 149 associates, instructors, etc., a total of 246. The requirements for admission are two years of college work, including courses in college chemistry, physics and biology, and a reading knowledge of German or French. The course covers four years of eight and a half months each. An optional fifth year, consisting of a hospital internship or of a fellowship in one of the departments, is offered. All freshmen and sophomore studies are given at the University of Chicago. The last two years are given in the clinical building at the corner of Wood and Harrison Streets. The total fees are \$180 each year. A matriculation fee of \$5 is paid but once, and there are incidentals amounting from \$2 to \$5 annually. The Dean is Dr. John M. Dodson. Total registration 1911-12 was 559; graduates, 112. The seventieth session begins Oct. 1, 1912, and ends June 14, 1913.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, Dearborn Street, between Twenty-Fourth and Twenty-Fifth Streets.—Organized in 1859 as the Medical Department of Lind University. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869, but retained the name of Chicago Medical College until 1891, when the present name was taken. The faculty comprises 56 professors and 91 lecturers and assistants, a total of 147. The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University plus two years of college work including courses in physics, chemistry, biology and modern languages. The course covers four years of eight months each. The fees for the four years respectively are \$200, \$200, \$191 and \$185. The Dean is Dr. Arthur R. Edwards. The total registration for 1911-12 was 259; graduates, 80. The fifty-third session begins Oct. 1, 1912, and ends June 11, 1913.

COLLEGE OF PHYSICIANS AND SURGEONS, Honore and Congress Streets.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1896 and an integral part in 1910, when it took the name of University of Illinois College of Medicine. The relationship with the university was canceled in 1912 and the former name was resumed. The American Medical Missionary College was absorbed in 1910. The faculty is composed of 44 professors, 84 assistants and instructors, a total of 128. The fees are \$155 each for the first two years, \$150 for the third, and \$160 for the fourth year. The Dean is Dr. William E. Quine. Total registration for 1911-12 was 506; graduates, 145. The thirty-first session begins Oct. 1, 1912, and ends June 6, 1913.

CHICAGO COLLEGE OF MEDICINE AND SURGERY, 706 South Lincoln Street.—Organized in 1901 as the American College of Medicine and Surgery (Chicago Eclectic Medical College). The latter part

of the name was dropped in 1902 and it became the Medical Department of Valparaiso University. Eclecticism was dropped in 1905. The name was changed to the above in 1907. The course covers four years of eight months each. The faculty consists of 41 professors and 83 lecturers and assistants, a total of 124. The total fees of each of the four years, respectively, are \$120, \$120, \$105 and \$120. The Registrar is Dr. G. E. Wyneken. The total registration for 1911-12 was 556; graduates, 126. The twelfth session begins Sept. 24, 1912, and ends May 19, 1913.

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF CHICAGO, 2811 Cottage Grove Avenue.—Organized in 1859. The first class was graduated in 1861. The faculty includes 31 professors and 45 lecturers, assistants, etc., a total of 76. The course extends over four years of eight months each. The tuition fees for the four years respectively are \$125, \$125, \$155 and \$175. The Registrar is Dr. W. Henry Wilson. The total registration for 1911-12 was 104; graduates, 33. The fifty-third session begins Sept. 25, 1912, and ends May 23, 1913.

HERING MEDICAL COLLEGE, Homeopathic, 703 South Wood Street.—Organized in 1892. The first class graduated in 1893. The faculty consists of 28 professors and 25 assistants, instructors, etc., a total of 53. The tuition fees for each of the four years respectively are \$115, \$105, \$110 and \$100. The Registrar is Dr. E. B. Beckwith. The total registration for 1911-12 was 28; graduates, 7. The next session begins Sept. 24, 1912, and ends June 5, 1913. *Reported not in good standing by the Illinois State Board of Health.*

BENNETT MEDICAL COLLEGE, Fulton and Ada Streets, Medical Department of Loyola University.—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery. Dropped Eclecticism in 1909. In 1910 it united with the Illinois Medical College and became by affiliation the Medical Department of Loyola University. The first class graduated in 1870. The faculty numbers 93. The course covers four years of thirty-four weeks each. The fees for the four years respectively are \$135, \$130, \$125 and \$130. The Dean is Dr. William F. Waugh. The total registration for the two colleges in 1911-12 was 402; graduates, 93. The next session begins Oct. 1, 1912, and ends June 13, 1913.

JENNER MEDICAL COLLEGE, an afternoon and night school, located at 223 West Washington Street.—Organized in 1892. Classes were graduated in 1896 and in all subsequent years. The faculty numbers 48. The Secretary is Dr. John D. MacKellar. Total registration for 1911-12 was 138; graduates, 12. The next session begins Sept. 3, 1912, and ends June 14, 1913.

INDIANA

Indiana, population 2,700,876, has one medical college, the Indiana University School of Medicine, located at Indianapolis, a city of 233,650 people, except that the work of the first year is offered also at Bloomington, the seat of the University.

Bloomington and Indianapolis

INDIANA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1893, medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1907 by the merger of the Medical College of Indiana (organized in 1869) and the Fort Wayne College of Medicine (organized in 1879) merged into it. The faculty consists of 93 professors and 80 lecturers, associates and assistants, a total of 173. Two years of collegiate work are required for admission. The work of the first year is emphasized only at Bloomington. The work of the other three years is all at Indianapolis. A fifth optional year leading to the "M.D. cum laude" has been added. The Secretary at Bloomington is Dr. B. D. Myers; the Dean is Dr. Charles P. Emerson, Indianapolis. The total registration for 1911-12 was 155; graduates, 45. The next session begins Sept. 24, 1912, and ends June 8, 1913.

IOWA

Iowa, population 2,224,771, has two medical colleges. The College of Medicine of the State University of Iowa, located in Iowa City, population 10,091. In Des Moines, population 86,368, is the College of Medicine of Drake University.

Des Moines

DRAKE UNIVERSITY COLLEGE OF MEDICINE.—First two years given on the University Campus, University Avenue, between Twenty-Fifth and Twenty-Eighth Streets, the clinical years at Fourth and Center Streets. Organized in 1881 as the Iowa Eclectic Medical College. In 1883, the name was changed to the Iowa Medical College, Eclectic. In 1887 it resumed its former name, merged into the Iowa College of Physicians and Surgeons and became the Medical Department of Drake University. In 1903 it took its present title. The first class graduated in 1882. The faculty consists of 20 professors and 33 assistants, lecturers, etc., a total of 53. Two years of collegiate work, including courses in physics, chemistry and biology, are required for admission. The work covers four years of nine months each. The total fees are \$165 each year. The Dean is Dr. William Wilson Pearson. The total registration for 1911-12 was 50; graduates, 16. The thirtieth session begins Sept. 18, 1912, and ends June 11, 1913.

Iowa City

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE, University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. The faculty is made up of 21 professors, 22 lecturers, demonstrators and assistants, a total of 43. Two years of collegiate work, including courses in physics, chemistry and biology, are required for admission. The course of study covers four years of thirty-six weeks each. Total fees for each year are \$50 plus a matriculation fee of \$10 paid but once and a graduation fee of \$10. The Dean is Dr. James R. Guthrie, Dubuque. Total number of students registered for 1911-12 was 110; graduates, 34. The forty-third session begins Sept. 16, 1912, and ends June 13, 1913.

KANSAS

Population 1,690,949, has two medical colleges. Kansas Medical College is in Topeka, population 43,684. The School of Medicine of the University of Kansas gives its first two years in Lawrence, population 12,915, and the last two years in Rosedale, a suburb of the two Kansas Cities, which together have a population of 330,662.

Lawrence and Rosedale

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE.—Organized in 1880. In 1905 it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. The faculty, including lecturers and clinical assistants, numbers 56. The requirements for admission are two years of collegiate work. The course covers four years of nine months each. The total fees are, for the first two years, \$60 per year (and for non-residents of the state, \$80); for the last two years \$100 and \$110, respectively. The Dean is Dr. S. J. Crumrine, Topeka; Associate Dean, Dr. M. T. Sudler. The total registration for 1911-12 was 75; graduates, 14. The thirty-third session begins Sept. 18, 1912, and ends June 11, 1913.

Topeka

KANSAS MEDICAL COLLEGE, 521 Quincy Street.—Organized in 1890. The first class graduated in 1892. It has been the Medical Department of Washburn College since 1903. It has a faculty of 32 professors and 9 lecturers and assistants, a total of 41. One year of collegiate work is required for admission. The course covers four years of nine months each. Fees, \$100 yearly. Matriculation fee of \$5 paid but once. The Dean is Dr. William E. McVey. Total registration for 1911-12 was 37; graduates, 9. The twenty-third session begins Sept. 11, 1912, and ends June 5, 1913.

KENTUCKY

Kentucky, population 2,289,905, has one medical college, the University of Louisville Medical Department, situated in Louisville, a city of 223,928 inhabitants.

Louisville

UNIVERSITY OF LOUISVILLE MEDICAL DEPARTMENT, Eighth and Chestnut Streets.—Organized in 1837 as the Louisville Medical Institute. The first class graduated in 1838, and a class graduated in each subsequent year except 1863. In 1846 the present name was assumed. In 1907 it absorbed the Kentucky University Medical Department. In 1908 it absorbed the Louisville Medical College, the hospital College of Medicine and the Kentucky School of Medicine. It has a faculty of 35 professors and 38 lecturers and assistants, a total of 73. The course covers four years of thirty-two weeks each. The fees are \$135 each year; graduation fee, \$25. The Dean is Dr. W. Edward Grant. The total registration for 1911-12 was 353; graduates, 119. The next session begins Oct. 1, 1912, and ends May 30, 1913.

LOUISIANA

Louisiana, having a population of 1,656,388, contains one medical college, the Medical Department of the Tulane University of Louisiana, situated in New Orleans, a city of 339,075.

New Orleans

MEDICAL DEPARTMENT OF THE TULANE UNIVERSITY OF LOUISIANA, University Campus and 1551 Canal Street.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years, except 1863-65, inclusive. It was transferred to Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University in 1884. The faculty numbers 96. The course covers four years of thirty-two weeks each. One year of collegiate work is required for admission. Total fees are \$180 per year; graduation fee, \$30. The Dean is Dr. Isadore Dyer. The total registration for 1911-12 was 321; graduates, 104. The seventy-ninth session begins Sept. 30, 1912, and ends June 4, 1913.

MAINE

Maine, population 742,371, has one medical college, located in Brunswick and Portland, the latter having a population of 58,571.

Brunswick-Portland

MEDICAL SCHOOL OF MAINE. The medical department of Bowdoin College. The first two years are given at Bowdoin College, Brunswick, the last two at Portland, building located on Chadwick Street.—Organized in 1820. The first class graduated in 1820. The faculty numbers 60. The course covers four years of eight months each. The total fees are \$120 for the first year and \$110 for each of the other three years. The Dean is Dr. Addison S. Thayer, 10 Deering Street, Portland. The total number of students in 1911-12 was 83; graduates, 11. The ninety-second session begins Oct. 17, 1912, and ends June 25, 1913.

MARYLAND

Maryland, with a population of 1,295,346, contains five medical colleges, all located in Baltimore, a city with 558,485 inhabitants. They are as follows: Johns Hopkins University Medical Department, School of Medicine of the University of Maryland, College of Physicians and Surgeons, Baltimore Medical College and Maryland Medical College.

Baltimore

JOHNS HOPKINS UNIVERSITY MEDICAL DEPARTMENT, Washington and Monument Streets.—Organized in 1893. The first class graduated in 1897. The faculty consists of 39 professors and 79 clinical professors, etc., a total of 118. The requirements for admission demand that the applicant either has (a) completed the chemical-biologic course which leads to the A.B. degree in the university or (b) graduated at an approved college or scientific school and has a knowledge of French and German, physics, chemistry and biology, such as may be obtained from a year's course. The course extends over four years of eight and one-half months each. The charge for tuition is \$200 per annum. The Dean is Dr. J. Whitridge Williams. Total registration for 1911-12 was 357; graduates, 85. The twentieth session begins Oct. 1, 1912, and ends June 10, 1913.

COLLEGE OF PHYSICIANS AND SURGEONS, Calvert and Saratoga Streets.—Organized in 1872. The first class graduated in 1873. In 1878 it united with Washington University School of Medicine. The faculty numbers 66. The work covers four years of eight months each. Total fees are \$165 for the first three years and \$195 for the fourth year. The Dean is Dr. William F. Lockwood. The total number of students registered in 1911-12 was 321; graduates, 63. The forty-first session begins Oct. 1, 1912, and ends June 5, 1913.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE, Lombard and Greene Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. The faculty numbers 62. The course covers four years of eight months each. Total fees are \$155 each year; graduation fee, \$30. The Dean is Dr. R. Dorsey Coale. The total number of students registered in 1911-12 was 319; graduates, 75. The 106th session begins Oct. 1, 1912, and ends June 1, 1913.

BALTIMORE MEDICAL COLLEGE, Madison Street and Linden Avenue.—Organized in 1881. The first class graduated in 1882. The faculty numbers 77. The course covers four years of eight months each. Total fees for the first three years are \$150 per year; for the fourth year, \$180. The Dean is Dr. David Streett. The total number of students registered in 1911-12 was 199; graduates, 26. The thirty-first session begins Sept. 20, 1912, and ends June 1, 1913.

MARYLAND MEDICAL COLLEGE, 1114 West Baltimore Street.—Organized in 1898. The first class graduated in 1899. The faculty numbers 39. The course covers four years of eight months each. Total fees for the four years, respectively, are \$111, \$111, \$105 and \$135. The Dean is Dr. W. S. Smith. The total registration for 1911-12 was 182; graduates, 82. The next session begins Oct. 1, 1912, and ends June 1, 1913.

MASSACHUSETTS

Massachusetts, population 3,366,416, has four medical colleges: Medical School of Harvard University, Boston University School of Medicine, College of Physicians and Surgeons and Tufts College Medical School. They are all situated in Boston, a city of 670,585.

Boston

MEDICAL SCHOOL OF HARVARD UNIVERSITY, Longwood Ave.—Organized in 1782. The first class graduated in 1788. It has a faculty of 49 professors and 144 associates, assistants, etc., a total of 193. Candidates for admission "must present a degree in arts, literature, philosophy or science from a recognized college or scientific school, with the exception of such persons as may be admitted by special vote of the faculty." The session is four years of nine months each. The total fees for each of the first two years respectively are \$234 and \$208; for each of the last two years, \$200. The Dean is Dr. Edward H. Bradford. The total registration for 1911-12 was 258; graduates, 61. The 131st session begins Sept. 23, 1912, and ends June 19, 1913.

BOSTON UNIVERSITY SCHOOL OF MEDICINE, 80 East Concord Street.—Organized in 1873. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class graduated in 1874. The faculty includes 25 professors, 49 associates, etc., a total of 74. The course covers four years of eight months each. Total fees for the first, second and third years, \$127 each, and for the last year \$155. The Dean is Dr. John P. Sutherland, 295 Commonwealth Avenue. Total registration for 1911-12 was 94; graduates, 18. The fortieth session begins Oct. 3, 1912, and ends June 4, 1913.

TUFTS COLLEGE MEDICAL SCHOOL, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. It has a faculty of 32 professors and 85 assistants, lecturers, etc., a total of 117. The course covers four years of eight months each. The total fees are \$155 each year. The Secretary is Dr. Frederic M. Briggs, 416 Huntington Avenue. Total registration for 1911-12 was 329; graduates, 91. The nineteenth session begins Sept. 25, 1912, and ends June 1, 1913.

COLLEGE OF PHYSICIANS AND SURGEONS, 517 Shawmut Avenue.—Organized in 1880. The first class graduated in 1882. The college announcement gives the names of 226 "matriculants and applicants" for the session of 1910-11, which included both dental and medical students. The names of some of the students who graduated in 1910 appear in the announcements of this school from six to nine years. The Dean is Dr. Thomas D. Crothers. Total registration for 1911-12 was 89; graduates, 20. The next session begins Sept. 18, 1912, and ends June 11, 1913. The college is not recognized by the Massachusetts Medical Society.

MICHIGAN

Michigan, population 2,810,173, has three medical colleges. Two of these, the University of Michigan Department of Medicine and Surgery and the Homeopathic College of the University of Michigan, are located at Ann Arbor, a city of 14,817 people. The Detroit College of Medicine is located at Detroit, a city of 465,766 inhabitants.

Ann Arbor

UNIVERSITY OF MICHIGAN DEPARTMENT OF MEDICINE AND SURGERY.—Organized in 1850. The first class graduated in 1851. It has a faculty composed of 18 professors and 66 associates, instructors, etc., a total of 84. The entrance requirements are two years of college work, including courses in chemistry, physics and biology, with laboratory work, and a reading knowledge of one modern language. The curriculum embraces four years of nine months each. The total fees for Michigan students for the entire course of four years is \$250 and for others about \$400. The Dean is Dr. Victor C. Vaughan. The total registration for 1911-12 was 242; graduates, 82. The sixty-third session begins Oct. 1, 1912, and ends June 26, 1913.

UNIVERSITY OF MICHIGAN HOMEOPATHIC COLLEGE.—Organized in 1875. The first class graduated in 1877. Although the work of the first two years is taken in the same classes with the Department of Medicine and Surgery of the University of Michigan, nevertheless the entrance requirements have been kept at only a high-school education, a difference of two years' collegiate work! The difference will continue to be one year's work since it is announced that hereafter one year of collegiate work will be required for admission. The Dean is Dr. W. B. Hinsdale. The total registration for 1911-12 was 91; graduates, 24. The next session begins Oct. 1, 1912, and ends June 26, 1913.

Detroit

DETROIT COLLEGE OF MEDICINE, St. Antoine, Catherine and Mullett Streets and Gratiot Avenue.—Organized in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. The first class graduated in 1886. The faculty embraces 22 professors, 102 lecturers, instructors, etc., a total of 124. The course covers four years of eight months each. The Registrar is Dr. F. B. Walker. The total registration for 1911-12 was 172; graduates, 38. The twenty-eighth session begins Sept. 10, 1912, and ends May 29, 1913.

MINNESOTA

Minnesota, population 2,075,708, contains one medical college, the College of Medicine and Surgery of the University of Minnesota, situated in Minneapolis. Minneapolis and St. Paul are practically one city, and have a combined population of 516,162.

Minneapolis

UNIVERSITY OF MINNESOTA COLLEGE OF MEDICINE AND SURGERY.—Organized in 1883; reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital Medical College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. The faculty includes 67 professors and clinical professors and 90 associate professors, assistants, etc., a total of 157. The curriculum covers five years of nine months each, including a year's internship in a hospital. The entrance requirements are two years of university work which must include one year each of physics, general chemistry, qualitative analysis, zoology or botany, and German or French, all in addition to a four-year high-school course, including two years of Latin. Students entering hereafter will be required to secure a degree of B.S., or A.B. before the M.D. is granted. Total fees for the first and second years are \$150 each, and for the third and fourth years \$100 each; microscopic rental, \$1 to \$4 per annum. The Dean is Dr. F. F. Westbrook. The total registration for 1911-12 was 183; graduates, 37. The twenty-fifth session begins Sept. 20, 1912, and ends June 14, 1913.

MISSISSIPPI

Mississippi, population 1,797,114, has one medical college, the Medical Department of the University of Mississippi, which gives only the first two years of the medical course. It is located at Oxford, a city of 1,825 inhabitants.

Oxford

UNIVERSITY OF MISSISSIPPI MEDICAL DEPARTMENT.—Organized in 1903. Gives only the first two years of the medical course. The session extends over eight and a half months. The faculty numbers 14. The Dean is Dr. W. S. Leathers. The total registration for 1911-12 was 44. The tenth session begins Sept. 19, 1912, and ends June 3, 1913.

MISSOURI

Missouri, population 3,293,335, has nine medical colleges. St. Louis, population 687,029, contains five of these, viz., the School of Medicine of St. Louis University, Washington University Medical Department, St. Louis College of Physicians and Surgeons and the American Medical College. Kansas City, which with Kansas City, Kan., has a total population of 330,662, has three colleges, namely: the University Medical College, the Kansas City Hahnemann Medical College and the Eclectic Medical University. Emsworth Medical College is located in St. Joseph, population 77,403. The Department of Medicine of the University of Missouri is at Columbia, a town of 9,662 people.

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE.—Organized at St. Louis in 1845; was discontinued in 1859, but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. The faculty includes 11 professors and 5 assistant professors, lecturers, etc., a total of 16. The course covers two years of nine months each. The entrance requirements are two

years of college work, including English, 5 hours; German, 5 hours; general zoology, 5 hours; physics, 5 hours; inorganic chemistry, 5 hours; elective, 35 hours. Equivalent work in foreign language may be substituted for the English and German. Total fees are \$70 each year. The Dean is Dr. C. M. Jackson. Total registration for 1911-12 was 36. The next session begins Sept. 19, 1912, and ends June 11, 1913.

Kansas City

UNIVERSITY MEDICAL COLLEGE, Corner Tenth and Campbell Streets.—Organized 1881 as University of Kansas City Medical Department. First class graduated 1882. Reorganized 1888 under present name. In 1911 it discontinued the courses of the first two years. The Dean is Dr. S. Grover Burnett. The total registration for 1911-12 was 70; graduates, 27. The next session begins Sept. 9, 1912, and ends June 9, 1913.

KANSAS CITY HAHNEMANN MEDICAL COLLEGE, 1020 East Tenth Street.—Organized in 1888 as the Kansas City Homeopathic Medical College. The first class graduated in 1899. In 1902 it united with the Hahnemann Medical College of the Kansas City University, taking the present title. The Dean is Dr. Moses T. Runnels. Total registration for 1911-12 was 41; graduates, 10. The next session begins Sept. 2, 1912, and ends May 12, 1913.

ELECTIC MEDICAL UNIVERSITY, 1423 Independence Avenue.—Organized at Kansas City, Mo., in 1898 with the present title. Moved to Kansas City, Kan., in 1907, and took the name of Western Eclectic College of Medicine and Surgery. Returned to Kansas City, Mo., in 1909 and resumed the present title. First class graduated in 1900. Fees are \$100 each year. The Secretary is Dr. D. R. Alexander. The total registration for 1911-12 was 50; graduates, 12. The fifteenth session begins Sept. 4, 1912, and ends May 19, 1913. *Reported not in good standing by the Missouri State Board of Health.*

St. Joseph

THE ENSWORTH MEDICAL COLLEGE, Seventh and Jule Streets.—Organized in 1876 as the St. Joseph Hospital Medical College. In 1882 it merged with the College of Physicians and Surgeons to form the St. Joseph Medical College. In 1888 changed name to Ensworth Medical College. In 1905 merged with the Central Medical College, organized in 1894, to form the Ensworth-Central Medical College. In 1907 the present title was resumed. The faculty numbers 34. The course covers four years of eight months each. The fees for the four years, respectively, are \$90, \$95, \$75 and \$95. The Secretary is Dr. T. E. Potter. Total registration for 1911-12 was 47; graduates, 5. The next session begins Sept. 20, 1912, and ends about May 20, 1913.

St. Louis

WASHINGTON UNIVERSITY MEDICAL SCHOOL, 1806 Locust Street.—Organized in 1842 as the Medical Department of St. Louis University. In 1855 it was chartered as an independent institution under the name of St. Louis Medical College. The first class graduated in 1843. In 1891 it became the Washington University Medical School. In 1899 it absorbed the Missouri Medical College. The faculty comprises 23 professors and 51 lecturers, instructors, etc., a total of 74. The course is four years of eight months each. The total fees for the four years are, respectively, \$155, \$150, \$150 and \$155. The Dean is Dr. Eugene L. Opie. The total registration for 1911-12 was 109; graduates, 44. The next session begins Sept. 30, 1912, and ends June 12, 1913.

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, 1402 South Grand Avenue.—Organized in 1901 by union of Marion-Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. It became the Medical Department of St. Louis University in 1903. The faculty is composed of 45 professors, 64 lecturers and assistants, a total of 109. The curriculum covers four years of thirty-four weeks each. The total fees are \$120 each year. The Dean is Dr. E. P. Lyon. The total registration for 1911-12 was 271; graduates, 70. The next session begins Oct. 1, 1912, and ends June 16, 1913.

ST. LOUIS COLLEGE OF PHYSICIANS AND SURGEONS, Jefferson Avenue and Gamble Street.—Organized in 1869. Classes graduated in 1870 and each subsequent year until 1873, when it suspended. It was reorganized in 1879. Classes graduated in 1880 and subsequent years. The fees for the four years are, respectively, \$110, \$105, \$100 and \$95. The Secretary is Dr. Walter U. Kennedy. Total registration for 1911-12 was 38; graduates, 11. The next session begins Sept. 15, 1912, and ends May 17, 1913.

AMERICAN MEDICAL COLLEGE, 407 South Jefferson Avenue.—Organized in 1873 as an Eclectic College. Eclecticism dropped in 1910. Absorbed the Barnes Medical College in 1911. Two classes were graduated each year from 1874 to 1883, inclusive. Since then one class has graduated each year. The course covers four years of eight and a half months each. The fees for the four years respectively are \$130, \$130, \$110 and \$130. The Dean is Dr. James Moores Ball. The total registration for 1911-12 was 172; graduates, 44. The next session begins Sept. 11, 1911, and ends June 2, 1912.

NEBRASKA

Nebraska, population 1,192,214, has three medical colleges. The University of Nebraska College of Medicine and the John A. Creighton Medical College at Omaha, population 124,096, and the Cotner Medical College at Lincoln, population 43,973.

Lincoln and Omaha

COLLEGE OF MEDICINE UNIVERSITY OF NEBRASKA, Eleventh and R Streets, Lincoln, and Twelfth and Pacific Streets, Omaha.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. Two years of collegiate work are required for admission. The first two years are given at Lincoln; the last two at Omaha. The faculty is composed of 30 professors and 30 lecturers and instructors, total 60. The fees are approximately \$100 per annum. Total registration for 1911-12 was 70; graduates 9. The next session at Omaha begins Sept. 10, 1912, and ends May 30, 1913. The next session at Lincoln begins Sept. 18, 1912, and ends June 7, 1913.

Bethany-Lincoln

COTNER MEDICAL COLLEGE, Eclectic, University Campus, Bethany, and corner 13th and P Streets, Lincoln. It is the Medical Department of Cotner University.—Organized in 1890 as the Lincoln Medical College. Assumed present title in 1911. The first class graduated in 1891. The Secretary is Dr. R. H. Spradling. The Registrar is Prof. R. L. Hoff, Bethany. The total registration for 1911-12 was 26; graduates, 7. The next session begins Sept. 16, 1912, and ends May 29, 1913.

Omaha

JOHN A. CREIGHTON MEDICAL COLLEGE, Fourteenth and Davenport Streets. It is the Medical Department of Creighton University.—Organized in 1892. The first class graduated in 1895. It has a faculty of 30 professors and 18 associates, lecturers and assistants, a total of 48. The course of study embraces four years of eight months each. The total fees for the four years, respectively, are \$105, \$100, \$100 and \$105. The Dean is Dr. D. C. Bryant, City National Bank Building. Total number of students registered in 1911-12 was 194; graduates, 51. The twenty-first session begins Sept. 1, 1912, and ends April 28, 1913.

NEW HAMPSHIRE

New Hampshire, population 443,140, has one medical college, located at Hanover, population 1,884.

Hanover

DARTMOUTH MEDICAL SCHOOL.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is the Medical Department of Dartmouth College. The faculty is made up of 25 professors and 3 instructors, a total of 28. Two years of collegiate work are required for admission. The course covers four years of eight months each. The fees for the four years are, respectively, \$145, \$147, \$125 and \$125. The Dean is Dr. John M. Gile. The total registration for 1911-12 was 36; graduates, 9. The work of the first and second years begins with that of the academic department Sept. 19, 1912, and ends June 21, 1913; for the advanced classes the course begins Aug. 6, 1912, and ends April 22, 1913.

NEW YORK

New York State, population 9,113,614, has eleven medical colleges. Eight of these, College of Physicians and Surgeons (Columbia University), Long Island College Hospital, New York Homeopathic Medical College and Hospital, New York Medical College and Hospital for Women, Eclectic Medical College of the City of New York, Cornell University Medical College, the University and Bellevue Hospital Medical College, and Fordham University School of Medicine, are located in New York City, population 4,766,883. Albany Medical College is located in Albany, a city of 100,253 people. The University of Buffalo Medical Department is situated in Buffalo, population 423,715. The College of Medicine, Syracuse University, is in Syracuse, a city of 137,249 inhabitants.

Albany

ALBANY MEDICAL COLLEGE, Lancaster and Jay Streets.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. The faculty is composed of 27 professors and 73 lecturers, assistants, etc., a total of 100. The curriculum covers four years of eight months each. Fees: First year, \$130; second year, \$145; third year, \$120, and fourth year, \$130. The Registrar is Dr. Willis G. Tucker. The total registration for 1911-12 was 223; graduates, 43. The eighty-second session begins Sept. 18, 1912, and ends May 13, 1913.

Buffalo

UNIVERSITY OF BUFFALO MEDICAL DEPARTMENT, High Street, near Main.—Organized in 1846. The first class graduated in 1874. It absorbed the Medical Department of Niagara University in 1898. The faculty is composed of 35 professors and 45 lecturers, assistants, etc., a total of 80. The course covers four years of eight months each. The total fees for the four years, respectively, are \$185, \$180, \$140 and \$140. The Dean is Dr. Herbert U. Williams. Total registration for 1911-12 was 228; graduates, 40. The sixty-seventh session begins Sept. 23, 1912, and ends May 30, 1913.

New York

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS, 437 West Fifty-Ninth Street.—Organized in 1807 by the regents of the University of the State of New York as their medical department. The first class graduated in 1811. Affiliated with Columbia College in 1814 and was permanently connected in 1860, when it became the Medical Department of Columbia College. That institution became Columbia University in 1891. The faculty is composed of 82 professors and 137 instructors, demonstrators, etc., a total of 219. Two years of collegiate work, including courses in physics, chemistry and biology, are required for admission. The work covers four years of eight months each. The Dean is Dr. Samuel W. Lambert. The total fees for the first year are \$255; for the second and third, \$250, and \$275 for the fourth year. Total registration for 1911-12 was 347; graduates, 86. The 105th session begins Sept. 25, 1912, and ends June 4, 1913.

CORNELL UNIVERSITY MEDICAL COLLEGE, First Avenue and Twenty-Eighth Street, New York City, and Ithaca.—Organized in 1898. The first class was graduated in 1899. The work of the first year may be taken either in Ithaca or New York. The faculty is composed of 51 professors and 102 assistants, lecturers, instructors, etc., a total of 153. All candidates for admission must be graduates of approved colleges or scientific schools and in addition must

have such knowledge of physics, inorganic chemistry and biology as may be obtained in college by a year's course in these subjects when accompanied by laboratory work. Fees: First year, \$190; second and third, \$185 each, and \$200 for the fourth year. The Dean is Dr. William M. Polk. Total registration for 1911-12 was 85; graduates, 11. The fifteenth session begins Oct. 2, 1912, and ends June 12, 1913.

ECLECTIC MEDICAL COLLEGE OF THE CITY OF NEW YORK, 239 East Fourteenth Street.—Organized in 1865. The first class graduated in 1867. The faculty consists of 21 professors and 32 lecturers, assistants, etc., a total of 53. The course covers four years of eight months each. The Dean is Dr. Samuel A. Hardy. Total registration for 1911-12 was 45; graduates, 11. The next session begins Sept. 11, 1912, and ends May 14, 1913.

FORDHAM UNIVERSITY SCHOOL OF MEDICINE, Third and Pelham Avenues.—Organized in 1905. First class graduated in 1909. The faculty consists of 46 professors and 46 lecturers and assistants, a total of 92. The course of instruction covers four years of eight and a half months each. Fees, \$200 each year. A year's work in a recognized college of liberal arts is required for admission. The Dean is Dr. James J. Walsh. The total registration for 1911-12 was 118; graduates, 24. The eighth session begins Sept. 27, 1912, and ends June 12, 1913.

LONG ISLAND COLLEGE HOSPITAL, Henry Street, near Atlantic Avenue, Brooklyn.—Organized in 1858. The first class graduated in 1860. It has a faculty of 9 professors and 86 assistants, instructors, etc., a total of 95. The course covers four years of eight months each. Fees: First year, \$205; second year, \$200; third, \$180, and \$200 for the fourth year. The Secretary is Dr. Joseph H. Raymon. Total registration, 1911-12 was 412; graduates, 72. The fifty-fifth session begins Sept. 28, 1911, and ends June 3, 1912.

NEW YORK HOMEOPATHIC MEDICAL COLLEGE AND FLOWER HOSPITAL, Eastern Boulevard, between Sixty-Third and Sixty-Fourth Streets.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College for the State of New York. The present title was assumed in 1869. The first class graduated in 1861. The faculty consists of 43 professors and 42 assistants, lecturers, etc., a total of 85. The Dean is Dr. Royal S. Copeland. Total registration for 1911-12 was 170; graduates, 27. The fifty-third session begins Oct. 2, 1912, and ends May 28, 1913.

NEW YORK MEDICAL COLLEGE AND HOSPITAL FOR WOMEN, 17-19 West One Hundred and First Street.—Organized in 1863. The first class graduated in 1864. The faculty consists of 30 professors and 20 lecturers and assistants, a total of 50. The course covers four years of thirty weeks each. The fees for each of the four years, respectively, are \$155, \$150, \$135 and \$155. The Dean is Dr. Helen Cooley Palmer. The total registration for 1911-12 was 31; graduates, 2. Matriculants are not listed in the annual announcement. The fiftieth session begins Sept. 30, 1912, and ends May 24, 1913.

UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE, First Avenue and Twenty-Sixth Street.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. The faculty is composed of 39 professors and 140 instructors, etc., in all 179. The course covers four years of eight months each. The fees are \$200 per year. The Dean is Dr. Egbert Le Fevre. Total registration for 1911-12 was 476; graduates, 80. The next session begins Oct. 1, 1912, and ends June 4, 1913.

Syracuse

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE, 307-311 Orange Street.—Organized in 1872, when the Geneva Medical College was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875. The first class graduated in 1873 and a class graduated each subsequent year. In 1884 the amalgamation with the university was made complete. Two years of a recognized college course are required for admission. The course covers four years of thirty-two weeks each. The total fees for each of the four years are respectively, \$191, \$191, \$151 and \$166. The faculty is composed of 23 professors and 42 associate and assistant professors, lecturers and instructors. The Dean is Dr. John L. Heffron. The total enrolment for 1911-12 was 91; graduates, 33. The forty-first session begins Oct. 1, 1912, and ends June 11, 1913.

NORTH CAROLINA

North Carolina, population 2,206,287, has four medical schools, two of which give only the first two years of the medical course. The Medical Department of the University of North Carolina is located at Chapel Hill, population 1,200. The Leonard School of Medicine is at Raleigh, population 19,218. The North Carolina College is at Charlotte, population 34,014. Wake Forest School of Medicine is at Wake Forest, population 823.

Chapel Hill

UNIVERSITY OF NORTH CAROLINA MEDICAL DEPARTMENT.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. The faculty is composed of 13 professors and 14 lecturers, assistants, etc., a total of 27. The total fees for the two years, respectively, are \$115 and \$116. The Dean is Dr. I. H. Manning. The total registration for 1911-12 was 54. The twenty-seventh session begins Sept. 9, 1912, and ends June 3, 1913.

Charlotte

NORTH CAROLINA MEDICAL COLLEGE, Church and Sixth Streets.—Organized in 1887 at Davidson as the Davidson School of Medicine. It was a preparatory school only, not granting any degrees until 1903, when it was chartered under its present name. The first class was graduated in 1893. Removed to Charlotte in 1907. The faculty numbers 45. The course covers four years of about eight

months each. The fees for the four years are, respectively, \$107, \$102, \$100 and \$130. The Dean is Dr. Walter O. Nisbet. The total registration for 1911-12 was 100; graduates, 24. The next session begins Sept. 11, 1912, and ends May 5, 1913.

Raleigh

LEONARD MEDICAL SCHOOL.—Colored. This department of Shaw University was established in 1882. Classes were graduated in 1886, 1888 and in all subsequent years. It has a faculty of 14. The course covers four years of thirty weeks each. The total fees for each year are \$57; graduation fee, \$10. The Dean is Dr. William Moncre. Total registration for 1911-12, was 121; graduates, 30. The thirty-first session begins Oct. 2, 1912, and ends May 15, 1913.

Wake Forest

WAKE FOREST COLLEGE SCHOOL OF MEDICINE.—This school was organized in 1902. The faculty, including the professors of chemistry, physics, and biology, numbers 9 exclusive of laboratory assistants. Only the first two years of the medical course are offered after the completion of freshmen and sophomore college work, and upon this combined course the B.S. degree is conferred. Each annual course extends over nine months. The fees for each year aggregate \$102.50. The President is William Louis Poteat. The total registration for 1911-12 was 39. The eleventh session begins Sept. 3, 1912, and ends May 23, 1913.

NORTH DAKOTA

North Dakota, population 577,056, has one medical college, the College of Medicine of the State University of North Dakota, which is situated at University, near Grand Forks, a city of 12,478 people. It gives only the first two years of the medical course.

University

UNIVERSITY OF NORTH DAKOTA COLLEGE OF MEDICINE.—Organized in 1905. The faculty is composed of 5 professors and 5 instructors, a total of 10. The course consists of two years' academic work and two years of medical college subjects, occupying nine months each year. The total fees for each of the medical years are \$50. The Dean is Dr. Harley E. French. The total registration for 1911-12 was 13. The eighth session begins Sept. 24, 1912, and ends June 13, 1913.

OHIO

Ohio, population 4,767,121, has six medical colleges. Two of these, the Ohio-Miami Medical College of the University of Cincinnati and the Eclectic Medical College, are located in Cincinnati, a city of 364,463 inhabitants. Cleveland, population 560,663, contains two medical schools: Western Reserve Medical College and the Cleveland-Pulte Medical College. Columbus, population 181,548, contains one medical college, the Starling-Ohio Medical College. Toledo, with 168,497 people, has one medical school, the Toledo Medical College.

Cincinnati

THE OHIO-MIAMI MEDICAL COLLEGE OF THE UNIVERSITY OF CINCINNATI, Clifton Avenue, west of Vine Street.—Organized in 1909 by the union of the Ohio Medical College (founded in 1819) with the Miami Medical College (founded in 1852). The Ohio Medical College became the Medical Department of the University of Cincinnati, April 26, 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged into the University, when the present title was taken. The faculty consists of 45 professors, 66 associates, assistants, etc., a total of 111. The course covers four years of eight months each. The fees are a tuition fee of \$125 a year; a matriculation fee of \$5, payable but once, and a graduation fee of \$25. The Dean is Dr. Paul G. Woolley. The total registration for 1911-12 was 113; graduates, 56. The next session begins Oct. 1, 1912, and ends June 14, 1913.

ECLECTIC MEDICAL COLLEGE, 630 West Sixth Street.—Organized in 1832 at Worthington as the Worthington Medical College. Removed to Cincinnati in 1843. In 1845 it was chartered as the Eclectic Medical Institute. In 1857 the American Medical College, organized in 1839, was merged into it, and in 1859 the Eclectic College of Medicine and Surgery, organized in 1856, merged into it. In 1910 it assumed its present title. Classes were graduated in 1833 and in all subsequent years except 1839 to 1843, inclusive. It has a faculty of 21 professors and 10 lecturers and assistants, a total of 31. The course covers four years of thirty weeks each. The fees are \$100 for each year. The Dean is Dr. Rolla L. Thomas. Total registration for 1911-12 was 89; graduates, 19. The next session begins Sept. 16, 1912, and ends May 6, 1913.

Cleveland

CLEVELAND-PULTE MEDICAL COLLEGE, Prospect Avenue and Huron Road.—Homeopathic.—Organized in 1849 as the Western College of Homeopathic Medicine. The first class graduated in 1853. In 1857 it became the Western Homeopathic College and in 1870 it became the Homeopathic Hospital College when the Homeopathic Medical College for Women, organized in 1868, merged into it. In 1894 it became the Cleveland University of Medicine and Surgery. In 1898 it merged with the Cleveland Medical College, organized in 1890, and assumed the title of Cleveland Homeopathic Medical College. In 1910 Pulte Medical College of Cincinnati merged into it and the present title was assumed. The faculty numbers 53. The fees are \$125 each year. The Dean is Dr. George H. Quay. Total registration for 1911-12 was 79; graduates, 14. The next session begins Oct. 1, 1912, and ends June 12, 1913.

WESTERN RESERVE UNIVERSITY MEDICAL DEPARTMENT, St. Clair Avenue and East Ninth Street.—Organized in 1843 as the Cleveland Medical College. The first class graduated in 1845. It assumed the present title in 1881. In 1910 it absorbed the Cleveland College of Physicians and Surgeons. Under the terms of the merger the

Ohio Wesleyan University will grant degrees to students enrolled in the College of Physicians and Surgeons prior to the merger. The faculty includes 40 professors and 34 lecturers, assistants, etc., a total of 74. The curriculum embraces four years of eight and one-half months each. Three years of college work are required for admission to the first year of medical course. The total fees for the first year are \$142 and \$135 each for the other three years. Beginning Oct. 1, 1913, the tuition fee for all students will be \$150. The Secretary is Dr. F. C. Waite. The total registration for 1911-12 was 176, including 41 students of the College of Physicians and Surgeons; there were 50 graduates in 1912, including 15 from the latter school. The seventieth session begins Oct. 1, 1912, and ends June 12, 1913.

Columbus

STARLING-OHIO MEDICAL COLLEGE, Buttles Avenue and Park Street.—Organized in 1907 by the union of Starling Medical College (organized 1834) with the Ohio Medical University (organized 1890). The faculty consists of 27 professors and 37 lecturers, demonstrators, etc., a total of 64. The course covers four years of eight months each. Matriculation, \$5; tuition, for first year students and all entering hereafter \$150, for each of the three advance classes \$135. The Dean is Dr. W. J. Means. The total registration for 1911-12 was 256; graduates, 54. The next session begins Sept. 25, 1912, and ends May 28, 1913.

Toledo

TOLEDO MEDICAL COLLEGE, Cherry and Page Streets.—Organized in 1883. The first class graduated in 1883. The faculty numbers 49. The curriculum embraces four years of eight months each. The fees for each of the four years are, respectively, \$137, \$132, \$125 and \$125. The total registration for 1911-12 was 39; graduates, 9. The next session begins Oct. 1, 1912, and ends May 24, 1913.

OKLAHOMA

Oklahoma, population 1,657,155, has one medical college, the School of Medicine of the State University of Oklahoma. The work of the first and second years is given in the academic laboratories at Norman, a city of 3,040 inhabitants. The work of the third and fourth years is given in Oklahoma City, which has a population of 64,205 and which is eighteen miles north of Norman.

Norman and Oklahoma City

STATE UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE.—Organized in 1900. Gave only the first two years of the medical course until 1910, when a clinical department was established at Oklahoma City. It has a faculty of 12 professors and 31 instructors, a total of 43. The course is four years of nine months each. An optional course of six years is offered for the degrees of B.S., and M.D. The total fees for the four years are, respectively, \$55, \$28, \$100 and \$105. The Dean is Dr. Robert F. Williams, 317 East Fourteenth Street, Oklahoma City. The total registration for 1911-12 was 51; graduates, 10. The thirteenth session begins Sept. 26, 1912, and ends June 12, 1913.

OREGON

Oregon, population 672,765, has two medical colleges: The Medical Department of Willamette University, located at Salem, a city of 14,094 people, and the University of Oregon Medical Department, in Portland, a city of 207,214 population.

Portland

UNIVERSITY OF OREGON MEDICAL DEPARTMENT, Lovejoy and Twenty-Third Streets.—Organized in 1887. The first class graduated in 1888. It has a faculty of 16 professors and 30 lecturers, assistants, etc., a total of 46. The course is four years of eight months each. Fees: First year, \$142.50; second, \$137.50; third, \$107.50, and for the fourth, \$57.50. The Dean is Dr. K. A. J. Mackenzie. The total registration for 1911-12 was 67; graduates, 17. The twenty-sixth session begins Oct. 1, 1912, and ends June 1, 1913.

Salem

MEDICAL DEPARTMENT WILLAMETTE UNIVERSITY.—Organized in 1865 at Salem. Classes were graduated in 1867 and in all subsequent years except 1896. It moved to Portland in 1878, but returned to Salem in 1895. The faculty numbers 18. The course is four years of eight months each. The fees for the four years, respectively, are \$122.50, \$110, \$87.50 and \$57.50. The Dean is Dr. W. H. Byrd. The total registration for 1911-12 was 60; graduates, 12. The next session begins Oct. 1, 1912, and ends June 1, 1913.

PENNSYLVANIA

Pennsylvania, population 7,665,111, has seven medical colleges. Of these Philadelphia, having a population of 1,549,008, contains six, as follows: University of Pennsylvania Department of Medicine, Jefferson Medical College, Hahnemann Medical College, Woman's Medical College of Pennsylvania, Medico-Chirurgical College of Philadelphia and Temple University Department of Medicine. The other school, the Medical Department of the University of Pittsburgh, is situated in Pittsburgh, a city of 533,905.

Philadelphia

UNIVERSITY OF PENNSYLVANIA DEPARTMENT OF MEDICINE, Thirty-sixth Street and Hamilton Walk.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except

1772-79, inclusive. The original title was the Department of Medicine, College of Philadelphia, which was changed to the present title in 1791. It granted the first medical diploma issued in America. The faculty is made up of 30 professors, 16 associate, adjunct and assistant professors and 120 demonstrators, lecturers, associates, instructors, etc., a total of 166. The requirements for admission are the equivalent of work prescribed for the first two years in recognized colleges, which work must include a knowledge of physics, chemistry and general biology or zoology with laboratory work as specified by the College Entrance Examination Board and, in addition, two foreign languages, one of which must be French or German. The course embraces study of four years of 34 weeks each. The total fees for each of the four years are, respectively, \$218, \$213, \$210 and \$211.50. The Dean is Dr. William Pepper. Total registration for 1911-12 was 367; graduates, 124. The next session begins Sept. 27, 1912, and ends June 18, 1913.

JEFFERSON MEDICAL COLLEGE, Tenth and Walnut Streets.—Organized in 1825 as the Medical Department of Jefferson College, Cammotsburg. The first class graduated in 1826. The present title was assumed in 1838. It has a faculty of 32 professors and 102 lecturers, demonstrators, etc., a total of 134. The course of study covers graded work of four years of eight and a half months each. An optional fifth year is offered. The tuition is \$180 a year, with a matriculation fee of \$5, paid but once. The Subdean is Dr. Ross V. Patterson. The total registration for 1911-12 was 616; graduates, 148. The eighty-eight session begins Sept. 23, 1912, and ends June 7, 1913.

MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA, Cherry Street, between Seventeenth and Eighteenth Streets.—Organized in 1891. The first class graduated in 1892. The faculty is composed of 36 professors and 66 lecturers, assistants, etc., a total of 102. The work embraces four years of eight months each. The fees for each of the four years are, respectively, \$162.50, \$159, \$155.50 and \$153. The Dean is Dr. Seneca Egbert. The total registration for 1911-12 was 341; graduates, 77. The thirty-second session begins Sept. 23, 1912, and ends June 6, 1913.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA, Twenty-first and N. College Avenue.—Organized in 1850. Classes were graduated in 1851 and in all subsequent years except 1861 and 1862. It has a faculty of 10 professors and 42 assistants, lecturers, etc., in all 52. The curriculum covers four years of eight months each. Fees for each of the four years are, respectively, \$161, \$156, \$151 and \$153. The Dean is Dr. Clara Marshall. The total registration for 1911-12 was 112; graduates, 30. The sixty-third session begins Sept. 18, 1912, and ends June 4, 1913.

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL, 226 North Broad Street.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the present title. The first class graduated in 1849. It has a faculty of 31 professors and 57 lecturers, instructors, etc., in all 88. The work covers four years of eight and a half months each. Fees: For each year, \$150; matriculation, \$5; laboratory fee, \$10. The Dean is Dr. William B. Van Lennep. The total registration for the college year 1911-12 was 116; graduates, 35. The sixty-fifth session begins Sept. 23, 1912, and ends June 5, 1913.

THE TEMPLE UNIVERSITY DEPARTMENT OF MEDICINE, Eighteenth and Buttonwood Streets.—Organized in 1901. The first class graduated in 1904. The faculty numbers 84. It gives a four-year day course. The fees are \$150 per year. The Dean is Dr. Frank C. Hammond. The total registration for 1911-12 was 81; graduates, 25. The twelfth session begins Sept. 16, 1912, and ends June 5, 1913.

Pittsburgh

UNIVERSITY OF PITTSBURGH MEDICAL DEPARTMENT, Grant Boulevard.—Organized in 1886 as the Western Pennsylvania Medical College. Became the Medical Department of the University of Pittsburgh in 1908. Removed to the University campus in 1910. The first class graduated in 1887. The faculty is composed of 25 professors and 78 associates, assistants, etc., 103 in all. Entrance requirements are a four year high school course, or its equivalent, plus one year of recognized college work, which must have included chemistry, physics and biology. The course of study embraces four years of eight and a half months each. The total fees per year are \$220 or \$210 if paid in advance. The Dean is Dr. Thomas S. Arbuthnot. The total registration for 1911-12 was 174; graduates, 67. The twenty-seventh session begins Sept. 30, 1912, and ends June 25, 1913.

SOUTH CAROLINA

South Carolina, population 1,515,400, has one medical college, situated in Charleston, a city of 58,833 people.

Charleston

THE MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA, Queen and Franklin Streets.—Founded in 1823 as the Medical College of South Carolina. In 1832 it was chartered with the present title. Classes were graduated in 1825 and in all subsequent years except 1861 to 1865, inclusive. It has a faculty of 11 professors and 31 lecturers, instructors, etc., a total of 42. The course covers four years of eight months each. The total fees each year are \$100. The Dean is Dr. Robert Wilson. Total enrollment for 1911-12 was 164; graduates, 65. The ninetieth session begins Oct. 1, 1912, and ends June 2, 1913.

SOUTH DAKOTA

South Dakota, population 583,888, has one medical college, the University of South Dakota College of Medicine, located at Vermilion, a city of 2,147 people.

Vermilion

UNIVERSITY OF SOUTH DAKOTA COLLEGE OF MEDICINE.—Organized in 1907. Offers only the first two years of the medical course. Two years work in a college of liberal arts is required for admission. The faculty numbers 9. The Dean is Christian P. Lommen, B.S. The total registration for 1911-12 was 9. The sixth session begins Sept. 17, 1912, and ends June 12, 1913.

TENNESSEE

Tennessee, population 2,184,789, has six medical colleges. Of these Vanderbilt University Medical Department and Meharry Medical College are situated in Nashville, a city with a population of 106,476. Knoxville, population 37,758, contains one college, the Tennessee Medical College. Memphis Hospital Medical College, the Medical Department of the University of Tennessee and the University of West Tennessee are located in Memphis, population 136,363.

Knoxville

MEDICAL DEPARTMENT OF LINCOLN MEMORIAL UNIVERSITY, Cleveland Street and Dameron Avenue.—Organized in 1889 as the Tennessee Medical College. Has been affiliated with the Lincoln Memorial University since 1906. Assumed present title in 1909. The first class graduated in 1890. It has a faculty of 23 professors and 13 assistants, a total of 36. The curriculum covers four years of seven months each. Fees: Tuition, each year, \$100; matriculation fee, \$5; graduation fee, \$25. The total registration for 1911-12 was 97; graduates, 25. The twenty-fourth session begins Oct. 1, 1912, and ends May 11, 1913.

Memphis

UNIVERSITY OF TENNESSEE MEDICAL DEPARTMENT, 718 Union Avenue.—Organized 1876 at Nashville as Nashville Medical College. Became Medical Department University of Tennessee 1879. First class graduated 1877 and a class graduated each subsequent year. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. Union dissolved in 1911, the University of Nashville Medical Department became extinct and this college removed to Memphis, where it united with the College of Physicians and Surgeons. Total registration in the combined schools in 1911-12 was 155; graduates, 48. The next session begins Sept. 25, 1912, and ends May 15, 1913.

MEMPHIS HOSPITAL MEDICAL COLLEGE, Marshall Avenue and Myrtle Street.—Organized in 1880. The first class graduated in 1881. It has a faculty of 11 professors and 35 lecturers, instructors, etc., a total of 46. The course covers four years of thirty weeks each. The total fees for each of the first three years are \$125, for the fourth, \$150. The Dean is Dr. W. B. Rogers. Total registration for 1911-12 was 319; graduates, 104. The thirty-third annual session begins Oct. 1, 1912, and closes May 16, 1913.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF WEST TENNESSEE, Colored, 1190 South Phillips Place.—Organized in 1900. The first class graduated in 1904 and a class graduated each subsequent year. It has a faculty of 18. The course is four years of thirty weeks each. The fees are \$50 per year; graduation \$10 extra. The Dean is Dr. M. V. Lynk. Registration for 1911-12 was 37; graduates, 9. The thirteenth session begins Sept. 16, 1912, and ends May 1, 1913.

Nashville

VANDERBILT UNIVERSITY MEDICAL DEPARTMENT.—This school was founded in 1874. The first class graduated in 1875. The faculty consists of 25 professors and 40 lecturers, a total of 65. The course covers four years of eight months each. The total fees for each of the first three years are \$125, and for the fourth year, \$150. The Secretary is Dr. L. E. Burch. The total registration for 1911-12 was 392; graduates, 66. The thirty-ninth session begins Sept. 19, 1912, and ends May 20, 1913.

MEHARRY MEDICAL COLLEGE, Colored, Maple and Chestnut Streets.—This school was organized in 1876 and is the Medical Department of Walden University. The faculty is made up of 12 professors and 14 instructors, demonstrators, etc., 26 in all. The work embraces four years of thirty weeks each. The total fees for each of the first three years are \$60 and for the fourth year, \$75. The Dean is Dr. G. W. Hubbard. Total registration for 1911-12 was 335; graduates, 70. The thirty-seventh session begins Sept. 11, 1912, and ends April 21, 1913.

TEXAS

Texas, population 3,096,542, has four medical colleges. The University of Texas Department of Medicine is located at Galveston, a city of 36,981 inhabitants. The Fort Worth School of Medicine is at Fort Worth, population 73,312. The Baylor University College of Medicine and the Southern Methodist University Medical College are situated in Dallas, population 92,104.

Dallas

BAYLOR UNIVERSITY COLLEGE OF MEDICINE, 435-37 South Ervay Street.—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University at Waco. It acquired the charter of Dallas Medical College in 1904. The first class graduated in 1901. The faculty numbers 34. The course is four years of seven months each. The fees are \$100 each year; matriculation fee of \$5, paid but once; graduation fee, \$25. The Dean is Dr. E. H. Cary. Total registration for 1911-12 was 68; graduates, 20. The thirteenth session begins Oct. 1, 1912, and ends June 1, 1913.

SOUTHERN METHODIST UNIVERSITY MEDICAL COLLEGE.—Organized in 1903 as the Southwestern University Medical College. Name changed as above in 1912. The first class graduated in 1904. It has a faculty of 20 professors and 10 instructors, assistants, etc., a total of 30. The course of instruction covers four years of eight months each. The fees for the four years are, respectively, \$110, \$105, \$100 and \$125. The Dean is Dr. John O. McReynolds. Total registration for 1911-12 was 62; graduates, 14. The tenth session begins Oct. 1, 1912, and ends May 30, 1913.

Fort Worth

FORT WORTH SCHOOL OF MEDICINE, Calhoun and Fifth Streets.—Organized in 1894 as the Medical Department of Fort Worth University. In 1912 the latter institution changed its name to Texas Christian University. The first class graduated in 1895. Present title in 1911. It has a faculty of 14 professors and 35 lecturers, assistants, etc., in all 52. The course covers four years of seven and a half months each. The total fees for each of the four years, respectively, are \$114, \$113, \$108 and \$125. The Dean is Dr. W. R. Thompson. The total registration for 1911-12 was 71; graduates, 17. The nineteenth session begins Sept. 30, 1912, and ends May 15, 1913.

Galveston

UNIVERSITY OF TEXAS DEPARTMENT OF MEDICINE, on the Strand, between Ninth and Tenth Streets.—Organized in 1891. The first class graduated in 1892. It has a faculty of 13 professors and 15 lecturers, a total of 28. The curriculum embraces four years of eight months each. The entrance requirement is one year of collegiate work in addition to a four-year high school education. The total fees for the four years, respectively, are \$61, \$31, \$21 and \$6. The Dean is Dr. William S. Carter. Total registration for 1911-12 was 162; graduates, 46. The twenty-second session begins Oct. 1, 1912, and ends May 31, 1913.

UTAH

Utah, population 373,351, has one medical college, the Medical Department of the University of Utah, situated at Salt Lake City, which has 92,777 people.

Salt Lake City

UNIVERSITY OF UTAH SCHOOL OF MEDICINE.—Organized in 1906. Gives only first two years of the medical course. Each course covers thirty-six weeks. Two years of collegiate work are required for admission. The medical faculty consists of 4 professors and 7 lecturers and assistants, a total of 11. The fees are \$55 each year. The Acting-dean is Dr. Charles T. Vorhies. Total registration for 1911-12 was 12. The sixth session begins Sept. 16, 1912, and ends May 30, 1913.

VERMONT

Vermont, population 355,956, has one medical school, located at Burlington, a town of 20,468 people.

Burlington

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. The faculty numbers 48. The course of study covers four years of nine months each. The total fees for each of the first three years are \$135, and \$160 for the fourth year. The Registrar is Dr. M. W. Andrews. The total registration for 1911-12 was 176; graduates, 47. The next session begins Sept. 25, 1912, and ends June 25, 1913.

VIRGINIA

Virginia, population 2,061,612, has three medical colleges, one, the Medical Department of the University of Virginia, situated in Charlottesville, population 6,765, and two, the Medical College of Virginia and the University College of Medicine, in Richmond, population 127,628.

Charlottesville

UNIVERSITY OF VIRGINIA DEPARTMENT OF MEDICINE.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. It has a faculty of 14 professors and 18 lecturers, instructors, assistants, etc., a total of 32. The requirements for admission are the completion of a four years' high school course, or its equivalent, and a year of college work devoted to chemistry, physics and biology. Total fees each year are \$140. The Dean is Dr. R. H. Whitehead. The total registration for 1911-12 was 82; graduates, 12. The eighty-fourth session begins Sept. 12, 1912, and ends June 14, 1913.

Richmond

MEDICAL COLLEGE OF VIRGINIA, Marshall and College Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. Classes were graduated in 1840 and in all subsequent years. It has a faculty of 20 professors and 47 lecturers, instructors, etc., a total of 67. The requirement for admission is a full four-year high school education. The course embraces four years of eight months each. Fees, \$100 each year; graduation fee, \$30. The Dean is Dr. Christopher Tompkins. The total registration for the college year 1911-12 was 242; graduates, 43. The seventy-fifth session begins Sept. 17, 1912, and ends June 3, 1913.

UNIVERSITY COLLEGE OF MEDICINE, Twelfth and Clay Streets.—Organized in 1893. The first class graduated in 1894. It has a faculty of 68. Curriculum covers four years of eight months each. The total fees are \$100 for each year; graduation fee, \$30. The Dean is Dr. Alfred L. Gray. The total registration for the college year 1911-12 was 160; graduates, 35. The twentieth session begins Sept. 18, 1912, and ends May 29, 1913.

WEST VIRGINIA

West Virginia, population 1,221,119, has one medical college, the School of Medicine of West Virginia University, which offers the first two years of the medical course. It is located at Morgantown, a city of 9,150 population.

Morgantown

WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1902, and gives only the first two years of the medical course. One year of work in an approved college of liberal arts is required for admission. Sessions extend through nine months. The faculty numbers 9. Fees: For residents of the state, \$25 each year; for non-residents, \$50. The Dean is Dr. John N. Simpson. The total enrolment for 1911-12 was 19. The next session begins Sept. 16, 1912, and ends June 15, 1913.

WISCONSIN

Wisconsin, population 2,333,860, has three medical colleges, the Medical Department of the University of Wisconsin, which teaches the first two years of the medical course, and is located at Madison, a city of 25,531 people, and the Milwaukee Medical College and Wisconsin College of Physicians and Surgeons, situated in Milwaukee, a city of 373,857 people.

Madison

UNIVERSITY OF WISCONSIN COLLEGE OF MEDICINE.—Organized in 1907. Gives only the first two years of the medical course. For matriculation at least two years in a college of arts and science or an equivalent training are required, including two years of Latin, a reading knowledge of French and German, and at least a year's work in physics, chemistry and biology. It has a faculty of 10 professors and 7 lecturers, instructors etc., a total of 17. Tuition fees: For residents of the state, \$80 each year; for non-residents, \$130. The Dean is Dr. Charles R. Bardeen. The registration for 1911-12 was 60. The fifth session begins Sept. 30, 1912, and ends June 22, 1913.

Milwaukee

MILWAUKEE MEDICAL COLLEGE. Ninth and Wells Streets.—Organized in 1894. The first class graduated in 1895. It became the Medical Department of Marquette University in 1907. It has a faculty of 36 professors and 34 lecturers, instructors, etc., a total of 70. The course covers four years of eight months each. The total fees are \$135 each for the first three years and \$150 for the fourth year. The Dean is Dr. Warren B. Hill. The total registration for 1911-12 was 242; graduates, 48. The nineteenth session begins Oct. 1, 1912, and ends June 2, 1913.

WISCONSIN COLLEGE OF PHYSICIANS AND SURGEONS. Fourth Street and Reservoir Avenue.—Organized in 1893. The first class graduated in 1894. In 1898 it became the Medical Department of Carroll College. It has a faculty of 20 professors and 36 lecturers, instructors, etc., a total of 56. The curriculum includes four years of eight months each. Total fees each year for the four years, respectively, are \$145, \$140, \$135 and \$150. The Dean is Dr. Thomas C. Phillips. The total registration for 1911-12 was 43; graduates, 12. The twenty-first session begins Sept. 30, 1912, and ends May 30, 1913.

PHILIPPINE ISLANDS

The Philippine Archipelago, having a population of 7,635,436, has one medical college, the University of the Philippines College of Medicine and Surgery. It is located in the City of Manila, which in 1903 had a population of 219,928.

Manila

UNIVERSITY OF THE PHILIPPINES COLLEGE OF MEDICINE AND SURGERY. Manila.—Organized in 1907 as the Philippine Medical School, under the support of the government of the Philippine Islands. Present title in 1910. The faculty numbers 53. In 1914 and thereafter two years of collegiate work leading to the degree of Bachelor of Arts will be required for admission. The course extends over five years of nine months each with an additional one year of intern service. The Dean is Dr. William Everett Musgrave. The total registration for 1911-12 was 83; graduates, 9. The sixth session begins July 1, 1912, and ends April 1, 1913.

CANADA

The Dominion of Canada has eight medical colleges all of which now require a four-year course, including in the first year courses in physics, chemistry and biology. This is practically equivalent to the courses in the colleges of this country which require one year of college work for admission, including the science courses named. None of the Canadian colleges has fixed a minimum requirement of two years of collegiate work or its equivalent preliminary to or as a part of the medical course.

Manitoba

MANITOBA MEDICAL COLLEGE. Winnipeg.—It is the Medical Faculty of the University of Manitoba. Organized in 1883, first class graduated in 1886 and a class graduated each subsequent year. The faculty numbers 50. The fees are \$155 for the first year and \$150 for each subsequent year. The entire course covers five years, the first year including courses in physics, chemistry and biology. The Dean is Dr. H. H. Chown, 263 Broadway, Winnipeg. Total registration for 1911-12 was 142; graduates, 19. The next session begins Oct. 1, 1912, and ends May 1, 1913.

Nova Scotia

DALHOUSIE MEDICAL COLLEGE. MEDICAL FACULTY OF DALHOUSIE UNIVERSITY, Halifax.—Organized 1867 as Halifax School of Medicine, united same year with Dalhousie University, separately incor-

porated 1876, affiliated with Dalhousie University 1885, first class graduated 1872 and a class graduated each subsequent year except 1873 and 1886. The Medical Faculty of Dalhousie University is the Examining Board for Nova Scotia and teaches only the pre-medical branches; Halifax Medical College taught the medical courses, but the Medical Faculty conducted the examinations and granted the degrees. Entire control secured by Dalhousie University in 1911. Its faculty numbers 29. Fees for each of the first two years are \$75; for the third and fourth years, \$100 and for the fifth year, \$90. The course covers five years, the first year including courses in physics, chemistry and biology. The Dean is Dr. A. W. H. Lindsay. The total registration for 1911-12 was 66; graduates, 10. The next session begins Aug. 29, 1912, and ends April 24, 1913.

Ontario

UNIVERSITY OF TORONTO FACULTY OF MEDICINE, Toronto.—Organized 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1903 it absorbed Trinity Medical College. The course of study covers five years of eight months each, the first year including courses in physics, chemistry and biology. It has a faculty of 46 professors and 107 lecturers, associates, etc., a total of 153. The fees are \$150 each year. The Secretary is Dr. A. Primrose. The total registration for 1911-12 was 468; graduates, 53. The next session begins Oct. 1, 1912, and ends May 31, 1913.

MEDICAL FACULTY OF QUEEN'S UNIVERSITY, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty was originally a department of the University, but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston. In 1892 the school again became an integral part of Queen's University. The faculty includes 25 professors and 14 assistants, instructors, etc., a total of 39. The fees amount to \$105 each year; fee for M.D., C.M. degrees, \$30. The course covers five years of seven months each, the first year including courses in physics, chemistry and biology. The total registration in 1911-12 was 249; graduates, 53. The Dean is Dr. J. C. Connell. The next session begins Sept. 12, 1912, and ends April 30, 1913.

MEDICAL DEPARTMENT OF WESTERN UNIVERSITY, London.—Organized in 1881, first class graduated in 1883 and a class graduated each year subsequently. The faculty numbers 18. The course is five years of seven and a half months each, the first year including courses in physics, chemistry and biology. The tuition is \$100 each year. The Registrar is Dr. W. E. Waugh. Total registration for 1911-12 was 125; graduates, 38. The next session begins Sept. 16, 1912, and ends May 1, 1913.

Quebec

MEDICAL FACULTY OF MCGILL UNIVERSITY.—Founded 1824 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-39 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop College. The course extends over five years of eight months each. The faculty numbers 104. The total fees for each of the five years, respectively, are \$160, \$160, \$150, \$154 and \$184. The total registration for 1910-11 was 308; graduates, 31. The Registrar is Dr. John W. Seane. The next session begins Sept. 30, 1912, and ends June 6, 1913.

LAVAL UNIVERSITY MEDICAL DEPARTMENT, Quebec.—The Quebec School of Medicine, organized in 1848, became in 1852 Medical Department of Laval University; first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 24. The fees are \$60 each year. The course extends over five years, the first year including courses in physics, chemistry and biology. The Dean is Dr. Michael Joseph Abern, Quebec. Total registration for 1911-12 was 72; graduates, 10. The next session begins Sept. 10, 1912, and ends June 1, 1913.

MONTREAL SCHOOL OF MEDICINE AND SURGERY, Montreal.—Organized in 1878 as the Medical Department of Laval University. Present name assumed in 1911. First class graduated in 1879. The faculty numbers 60. The course extends over five years. The Dean is Dr. E. P. Lachapelle. The total registration for 1911-12 was 195; graduates, 51. The next session begins Oct. 1, 1912, and ends June 20, 1913.

FOREIGN MEDICAL COLLEGES

This list has been prepared from data collected by the Council on Medical Education.

ARGENTINE REPUBLIC

Buenos Ayres.—Universidad Nacional de Buenos Aires.
Cordoba.—Universidad Nacional.

AUSTRALIA

Adelaide.—University of Adelaide.
Brisbane.—University of Brisbane.
Melbourne.—University of Melbourne.
Perth.—University of Perth.
Sydney.—University of Sydney.

AUSTRIA

Graz, Styria.—K. K. Karl Franzens Universität.
Innsbruck, Tyrol.—K. K. Leopold Franzens Universität.
Krakow, Galicia.—C. K. Uniwersytet Jagiellonski w Krakowie.
Lemberg, Galicia.—C. K. Uniwersytet Imienia Cesarza Franciszka I.
Prague, Bohemia.—K. K. Deutsche Karl Ferdinands Universität.
Prague, Bohemia.—C. K. Česká Universita Karlo-Ferdinandova.
Vienna, Nether Austria.—K. K. Universität.

BELGIUM

Brussels.—Université Libre de Bruxelles.
Ghent.—Université d'Etat de Gand.
Liege.—Université de Liège.
Louvain.—Université Catholique.

BOLIVIA

La Paz.—Universidad de La Paz.
Sucre.—Universidad de Sucre.

BRAZIL

Bahia.—Faculdade de Medicina, Chirurgia e Pharmacia.
Porto Allegre.—Faculdade Livre de Medicina e Pharmacia.
Rio de Janeiro.—Faculdade de Medicina, Cirurgia e Pharmacia.

CANADA

Halifax, Nova Scotia.—Dalhousie University.
Kingston, Ontario.—Queen's University.
London, Ontario.—Western University.
Montreal, Quebec.—McGill University.
Montreal, Quebec.—Université Laval.
Quebec, Quebec.—Université Laval.
Toronto, Ontario.—University of Toronto.
Winnipeg, Manitoba.—University of Manitoba (Manitoba Medical College).

CHILE

Santiago.—Universidad de Chile.

CHINA

Hongkong.—Hongkong College of Medicine.
Nanking.—East China Union Medical College.
Pekin.—The Union Medical College.
Shanghai.—Woman's Medical School.
Tientsin.—Imperial Medical College.
Tsi-nan-fu.—Union Medical College.
Canton.—University Medical College.
Canton.—South China Medical College.

COLOMBIA

Bogota.—Universidad de Bogota.

CUBA

Havana.—Universidad de la Habana.

DENMARK

Copenhagen.—Kjöbenhavns Universitet.

ECUADOR

Quito.—Universidad Central de Ecuador.

EGYPT

Cairo.—Kasr il Aini (School of Medicine).

ENGLAND

Birmingham.—University of Birmingham.
Bristol.—University of Bristol.
Cambridge.—University of Cambridge.
Durham.—Durham University (Durham College of Medicine).
Leeds.—University of Leeds.
Liverpool.—University of Liverpool.
London.—University of London (including the following Medical Schools: (a) St. Bartholomew's Hospital, (b) Charing Cross Hospital, (c) St. George's Hospital, (d) Guy's Hospital, (e) King's College, (f) London Hospital, (g) St. Mary's Hospital, (h) Middlesex Hospital, (i) St. Thomas's Hospital, (j) University College, (k) Westminster Hospital, and (l) Royal Free Hospital (School of Medicine for Women).
Manchester.—Victoria University (Owen's College, founded in 1851, was merged in Victoria University in 1905).
Oxford.—University of Oxford.
Sheffield.—University of Sheffield.

FRANCE

Faculties of Medicine (to the degree of doctor in medicine, including the five required examinations).
Bordeaux.—Université de Bordeaux.
Lille.—Université de Lille.
Lyons.—Université de Lyon.
Montpellier.—Université de Montpellier.
Nancy.—Université de Nancy.
Paris.—Université de Paris.
Toulouse.—Université de Toulouse.
Preparatory Schools of Medicine.—Graduates of the 16 following schools are allowed to take the first two examinations if they are presided over by some member of a medical faculty:
(a) "Full Exercise," or complete course (covering the work of 16 trimesters).
Algiers (Africa).—Académie d'Alger.
Marseilles.—Université d'Aix-Marseille.
Nantes.—Ecole de Plein Exercice de Médecine et de Pharmacie (part of the University of Rennes).
Rennes.—Université de Rennes.
(b) *Reorganized Schools.*—(Completing the first 12 trimesters.)
Amiens.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Lille).
Angers.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Rennes).
Besancon.—Université de Besancon.
Caen.—Université de Caen.
Clermont.—Université de Clermont.
Dijon.—Université de Dijon.
Grenoble.—Université de Grenoble.
Limoges.—Ecole de Médecine et de Pharmacie (part of the University of Poitiers).
Poitiers.—Université de Poitiers.
Reims.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Paris).
Rouen.—Ecole de Médecine et de Pharmacie (part of the University of Caen).
Tours.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Poitiers).

GERMANY

Berlin, Prussia.—Königliche Friedrich-Wilhelm Universität.
Bonn, Prussia.—Rheinische Friedrich-Wilhelms-Universität.
Breslau, Prussia.—Königliche Universität.
Erlangen, Bavaria.—Königl. Friedrich-Alexanders Universität.
Freiberg, Baden.—Grossherzogliche Badische Albert-Ludwigs-Universität.
Giessen, Hesse.—Grossherzogliche Hessische Ludwigs-Universität.
Göttingen, Prussia.—Königliche Georg-August-Universität.
Greifswald, Prussia.—Königliche Universität.
Halle, Prussia.—Vereinigte Friedrichs-Universität Halle-Wittenberg.
Heidelberg, Baden.—Grossherzogliche Ruprecht-Karls-Universität.
Jena, Thuringia.—Grossherzogliche und Herzogliche Sächsische Gesamt-Universität.
Kiel, Prussia.—Königliche Christian-Albrechts-Universität.
Königsberg, Prussia.—Königliche Albertus-Universität.
Leipzig, Saxony.—Universität.
Marburg, Prussia.—Universität.
Munich, Bavaria.—Königliche Bayr. Ludwig-Maximilians-Universität.
Rostock, Mecklenburg.—Universität.
Strassburg, Alsace-Lorraine.—Kaiser-Wilhelms-Universität.
Tübingen, Württemberg.—Königliche Eberhard-Karls-Universität.
Würzburg, Bavaria.—Königliche Julius-Maximilians Universität.

GREECE

Athens.—National University.

GUATEMALA

Guatemala.—Facultad de Medicina.

HAITI

Port au Prince.—L'Ecole Nationale de Médecine.

HONDURAS

Tegucigalpa.—Facultad de Medicina.

HUNGARY

Budapest.—Budapesti Királyi Magyar Tudomány-Egyetem (Royal Hungarian University).
Klausenburg.—Kolozsvári Magyar Királyi Ferencz-József Tudomány-Egyetem (Royal Hungarian Franz-Joseph University).
Pressburg.—Royal Hungarian University.

ICELAND

Reykjavik.—Loeknaskoli (School of Physicians).

INDIA

Bombay.—University of Bombay (Grant Medical College).
Calcutta.—University of Calcutta (Medical College of Bengal).
Lahore.—Panjab University (Lahore Medical College).
Lucknow.—King George's Medical College.
Madras.—University of Madras (Madras Medical College).
Ceylon (Columbo).—The Ceylon Medical College.
Note.—There are several minor medical colleges in India not accredited by the examining board in England.

IRELAND

Belfast.—Queen's University.
Dublin.—National University of Ireland (including University College, Dublin; University College, Cork; University College, Galway).
Dublin.—University of Dublin (The School of Physic in Ireland, Trinity College; Catholic University Medical School).
Dublin.—Royal College of Surgeons in Ireland Schools of Surgery (including the Carmichael College of Medicine and the Ledwich School of Medicine).

ITALY

Bologna.—Regia Università degli Studi.
Cagliari, Sardinia.—Università degli Studi.
Camerino.—Libera Università degli Studi.
Catania.—Regia Università degli Studi di Catania.
Ferrara.—Libera Università degli Studi di Ferrara.
Florence.—Regia Istituto di Studi Superiori, Pratici e di Perfezionamento.
Genoa.—Regia Università degli Studi.
Messina.—Regia Università degli Studi.
Modena.—Regia Università degli Studi.
Naples.—Regia Università degli Studi.
Padua.—Regia Università degli Studi.
Palermo.—Regia Università degli Studi.
Parma.—Regia Università degli Studi.
Pavia.—Regia Università degli Studi.
Perugia.—Università Libera degli Studi.
Pisa.—Regia Università degli Studi.
Rome.—Regia Università degli Studi.
Sassari.—Regia Università degli Studi.
Siena.—Regia Università degli Studi.
Turin.—Regia Università degli Studi.

JAPAN

Kyoto.—Imperial University (a part of the medical school is located at Fukuoka).
Tamsui, Formosa.—Medical School of Formosa.
Tokyo.—Imperial University (Tokio Medical College became Medical Department in 1877).
Medical schools are located also at Chiba, Sendai, Okayama, Kanazawa and Nagasaki.

MADAGASCAR

Tananarive.—L'Ecole de Médecine.

MALAYA

Singapore.—Malaya Medical School.

MEXICO

Mexico.—Escuela Nacional de Medicina.
Puebla.—Colegio del Estado de Puebla.
Oaxaca.—Instituto de ciencias de Oaxaca.
Jalapa.—Facultad de ciencias medicas de Veracruz.
Campeachy.—Instituto Campechano de Medicina y Cirurgia.
San Luis Potosi.—Escuela de Medicina de San Luis Potosi.
Guadalajara.—Escuela de Medicina y de Farmacia de Jalisco.
Merida.—Escuela de Medicina y de Farmacia de Yucatán.
Morcia.—Escuela de Medicina y de Farmacia de Michoacán.

NETHERLANDS

Amsterdam.—Universiteit van Amsterdam.
Groningen.—Rijks-Universiteit te Groningen.
Leyden.—Rijks-Universiteit.
Utrecht.—Rijks-Universiteit.

NEW ZEALAND

Wellington.—University of New Zealand (affiliated with the University of Cambridge, England).

NORWAY

Christiania.—Kongelige Frederiks Universitet.

PERU

Lima.—Universidad Mayor de San Marcos.

PORTUGAL

Coimbra.—Universidade de Coimbra.
Lisbon.—Escola Medico-Cirurgica.
Oporto.—Escola Medico-Cirurgica.

ROUMANIA

Bukharest.—Universitatea din Bucuresti.
Jassy.—Universitatea din Jasi.

RUSSIA

Helsingfors, Finland.—Kejsersliga Alexanders Universitet.
Jurjev (formerly Dorpat).—Imperatorski Jurjevskij Universitet.
Kazan.—Imperatorski Kasanskij Universitet.
Kharkof.—Imperatorski Charkovskij Universitet.
Kief.—Imperatorski Universitet Sv. Vladimira.
Moscow.—Imperatorski Moskovskij Universitet.
Odessa.—Imperatorski Novorossijski Universitet.
St. Petersburg.—Zenskij Medicinskij Institut (Medical High School for Women).
St. Petersburg.—Shkola Lekarskih Pomostnitz (School for Medical Assistants).
Tomsk, Siberia.—Tomskij Universitet.
Warsaw.—Imperatorski Varsavskij Universitet.

SCOTLAND

Aberdeen.—University of Aberdeen.
Dundee.—University of St. Andrews (University College).
Edinburgh.—University of Edinburgh.
Edinburgh.—School of Medicine of the Royal Colleges (including the Surgeons' Hall School).
Glasgow.—University of Glasgow (including Queen Margaret College).
Glasgow.—Anderson's College Medical School.
Glasgow.—St. Mungo's College and Glasgow Royal Infirmary.
Glasgow.—Western Medical School.

SIAM

Bangkok.—Royal Medical College.

SPAIN

Barcelona.—Universidad de Barcelona.
Cadiz.—Facultad de Medicina.
Granada.—Universidad de Granada.
Madrid.—Universidad de Central de Espana.
Santiago.—Universidad.
Saragossa.—Universidad.
Seville.—Universidad de Sevilla. (To this university also belongs the Medical Faculty at Cadiz).
Valencia.—Universidad.
Valladolid.—Universidad.

SWEDEN

Lund.—Kungl. Karolinska Universitetet.
Stockholm.—Karolinska Institutet (Medico-Chirurgical Institute). (This institute has the same chancellor as the universities at Lund and Upsala, and is guided by a similar constitution.)
Upsala.—Kungl. Universitetet i Upsala.

SWITZERLAND

Basel.—Universität.
Berne.—Kantonale Universität.
Fribourg.—Universität.
Geneva.—Université de Genève.
Lausanne.—Université.
Neuchâtel.—Universität.
Zurich.—Universität.

SYRIA

Beirut.—Syrian Protestant College.
Beirut.—Université Saint Joseph de Beyrouth.

TURKEY

Constantinople.—University of Constantinople. (Another medical department of this university is located at Damascus.)

URUGUAY

Montevideo.—Universidad.

WALES

Cardiff.—University of Wales (Cardiff School of Medicine).

MEDICAL COLLEGES OF THE WORLD

Nation.	Colleges.	Nation.	Colleges.
Argentina	2	India	5
Australia	5	Ireland	4
Austria	7	Italy	20
Belgium	4	Japan	8
Bolivia	2	Madagascar	1
Brazil	3	Malaya	1
Canada	8	Mexico	9
Chile	1	Netherlands	4
China	8	New Zealand	1
Colombia	1	Norway	1
Cuba	1	Peru	1
Denmark	1	Portugal	3
Ecuador	1	Roumania	2
Egypt	1	Russia	11
England	21	Scotland	8
France	7	Siam	1
Germany	20	Spain	9
Greece	1	Sweden	3
Guatemala	1	Switzerland	7
Haiti	1	Syria	2
Honduras	1	Turkey	1
Hungary	3	Uruguay	1
Iceland	1	Wales	1

Total medical colleges in all foreign countries..... 205
Total in the United States alone..... 116

There are also about 20 sectarian schools in the United States, the graduates of which treat diseases, giving this country a total of..... 136

MEDICAL STANDARDS ABROAD COMPARED

The list of foreign medical colleges, on the preceding pages, shows a total of 205 such colleges outside the United States, while this country alone has 136. All European medical schools are medical faculties of universities or are under the direct control of universities, and there are no proprietary or pseudomedical sectarian schools such as are permitted to exist in this country.

The information regarding preliminary education as well as collegiate and medical was obtained from original sources and from foreign publications and has been verified in most instances by the American consuls in the different countries.

The requirements in twenty-five foreign countries are graphically presented in the chart on page 636, where each division of education is shown according to the ages at which students are in attendance. The shaded portions of the bands represent primary and secondary education, the black portions the medical, and the white portions represent the requirements of higher preliminary education, including work in physics, chemistry and biology. The dotted portions, *a*, for Great Britain and Sweden, indicate the average length of time required to graduate in medicine. The chart allows valuable comparisons to be made and, as measured by years, shows more of a uniformity of educational standards than one would expect. It is interesting to note how sharply the line representing the age of 18 separates the secondary from higher education.

The age at the completion of the medical course in each country, as shown in the chart, with one or two exceptions, represents the lowest age at which the student can secure the right to practice medicine, disregarding the rare exceptions when the student graduates at an earlier age. The average age is one or two years higher than is shown in the chart, since the regular course of study between the ages of 6 and 24 is often broken by sickness, failure to receive promotion, or other causes.

In the majority of foreign countries secondary education begins from two to five years earlier than in this country and in some countries has no direct connection with the elementary. In fact, in several European countries, in Great Britain and in France, for example, it appears that the majority of students entering the secondary schools secure their elementary instruction from private tutors or in preparatory courses offered by the secondary schools, rather than in the regular elementary schools.

The United States and Japan are the only countries named in the chart which do not require preliminary work in

physics, chemistry and biology of every medical student. Even the South American countries are ahead of the United States in this respect. In some countries named the work is taken in the first one or two years of the medical course, along with the usual medical studies, while in others, notably in France, Belgium and Sweden, it must be taken in a college of science or philosophy. In still others, as in Austria and in Great Britain, the work may be taken either in a college of liberal arts or in the medical school. In France this work was given as a part of the regular medical course until 1893, when it was transferred to the college of science, because the laboratories and trained instructors in those colleges made it certain that the courses would be thoroughly taught.

Only one year devoted to the preliminary scientific studies is required by all but two of the countries named or else the work extends through about two years along with regular medical subjects. In no instance are more than two years of college work devoted entirely to preliminary study. This seems to indicate that the preliminary requirement by a few medical schools in this country of three and four years of college work has no parallel in other countries.

In six of the countries named, disregarding rare exceptions, the earliest age at which the right to practice medicine can be secured is 23. In three countries the age limit is 25 or beyond. But in the great majority the age limit is 24 and the entire course of elementary, secondary, college and medical education is completed in eighteen years. This agrees with the "ideal standard" adopted at Portland, Ore., in 1905, by the American Medical Association, as well as with the so-called six-year combined course for the degrees of B.S. and M.D., which is being generally adopted in this country.

The well-known diversity of standards of medical education in the United States at the present time is also shown in the chart. Preliminary standards range from a common school education up to the requirement of a college degree. Of the 120 colleges in the United States, 73 require a four-year high school education or less, as shown in Groups 1 to 4. 17 colleges require one year of college work and 30 colleges are now requiring two or more years of work in a college of arts, 44 of these having raised their requirements in the past seven years.

Colleges and States Having Higher Requirements

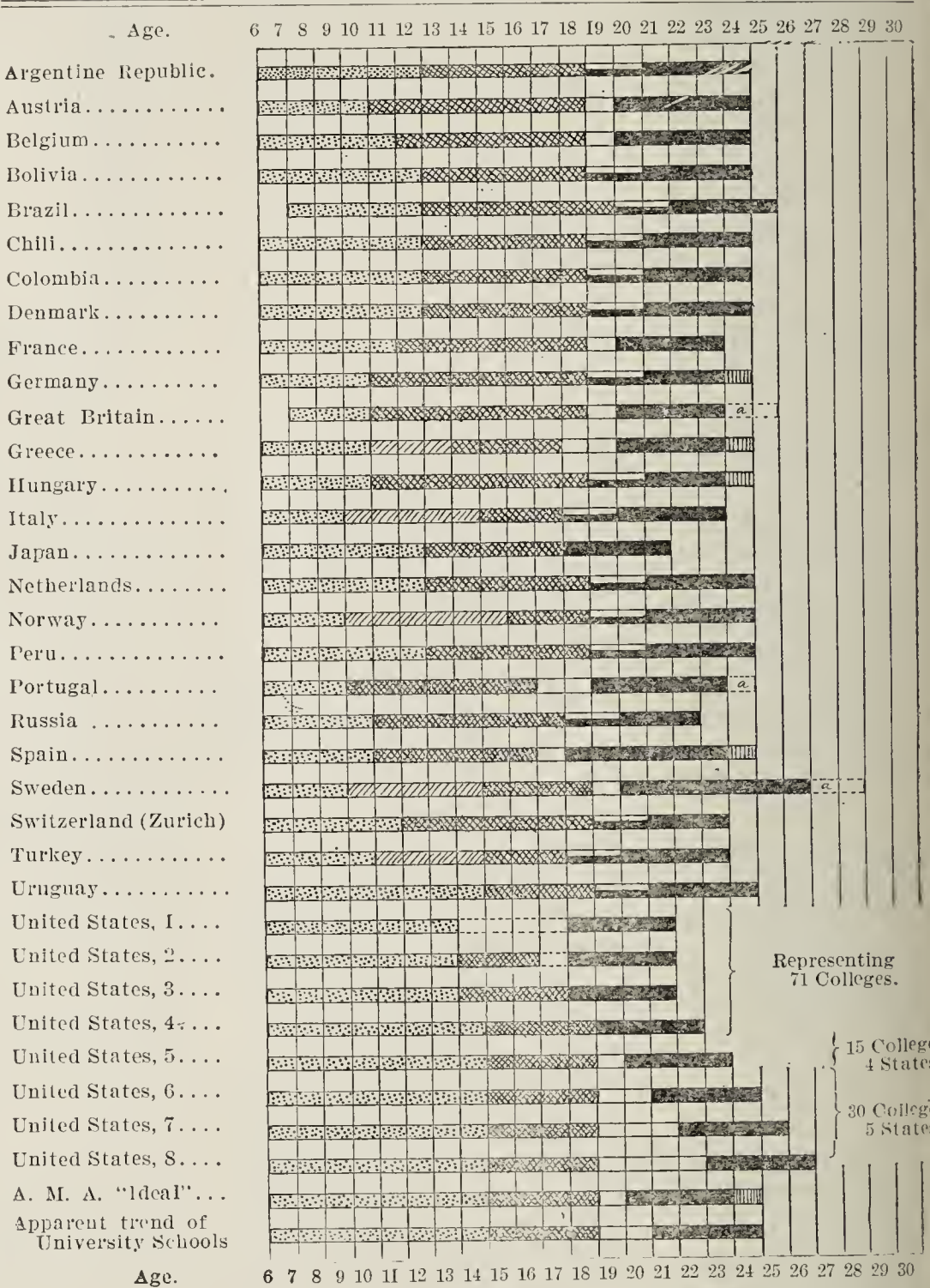
The thirty medical schools which are now requiring as a minimum for entrance two or more years of work in a college of liberal arts in addition to a four-year high-school education are as follows:

College	Began
Johns Hopkins University, Medical Department.....	1893
Harvard Medical School.....	1900
Western Reserve University, Medical Department.....	1901
University of Chicago, Rush Medical College.....	1904
University of California, Medical Department.....	1905
University of Minnesota, College of Medicine and Surgery....	1907
University of North Dakota, College of Medicine*.....	1907
University of Wisconsin, College of Medicine.....	1907
Cornell University Medical College.....	1908
Wake Forest College, School of Medicine*.....	1908
Leland Stanford Junior University, Department of Medicine..	1909
Yale Medical School.....	1909
University of Kansas, School of Medicine.....	1909
University of Michigan, College of Medicine.....	1909
University of Nebraska, College of Medicine.....	1909
University of South Dakota, College of Medicine*.....	1909
University of Colorado, School of Medicine.....	1910
Indiana University School of Medicine†.....	1910
State University of Iowa, College of Medicine†.....	1910
State University of Iowa, College of Homeopathic Medicine...	1910

Drake University, College of Medicine.....	1910
University of Missouri, Department of Medicine*‡.....	1910
Dartmouth Medical School.....	1910
Columbia University College of Physicians and Surgeons....	1910
Syracuse University College of Medicine†.....	1910
University of Pennsylvania, Medical Department†.....	1910
University of Utah, Medical Department*.....	1910
Northwestern University Medical School§.....	1911
Georgetown University School of Medicine.....	1912
Washington University, Medical Department.....	1912

* Offers only two years in medicine.
† One year required for the session of 1909-10.
‡ One year has been required since 1906.
§ One year required since the session of 1908-09.

CHART 1.—PRELIMINARY AND MEDICAL EDUCATION AT HOME AND ABROAD



==Primary. ==Secondary. ==Medical.
==Intermediate. ==Collegiate. ==Hospital Year.
==Natural Sciences with Med. Course.
a Shows average time required to complete the medical course.

The fifteen following colleges require, in addition to a four-year high-school course, one year of work in college physics, chemistry and biology:

College	In Force
Howard University School of Medicine.....	1910
Kansas Medical College.....	1910
Tulane University, Medical Department.....	1910
St. Louis University School of Medicine.....	1910
University of North Carolina School of Medicine*.....	1910
Ohio-Miami Medical College, University of Cincinnati†.....	1910
University of Oregon, Medical Department.....	1910
University of Texas, Medical Department.....	1910
University of Virginia, Department of Medicine.....	1910
Fordham University School of Medicine.....	1911
University of Pittsburgh, Medical Department.....	1911
Medical School of Maine.....	1912

University of Michigan, Homeopathic College..... 1912
University and Bellevue Hospital Medical College..... 1912
University of Vermont, College of Medicine..... 1912

* Offers only two years in medicine.

† Will require two years in 1913 and thereafter.

Higher Preliminary Requirements by State Boards

There are now nine state examining boards which have adopted preliminary requirements in advance of a four-year high-school education. These are as follows:

State Examining Board of	No. of Years Required.	Affects Students Matriculating.	Affects All Applicants.
North Dakota.....	2	1907-08	1911
South Dakota.....	1	1907-08	1911
Iowa.....	2	1907-08	1911
Minnesota.....	2	1908-09	1912
Colorado.....	1	1908-09	1912
Colorado.....	2	1910-11	1914
Connecticut.....	1	1910-11	1914
Kansas.....	1	1910-11	1914
Indiana.....	1	1909-10	1913
Indiana.....	2	1910-11	1914
Utah.....	1	1910-11	1914

Several other states are contemplating similar increases in their requirements in the near future.

STANDARDS OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

These standards were prepared by the Council on Medical Education acting under the direction of the House of Delegates of the American Medical Association.

Standard Now Recommended

The standard now recommended prerequisite to the practice of medicine is as follows:

(A) Preliminary education sufficient to enable the candidate to enter our recognized universities and in addition a course of one or two years devoted to the sciences of physics, chemistry and biology and to modern languages. These entrance qualifications are to be passed on by some competent authority not connected with the medical college.

(B) Four years in pure medical work, the first two of which should be largely spent in laboratories of anatomy, physiology, pathology, pharmacology, etc., and the last two in close contact with patients in dispensaries and hospitals in the study of medicine, surgery, obstetrics and the specialties.

(C) A final year as an intern in a hospital or dispensary should then complete the medical course.

Under such a scheme the majority of men would begin the study of medicine between 18 and 19 years of age, and would graduate from the hospital internship at from 24 to 25. A college education is recognized as a desirable preparation for a limited number of men, but it is thought that it is not desirable to make such college education a minimum requirement to the study of medicine; this would compel the young medical man to defer the actual beginning of his life's work to an unnecessarily late period—27 or 28 years of age.

An Acceptable Medical College

(Revised to July 31, 1912)

The following outline of the essentials of an acceptable medical college was issued by the Council on Medical Education of the American Medical Association for its suggestive value in the rapid development in progress among the medical colleges in the United States. It also represents the basis on which medical colleges are rated in the Council's classifications.

1. A strict enforcement of all standards and requirements, the college itself to be held responsible for any instances where they are not enforced.

2. A requirement for admission of at least a four-year high school education superimposed on eight years of grammar school work as defined by the College Entrance Examination Board (see schedule, next column).

3. Beginning Jan. 1, 1914, the minimum requirement for admission will be enlarged to include at least one year's college work in physics, chemistry and biology and a reading knowledge of at least one modern language besides English, preferably German or French.

4. A requirement that students be in actual attendance in the college within the first week of each annual session and thereafter.

5. That actual attendance at classes be insisted on except for good cause, such as for sickness, and that no credit be given under any circumstances for less than 80 per cent. of attendance on each course.

6. That advanced standing be granted only to students of other acceptable colleges and that in granting advanced standing there shall be no discrimination against the college's full-course student.

Standard High School Course

SCHEDULE OF SUBJECTS OFFERED IN ACADEMIC AND SECONDARY SCHOOLS, CREDITS IN WHICH ARE ACCEPTABLE FOR ENTRANCE TO MEDICAL COLLEGES

Based on the requirements of the College Entrance Examination Board.

SUBJECTS	UNITS.	REQUIRED.	ELECTIVE.
ENGLISH			
Reading and Practice.....	2	2	...
Study and Practice.....	1	...	1
MATHEMATICS			
Algebra to Quadratics.....	1	1	...
Algebra (Quadratic Equations, Binomial Theorem and Progressions).....	1½	...	½
Plane Geometry.....	1	1	...
Solid Geometry.....	1½	...	½
Trigonometry.....	1½	...	½
Grammar and Composition.....	1	1	...
LATIN			
Cæsar.....	1	1	4
Cicero.....	1	...	1
Virgil.....	1	...	1
Cornelius Nepos.....	1	...	1
Greek			
Grammar and Composition.....	1	*	1
Xenophon.....	1	...	1
Homer.....	1	...	1
German			
Elementary.....	2	**	2
Intermediate.....	1	...	1
French..			
Elementary.....	2	**	2
Intermediate.....	1	...	1
Spanish			
Elementary.....	2	**	2
HISTORY			
United States History.....	1	1	...
Greek and Roman History.....	1	...	1
Medieval and Modern.....	1	...	1
English.....	1	...	1
SCIENCE †			
Botany and Zoology, each.....	1½	...	½
or Biology.....	1	...	1
Chemistry.....	1	...	1
Physics.....	1	1	...
Physiography.....	1½	...	½
Physiology.....	1½	...	½
Drawing.....	1	...	1
Music			
Appreciation.....	1	...	1
Harmony.....	1	...	1
Total.....	34	8	26

A unit is the credit value of 36 weeks' work of 5 recitation periods per week, each recitation period to be of not less than 40 minutes.

Required Branches: Of the 14 units of high school work it is suggested that the subjects in capitals aggregating 8 units should be required. Other work to the amount of at least 6 units may be made up from any of the other subjects of the above schedule.

* Two units of Greek may be substituted for the two required units of Latin.

** A reading knowledge of German, French or other modern language is recommended in the high school courses of students contemplating the study of medicine without higher preliminary qualifications.

† It should be understood that each science course must include laboratory work.

7. Careful and intelligent supervision of the entire school by a dean or other executive officer who holds, and has sufficient authority to carry out, fair ideals of medical education as interpreted by modern demands.

8. A good system of records showing conveniently the credentials, attendance, grades and accounts of the students.

9. A fully graded course covering four years of at least 30 weeks each, exclusive of holidays, and at least 30 hours per week of actual work; this course should be clearly set forth in a carefully prepared and printed schedule of lectures and classes.

10. Two years of work consisting largely of laboratory work in thoroughly equipped laboratories in anatomy, histology,

embryology, physiology, chemistry (inorganic, organic and physiologic), bacteriology, pathology, pharmacology, therapeutics and clinical diagnosis.

11. Two years of clinical work largely in hospitals and dispensaries, with thorough courses in internal medicine (including physical diagnosis, pediatrics, nervous and mental diseases), surgery (including surgical anatomy and operative surgery on the cadaver), obstetrics, gynecology, laryngology, rhinology, ophthalmology, otology, dermatology, hygiene and medical jurisprudence.

12. As soon as conditions warrant, a fifth undergraduate year should be required which should be spent by the student as an intern in an approved hospital.

13. At least six expert, thoroughly trained professors in the laboratory branches, salaried so they may devote their entire time to instruction and to that research without which they cannot well keep up with the rapid progress being made in their subjects. These professors should have a definite responsibility in the conduct of the college. There should also be a sufficient number of assistants in each department to look after the less important details. A suggested assignment of these instructors is (a) professor of anatomy, (b) professor of physiology, (c) professor of pathology and bacteriology and (d) professor of physiologic chemistry and pharmacology. The other two might be associate or assistant professors, and assigned one to the laboratory course in histology and embryology under the professor of anatomy and the other to the department of pathology and bacteriology.

14. The medical teaching should be of at least the same degree of excellence as obtains in our recognized liberal arts colleges and technical schools.

15. The members of the faculty, with a few allowable exceptions, should be graduates of institutions recognized as medical colleges and should have had a training in all departments of medicine. They should be appointed because of their ability as teachers and not because they happen to be on the attending staff of some hospital or for other like reasons.

16. The college should own or entirely control a hospital in order that students may come into close and extended contact with patients under the supervision of the attending staff. The hospital should have a sufficiently large number of patients to permit the student to see and study the common variety of surgical and medical cases as well as a fair number in each of the so-called specialties.

17. The college should have easily accessible hospital facilities of not less than 200 patients which can be utilized for clinical teaching (for senior classes of 100 students or less), these patients to represent in fair proportion all departments of medicine.

18. The college should have additional hospital facilities for children's diseases, contagious diseases and nervous and mental diseases.

19. Facilities for at least six maternity cases for each senior student, who should have actual charge of these cases under the supervision of the attending physician.

20. Facilities for at least 30 autopsies during each college session (for senior classes of 100 students or less).

21. A dispensary, or out-patient department, under the control of the college, the attendance to be a daily average of 60 cases (for senior classes of 100 students or less), the patients to be carefully classified, good histories and records of the patients to be kept and the material to be well used.

22. The college should have a working medical library to include the more modern text and reference books and 30 or more leading medical periodicals; the library room should be easily accessible to students during all or the greater part of the day; should have suitable tables and chairs and have a librarian in charge.

23. A working medical museum having its various anatomic, embryologic, pathologic and other specimens carefully prepared, labeled and indexed so that any specimen may be easily found and employed for teaching purposes. It is suggested that so far as possible with each pathologic specimen coming from post-mortems there also be kept the record of the post-mortem, the clinical history of the patient on whom the

autopsy was held and microscopic slides showing the minute structures of the disease shown in the gross specimen.

24. A supply of such useful auxiliary apparatus as a stereopticon, a reflectoscope, carefully prepared charts, embryologic or other models, manikins, dummies for use in bandaging, a Roentgen ray or other apparatus now so generally used in medical teaching.

25. The college should show evidences of reasonably modern methods in all departments and evidences that the equipment and facilities are *being intelligently used* in the training of medical students.

26. A clear statement of the college's requirements for admission, tuition, time of attendance on the classes, sessions and graduation should be clearly set forth, together with complete classified lists of its matriculants and latest graduating class in regular annual catalogues or announcements.

Definitions of a Medical College* and a Medical School†

"An institution to be ranked as a medical college must have at least six (6) professors giving their entire time to medical work, a graded course of four full years of college grade in medicine, and must require for admission not less than the usual four years of academic or high-school preparation, or its equivalent, in addition to the preacademic or grammar school studies."

By a medical school as differentiated from a medical college is meant a part of a university requiring for admission the equivalent of two years of collegiate work and which offers instruction of not less than two years' duration, leading to the degree of Doctor of Medicine.

Grading of Medical Colleges

In a similar manner as in the previous classifications, all medical colleges have recently been rated by the Council on Medical Education on a civil service basis on a scale of 1,000 points. The data relating to each college were grouped under ten general heads in such manner that the groups would have as nearly equal weight as possible, each group, allowing a possible 100 points (10 per cent.) out of a possible 1,000 points (100 per cent.). The ten heads under which the data were arranged are as follows:

1. Showing of graduates before state boards and other evidences of the training received.
2. Enforcement of a satisfactory preliminary educational requirement and the granting of advanced standing.
3. Character of curriculum, grading of course, length of session, time allowed for matriculation and supervision.
4. Medical school buildings; light, heat, ventilation, cleanliness.
5. Laboratory facilities and instruction.
6. Dispensary facilities and instruction.
7. Hospital facilities and instruction, maternity work, autopsies, specialties.
8. Faculty, number and qualifications of trained teachers, full-time instructors, and assistants, especially of the laboratory branches, and extent of research work.
9. Extent to which the school is conducted for properly teaching the science of medicine rather than for the profit of the faculty directly or indirectly.
10. Possession and use made of libraries, museums, charts, stereopticons, etc.

Colleges receiving a rating of 70 per cent. or above in each and all of the ten divisions of data were included in Class A+; colleges receiving an average of 70 per cent. or above, but which receive a rating below 70 per cent. in one, two or three of the divisions were included in Class A; colleges receiving an average of between 50 and 70 per cent. and colleges having an average of above 70 per cent., but which received a rating below 70 per cent. in more than three of the divisions above named, were included in Class B, and colleges receiving less than 50 per cent. were included in Class C. In other words, Class A+ colleges are those which are acceptable; Class A those which need improvement in certain respects, but which are otherwise acceptable; Class B, those which, under their present organization, might be made acceptable by general improvements, and Class C, those which require a complete reorganization to make them acceptable.

* This definition of a college is based on that given in the revised ordinances of the State of New York and which was adopted by the Carnegie Foundation for the Advancement of Teaching as a standard.

† Based on the definition of the term "school" adopted in 1909 by the Association of American Universities.

Colleges Listed in Classes A+ and A

1. Giving a complete four-year course:

- ALABAMA
University of Alabama Medical Department.
- CALIFORNIA
Leland Stanford Junior University Medical Department (Cooper Medical College).
University of California Medical Department, San Francisco-Los Angeles.
- COLORADO
University of Colorado, School of Medicine.
- CONNECTICUT
Yale Medical School.
- DISTRICT OF COLUMBIA
George Washington University, Department of Medicine.
- ILLINOIS
Northwestern University Medical School.
Rush Medical College, University of Chicago.
College of Physicians and Surgeons, Chicago.
- INDIANA
Indiana University School of Medicine.
- IOWA
State University of Iowa, College of Medicine.
Drake University, College of Medicine.
- KENTUCKY
University of Louisville, Medical Department.
- LOUISIANA
Tulane University of Louisiana, Medical Department.
- MAINE
Medical School of Maine.
- MARYLAND
Johns Hopkins University, Medical Department.
- MASSACHUSETTS
Boston University, School of Medicine.
Harvard Medical School.
Tufts College Medical School.
- MICHIGAN
University of Michigan, Department of Medicine and Surgery.
University of Michigan, Homeopathic College.
- MINNESOTA
University of Minnesota, College of Medicine and Surgery.
- MISSOURI
St. Louis University, School of Medicine.
Washington University, Medical Department.
- NEBRASKA
University of Nebraska, College of Medicine.
- NEW HAMPSHIRE
Dartmouth Medical School.
- NEW YORK
Albany Medical College.
Columbia University, College of Physicians and Surgeons.
Cornell University Medical College.
Fordham University, School of Medicine.
New York Homeopathic Medical College and Hospital.
Syracuse University, Medical Department.
University and Bellevue Hospital Medical College.
University of Buffalo, Medical Department.
- OHIO
Ohio-Miami Medical College, Medical Department, University of Cincinnati.
Starling-Ohio Medical College.
Western Reserve University, Medical Department.
- OREGON
University of Oregon, Medical Department.
- PENNSYLVANIA
Hahnemann Medical College and Hospital, Philadelphia.
Jefferson Medical College.
Medico-Chirurgical College of Philadelphia.
University of Pennsylvania, Medical Department.
Woman's Medical College of Pennsylvania.
University of Pittsburgh, Medical Department.
- TENNESSEE
Vanderbilt University, Medical Department.
- TEXAS
University of Texas, Medical Department.
- VERMONT
University of Vermont, College of Medicine.
- VIRGINIA
Medical College of Virginia.
University College of Medicine.
University of Virginia, Department of Medicine.
2. Giving a two-year course.
- MISSISSIPPI
University of Mississippi, Medical Department.
- MISSOURI
University of Missouri, Medical Department.
- NORTH CAROLINA
University of North Carolina College of Medicine.
Wake Forest College, Medical School.
- NORTH DAKOTA
University of North Dakota, College of Medicine.
- SOUTH DAKOTA
University of South Dakota, College of Medicine.
- UTAH
University of Utah, Department of Medicine.
- WISCONSIN
University of Wisconsin, College of Medicine.
3. Medical Schools for the Colored Race:
Howard University, Medical Department, Washington, D. C.
McHarry Medical College, Nashville, Tenn.

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership in this association are as follows:

SECTION 1.—Every college holding membership in this Association shall, on and after Jan. 1, 1912, require for matriculation a completed or unconditioned medical student's certificate, to be granted by a state medical examining and licensing board, or a board empowered by statute to grant such certificates, or a certificate of entrance to the academic department of any state university, or a certificate of entrance to an accredited university or college, providing that said certificate is granted on no less than the following requirements:

(a) A bachelor's degree from an accredited college or university.
(b) A diploma from an accredited high school, normal school or academy requiring for admission evidence of the completion of an eight-year course in primary and intermediate grades, and for graduation not less than four years of study embracing two years (4 points) of Latin, or four years (8 points) of either high school French or German or its full equivalent, provided a satisfactory examination is passed in the elements of Latin grammar; two years (4 points) of mathematics, two years (4 points) of English, one year (2 points) of history, one year (2 points) of physics, and six years (12 points) of further credit in language, literature, history or science.

(c) An examination in the following branches, totaling 30 points:

A. Required, 16 points.	Points
Mathematics—(Minimum, 2 years; maximum, 3 years)	4
Algebra and plain geometry.	
English—(Minimum, 2 years; maximum, 4 years)	4
(a) English grammar.	
(b) Rhetoric and composition.	
Latin—(Minimum, see (b); maximum, 4 years)	4
(a) Latin grammar.	
(b) Latin prose composition.	
(c) Reading four books of Caesar or equivalent.	
Physics—(1 year). With laboratory work	2
History—(1 year). Including civics and political economy	2

Total required 16

B. Elective, 14 points.	Points
English Language and Literature (2 years). Only if taken after the required English	4
Language—German, French, Spanish or Greek (4 years); not less than one year in any one see (b)	2
Advanced Mathematics—Solid Geometry and Trigonometry (½ year each)	1
Natural Science (1 year). Biology, 1 year, or Botany and Zoology, ½ year each	2
Physical Science—(1 year). Chemistry	2
Earth Science—Physical Geography and Geology, ½ year each	1
Physiology and Hygiene—(½ year)	1
Astronomy—(½ year)	1
Drawing—(½ year)	1

One point in any subject demands one period per week of not less than 45 minutes, for 18 weeks.

Two points equal 5 counts, or 1 unit, or 2 credits.

If only 4 hours per week are given in a subject, the year's work represents 4 counts (the minimum), and must be counted as such and not as 5 counts (the maximum).

SEC. 2.—This examination must be conducted by or under the authority of the board of medical examiners of the state in which the college is located, or by a duly authorized examiner of the college entrance examination board, or the authorized examiner of an accredited university, state or otherwise, or by an examiner whose certificates are accepted by accredited colleges or universities, or by a method approved by the judicial council of this association.

SEC. 3.—The term "accredited" as applied to high schools, academies, colleges and universities means institutions of that type that have been investigated and are accredited by the state university of their respective states, by the North Central Association of Colleges and Secondary Schools, the Association of Colleges and Preparatory Schools of the Southern States, the Association of Colleges and Preparatory Schools of the Middle States and Maryland, the New England College Entrance Certificate Board, the Association of American Universities and the Association of State Universities, provided that such accrediting is based on Article III, Section 1, of this constitution.

SEC. 4.—Colleges in membership in this Association may honor the official credentials presented by students from other colleges having the standard requirements maintained by members of this Association, excepting for the fourth year of the course, but no member of this Association shall admit a student to advanced standing without receiving from the dean, secretary or registrar of such college a direct written communication certifying to the applicant's standing. Credit for time or scholarship cannot be given beyond that of the college issuing the credentials, except by mutual agreement between the colleges.

SEC. 5.—Candidates for the degree of Doctor of Medicine shall have attended four courses of study in four calendar years, each annual course to have been of not less than thirty-two teaching weeks' duration, and at least ten months shall intervene between the beginning of any course and the beginning of the preceding course.

SEC. 6.—No time credit shall be given to holders of a Bachelor's degree, but subject credit may be given on satisfactory examination. Four years of residence in a medical college shall be required of all candidates for the degree of Doctor of Medicine.

SEC. 7.—A college which gives less than a four years' course of study, but does not graduate students, and is possessed of other required qualifications, may be admitted to membership.

SEC. 8.—Each student shall be obliged to attend not less than 80 per cent. of the exercises in every annual course of study for which he seeks credit. No student shall be given credit on examination unless he attains a grade of at least 70 per cent. or its equivalent in any other marking system. And no student shall be graduated unless he shall have attained a passing grade in each and all subjects of the required curriculum.

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA

Marginal Number.	NAME AND LOCATION OF COLLEGE.	Population of city where college is located. (Census of 1910.)	No. of students registered 1911-12.		Grads-ates 1912.		Grads with A.B., B.S., or Ph.B.	No. of teachers.	Weeks in college year.	Total fees. (Dollars.)				Session of 1912-13.		Marginal Number.
			Men.	Women.	Men.	Women.				1st year.	2nd year.	3rd year.	4th year.	Begins 1912.	Ends 1913.	
1	ALABAMA															1
2	Birmingham Medical College, Birmingham.....	132,685	320	...	66	...	7	40	31	105	105	130	...	Sept. 25	May 16	2
3	University of Alabama, School of Medicine, Mobile.....	51,521	183	...	31	...	6	57	32	135	135	160	...	Sept. 23	May 22	3
4	ARKANSAS															4
5	University of Arkansas, Medical Department, Little Rock.....	45,941	143	2	51	1	1	48	31	125	125	150	...	Sept. 16	May 9	5
6	CALIFORNIA															6
7	Cooper Medical College, San Francisco (a).....	416,912	389	52	99	5	20	...	...	...	...	...	...	...	...	7
8	College of Physicians and Surgeons, San Francisco.....	416,912	35	1	35	1	9	39	35	165	160	185	...	Sept. 4	June 1	8
9	Hahnemann Medical College of the Pacific, San Francisco.—H.....	416,912	15	1	8	...	...	35	35	155	100	100	...	Aug. 1	April 20	9
10	Leland Stanford Junior Univ., Dept. of Med., San Francisco (a).....	416,912	20	4	...	...	...	51	34	160	160	150	...	Aug. 26	May 14	10
11	Univ. of California, Med. Dept., San Francisco—Los Angeles (b).....	416,912	78	10	25	2	11	133	36	200	195	165	...	Aug. 8	May 10	11
12	California Eclectic Medical College, Los Angeles.—E.....	319,198	23	5	4	...	...	30	36	125	120	100	...	Sept. 16	May 22	12
13	College of Physicians and Surgeons, Los Angeles.....	319,198	115	11	22	2	...	59	36	160	157	155	...	Sept. 9	June 12	13
14	Oakland College of Medicine and Surgery, Oakland.....	150,174	43	13	6	...	...	34	36	200	200	175	...	Aug. 12	May 17	14
15	College of Medical Evangelists, Loma Linda.....	110	43	...	...	...	...	10	36	106	101	111	...	Sept. 26	June 25	15
16	COLORADO															16
17	University of Colorado, School of Medicine, Boulder-Denver.....	213,281	110	8	33	1	4	73	36	75	75	75	...	Sept. 9	June 5	17
18	CONNECTICUT															18
19	Yale Medical School, New Haven.....	133,605	63	...	29	...	3	70	35	220	168	150	...	Sept. 26	June 18	19
20	DISTRICT OF COLUMBIA															20
21	George Washington University, Dept. of Medicine, Washington.....	331,069	412	5	94	2	15	73	34	150	150	150	...	Sept. 25	June 11	21
22	Georgetown University, School of Medicine, Washington.....	331,069	155	2	35	2	7	62	34	165	150	150	...	Sept. 27	June 13	22
23	Howard University, School of Medicine, Washington.....	331,069	167	3	36	...	5	42	33	107	102	109	...	Sept. 25	June 4	23
24	GEORGIA															24
25	Atlanta College of Physicians and Surgeons, Atlanta.....	154,839	317	4	192	2	12	...	...	125	125	150	...	Sept. 18	May 7	25
26	Atlanta School of Medicine, Atlanta.....	154,839	372	...	61	...	8	55	30	125	105	105	...	Sept. 20	May 1	26
27	Georgia College of Eclectic Medicine and Surgery, Atlanta.—E.....	154,839	233	4	45	...	4	42	29	105	105	135	...	Sept. 20	April 13	27
28	Southern College of Medicine and Surgery, Atlanta (c).....	154,839	66	4	87	2	...	19	28	80	80	80	...	Sept. 20	May 20	28
29	University of Georgia, College of Medicine, Augusta.....	41,040	20	...	11	...	...	13	...	70	70	70	...	Sept. 18	May 20	29
30	ILLINOIS															30
31	Bennett Medical College, Chicago.....	2,185,283	2332	159	530	23	141	...	32	100	100	125	...	Sept. 18	June 13	31
32	Chicago College of Medicine and Surgery, Chicago.....	2,185,283	389	13	91	2	...	93	34	135	120	120	...	Oct. 1	June 19	32
33	College of Physicians and Surgeons, Chicago.....	2,185,283	529	27	122	4	7	124	31	120	105	120	...	Sept. 24	May 6	33
34	Hahnemann Medical College and Hospital, Chicago.—H.....	2,185,283	470	36	131	14	10	128	32	155	155	160	...	Oct. 1	June 23	34
35	Hering Medical College, Chicago.—H.....	2,185,283	98	6	33	...	3	76	32	125	125	175	...	Sept. 23	May 23	35
36	Jenner Medical College, Chicago.....	2,185,283	26	2	6	1	1	53	33	100	100	100	...	Sept. 24	June 5	36
37	Northwestern University Medical School, Chicago.....	2,185,283	125	13	10	2	...	48	38	145	140	130	...	Sept. 3	June 14	37
38	Rush Medical College, Chicago.....	2,185,283	259	63	80	...	25	147	33	200	200	191	...	Oct. 1	June 11	38
39	INDIANA															39
40	Indiana University, School of Medicine, Indianapolis.....	233,650	145	10	43	2	9	173	35	100	100	130	...	Sept. 24	June 18	40
41	IOWA															41
42	Drake University, College of Medicine, Des Moines.....	86,368	166	10	54	2	4	...	...	165	165	165	...	Sept. 18	June 11	42
43	State University of Iowa, College of Medicine, Iowa City.....	10,091	45	5	16	...	1	53	35	60	50	60	...	Sept. 16	June 13	43
44	State Univ. of Iowa, Coll. of Homeo. Med., Iowa City.—H. (d)....	10,091	106	4	32	2	...	43	36	...	...	...	...	...	...	44
45	KANSAS															45
46	Kansas Medical College, Topeka.....	43,684	106	6	22	1	9	...	...	100	100	100	...	Sept. 11	June 5	46
47	University of Kansas, School of Medicine, Kansas City.....	82,331	35	2	8	1	2	41	35	60	60	100	...	Sept. 18	June 11	47
48	KENTUCKY															48
49	Louisville National Medical College, Louisville (e).....	223,928	370	...	124	...	...	...	...	...	...	...	...	...	...	49
50	University of Louisville, Medical Department, Louisville.....	223,928	17	...	5	...	...	73	32	135	135	160	...	Oct. 1	May 30	50
51	LOUISIANA															51
52	Tulane University Medical Department, New Orleans.....	339,075	321	...	104	...	22	96	32	180	180	210	...	Sept. 30	June 4	52
53	MAINE															53
54	Medical School of Maine, Portland.....	58,571	83	...	11	...	5	...	...	115	115	105	...	Oct. 17	June 25	54

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA.—(Concluded.)

Marginal Number.	NAME AND LOCATION OF COLLEGE.	Population of city where college is located. (Census of 1910.)	No. of students registered 1911-12.		Graduates 1912.		Grads. with A.B., B.S., or Ph.B.	No. of teachers.	Weeks in college year.	Total fees. (Dollars.)				Executive Officer.		Session of 1912-13.		Marginal Number.
			Men.	Women.	Men.	Women.				1st year.	2nd year.	3rd year.	4th year.			Begins 1912.	Ends 1913.	
96	PENNSYLVANIA																	96
97	Hahnemann Medical College and Hospital, Philadelphia.—H.	1,549,008	1686	121	472	34	65	80	34	175	172	170	170	William B. Van Lennep, M.D., Dean.		Sept. 23	June 5	97
98	Jefferson Medical College, Philadelphia.	1,549,008	116	...	35	...	1	134	34	186	181	180	180	Ross V. Patterson, M.D., Sub-Dean.		Sept. 23	June 7	98
99	Medico-Chirurgical College of Philadelphia.	1,549,008	616	...	148	...	...	102	34	163	159	155	153	Seneca Egbert, M.D., Dean.		Sept. 23	June 6	99
100	Temple University, Medical Department, Philadelphia.	1,549,008	73	8	22	3	4	92	34	150	150	150	150	Frank C. Hammond, M.D., Dean.		Sept. 16	June 5	100
101	University of Pennsylvania, Department of Medicine, Philadelphia.	1,549,008	367	112	124	...	43	166	35	218	213	210	212	William Pepper, M.D., Dean.		Sept. 27	June 18	101
102	Woman's Medical College of Pennsylvania, Philadelphia.	1,549,008	...	112	...	30	7	52	34	161	156	154	153	Clara Marshall, M.D., Dean.		Sept. 18	June 4	102
103	University of Pittsburgh, Medical Department, Pittsburgh.	533,905	173	1	66	1	2	103	35	220	220	220	220	Thomas S. Arbutnot, M.D., Dean.		Sept. 30	June 25	103
104	SOUTH CAROLINA																	104
105	Medical College of South Carolina, Charleston.	58,833	163	1	64	1	13	42	32	100	100	100	100	Robert Wilson, Jr., M.D., Dean.		Oct. 1	June 2	105
106	SOUTH DAKOTA																	106
107	University of South Dakota, College of Medicine, Vermilion.	2,187	9	...	...	...	...	9	35	60	60	...	...	Christian P. Lommen, B.S., Dean.		Sept. 17	June 12	107
108	TENNESSEE																	108
109	Lincoln Memorial University Medical Department, Knoxville.	36,346	1327	8	320	2	24	...	29	105	100	100	125	S. D. Acuff, M.D., Registrar.		Oct. 1	May 11	109
110	Meharry Medical College, Nashville.	110,364	95	2	24	1	1	36	30	60	60	60	75	G. W. Hubbard, M.D., Dean.		Sept. 11	April 21	110
111	Vanderbilt University, Medical Department, Nashville.	131,105	331	4	69	1	12	26	32	130	130	130	155	Lucius E. Burch, M.D., Secretary.		Sept. 19	May 20	111
112	University of Tennessee, College of Medicine, Memphis.	131,105	392	...	66	...	6	53	30	125	125	125	150	Edward C. Ellett, M.D., Dean.		Sept. 25	May 15	112
113	Memphis Hospital Medical College, Memphis.	131,105	153	2	48	0	1	46	30	125	125	125	150	W. B. Rogers, M.D., Dean.		Oct. 1	May 16	113
114	University of West Tennessee, Medical Department, Memphis.	131,105	319	...	104	...	3	18	30	55	55	55	65	M. V. Lynk, M.D., Dean.		Sept. 16	May 1	114
115	TEXAS																	115
116	Fort Worth School of Medicine, Fort Worth.	73,312	345	18	96	1	9	49	30	114	113	108	125	W. R. Thompson, M.D., Dean.		Sept. 30	May 15	116
117	University of Texas, Department of Medicine, Galveston.	36,981	71	16	17	...	...	28	32	61	31	21	6	W. S. Carter, M.D., Dean.		Oct. 1	May 31	117
118	Baylor University, College of Medicine, Dallas.	92,104	146	45	45	1	6	34	32	110	105	100	125	Edward H. Cary, M.D., Dean.		Oct. 1	June 1	118
119	Southern Methodist University, Medical Department, Dallas (J).	92,104	62	2	20	...	1	30	32	110	105	100	125	John O. McReynolds, M.D., Dean.		Oct. 1	May 30	119
120	UTAH																	120
121	University of Utah, School of Medicine, Salt Lake City.	92,777	12	...	...	...	...	11	34	55	55	...	...	Charles T. Vorhies, M.D., Dean.		Sept. 16	May 31	121
122	VERMONT																	122
123	University of Vermont, College of Medicine, Burlington.	20,468	176	...	47	...	1	48	36	135	135	135	160	H. C. Tinkham, M.D., Dean.		Sept. 25	June 25	123
124	VIRGINIA																	124
125	Medical College of Virginia, Richmond.	127,628	484	...	90	...	11	67	34	100	100	100	130	Christopher Tompkins, M.D., Dean.		Sept. 17	June 3	125
126	University College of Medicine, Richmond.	127,628	242	...	43	...	3	68	33	104	104	104	134	Alfred L. Gray, M.D., Dean.		Sept. 18	May 29	126
127	University of Virginia, Department of Medicine, Charlottesville.	6,765	160	...	35	...	8	32	36	140	140	140	140	R. H. Whitehead, M.D., Dean.		Sept. 12	June 14	127
128	WEST VIRGINIA																	128
129	West Virginia University School of Medicine, Morgantown (K).	9,150	19	...	...	...	...	9	36	50	50	...	...	John N. Simpson, M.D., Dean.		Sept. 16	June 15	129
130	WISCONSIN																	130
131	Milwaukee Medical College.	373,857	340	5	60	...	3	70	32	135	135	135	155	Warren B. Hill, M.D., Dean.		Oct. 1	June 2	131
132	University of Wisconsin, College of Physicians and Surgeons, Milwaukee.	373,857	239	3	48	0	3	56	32	145	140	135	150	T. C. Phillips, M.D., Dean.		Sept. 30	May 30	132
133	University of Wisconsin, College of Medicine, Madison (G).	25,531	58	2	12	...	...	17	35	130	130	...	...	Charles E. Bardeen, M.D., Dean.		Sept. 30	June 22	133
134	PHILIPPINE ISLANDS																	134
135	University of the Philippines Coll. of Med. and Surg., Manila (I).	234,409	53	4	8	1	1	53	36	...	...	...	...	William E. Musgrave, M.D., Dean.		July 1	April 1	135
136	CANADA																	136
137	Dalhousie University, Faculty of Medicine, Halifax, N. S.	46,619	1533	21	261	2	57	...	32	75	75	100	100	A. W. H. Lindsay, M.D., Dean.		Aug. 29	April 24	137
138	Queen's University, Faculty of Medicine, Kingston, Ont.	18,874	63	3	10	0	...	29	30	105	105	105	105	J. C. Connell, M.D., Dean.		Sept. 12	April 30	138
139	Western University, Faculty of Medicine, London, Ont.	46,300	249	...	38	...	12	39	30	100	100	100	100	W. E. Waugh, M.D., Registrar.		Sept. 16	May 1	139
140	McGill University, Medical Faculty, Montreal, Que.	470,480	320	...	53	...	15	115	33	160	160	150	154	John W. Scane, M.D., Registrar.		Sept. 30	June 6	140
141	Montreal School of Medicine and Surgery, Montreal, Que.	470,480	162	...	34	...	...	60	34	110	118	123	138	E. P. Lachapelle, M.D., Dean.		Oct. 1	June 20	141
142	Laval University, Medical Faculty, Quebec, Que.	78,190	72	...	10	...	9	24	34	60	60	60	60	Michael J. Ahern, M.D., Dean, Quebec.		Sept. 10	June 1	142
143	University of Toronto, Medical Faculty, Toronto, Ont.	376,538	453	15	51	2	19	64	33	150	150	150	150	A. Primrose, M.D., Secretary.		Oct. 1	June 6	143
144	University of Manitoba, Manitoba Medical College, Winnipeg.	136,035	139	3	19	...	2	50	28	155	150	150	150	H. H. Chown, M.D., Dean.		Oct. 1	May 1	144

H., Homeopathic; E., Eclectic; * Gives only the first two years of the medical course; † Gives only the last two years of the medical course.

REFERENCES TO TABLE 1.

(a) Cooper Medical College, which was taken over by Leland Stanford Junior University in 1908, goes out of existence with the graduation of this class. Hereafter Leland Stanford Junior University will teach all four years of the medical course.

(b) The University of California gives the first two years of the medical course at Berkeley and the student may take his clinical years either at Los Angeles or at San Francisco.

(c) This school has been reported as "not in good standing" by the Georgia State Board of Medical Examiners.

(d) All courses in this school have been consolidated with those of the College of Medicine of the State University of Iowa, excepting the two chairs in (a) materia medica and therapeutics and (b) practice.

(e) Suspended following withdrawal of recognition by the Kentucky State Board of Health.

(f) This college has voluntarily become extinct.

(g) Fees given are for non-residents; rates are lower for residents of the state.

(h) Formerly known as the Lincoln Medical College.

(i) This college was merged with Western Reserve University in 1910 but will continue to exist until all students then enrolled shall have graduated.

(j) Name of this school recently changed; was formerly known as the Southwestern University, Medical Department.

(k) Last year this institution was closed as a "college" but was later restored as a "school." It is stated there was no intention of discontinuing medical teaching.

(l) Supported by the Philippine Government; no tuition fees charged.

CURRICULUM

SECTION 1.—The entire course of four years shall consist of at least 4,000 hours for each student, and shall be grouped in divisions and subdivided into subjects; each division and subject to be allotted the number of hours as shown in the following schedule:

DIVISION 1.—ANATOMY, 710 Hours (18 Per Cent.)				
	Hours.	Lect.	Rec. Dem.	Lab. Wk.
(a) Gross anatomy (including applied anatomy).....	510	120		390
(b) Histologic and microscopic anatomy	135	30		105
(c) Embryology	75	30		45

DIVISION 2.—PHYSIOLOGY AND CHEMISTRY, 600 Hours (15 Per Cent.)				
	Hours.	Lect.	Rec. Dem.	Lab. Wk.
(a) Inorganic chemistry	180	60		120
(b) Organic chemistry	75	30		45
(c) Physiologic chemistry	104	30		75
(d) Physiology	240	140		100

DIVISION 3.—PATHOLOGY, BACTERIOLOGY AND HYGIENE, 450 Hours (11.25 Per Cent.)				
	Hours.	Lect.	Rec. Dem.	Lab. Wk.
(a) Bacteriology	135	30		105
(b) Hygiene and general dietetics	45	45		...
(c) Pathology	270	60		210

DIVISION 4.—PHARMACOLOGY, MATERIA MEDICA AND THERAPEUTICS, 240 Hours (6 Per Cent.)				
	Hours.	Lect.	Rec. Dem.	Lab. Wk.
(a) Pharmacology	105	40		65
(b) Materia medica and pharmacology	80	...		...
(c) Therapeutics	55	...		...

DIVISION 5.—MEDICINE AND MEDICAL SPECIALTIES, 970 Hours (24.25 Per Cent.)				
	Hours.	Lect.	Rec. Dem.	Lab. Wk.
(a) General medicine (including clinical microscopy).....	640	...		...
(b) Pediatrics	150	...		...
(c) Nervous and mental diseases	105	...		...
(d) Jurisprudence, ethics and economics	30	...		...
(e) Dermatology and syphilis....	45	...		...

DIVISION 6.—SURGERY AND SURGICAL SPECIALTIES, 720 HOURS (18 Per Cent.)				
	Hours.	Lect.	Rec. Dem.	Lab. Wk.
(a) General surgery	510	...		...
(b) Orthopedic surgery	45	...		...
(c) Genito-urinary diseases	45	...		...
(d) Eye	60	...		...
(e) Ear, nose and throat.....	60	...		...

DIVISION 7.—OBSTETRICS AND GYNECOLOGY, 300 Hours (7.5 Per Cent.)				
	Hours.	Lect.	Rec. Dem.	Lab. Wk.
(a) Obstetrics	195	...		...
(b) Gynecology (including some abdominal surgery)	105	...		...

Colleges may reduce the number of hours in any subject not more than 20 per cent. provided that the total number of hours in a division is not reduced. Where the teaching conditions in a college are best subserved, the subject may be, for teaching purposes, transferred from one division to another. When didactic and laboratory hours are specified in any subject, laboratory hours may be substituted for didactic hours.

SEC. 2.—Each medical college in membership in the Association shall print in every annual catalogue or announcement a table of the total number of hours work given in said college, arranged both by subjects and years.

SEC. 3.—Each college in membership in this Association shall print annually a list of its students by classes.

MEMBERS OF ASSOCIATION

Leland Stanford Junior University, Department of Medicine.
University of California, Medical Department.
University of Southern California Medical Department.
University of Colorado, School of Medicine.
Yale Medical School.
Georgetown University, School of Medicine.
George Washington University, Department of Medicine.
Howard University, Medical Department.
Northwestern University Medical School.
University of Illinois, College of Medicine.
Indiana University, School of Medicine.
Drake University, College of Medicine.
State University of Iowa, College of Medicine.
Washburn College, Medical Department.
University of Kansas, School of Medicine.
University of Louisville, Medical Department.
Medical Department of Tulane University.
Baltimore Medical College.
College of Physicians and Surgeons, Baltimore.
Johns Hopkins University, Medical Department.
University of Maryland, School of Medicine.
Medical School of Harvard University.
Tufts College Medical School.
Detroit College of Medicine.
University of Michigan, Department of Medicine and Surgery.
University of Minnesota College of Medicine and Surgery.
University of Mississippi, Medical Department.
St. Louis University, School of Medicine.

University Medical College.
University of Missouri, School of Medicine.
Washington University, Medical Department.
John A. Creighton Medical College, Medical Department.
University of Nebraska, College of Medicine.
Cornell University Medical College.
Syracuse University, College of Medicine.
University and Bellevue Hospital Medical College.
University of Buffalo, Medical Department.
University of North Carolina, Department of Medicine.
Wake Forest College, School of Medicine.
University of North Dakota, College of Medicine.
Ohio-Miami Medical College of the University of Cincinnati.
Starling-Ohio Medical College.
Western Reserve University, Medical Department.
State University of Oklahoma, School of Medicine.
University of Pennsylvania, Medical Department.
Meharry Medical College.
Vanderbilt University, Medical Department.
University of Vermont, College of Medicine.
Medical College of Virginia.
University College of Medicine.
University of Wisconsin, College of Medicine.

The secretary-treasurer of the Association is Dr. Fred C. Zapffe, 3431 Lexington Street, Chicago.

COLLEGE NOTES

Colleges Closed During the Year.—Seven medical colleges have been closed during the year. Four were closed by merger into other medical schools and three became extinct. The colleges are:

Cooper Medical College, San Francisco. The last class was graduated this year and the final step of the transfer of the property to the Leland Stanford Junior University, Medical Department, has been consummated.
Hospital College of Medicine, Eclectic, Atlanta, Ga., merged into the Georgia College of Eclectic Medicine and Surgery.
State University of Iowa, College of Homeopathic Medicine, Iowa City. All chairs excepting the two relating to homeopathic materia medica, therapeutics and practice have been merged with those of the College of Medicine.
Louisville National Medical College, Colored, Louisville, Ky. Became extinct following the withdrawal of recognition by the Kentucky State Board of Health.
Detroit Homeopathic College, Detroit, Mich. Voluntarily became extinct.
Mississippi Medical College, Meridian, Miss. Voluntarily became extinct.
Barnes Medical College, St. Louis, Mo. Merged with the American Medical College, retaining the latter name.

New and Revived Colleges.—One new college, the Southern College of Medicine and Surgery, Atlanta, Ga., was organized during the year. Two other colleges reported to have suspended have been revived. These are the University Medical College of Kansas City, Mo., and the School of Medicine of West Virginia University. There has been a net reduction during the year of four colleges, the total now being 116.

Endowments, New Medical Buildings, Etc.

Alabama.—During the year the Medical College of Alabama, Mobile, spent \$5,000 for an addition to the laboratory and dispensary building. The Mobile City Hospital is to be remodeled and enlarged at a cost of about \$50,000.

California.—The College of Medical Evangelists, Loma Linda, completed its new laboratory building and received about \$8,000 toward the erection of a teaching hospital and for other purposes.

—The delegates of the College of Medical Evangelists, in conference at Loma Linda, March 30, 1912, voted \$125,000 for improvements during the coming year. About \$40,000 of this is to be spent for the beginning of a teaching hospital.

—Leland Stanford Junior University Department of Medicine, San Francisco, has just completed a new building for the Lane Medical Library at the expense of about \$146,000. A gift of \$10,000 for this library was received from Dr. Adolph Barkan for a special library on the diseases of the eye, ear, nose and throat. Another gift of \$5,000 for the library was received from Mr. Charles G. Stanford. The Nurses' Home is being remodeled. The school has received an additional sum of \$63,750 for endowments.

Connecticut.—Yale Medical School received \$15,000 from an anonymous donor, to be added to the fund for the support of the university clinic.

District of Columbia.—Howard University, School of Medicine, Washington, has received \$10,000 during the year for additional laboratory supplies and equipment.

TABLE 2.—DISTRIBUTION OF MEDICAL

Number.	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Number.
		Alabama.....498	Arizona.....9	Arkansas.....251	California.....341	Colorado.....188	Connecticut.....231	Delaware.....32	Dist. of Col.....122	Florida.....158	Georgia.....749	Idaho.....25	Illinois.....1338	Indiana.....454	Iowa.....404	Kansas.....317	Kentucky.....293	Louisiana.....288	Maine.....150	Maryland.....311	Massachusetts.....712	
1	Birmingham Medical College, Birmingham.....	157		1						3	3						1	4				1
2	University of Alabama, Medical Dept., Mobile.....	124								1			1					2				2
3	University of Arkansas, Med. Dept., Little Rock.....			118	1								1	1			1	2				3
4	College of Phys. and Surgs., San Francisco.....				7																1	4
5	Hahnemann Medical College of the Pacific.—H.....				35																	5
6	Leland Stanford Junior University, Dept. of Med.....				57									1	1							6
7	Univ. of California, Med. Dept., San Fran.—L. A.....				82								1									7
8	California Eclectic Medical Coll., Los Angeles.—E.....				23						1			1								8
9	College of Physicians and Surgeons, Los Angeles.....		1		21	1	2		1				8	4	15	3	2				4	9
10	Oakland Coll. of Medicine and Surgery, Oakland.....				19											1						10
11	College of Medical Evangelists, Loma Linda.....				12	1			2				1	1	1	1		1				11
12	Univ. of Colorado, School of Med., Boulder-Denver.....				1	81	1			1	1	4	1	4	3	1		1				12
13	Yale Medical School, New Haven.....						39						3			1			1		4	13
14	George Washington University, Dept. of Med.....			1	2		3		30				3		1				2	3	1	14
15	Georgetown University, School of Med.....				1	1	10		48	1			1				2		2	6	28	15
16	Howard University, School of Med., Washington.....	5		2			1	1	18	5	7		2				3	2		9	1	16
17	Atlanta College of Phys. and Surgs., Atlanta.....	34			1					33	225						2	3				17
18	Atlanta School of Medicine, Atlanta.....	9								16	173							2			1	18
19	Georgia College of Eclectic Med. and Surg.—E.*.....	2								6	61											19
20	Medical College of Georgia, Augusta.....	1					1			9	58											20
21	Southern College of Medicine and Surgery, Atlanta.....									20												21
22	Bennett Medical College, Chicago.....	1		6					6	3	1	1	224	10	4		4	1		1		22
23	Chicago College of Medicine and Surgery, Chicago.....	4	2	5	3	6	1			4	6		186	42	19	4	5	6	6		2	23
24	College of Physicians and Surgeons, Chicago.....					3			1	1		2	256	32	28	8	2				1	24
25	Hahnemann Med. Coll. and Hosp., Chicago.—H.....				1	2						1	53	9	11	3	1		1		3	25
26	Hering Medical College, Chicago.—H.....												12	4	2		4					26
27	Jenner Medical College, Chicago.....	1		1		1							38	6	7	3	1				1	27
28	Northwestern University Medical School, Chicago.....	2		1		4				1	2		97	9	22	11		1			1	28
29	Rush Medical College, Chicago.....		1	2	4	4	4			1	2	5	200	23	33	19	1	9			4	29
30	Indiana University, School of Med., Indianapolis.....			1										148								30
31	Drake University, College of Medicine, Des Moines.....												4		35							31
32	State University of Iowa, Coll. of Med., Iowa City.....												1		96		1					32
33	State University of Ia., Coll. of Homeo. Med.—H.....														12							33
34	Kansas Medical College, Topeka.....			1												35						34
35	University of Kansas, School of Med., Kansas City.....											1			1	67						35
36	Louisville National Medical College, Louisville.....															17						36
37	University of Louisville, Med. Dept., Louisville.....	4	1	4						5	7		17	67	5	3	115	8				37
38	Tulane University Medical Dept., New Orleans.....	32		12						10	10		1	1			3	146			1	38
39	Medical School of Maine, Portland.....						3												70		4	39
40	Baltimore Medical College, Baltimore.....	2			1		11	1					1						2	23	15	40
41	College of Physicians and Surgeons, Baltimore.....				1		23			1	3	2	1							41	21	41
42	Johns Hopkins Univ., Med. Dept., Baltimore.....	8		4	14		12		3	1	22	1	9	8	9	3	12	4	3	53	12	42
43	Maryland Medical College, Baltimore.....	1					8	1	2		1			1						47	5	43
44	University of Maryland, School of Medicine.....	5	1	1			7	4	3	7	9			1				1	2	118	1	44
45	Boston University, School of Medicine.—H.....						2									1			8		55	45
46	College of Physicians and Surgeons, Boston.....																				89	46
47	Harvard Medical School, Boston.....	1			13	7	3				1		6	2	3	3	1		20		110	47
48	Tufts College Medical School, Boston.....						12				2		1		1			10		260		48
49	Detroit College of Medicine, Detroit.....													4								49
50	Detroit Homeopathic College, Detroit.—H.....																					50
51	Univ. of Michigan, Dept. of Med. and Surg.....	3			3				1		3		7	10	2	2	2				3	51
52	Univ. of Michigan, Homeo. Coll., Ann Arbor.—H.....						1		1				3	2	1	1			1	1	1	52
53	Univ. of Minnesota, Coll. of Med. and Surg.....				1								3		5							53
54	University of Mississippi, Medical Dept., Oxford.....																	1				54
55	Mississippi Medical College, Meridian.....	5																	1		1	55
56	University of Missouri, Medical Dept., Columbia.....															3	14					56
57	Kansas City Hahnemann Medical College.—H.....															1	30	2	1			57
58	University Medical College, Kansas City.....				1								4	1	2	13						58
59	Eclectic Medical University, Kansas City.....															1						59
60	Ensworth Medical College, St. Joseph.....				1											3	9					60
61	American Medical College, St. Louis.....			3						2			50	2	3	5	2				1	61
62	St. Louis University, School of Medicine.....	1	1	2	2	5	2				1	2	66	9	10	7	2	1			1	62
63	St. Louis College of Physicians and Surgeons.....			2									11	1			2					63
64	Washington University, Medical Dept., St. Louis.....	1		1	1								17	3	1	6		1				64
65	Creighton Medical College, Omaha.....				1	1	1						2		29	4						65
66	Univ. of Nebraska, Coll. of Med., Lincoln-Omaha.....					1									8	1						66
67	Cotner Medical College.—E.....																					67
68	Dartmouth Medical School, Hanover.....						3												1		13	68
69	Albany Medical College, Albany.....						1														8	69
70	Columbia University, Coll. of Phys. and Surgs.....	2		1	2	4	10		1	1	1		1	1			2		4	1	3	70
71	Cornell Univ. Medical College, New York City.....				4										1	2					2	71
72	Eclectic Med. Coll. of the City of New York.—E.....						1				1								1			72
73	Fordham Univ. School of Med., New York City.....				1		5	1		1				1							1	73
74	Long Island College Hospital, New York City.....																				2	74
75	New York Homeo. Med. Coll. and Hosp.—H.....				2		4		1		2		1	1						1	2	75
76	New York Med. Coll. and Hosp. for Women.—H.....																					76
77	Univ. and Bellevue Hosp. Med. Coll., New York.....				2	1	10	1		2	1		1				1				5	77
78	Syracuse University, College of Medicine, Syracuse.....				1			1														78
79	University of Buffalo, Medical Dept., Buffalo.....												1	2								79
80	Leonard Medical School, Raleigh.....	4						1	1	8	5						2					80
81	Univ. of North Carolina, Med. Dept., Chapel Hill.....									2												81
82	North Carolina Medical College, Charlotte.....																					82
83	Wake Forest School of Medicine, Wake Forest.....																	1				83
84	University of North Dakota, Medical Dept.....																					84
85	Cleveland-Pulte Medical College, Cleveland.—H.....																1					85
86	Western Reserve Univ., Med. Dept., Cleveland.....	1											3	6	2	3	1					86
87	Eclectic Medical College, Cincinnati.—E.....			5	1	1					2		1	9			3					87
88	Ohio-Miami Med. Coll. of the Univ. of Cincinnati.....				1	2								2		1	17				2	88
89	Starling-Ohio Medical College, Columbus.....												1	4			1				1	89
90	Toledo Medical College, Toledo.....																					90
91	University of Oklahoma, School of Med., Norman.....						1				2		3	3	3	7	2					91
92	University of Oregon, Medical Dept., Portland.....					1								1		2						92
93	Willamette University, Medical Dept., Salem.....																					93

H., Homeopathic; E., Eclectic; * Total exact; distribution based on that of 1910-11.

Number.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	Number.	
	Michigan.....435	Minnesota.....295	Mississippi.....406	Missouri.....556	Montana.....28	Nebraska.....315	Nevada.....3	New Hampshire.68	New Jersey.....428	New Mexico.....8	New York.....2109	No. Carolina..491	North Dakota..58	Ohio.....818	Oklahoma.....103	Oregon.....149	Pennsylvania.1529	Rhode Island...96	So. Carolina...359	South Dakota..77	Tennessee.....525	Texas.....642	Utah.....69	Vermont.....127	Virginia.....448	Washington....93	West Virginia.217	Wisconsin.....439	Wyoming.....14	Philippines, etc.86	Foreign.....600	Totals.....18,412		
1			5																	3	1								1	3	183	1		
2			8																	1												137	2	
3				4											10							3										145	3	
4																						1										16	4	
5																							2									35	5	
6				1		1	1				1					1							2	2		2						70	6	
7		1				1	1		1																		1				1	88	7	
8				1		1																						1				28	8	
9	5	4		8		5		1	3		6			2		1	4				2						1	3			19	126	9	
10	1						1							1		2										2					10	22	10	
11	3	1			1	5				1	3			1	1		1														10	56	11	
12	1	2		1		3					12			1	1							1				1	1	1	1		2	118	12	
13								1	2		5			3			2	2					1								1	63	13	
14		2				1		1			6	3		4	2		6	1	1		2	1		1	10		1				3	92	14	
15	1		1						1		8	1		2	1		1	8			1				1	1	1				1	155	15	
16			1	4	1				5		7	13	1	6			6	2	11		4	4			25		1	2			24	170	16	
17			11								5	4					1	1	35		8	4			1	1					3	372	17	
18			9								1	7					1		9					2							2	233	18	
19																						1										70	19	
20		1									1							15														126	20	
21																																20	21	
22	20	8	4	3		9			6		9	2		6		1	6	1	1	1		2	1				1	1	25		13	20	402	22
23	14	8	2	16	1	9		1	4	3	22	3	8	11	3	2	22	3	1	6	8	4	4	7	5	7	8	32	2	12	27	556	23	
24	22	23		3	4	9					1		3	7	2	1	2	1		13	2	2	2	3	7		38		3	23	506	24		
25	2		1		1	2					1		1	2			1	1					1	1							2	104	25	
26											1			1		1															2	28	26	
27	1	1	2	1					1		10			4						1		2	1			1					50	138	27	
28	4	17		4	2	5				1			5	8	3	4				11	1		7		1	4	1	22	1	1	6	259	28	
29	16	13	2	21	3	21		1	1		8		7	30	2	6	4			10	10	7	17	2	5	9	1	30	3	2	16	559	29	
30											1			2	1		1				1										1	155	30	
31		1		2	1	1					1					1	1					1									1	50	31	
32		3			1								1							1						2		1			3	110	32	
33		1				3																										16	33	
34					1																												37	34
35				6																													75	35
36																																	17	36
37	2		11	6		1			3	1	5	3	1	3	5	1	6		1		11	19				3	1	29	2		3	353	37	
38			40	6								2			9				2		2	39									1	3	321	38
39								4			1																					1	83	39
40																																32	199	40
41		1	1						10		22	8		2		1	42	5	3		1	2			6		5					28	321	41
42		3	3	7	1	2		2	6		17	5		4			57	11	2		1	1	10		7	1	65	2				5	357	42
43											26	11	1	20		8	31	1	5	3	2	5	2	1	15	3	6	8	1	1	5	182	43	
44			1					2	14		8	3		1			35	3	3		1				6		21			14	5	319	44	
45											12	6	45		1			19	3	30		1			19		3				1	18	94	45
46								5	1		3							2	3					2	1						11	89	46	
47		2		4	1	2		5	1		15	1	1	7		1	10	15		1	1	3	1	3		2	1			1	4	6	258	47
48								12			4			1				16						2								8	329	48
49	140	1									3			3		1															19	172	49	
50	20																					1										1	22	50
51	110			2	1	2			4		24		1	23		1	9		1	3	1			1	2	4	1	2		8	6	242	51	
52	40	1									15			12		3	5										1				2	91	52	
53		154				1							7	1							4					4		3				183	53	
54			43																														44	54
55			51																														59	55
56				33		1									6						1											36	56	
57				14		2																											41	57
58	1			21		2								1							1											3	70	58
59				30							1				3																		50	59
60				32		1																											47	60
61		1	2	86		1			1		1				5							3									1	3	172	61
62	4	3		110	1	3					5			8	8		2	1				1				4		4			5	271	62	
63			1	14							2				1						1												38	63
64	2			68		1								3								2						1				109	64	
65	3	7		6	1	123					1		1	1						5			1					1			2	194	65	
66				1		57														1												70	66	
67						26																											26	67
68								11																									36	68
69											207														4							2	223	69
70																																		

TABLE 2.—DISTRIBUTION OF MEDICAL

Number	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Number
		Alabama.....498	Arizona.....9	Arkansas.....251	California.....341	Colorado.....138	Connecticut.....231	Delaware.....32	Dist. of Col.....122	Florida.....158	Georgia.....749	Idaho.....25	Illinois.....1338	Indiana.....454	Iowa.....404	Kansas.....317	Kentucky.....293	Louisiana.....288	Maine.....150	Maryland.....311	Massachusetts.....712	
94	Hahnemann Medical College and Hospital.—H.....						1	2							1							94
95	Jefferson Medical College, Philadelphia.....	4		5	3		13	9		2	5	3	5	8	10	8	11	2	3	1	10	95
96	Medico-Chirurgical College of Philadelphia.....	1			1		5	3	1				1					1		1		96
97	Temple University, Medical Dept., Philadelphia.....							1														97
98	University of Pennsylvania, Dept. of Med.....	1			2	1	2	6		3	3	2	2	4	1	2	5	2	4	1	5	98
99	Woman's Medical College of Pennsylvania.....				2	2	3						1		2	1		2			5	99
100	University of Pittsburgh, Med. Dept., Pittsburgh..																					100
101	Medical College of South Carolina, Charleston..									3	2											101
102	Univ. of South Dakota, Coll. of Med., Vermillion..																					102
103	Lincoln Memorial Univ., Med. Dept., Knoxville....					1											12					103
104	Meharry Medical College, Nashville.....	20		12		1				9	44		1	2		7	8	14		1		104
105	Vanderbilt University, Med. Dept., Nashville.....	26	1	5	6	1				4	11		7		1	1	42	13				105
106	University of Tennessee, Coll. of Med., Memphis...	6		10	1		1			2	1		5			1	5	8				106
107	Memphis Hospital Medical College, Memphis.....	22		35		1				2	2		1		1		7	44				107
108	Univ. of West Tennessee, Med. Dept., Memphis....			2						4	3							3				108
109	Fort Worth School of Medicine, Fort Worth.....	1			1																	109
110	University of Texas, Dept. of Med., Galveston.....										1					1		1				110
111	Baylor University, College of Medicine, Dallas....			2																		111
112	Southern Methodist University, Med. Dept., Dallas.				1																	112
113	Univ. of Utah, School of Med., Salt Lake City....					1																113
114	Univ. of Vermont, College of Med., Burlington....						15					1							9		21	114
115	Medical College of Virginia, Richmond.....				1						1		1	1						1		115
116	University College of Medicine, Richmond.....	2	1							1	2											116
117	Univ. of Virginia, Dept. of Med., Charlottesville...	5		3		1				1	2									1	1	117
118	West Virginia Univ. Coll. of Med., Morgantown...																					118
119	Milwaukee Medical College.....					1							8		3	2						119
120	Wisconsin Coll. of Phys. and Surgs., Milwaukee...			1	1								3		1							120
121	University of Wisconsin, Coll. of Med., Madison...								1				3	1			1					121
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

H., Homeopathic; E., Eclectic; * Total exact; distribution based on that of 1910-11.

—Georgetown University School of Medicine spent about \$50,000 during the year in the erection of a maternity department and a dispensary of the Georgetown University Hospital.

—George Washington University Department of Medicine received \$10,000 during the year for endowment.

Georgia.—The University of Georgia Medical Department has adopted plans for the new city hospital on an estimate of \$240,000. The teaching facilities of this hospital will be entirely controlled by the medical school. On March 6, 1912, all property of the Medical College of Georgia, Augusta, was transferred to the University of Georgia. This school announces that beginning Jan. 1, 1914, two years of collegiate work will be required of every student for admission.

Illinois.—Two new additions have been built to the Presbyterian Hospital of Chicago, the teaching facilities of which are controlled by Rush Medical College, one at a cost of \$300,000 and the other, the Memorial Hospital for Children, at a cost of \$150,000.

—Northwestern University has purchased property adjacent to the Medical School to provide for future extension, expending therefor \$160,000.

Indiana.—Dr. William Flynn, of Marion, Ind., formerly a member of the faculty of the Indiana Medical College, has willed his entire estate, valued at \$30,000, to the Indiana University School of Medicine. A new city dispensary has been opened at this medical school to care for the sick poor of Indianapolis. In connection with this dispensary Dr. Charles P. Emerson has organized a social service department.

Iowa.—Drake University College of Medicine, Des Moines, has completed a new addition to the medical building at a cost of \$25,000.

—A new wing to the University Hospital of the State University of Iowa College of Medicine, Iowa City, is rapidly approaching completion at a cost of about \$125,000. It is expected to be ready for occupancy by September first next.

Kansas.—By the will of the late Dr. J. E. Robinson, the first Governor of the State of Kansas, and since the death of his widow, his entire estate, valued at from \$80,000 to \$120,000, has been left to the University of Kansas. According to the wish of Dr. Robinson the income from this gift will be used in the development of the medical school.

Louisiana.—Tulane University Medical Department, New Orleans, has received pledges and gifts to the amount of about \$29,000 for the new Department of Tropical Medicine, Hygiene and Preventive Medicine. Small gifts amounting to about \$1,800 have been received for the departments of pathology, physiology and internal medicine.

Maine.—The Medical School of Maine, Portland, has received a sum of \$40,000 for endowments and \$23,000 for a teaching hospital. By the will of the late Dr. Albion S. Whitmore, of Boston, his medical library was bequeathed to the Medical School of Maine.

Maryland.—Subscriptions to the pathological endowment fund for the University of Maryland, School of Medicine have been received amounting July 1, 1912, to \$10,056. An effort is being made to raise \$100,000 for that fund.

—The Baltimore Medical College received a sum aggregating \$39,000, for improvements to the Maryland General Hospital. Of this sum \$19,000 was given by the State of Maryland; \$10,000 by the City of Baltimore; \$5,000 by the Hospital Auxiliary Association and \$1,500 from other sources. Improvements to the college building are to be made at a cost of \$35,000.

Massachusetts.—The Boston University School of Medicine, Boston, received \$6,000 during the year for endowments. The new Robert Dawson Evans Memorial for Clinical Research and Preventive Medicine was dedicated in March, 1912. It was erected as a part of the Massachusetts Homeopathic Hospital as a memorial to the late Robert Dawson Evans by his widow.

—Harvard University Medical School has recently established a special Graduate School of Medicine with Dr. Horace D. Arnold as its dean. This promises a new plane for post-graduate medical teaching in this country.

Michigan.—The University of Michigan, Department of Medicine and Surgery, Ann Arbor, spent about \$20,000 in improvements to the University Hospital.

Minnesota.—The University of Minnesota College of Medicine and Surgery, Minneapolis, has completed and equipped an anatomy building at a total expense of \$310,000. The New Millard Hall has also been completed which, with its equipment, costs \$326,000. Valuable gifts to the medical

Number.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	Number.	
	Michigan.....435	Minnesota.....295	Mississippi.....406	Missouri.....556	Montana.....28	Nebraska.....315	Nevada.....3	New Hampshire.68	New Jersey.....428	New Mexico.....8	New York.....2109	No. Carolina..491	North Dakota..58	Ohio.....818	Oklahoma.....103	Oregon.....149	Pennsylvania.1529	Rhode Island...96	So. Carolina...359	South Dakota..77	Tennessee.....535	Texas.....642	Utah.....69	Vermont.....127	Virginia.....448	Washington....93	West Virginia.217	Wisconsin.....439	Wyoming.....14	Philippines, etc.86	Foreign.....600	Totals.....18,412		
94									11		3			1			90	1							2	1		1			1	116	94	
95	1	2	8	4	2	6		2	53		19	29		23		4	305	3	9		4	3	3	6	4	4	4	1	1	6	8	616	95	
96								1	24	1	6			1			263	1				2	3	1						4	17	341	96	
97			1						6		1						60							1							11	81	97	
98	1	2	2	1		3			20		17	9		8		1	212	2	2		2	4	1		5	5	2	6		2	14	367	98	
99	1	1		1	1			1	10		17	1		4			36	1	2				1		1						15	112	99	
100									1					1			169										3					174	100	
101											1	2							154						1						1	164	101	
102																				9												9	102	
103								1				4		1					2		70				5								97	103
104			36	9								9		1	6				13		51	65			4		2				20	335	104	
105			22	10	2				1		2	6			5				5		180	37			2						2	392	105	
106			13	2								1			4					77	6			1							1	155	106	
107			97	2											9					65	30			1								319	107	
108			4									4			1		1		3		4	3			2		1				2	37	108	
109															3						66											71	109	
110																					159											162	110	
111				1											2						1	62										68	111	
112															1							60										62	112	
113																							11									12	113	
114								11	3		21						2	3						83							7	176	114	
115		1							4		9	39					3		5		1	1			163	1	6		1		3	242	115	
116									1		2	44		1			1		2						50		8				5	160	116	
117			6								1	9							7		2				36		4				1	2	82	117
118																	5															1	19	118
119	12	26		1									4	4	1		1										13				14	242	119	
120		1																		2									31		3	43	120	
121										1	1		2							1								49				60	121	
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52		

library have been received, aggregating to the value of about \$5,000. These were given by Drs. Charles A. Wheaton, Charles L. Green, J. E. Moore and others.

Missouri.—During the year the St. Louis University School of Medicine has received gifts for various purposes amounting to \$8,210. A new dispensary has been opened at the Sisters of St. Mary's Infirmary, the clinics to be placed in charge of the St. Louis University School of Medicine.

—The contract for the new Barnes Hospital building on Kingshighway has been awarded for \$803,000. This is to be the teaching hospital of the Washington University, School of Medicine.

Nebraska.—The University of Nebraska College of Medicine is erecting a laboratory building on the new medical college campus at Omaha, for which an appropriation of \$100,000 was made by the State Legislature a year ago.

—The Cotner Medical College is making an effort to raise money for a new medical college building. It is reported that about \$10,000 has already been subscribed for this purpose.

New York.—The trustees of the Syracuse University College of Medicine have authorized the building of a college dispensary to cost \$75,000. The building will be erected during the coming year.

—It is reported that the New York Medical College and Flower Hospital has received \$108,000 during the year for general purposes.

—The old penitentiary grounds at Albany have been transferred to the trustees of the Albany Medical College as a site for a new medical college building which must be erected within the next three years.

—The New York Board of Regents adopted a resolution requiring that after Oct. 1, 1912, no medical college would be registered in that state as maintaining a proper medical standard unless it had at least six expert, full-time, salaried instructors.

North Carolina.—The Leonard Medical School, Raleigh, has recently completed a new hospital at a cost of \$20,000. A three-story addition has also been made to the college building, at a cost of about \$2,000. Various gifts amounting to about \$5,000 were received during the year.

—The University of North Carolina Medical Department, Chapel Hill, has recently completed a new and commodious medical laboratory building at the cost of \$50,000. It was dedicated May 8, 1912, when Mr. Edgar F. Smith, provost to the University of Pennsylvania, gave the principal address.

Ohio.—It is reported that the Eclectic Medical College of Cincinnati has received endowments during the year to the amount of \$16,300.

—During the year about \$290,000 have been added to the endowments for Western Reserve University Medical Department, Cleveland. In addition to this subscriptions have been received amounting to \$450,000, these being payable within the next two years. Sufficient was received to complete the \$1,000,000 raised for the additional endowment for the medical school.

Oklahoma.—The new hospital for the State University School of Medicine, was opened Jan. 17, 1912. It was formerly the Rolater Hospital, which was leased for three years, enlarged and remodeled. It will accommodate sixty patients.

Pennsylvania.—During the year the Jefferson Medical College received by gift, the Daniel Baugh Institute of Anatomy, fitted and equipped, representing a total value of \$150,000. The sum of \$14,000 was received for a new teaching laboratory of clinical medicine. Various sums aggregating \$90,000 have been received for endowment and extensions to the Jefferson Hospital. About \$100,000 was received for the maintenance of this hospital, of which sum \$95,000 was given by the State of Pennsylvania.

—The Temple University Medical Department, Philadelphia, has erected a clinical laboratory building adjoining the Samaritan Hospital, at a cost of about \$10,000. About \$15,000 has been received for the extensions to Samaritan Hospital, and for the maintenance of this hospital a sum of \$70,000 was granted by the State of Pennsylvania.

—A gift of \$1,000 was received by the Medico-Chirurgical College of Philadelphia for enlarging the chemical library.

—Hahnemann Medical College, of Philadelphia, received an endowment of \$200,000. Half of this sum was received from Walter Hering for the endowment of the Constantine Hering professorship of materia medica and therapeutics; the other

Name of College.	Enrolled During 1911-12.					Name of College.	Enrolled During 1911-12.				
	1st Yr.	2d Yr.	3d Yr.	4th Yr.	Total.		1st Yr.	2d Yr.	3d Yr.	4th Yr.	Total.
Birmingham Medical Coll., Birmingham	46	34	72	31	183	Cotner Medical College.—E.....	6	4	9	7	26
Univ. of Alabama, Med. Dept., Mobile..	26	28	44	39	137	Dartmouth Medical School, Hanover....	8	7	12	9	36
Univ. of Ark., Med. Dept., Little Rock...	22	30	40	53	145	Albany Medical College, Albany.....	83	50	47	43	223
College of P. and S., San Francisco.....	6	4	2	4	16	Columbia University, Coll. of P. and S..	81	71	104	91	347
Hahn. Med. Coll. of Pac., San Fran.—H.	6	6	18	5	35	Cornell University Medical College, New					
Leland Stanford Junior Univ., Dept. of						York City	32	23	19	11	85
Med., San Francisco.....	17	10	7	36	70	Eclectic Medical College of the City of					
University of California, Medical De-						New York.—E	19	7	4	15	45
partment, San Francisco-Los Angeles..	33	18	10	27	88	Fordham University School of Med....	31	29	31	27	118
Cal. Eclec. M. Coll., Los Angeles.—E. (a).					28	Long Island Coll. Hosp., New York City	116	133	94	69	412
College of P. and S., Los Angeles.....	41	33	26	26	126	New York Homeopathic Medical College					
Oakland Coll. of M. and Surg., Oakland	2	7	6	7	22	and Hospital.—H.....	70	31	35	34	170
Coll. of Med. Evangelists, Loma Linda..	24	23	9		56	New York Medical College and Hospital					
University of Colorado, School of Med..	13	14	51	40	118	for Women.—H.....	16	7	6	2	31
Yale Medical School, New Haven.....	11	10	11	31	63	University and Bellevue Hospital Med-					
George Washington University, Dept. of						ical College, New York.....	205	104	84	83	476
Medicine, Washington	29	14	9	40	92	Syracuse University, College of Medi-					
Georgetown University School of Medi-						cine, Syracuse	21	15	23	32	91
cine, Washington	56	36	36	27	155	University of Buffalo, Medical Depart-					
Howard University, School of Medicine,						ment, Buffalo	82	58	48	40	228
Washington	35	28	52	55	170	Leonard Medical School, Raleigh.....	28	34	25	34	121
Atlanta College of P. and S., Atlanta...	141	76	86	69	372	University of North Carolina, Medical					
Atlanta School of Medicine, Atlanta....	43	73	58	59	233	Department, Chapel Hill (e).....	29	25			54
Georgia College of Eclectic Medicine and					70	North Carolina Med. Coll., Charlotte...	22	24	27	27	100
Surgery, Atlanta.—E (a).....						Wake Forest School of Medicine (c)....	28	11			39
Southern College of Medicine and Sur-					20	Univ. of North Dakota, Med. Dept., Uni-					
gery, Atlanta (a).....						versity-Grand Forks (e).....	8	5			13
University of Georgia, College of Medi-						Cleveland-Pulte Med. Coll., Cleveland.—H	29	13	23	14	79
cine, Augusta	22	28	34	42	126	Western Reserve University Medical De-					
Pennett Medical College, Chicago.....	114	104	69	115	402	partment, Cleveland	48	33	42	53	176
Chicago College of Med. and Surg.....	116	108	174	158	556	Eclectic Med. Coll., Cincinnati.—E.....	23	20	27	19	89
College of P. and S., Chicago.....	123	109	127	147	506	Ohio-Miami Medical College of the Uni-					
Hahnemann Medical College and Hos-						versity of Cincinnati.....	18	11	28	56	113
pital, Chicago.—H.....	20	24	26	34	104	Starling-Ohio Medical Coll., Columbus...	73	70	59	54	256
Hering Medical College, Chicago.—H.....	5	4	12	7	28	Toledo Medical College, Toledo.....	8	9	13	9	39
Jenner Medical College, Chicago.....	72	28	21	17	138	Univ. of Oklahoma, School of Med.,					
Northwestern University Medical School,						Norman and Oklahoma City.....	18	13	9	11	51
Chicago (b)	38	44	57	79	259	University of Oregon, Medical Depart-					
Rush Medical College, Chicago (c).....	164	165	91	139	559	ment, Portland	18	13	20	16	67
Indiana University, School of Medi-						Willamette University, Medical Depart-					
cine, Indianapolis	35	22	51	47	155	ment, Salem	17	19	12	12	60
Drake University, College of Medicine...	5	4	24	17	50	Hahnemann Medical College and Hos-					
State University of Iowa, College of						pital, Philadelphia.—H.....	20	19	29	48	116
Medicine, Iowa City.....	33	18	22	37	110	Jefferson Medical College, Philadelphia..	174	156	134	152	616
State University of Iowa, College of						Medico-Chirurgical Coll. of Philadelphia.	82	93	85	81	341
Homeopathic Medicine, Iowa City.—H.	3	1	5	7	16	Temple University, Medical Department,					
Kansas Medical College, Topeka.....	4	4	19	10	37	Philadelphia	17	17	21	26	81
University of Kansas, School of Medi-						University of Pennsylvania, Department					
cine, Kansas City.....	34	17	9	15	75	of Medicine, Philadelphia.....	67	70	98	132	367
Louisville Nat. Med. Coll., Louisville....	10		3	4	17	Woman's Medical College of Pennsyl-					
University of Louisville, Med. Dept.....	89	64	80	120	353	vania, Philadelphia	33	21	23	35	112
Tulane Univ. Med. Dept., New Orleans...	61	66	74	120	321	Univ. of Pittsburgh, Med. Dept.....	16	47	44	67	174
Medical School of Maine, Portland.....	35	22	15	11	83	Med. Coll. of S. Carolina, Charleston...	32	25	42	65	164
Baltimore Medical College, Baltimore...	89	44	33	33	199	University of South Dakota, College of					
College of P. and S., Baltimore.....	88	57	94	82	321	Medicine, Vermillion (e).....	4	5			9
Johns Hopkins University, Medical De-						Lincoln Memorial University Medical De-					
partment, Baltimore	97	94	81	85	357	partment, Knoxville	32	15	24	26	97
Maryland Medical College, Baltimore...	25	21	45	91	182	Meharry Medical College, Nashville.....	85	81	94	75	335
University of Maryland, School of Med..	79	81	75	84	319	Vanderbilt Univ., Med. Dept., Nashville.	131	93	85	83	392
Boston Univ., School of Medicine.—H....	38	25	13	18	94	University of Tennessee, College of Med-					
College of P. and S., Boston (a).....					89	cine, Memphis	33	27	42	53	155
Harvard Medical School, Boston.....	95	57	56	50	258	Memphis Hosp. Med. Coll., Memphis....	73	50	84	112	319
Tufts Coll. Med. School, Boston.....	98	85	63	83	329	University of West Tennessee, Medical					
Detroit College of Medicine, Detroit.....	52	49	32	39	172	Department, Memphis	12	4	8	13	37
Detroit Homeo. College, Detroit.—H....	8	5	4	5	22	Fort Worth Sch. of Med., Ft. Worth...	22	14	18	17	71
University of Michigan, Dept. of Med.						University of Texas, Department of					
and Surg., Ann Arbor.....	58	53	42	89	242	Medicine, Galveston	49	22	47	44	162
University of Michigan, Homeopathic						Baylor Univ., Coll. of Med., Dallas.....	11	18	18	21	68
College, Ann Arbor.—H.....	30	21	19	21	91	Southern Methodist University, Medical					
University of Minnesota, Coll. of Med.						Department, Dallas	12	21	15	14	62
and Surg., Minneapolis.....	62	40	46	35	183	University of Utah, School of Medicine,					
University of Mississippi, Medical De-						Salt Lake City (e).....	8	4			12
partment, Oxford	20	24			44	University of Vermont, College of Med-					
Mississippi Med. Coll., Meridian.....	16	12	14	17	59	cine, Burlington	46	43	42	45	176
University of Missouri, Medical Depart-						Medical College of Virginia, Richmond..	81	60	40	61	242
ment, Columbia (e).....	21	15			36	University Coll. of Med., Richmond.....	45	36	40	39	160
Kansas City Hahnemann Med. Coll.—H..	9	11	11	10	41	University of Virginia, Department of					
Univ. Med. Coll., Kansas City (d).....			41	29	70	Medicine, Charlottesville	30	26	14	12	82
Eclectic Med. Univ., Kansas City.....	16	16	5	13	50	West Virginia University School of Med-					
Ensworth Medical College, St. Joseph...	12	19	11	5	47	cine, Morgantown (e).....	13	6			19
American Medical College, St. Louis...	45	33	48	46	172	Milwaukee Medical College.....	71	53	65	51	242
St. Louis Univ., School of Medicine....	67	41	85	78	271	Wisconsin College of Physicians and					
St. Louis College of P. and S.....	7	10	9	12	38	Surgeons, Milwaukee	9	10	12	12	43
Washington Univ., Med. Dept., St. Louis.	24	10	31	44	109	University of Wisconsin, College of					
Creighton Medical College, Omaha.....	54	36	50	54	194	Medicine, Madison (e).....	36	24			60
University of Nebraska, College of Med-											
icine, Lincoln and Omaha.....	23	27	11	9	70						
						Totals (f).....	5048	4063	4294	4759	18412

References.—(a) Classified lists of students not published. (b) Total includes 41 students unclassified because of conditions. (c) No distinction made by college between students of first and second years, so total has been equally divided. (d) Only third and fourth years of course given. (e) Only first and second years of course given. (f) Grand total includes also the figures for the unclassified students referred to in (a) and (b).

Note.—This table allows of comparison not only between classes of each college but also between different colleges. The figures are particularly interesting at this time owing to the general increase in entrance requirements by a large number of medical colleges. The effect of these higher requirements is shown by the smaller classes enrolled. For example, two years ago the University of Colorado began requiring two years of college work for admission; the result is seen in smaller enrollments of students in the first and second years. The same is true regarding Drake University. In the University of Pennsylvania it can readily be seen that the higher requirements began three years ago. On the other hand, the temporary benefit reaped by some colleges which have retained the lower entrance standards is shown by larger enrollments. This is well illustrated by the larger classes enrolled in the first and second years by two of the New York colleges, and by one Philadelphia college. Both sides of the equation are shown in the Georgia schools where two colleges, last year, adhered to a four-year high school education and naturally reduced the number of their first year matriculants, while another college by retaining a lower requirement registered almost twice the usual number. The large fourth year class registered by one of the Maryland colleges is found on investigation to be due to unusually generous allowances of credit for advanced standing. On the whole it is noteworthy that there are 5,048 first year students, nearly a thousand more than are enrolled in the second class year, although only about three hundred more than were enrolled in the fourth year class.

half by the will of Mrs. William L. Elkins, the income to be used for the general support of the institution.

Tennessee.—It is reported that the Lincoln Memorial University Medical Department has erected a new laboratory building at the cost of about \$10,000.

—The University of Tennessee College of Medicine, Memphis, has a new four story laboratory building rapidly approaching completion, the estimated cost of which is \$30,000.

—The Meharry Medical College, Nashville, has obtained a sum of \$10,000 for the completion of the new Hubbard Hospital. Mr. Julius Rosenwald, of Chicago, has agreed to give \$2,500 annually for five years to Meharry Medical College, providing that \$37,500 is raised from other sources during that time. By the will of the late Dr. Robert F. Boyd, \$5,000 was left to the George W. Hubbard Hospital.

—Vanderbilt University Medical Department has received gifts to the amount of \$300,000, half of which was for the endowment of the institution and the other half for medical buildings. A sum of \$40,000 was also secured for the erection of a teaching hospital and \$12,000 for hospital maintenance. The Nashville Academy of Medicine has given \$4,000 as an addition to the medical library. A new laboratory building is rapidly approaching completion on the new campus recently received and which formerly belonged to the Peabody Normal College.

Texas.—The University of Texas, Department of Medicine, Galveston, has let the contract for an Isolation Pavilion for treating contagious diseases on the grounds of the Sealy Hospital. It is expected this building will be completed by the first of November. The cost will be about \$16,000. The school has received an appropriation from the legislature of \$65,000 for maintenance.

—The Southern Methodist University Medical Department, Dallas, it is reported, has secured \$5,000 for equipment of laboratories.

Vermont.—The University of Vermont College of Medicine, Burlington, received a state appropriation of \$10,000.

Virginia.—The Medical College of Virginia receives annually an appropriation of \$5,000 from the State of Virginia.

—The new building of the University College of Medicine, erected at a cost of about \$136,000, was opened for public inspection May 22, 1912.

Wisconsin.—A new clinical laboratory building is being erected at the University of Wisconsin to be in charge of the Student Medical Advisor. This has been found necessary because of the growth of the work of examining into the physical condition of the students in attendance in the various departments of the university.

Philippine Islands.—New buildings have been erected for the University of the Philippines, College of Medicine, in the last few years as follows: A hospital of 350 beds at a cost of about \$390,000 and a two- and three-story laboratory building having a frontage of nearly 300 feet, at a cost of approximately \$125,000. This school requires a five-year course, the fifth year being spent by the student as an intern in the hospital. After Jan. 1, 1914, two years of collegiate work will be required for admission. It is the medical department of the University of the Philippine Islands established and supported by the Philippine government.

Foreign Medical College Notes

Canada.—The Laval University Medical Faculty, Montreal, received from the Provincial government and from the City of Montreal a grant of \$20,000 for teaching purposes.

—McGill University Medical Faculty, Montreal, received during the year endowments to the amount of \$217,000 and for new medical buildings a sum of \$100,000. The latter sum was donated by Mr. and Mrs. Robert Reford as an endowment for the chair and department of anatomy.

China.—The sum of \$3,000 has been contributed by patrons of the University of Pennsylvania to the fund for the University Medical School of Canton, China. Two faculty residences are to be built on the campus of the medical school. The

college building of this school was erected at a cost of \$20,000, and \$100,000 are now being expended for a hospital. The college is conducted under the auspices of the University of Pennsylvania.

—There is now a "Harvard Medical School" located at Shanghai, China. It is said to have been inaugurated under Harvard auspices, and officered by Harvard men. Dr. Eliot, former president of Harvard, is President of the China school, and made a visit to it during his recent trip around the world. Rather than to prepare practitioners, the object of the school is to train teachers who will carry medical progress to the remotest parts of China. The same high grade of medical training will be given as that in the best schools of the United States or Europe. Special attention is to be given to hygiene and public health.

Germany.—It is reported that during the summer of 1912, 2,958 women medical students are enrolled in the German universities as compared with 2,552 the previous year. Of the total this year 1,963 or 66.3 per cent. are enrolled in the ten Prussian universities as compared with 50.8 per cent. of the male students. About 2,500 of these women students are German while the balance, 258, are foreigners.

India.—Grant Medical College is affiliated with the University of Bombay. It was organized in 1845 but not recognized by the University until 1860. A five year course, including a preliminary year in physics, chemistry and biology, leads to degrees of Bachelor of Medicine and Surgery. These degrees admit the holder to practice. From three to five years of practice, including a year's study at a recognized hospital in some particular branch in which a special examination must be passed, is essential to secure the degree of M.D. During 1911-12 the highest number of students was enrolled, 519, and 55 passed the final examination. The college is well endowed, has laboratories for scientific research and gives clinical instruction in a hospital aggregating nearly 500 beds.

—The following table shows the number of students and graduates of the various medical schools of India¹ during the last year:

Colleges and Schools *	Students Enrolled	Passed Final Examination
University of Bombay, Grant Medical College	519	55
University of Calcutta, Med. Coll. of Bengal.	535	43
Panjab University, Lahore Medical College..	167	26
University of Madras, Madras Med. College..	388	15
Agra Medical School.....	301	39
Lahore Medical School.....	263	41
Rangoon, Government Medical School.....	43	10
Medical Schools at Dacca and Dibragarh...	295	72
Royapuram Medical School.....	177	14
Tanjore Prince of Wales School.....	94	6
Vizagapatam, Medical School.....	52	4
Medical School at Poona.....	136	23
Medical School at Ahmedabad.....	139	22
Medical School at Hyderabad.....	51	8
Totals.....	3,160	378

* It is understood that only the four colleges first named are accredited by the Examining Board in England.

Ireland.—Last year the Medical School of Trinity College, Dublin,² completed the second century of its existence. Trinity College was founded by Queen Elizabeth in 1590. Funds were raised to the amount of \$10,000 a sum equal to about \$80,000 at the present day. Although medicine was apparently taught and degrees granted as early as 1616, the Medical School with organized instruction was not established until special medical buildings were erected and formally opened Aug. 16, 1711. For the first fifteen years the matriculations averaged only 4.7 in each year. Following this there was a gradual increase until in 1829 the number reached 90. During 1872 to 1881 a yearly average of thirty-nine degrees in medicine were granted. The present medical building was erected in 1886. Other buildings are the histological laboratory, erected in 1880, and the anatomical, built in 1876. This is said to be one of the oldest and most renowned medical schools of Great Britain.

1. Indian Med. Gaz., June, 1912, p. 238.

2. Brit. Med. Jour., June 8, 1912, p. 1305.

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[For other information see second page following reading matter]

SATURDAY, AUGUST 24, 1912

Wrong Cover on Last Week's Journal

Through a peculiar accident, between 500 and 1,000 copies of last week's issue of The Journal were bound with the cover for the previous week. We shall be glad if those who received The Journal in this condition will write us; we will then send them the right cover to paste on.

MEDICAL EDUCATION IN THE UNITED STATES

The tabulated statistics herewith presented (pages 625 to 649) are for the year ending June 30, 1912, and are based on signed reports received directly from the medical colleges, or from other reliable sources. We take much pleasure in acknowledging here the courtesy and cooperation of the various officials of the medical colleges which have made the compilation of these complete statistics possible.

STATISTICS OF COLLEGES

Table 1 (pages 640 to 642) gives the colleges in session during 1911-1912, the population of the city in which each college is located, the number of students, men and women, registered during the year, the number of 1912 graduates, men and women, the number of graduates holding collegiate degrees, the number of teachers for each college, the number of weeks of actual work in the college year, the total fees for each year, the executive officer of the college and the dates of beginning and ending of the next session. The figures in heavy-faced type show the totals by states. Beginning on page 625 are given essential facts concerning all medical colleges arranged by states.

NUMBER OF MEDICAL STUDENTS

The total number of medical students (matriculants) in the United States for the year ending June 30, 1912, excluding special students, was 18,412, a decrease of 1,374 below 1911, a decrease of 3,114 below 1910, a decrease of 3,733 below 1909, and a decrease of 9,730 below 1904, when the highest number of students was enrolled. In fact, it is the lowest number since THE JOURNAL began compiling these statistics in 1900. Of the total number of students, 17,277 were in attendance at the so-called regular colleges, 827 at the homeopathic, and 308 at the eclectic colleges. The attendance at the regular colleges shows a decrease of 1,137 below that of

last year and of 2,859 below 1910. In the homeopathic colleges there was a decrease of sixty-three below the attendance of 1911 and a decrease of forty below the total for 1910. The eclectic colleges show a decrease of sixty-three below 1911 and a decrease of forty-seven below 1910. The last of the physiomedical colleges became extinct a year ago.

TABLE 4.—MEDICAL COLLEGE ATTENDANCE

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Non-descript.	Total.
1880.....	9,776	1,220	820	...	...	11,826
1890.....	13,521	1,164	719	...	...	15,404
1900.....	22,710	1,909	522	...	...	25,171
1901.....	23,846	1,683	664	80	144	26,417
1902.....	24,878	1,617	765	91	150	27,501
1903.....	24,930	1,498	848	149	190	27,615
1904.....	23,662	1,309	1,014	123	234	28,142
1905.....	24,119	1,104	578	114	232	26,147
1906.....	23,116	1,085	644	110	249	25,204
1907.....	22,303	1,039	545	97	292	24,276
1908.....	20,936	891	479	90	206	22,602
1909.....	20,554	899	413	52	227	22,145
1910.....	20,136	867	455	49	19	21,526
1911.....	18,414	890	433	49	...	19,786
1912.....	17,277	827	308	...	...	18,412

The total number of graduates for the year ending June 30, 1912, was 4,483, an increase of 210 above 1911, an increase of forty-three above 1910 but a decrease of thirty-two below 1909. The total this year is 1,264 less than in 1904, when the largest number were graduated. The percentage of graduates to matriculants was 24.7 this year, as compared with 21.6 in 1911 and 20.7 in 1910.

The number of graduates from the regular colleges was 4,206, or 200 more than in 1911, ninety-three more than in 1910 and forty-three more than in 1909. From the homeopathic colleges there were 185 graduates, or thirty-three more than in 1911, two more than in 1910 and twenty-four less than in 1909. The eclectic colleges graduated ninety-two, or eighteen less than last year, but eight more than in 1909.

TABLE 5.—MEDICAL COLLEGE GRADUATES

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Non-descript.	Total.
1880.....	2,673	380	188	..	..	3,241
1890.....	3,853	380	221	..	..	4,454
1900.....	4,715	413	86	..	..	5,214
1901.....	4,879	387	148	18	12	5,444
1902.....	4,508	336	138	16	11	5,009
1903.....	5,088	420	149	24	17	5,698
1904.....	5,190	371	146	20	20	5,747
1905.....	5,126	276	153	22	23	5,600
1906.....	4,841	286	186	22	29	5,364
1907.....	4,591	225	121	11	32	4,980
1908.....	4,370	215	116	12	28	4,741
1909.....	4,163	209	84	15	44	4,515
1910.....	4,113	183	114	16	14	4,440
1911.....	4,006	152	110	5	..	4,273
1912.....	4,206	185	92	..	..	4,483

Of the 4,483 medical graduates 763, or 17 per cent., were reported to hold also degrees in arts or science, as compared with 16.5 per cent. last year and 15.3 per cent. in 1910. Of the regular school graduates, 17.8 per cent. held baccalaureate degrees, while of the homeopathic

graduates, only 6.5 per cent. and of the eclectic graduates 4.3 per cent., held such degrees. As will be noted by referring to Table 12, of the 763 graduates holding baccalaureate degrees, 141, the largest number, came from Illinois colleges, followed by eighty-five from Maryland, eighty-two from New York, sixty-five from Pennsylvania and sixty-two from Massachusetts. It is expected that in future the percentage of graduates holding collegiate degrees will increase, since a larger number of medical schools are requiring college work for admission.

WOMEN IN MEDICINE

During the past year there were 679 women studying medicine, or one less than last year, a decrease of 228 below 1910, and a decrease of 242 below 1909. The percentage of all medical students was 3.2 as compared with 3.4 last year. There were 142 women graduates this year, or 3.2 per cent. of all graduates. In 1910 there were 907 women students and 157 graduates, while in 1909 there were 921 women students and 162 graduates. Of all the women matriculants, 143 (21.1 per cent.) were in attendance at the two medical colleges for women, as compared with 134 (19.7 per cent.) in 1911, 155 (17.1 per cent.) in 1910, 169 (18.4 per cent.) in 1909 and 186 (22.3 per cent.) in 1908. The remaining 536 (79.8 per cent.) were matriculated in the sixty-four coeducational colleges. From the two women's colleges, there were thirty-two, or 22.5 per cent., of all women graduates while 110, or 77.5 per cent., secured their degrees from coeducational colleges.

TABLE 6.—WOMEN IN MEDICINE

Year.	Total women students.	Percentage of all graduates, both sexes.	Total women graduates.	Percentage of graduates, both sexes.	Women's colleges.	Students.	Percentage of all women students.	Graduates.	Percentage of all women graduates.	Co-ed. schools.	Students.	Percentage of all women graduates.	Graduates.	Percentage of all women graduates.
1904	1,129	4.3	244	4.0	3	183	16.2	56	23.0	97	946	83.8	198	77.0
1905	1,073	4.1	219	4.0	3	221	20.6	54	24.5	96	852	79.4	165	75.5
1906	895	3.5	233	4.3	3	189	21.0	33	14.1	90	706	79.0	200	85.9
1907	928	3.8	211	4.2	3	210	22.6	39	18.5	86	718	77.4	172	81.5
1908	835	3.7	185	3.9	3	186	22.3	46	24.9	88	649	77.7	139	75.1
1909	921	4.2	162	3.7	3	169	18.4	33	20.3	91	752	81.6	129	79.7
1910	907	4.2	157	3.5	3	155	17.1	41	26.1	82	752	82.9	116	73.9
1911	680	3.4	159	3.7	2	134	19.7	36	22.6	74	546	80.3	123	77.4
1912	679	3.2	142	3.2	2	143	21.1	32	22.5	64	536	78.9	110	77.5

NUMBER OF COLLEGES

Since June 30, 1911, seven colleges (mentioned on page 643) have either suspended or have merged into others, one new college has been organized and two others formerly suspended were revived, leaving 116 medical colleges still existing. The number of colleges is now the same as in 1890. It was about that time that the movement toward establishing medical colleges for profit became most marked and the rapid increase in the number of colleges has been paralleled only by the rapid

decrease since 1904. There has been a net decrease of fifty colleges since 1904, when there were 166 colleges. Sixty-five colleges have been closed by merger or otherwise since 1904, but in the same time fifteen new colleges were organized, leaving 116 medical colleges which still exist. The regular colleges number 100, a decrease of one since last year. The homeopathic colleges number ten, a decrease of two since last year and the eclectic colleges number six, a decrease of one since last year.

TABLE 7.—MEDICAL COLLEGES

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med.	Non-descript.	Total.
1880.....	72	12	6	..	..	90
1890.....	93	14	6	..	..	116
1900.....	121	22	8	..	..	151
1901.....	124	21	10	2	2	159
1902.....	121	20	10	3	1	155
1903.....	121	19	10	3	1	154
1904.....	133	19	10	3	1	166
1905.....	129	18	9	3	1	160
1906.....	130	18	9	3	1	161
1907.....	131	17	8	3	2	161
1908.....	123	16	8	2	3	152
1909.....	117	14	8	2	3	144
1910.....	111	13	7	1	1	133
1911.....	101	12	7	..	..	120
1912.....	100	10	6	..	..	116

FEWER BUT BETTER COLLEGES

Of the sixty-five medical colleges which have ceased to exist, thirty-seven were closed by merger and twenty-eight became extinct. It is noteworthy that this remarkable diminution in the number of colleges began following the creation of the Council on Medical Education in 1905, and became more marked following the Council's first classification of medical colleges issued in 1907. The largest number closing was in 1910, when the Council's second classification was published.

TABLE 8.—COLLEGES CLOSED SINCE 1904

Year.	Class A.*		Class B.		Class C.		Totals.		Total Closed
	Mgd.	Ext.	Mgd.	Ext.	Mgd.	Ext.	Mgd.	Ext.	
1905.....	8	1	..	..	..	..	8	1	9
1906.....	..	..	..	..	..	..	..	..	..
1907.....	3	..	3	1	..	3	6	4	10
1908.....	2	..	2	..	1	4	5	4	9
1909.....	3	..	2	..	..	7	5	7	12
1910.....	1	..	3	..	3	6	7	6	13
1911.....	..	..	3	..	1	3	4	3	7
1912.....	2	..	..	..	..	3	2	3	5
Totals...	19	1	13	1	5	26	37	28	65

* Based on the classifications of medical colleges prepared by the Council on Medical Education.

It is interesting to note also that most of the closures of medical schools in Classes A and B were by merger, whereas all but two of the medical schools which became extinct had been rated in Class C.

While the total number of colleges is growing smaller, however, and approaching more nearly the normal supply for this country, it is encouraging to note that the number of high-grade, stronger medical colleges is constantly increasing. In 1904, only four medical colleges were requiring any preliminary education in advance of

the usual high school education; now there are forty-five¹ requiring one or more years of advance college work. The colleges have been remarkably improved also in regard to buildings, new laboratories, better equipment, larger hospital facilities and—most important—more and better full-time, salaried instructors.

LENGTH OF TERMS

The length of term of each college fluctuates somewhat from year to year, but on the whole, during the last twelve years there has been a decided lengthening of college terms. This has reference to the weeks of actual work, exclusive of holidays. Only one college this year reported sessions shorter than twenty-seven weeks, whereas in 1901 fifty-eight reported sessions of this length. Likewise, only one college, or five less than last year, and forty-five less than in 1903, reported sessions of twenty-seven or twenty-eight weeks. Eleven colleges claim courses of twenty-nine or thirty weeks of actual work, thirty-four claim courses of thirty-one or thirty-two weeks, and thirty-seven, the largest number, claim courses of from thirty-three to thirty-four weeks. Of the 116 colleges now existing, ninety-nine, or over 85 per cent., now claim to require from thirty-one to thirty-six weeks of actual work, exclusive of holidays, as compared with 76 per cent. in 1910, 42 per cent. in 1904 and 30 per cent. in 1901. The one college claiming a course longer than thirty-six weeks is a night school; it would require twelve or fourteen years of the usual night-school study, however, to obtain the equivalent of four years of thirty weeks each in one of the better day colleges.

TABLE 9.—COLLEGE TERMS

Year.	23 to 26 weeks.		27 to 28 weeks.		29 to 30 weeks.		31 to 32 weeks.		33 to 34 weeks.		35 to 36 weeks.		Over 36 weeks.	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1901	58	36.5	42	26.4	8	5.0	26	16.4	4	2.5	18	11.3	3	1.9
1902	44	28.4	44	28.4	11	7.1	33	21.3	3	1.9	18	11.6	2	1.3
1903	33	21.4	46	29.9	15	9.7	37	24.0	2	1.3	19	12.4	2	1.3
1904	27	16.3	44	26.5	22	13.3	37	22.3	13	7.8	20	12.0	3	1.8
1905	15	9.4	35	21.8	12	7.5	44	27.5	13	8.1	38	23.8	3	1.9
1906	14	8.7	35	21.7	26	16.1	32	19.9	24	14.9	28	17.4	2	1.3
1907	6	3.7	27	16.8	26	16.1	42	26.1	29	18.0	29	18.0	2	1.3
1908	2	1.3	21	13.8	28	18.4	51	33.6	24	15.8	22	14.5	4	2.6
1909	4	2.3	17	11.6	23	16.4	51	34.9	18	12.3	30	20.5	3	2.0
1910	2	1.5	8	6.0	19	14.3	42	31.5	30	22.6	30	22.6	2	1.5
1911	..	..	6	5.0	16	13.3	37	30.8	32	26.7	28	23.4	1	0.8
1912	1	0.9	1	0.9	11	9.5	34	29.3	37	31.8	31	26.7	1	0.9

TUITION AND OTHER FEES

Special attention is called in Table 1 to the total amount charged by the various colleges for tuition, matriculation, laboratory and graduation fees per annum for each student. In Table 10 the 116 colleges have been grouped according to the amount of fees charged and according to their classification by the Council on Medical Education in Classes A, B or C. Nineteen colleges charge fees of \$100 or less per year, seventy-nine charge between \$100 and \$175, and eighteen charge above \$175. Of the nineteen colleges charging \$100 or less, ten, or over half were listed among Class A (acceptable) col-

1. List shown on page 636.

leges² by the Council on Medical Education, three were among Class B colleges, and only six of them are found among the Class C colleges. Among the ten Class A colleges having these low fees are the schools of medicine of the state universities of Colorado, Iowa, Mississippi, Missouri, North Dakota, South Dakota, Texas and Utah.

TABLE 10.—COLLEGE FEES

Total Fees.	Number of Colleges.			
	Class A.*	Class B.	Class C.	Total.
\$ 50 or less.....	1	1	..	2
50 to \$ 75.....	7	1	2	10
75 to 100.....	2	1	4	7
100 to 125.....	11	8	15	34
125 to 150.....	13	4	10	27
150 to 175.....	10	6	2	18
175 to 200.....	9	2	..	11
200 or above.....	7	..	..	7
Totals.....	60	23	33	116

* Based on the latest classification of medical colleges prepared by the Council on Medical Education.

On the other hand thirty colleges listed by the Council in Class C charge fees of over \$100 per year for each student. This clearly refutes the assertion made by some inferior colleges that they are needed for the sake of "the poor boy who wants to study medicine." Although fifty colleges listed in Class A charge fees ranging from \$150 to \$275 per year for each student, the actual expense for teaching that student in these colleges amounts to-much more than that.

COST OF MEDICAL INSTRUCTION

From statements from ten medical colleges showing the amount actually expended for conducting those colleges during one recent session, Table 11 has been prepared. For each college the total expenditure is shown, the average cost per student, and the average amount received in fees from each student. One college, it will be noted, expended \$1,177 for each student, whereas that student gave in return only \$153. The average

TABLE 11.—COST OF TEACHING MEDICINE

Actual cost for one year in ten medical schools. Average enrolment, 161.

Medical School.	Total Expenditure.	Average Expended, Per Student.	Average Amount Rec'd. Per Student.
1	\$ 43,520	\$ 145.50	\$ 120.00
2	33,395	283.00	75.00
3	70,900	437.70	30.40
4	128,380	1,177.80	153.10
5	56,936	340.00	118.85
6	51,473	817.50	170.00
7	102,353	559.30	127.85
8	27,958	256.50	145.50
9	20,575	571.50	133.70
10	75,075	201.25	177.85
Average.....	\$ 61,056	\$ 479.00	\$ 125.24

shows \$479 expended per student, whereas each paid in return only \$125. Still, among these ten medical schools are some which are not richly endowed. These figures point to the conclusion that medical schools must

2. See list on page 639.

have more income than is derived from students' fees, in the form of either state aid or private endowment.

The discrepancy between the expenditure and income will be less marked as the number of medical schools reaches more nearly the normal supply. For practically the same amount now being expended several of the medical schools referred to could teach several times as many students as at the present time. For example, the school which expended \$1,177 per student could teach 500 students where now it teaches only about 100. With the larger number the proportion expended per student would be reduced to about \$257. It is, therefore, clearly in the interests of economy as well as in the better training of the future practitioners of medicine that there be a further reduction in the number of medical colleges in this country. The reduction is particularly beneficial, furthermore, since it is being brought about by the closing of the low-grade colleges.

COLLEGES, STUDENTS AND GRADUATES BY STATES

Illinois has usually had the largest number of medical colleges, but now the first place is held by New York, where there are eleven colleges. Missouri has nine and Illinois ties with California for third place each having

TABLE 12.—STUDENTS AND GRADUATES, TOTALS BY STATES

State.	Medical Schools.	Students.		Graduates.		Graduates with B.S. or A.B.
		Men.	Women.	Men.	Women.	
Alabama.....	2	320	..	66	..	7
Arkansas.....	1	143	2	51	1	1
California.....	8	389	52	99	5	20
Colorado.....	1	110	8	38	1	4
Connecticut.....	1	63	..	29	..	3
Dist. of Col.....	3	412	5	94	2	15
Georgia.....	5	817	4	192	2	12
Illinois.....	8	2,392	160	380	28	141
Indiana.....	1	145	10	43	2	9
Iowa.....	2	166	10	54	2	4
Kansas.....	2	106	6	22	1	9
Kentucky.....	1	370	..	124	..	..
Louisiana.....	1	321	..	104	..	22
Maine.....	1	83	..	11	..	5
Maryland.....	5	1,337	41	322	9	85
Massachusetts..	3	725	45	176	14	62
Michigan.....	2	501	26	141	8	31
Minnesota.....	1	173	10	36	1	23
Mississippi.....	1	102	1	14	..	..
Missouri.....	9	809	25	216	7	27
Nebraska.....	2	275	15	62	5	12
New Hampshire	1	36	..	9	..	2
New York.....	11	2,161	65	421	8	82
North Carolina	4	312	2	53	1	7
North Dakota..	1	12	1	..	..	..
Ohio.....	6	725	27	196	6	51
Oklahoma.....	1	47	4	9	1	..
Oregon.....	2	120	7	29	..	3
Pennsylvania..	7	1,686	121	472	34	65
South Carolina	1	163	1	64	1	13
South Dakota..	1	9	..	..	..	..
Tennessee.....	6	1,327	8	320	2	24
Texas.....	4	345	18	96	1	9
Utah.....	1	12	..	..	..	..
Vermont.....	1	176	..	47	..	1
Virginia.....	3	484	..	90	..	11
W. Virginia....	1	19	..	..	..	..
Wisconsin.....	3	340	5	60	..	3
Totals.....	116	17,733	679	4,340	112	763

eight colleges. Illinois still has the largest number of students enrolled, however, having 2,392 matriculants last session, followed by New York with 2,161, Pennsylvania with 1,686, Maryland with 1,337 and Tennessee with 1,327. In regard to the graduates the same relative position obtains except that Pennsylvania has a

larger number than New York. Of graduates holding baccalaureate degrees, Illinois has the largest number, 141, followed by Maryland with eighty-five, New York with eighty-two, Pennsylvania with sixty-five and Massachusetts with sixty-two.

HOME STATES OF MEDICAL STUDENTS

Table 2, on pages 644 to 647, shows from what states the students come who were in attendance at each medical college during the session of 1911-1912. The influence of the proximity of the medical school is seen in the fact that states having medical colleges contribute more students in proportion to the population than those which have no colleges. This is shown by the dark zone of figures running diagonally down the page. A comparison of this table with the large tables based on state board examinations³ which show the distribution of the alumni of each college is interesting. The college which has widely distributed alumni usually has a student body from an equally large number of states.

The state furnishing the largest number of students this year was New York, with 2,109. Pennsylvania contributed 1,529 and Illinois 1,338. The next states, in the order of the number of students contributed are: Ohio, 818; Massachusetts, 712; Texas, 642; Missouri, 556 and Tennessee, 525. Four states had less than twenty each, these being Wyoming, fourteen; Arizona, nine; New Mexico, eight, and Nevada, three. There were eighty-six students from Hawaii, Porto Rico and the Philippine Islands, and 600 students from foreign countries.

In Table 3, page 648, the students enrolled in each college are shown by classes. This permits one to see whether the attendance at each college is increasing or decreasing. The total attendance for the first year in all colleges shows an increase over the second-year class of nearly a thousand students. More interesting, however, is the study of this table in the light of higher entrance requirements which have been adopted during the last two or three years by a large number of colleges.⁴ The effects of these higher requirements are shown in the figures in two ways: smaller enrolments for the colleges which have adopted the higher requirements and larger enrolments for the colleges which have retained the lower requirements. The benefit in larger classes for the "stand-pat" colleges can be only temporary, however, so decided is the trend for the higher standards. Already nine state licensing boards have gone on record for the higher requirements and others are contemplating similar action. The House of Delegates of the American Medical Association⁵ in June, adopted a report instructing the Council on Medical Education to omit from the acceptable list any medical college which after Jan. 1, 1914, does not require for admission in addition to the four-year high-school education, at least one year of

3. THE JOURNAL A. M. A., May 25, p. 1584.

4. See list on page 636.

5. THE JOURNAL A. M. A., June 15, p. 1911.

higher preliminary work, including courses of college grade in physics, chemistry and biology. The medical profession of the United States, therefore, has gone on record for entrance qualifications which will bring medical education in this country more nearly on a par with the requirements of other countries.

Another development of the year was the action of the New York Education Department in requiring that after Oct. 1, 1912, no medical college will be registered as being up to the required standard which does not have at least six salaried full-time teachers. This is in support of the action taken by the Council on Medical Education over two years ago. In fact, one of the chief improvements during the year has been along this most important line—the securing of expert, full-time teachers. Buildings, laboratories, equipment and clinical material are important and essential if there are good teachers to make use of them. Without such teachers, however, their possession is of less consequence. Given these expert teachers, the chances are that they may be relied on to secure the needed laboratory equipment, to develop working medical libraries and museums, and to attract dispensary and hospital patients. While there have probably been fewer changes of a spectacular nature during the last year as compared with previous years, nevertheless the changes within the existing colleges have been even more marked. The campaign for improvements in medical education, therefore, is still being actively carried on.

BODY TEMPERATURE AND DAILY ROUTINE

There is probably no single professional activity which engages the physician so frequently as the determination of body temperature. The daily rhythm of the temperature record in healthy man is now a familiar fact of science. The maximum temperature is reached in the late afternoon or evening, the minimum in the early morning hours, usually between two and six o'clock. The range of this diurnal variation may exceed one degree; hence the interpretation of small variations in the temperature records of patients must be made with a due appreciation of the normally occurring changes of which we have just spoken.

But what is the real significance of these diurnal rhythms and why are they so fixed and characteristic? We are accustomed to think of the body temperature as an unvarying constant so long as morbid processes are excluded from the performances of the organism. Yet this is in fact far from accurate. All muscular and glandular activity is attended with heat production; and the compensatory regulating processes of the organism are by no means so speedy and effective as to produce an instantaneous adjustment to new conditions of heat production or heat loss. The simple act of arising from bed and dressing—a performance which scarcely gives the impression of any profound muscular effort or expenditure of energy—is ordinarily adequate to cause

a rise in temperature clearly detectable by accurate clinical measurement. After vigorous exercise the elevation in body temperature may become quite conspicuous despite the vigorous functions which are at once called into play to dispel the waste heat.

Inasmuch as the diurnal rise and fall in temperature ordinarily coincides, in a sense, with the incidence of day and night, and as these are in turn characterized by comparative predominance of activity and rest respectively, the daily rhythm might be assumed to find its explanation in these features. There are, however, numerous factors which might affect the body temperature, namely, muscular exercise, mental effort, ingestion of food, light, the temperature of the environment, and sleep. Even these have not been regarded as sufficient to account for the daily fluctuation, so that some have been inclined to assume the existence of a fixed periodicity, persisting under all conditions, finding its expression in the temperature rhythm and remaining independent of the outside influences. Seasonal and lunar changes have not infrequently been associated with biologic phenomena, and the apparent fixity of the temperature rhythm has often been grouped with these somewhat mysterious experiences. An obvious way to detect certain factors assumed to be primarily involved in the daily temperature rhythm would be to alter the routine of the individual—to turn his night into day in respect to habits of waking and sleeping. It is surprisingly difficult to do this with success, so deeply do our habits of work and repose become engrafted on us. Our typical night workers—bakers, nurses, watchmen, etc.—rarely present an ideal instance of perfect inversion of the day and night routine of their fellowman. Lindhard¹ did succeed in reversing the routine of the members of the ship's company in the Danish Arctic expedition during the long polar night. The curves of the temperature variation followed the changes in work and mode of living. The astronomic division of day and night was without importance and the debated possibility of an inherited form of temperature curve or a cosmic cause for the rhythm was put out of question.

A quite different and thoroughly ingenious method of determining whether the diurnal variation is due to the combined effects of influences, such as exercise, etc., which are known to act on it, or whether it is present unrelated to these, has been employed in recent years independently by three physiologists.² All of them shifted the incidence of time independently of their routine of activity by rapidly changing their longitude in extensive journeys. Thus Gibson altered his time eleven hours in a trip from New Haven to Manila; Simpson traveled from Edinburgh to Winnipeg. In every instance there was an immediate adjustment of

1. Report of the Spanish Expedition to the Northeast Coast of Greenland (1906-08), 1910, xlv, 1.

2. Gibson, R. B.: *Am. Jour. Med. Sc.*, 1905, p. 1048. Osborne, W. A.: *Proc. Physiol. Soc., Jour. Physiol.*, Jan. 25, 1908. Simpson, S.: *Tr. Roy. Soc. Edinburgh*, 1912, xlviii, 231.

the temperature rhythm to the changed routine day by day. The rise and fall occurred at practically the same period of local time throughout the journeys. These observers, be it noted, literally turned their day into night by the shift which the difference in local time of two widely separated stations occasioned.

Simpson has found that the rhythmic temperature curve can almost be obliterated by continued stay in bed and enforced muscular rest during the whole twenty-four-hour period, with abstinence from food during the same time. Any temperature rhythm inherent in the body might be expected to show itself under these conditions and, if persistent, to be carried from one locality to another. This was found not to be the case. It seems settled, therefore, that the diurnal variation of body temperature is determined by the conditions, such as rest and activity, imposed on the body, and is not an expression of any inherent established periodicity.

THE MEDICAL MAN AND RESEARCH

In a recent address on "Research Foundations in Their Relation to Medicine"¹ the well-known neurologist of the Wistar Institute, Prof. H. H. Donaldson, has expressed certain views which deserve to be heralded in medical circles beyond the immediate audience of graduates in medicine to which they were originally addressed. He has emphasized the fact that the programs of the large research foundations imply the hope that by such endowments new facts and new points of view fundamentally important to medicine may be discovered. Many of these establishments serve in a way to mediate between the problems of practice and the findings of science. The popular mind is constantly alert for some new application of science to the work of the world or the needs of the arts. Accordingly there is an ever-present tendency to place undue importance on the purely practical aspects of all research.

The worker who is engaged in the actual pursuit of scientific investigation realizes well enough that there is no essential distinction between so-called practical and theoretical knowledge. He would, indeed, be rash who would foretell where one type of contribution merges into the other. But with the laity the search for the unknown finds little encouragement except when it is attended by some palpable result of immediate application. Hence the pressure which many of our institutions feel to present something that will satisfy this unfortunate and mistaken public demand.

Precisely here the medical man of to-day has an opportunity and a duty. Trained in the school of modern science, he should have acquired an appreciation of the unhampered search for new knowledge which is so rarely intelligible to the community at large. He is

more or less familiar with the aims of the research worker and has some understanding of what these endeavors have contributed to the world. He should defend the effort and help to spread the propaganda. We believe that the attitude of the practitioner toward certain features of medical research is, in general, wholesome and helpful in so far as these features involve relations to the problems of clinical medicine. There is, however, another class of problems which demand solution no less than some of the more obvious questions. These more subtle problems involve the "why" and "how." They are harder to answer; they appeal to fewer investigators, and not many men are adequately equipped to attack them. As Donaldson has said, because the men who can do this latter kind of work are relatively rare, even among investigators, because such work can have rational appreciation from a limited group only, and because knowledge of this sort is sure to become the basis for many applications in the future, it behooves us all to see to it that we foster such investigators — the most valuable of our natural resources. When a mistaken popular notion arises as an obstacle to progress we must help to remove it.

It has often been said that research is an attitude of mind. This is something different from the mysterious features which are sometimes attributed to it. The spirit of research is attainable, even if at times it seems remote. Quoting Donaldson: "A man may have little leisure and trifling resources, and may never have published; but if he examines the world in a questioning spirit, if he carries with him not only conclusions, but the observations on which they rest, if he refuses to pound square facts into the round holes that he happens to have in hand, he has attained illumination."

LIGHT THROWN ON THE CAUSE OF TYPHOID BY VACCINATION WITH LIVE CULTURES

It is now thirty years since Eberth first described the *Bacillus typhosus* and almost thirty since Gaffky isolated the same organism in pure culture. Yet, though the study of the typhoid bacillus is almost universal in laboratories and though many investigators are engaged in clinical and epidemiologic studies of the disease, experimental proof that the typhoid bacillus is the specific cause of this infection has been scant. In view of this apparent lack of advance many, even in this day, question the specific etiologic agency in typhoid fever of the bacillus described by Eberth. Recently work has appeared the results of which show that this skepticism is not justified.

Grünbaum,¹ in 1906, made attempts to infect chimpanzees with typhoid by feeding them pure cultures and a portion of the stool from a case of the disease; but his results, while suggestive, were not conclusive.

1. Donaldson, H. H.: Research Foundations in Their Relation to Medicine, Address at the Graduation Exercises of the Yale Medical School, Science, July 19, 1912.

1. Grünbaum, A. S.: Some Experiments on Enterical Scarlet Fever and Measles in the Chimpanzee, Brit. Med. Jour., April 9, 1904, p. 817.

In March, 1911, Metchnikoff and Besredka² presented a paper on experimental typhoid fever in the chimpanzee, reporting work of great interest and importance. With the history of hog cholera in mind these investigators, instead of using pure cultures of the typhoid bacillus, endeavored to infect a chimpanzee with the feces from a case of typhoid fever. The chimpanzee, eight days after it had ingested, with food, fecal material containing an abundance of typhoid bacilli, developed typhoid. The appearance of diarrhea, the presence of typhoid bacilli in the blood and the development of specific agglutinins in the blood-serum left no doubt as to the result and clearly showed the susceptibility of the chimpanzee to infection with typhoid fever by feeding.

Metchnikoff and Besredka were unable either to infect or to vaccinate apes by the feeding and the injection under the skin of the fluid obtained by the filtration of typhoid stools. Hence these authors conclude that the typhoid bacillus, and not a filterable virus, is the etiologic agent in typhoid fever. They find that the lower monkeys are only exceptionally susceptible to typhoid, and that rodents, such as the rabbit and guinea-pig, are not at all susceptible to infection by feeding.

In the same paper and also in a later one³ they report attempts at protective inoculation by various means. They found that neither killed cultures nor their autolysates protected chimpanzees against infection with typhoid fever, but that vaccination with living cultures produced an immunity apparently as definite as that produced by an attack of the disease. Vaccination with non-sensitized cultures produced an intense local and general reaction, while sensitized cultures caused only a feeble local and almost no general reaction; the two measures appeared to confer equal immunity to infection.

The work reported by Metchnikoff and Besredka fulfils for the first time the postulates of Koch as to the etiologic relation of the *Bacillus typhosus* to typhoid fever, discredits the theory of a filterable virus in the disease, shows the possibility of absolute protection by vaccination with living cultures, and emphasizes the importance of not relying on vaccination with killed cultures to the exclusion of all other precautionary measures.

More recently Metchnikoff and Besredka⁴ have reported the results of the vaccination of 745 persons with sensitized living cultures of the typhoid bacillus. The local reaction in almost all of the cases was extremely slight, and rarely was there any general reaction. Bacteriologic examination of sixty-four of those vaccinated failed to show typhoid bacilli in the blood, urine or feces. It would seem probable, therefore, that persons vaccinated with sensitized typhoid bacilli

do not become either "carriers" or infected with typhoid. This large series of vaccinations would appear to show the safety of the use of sensitized cultures of typhoid bacilli as a preventive of the disease. If the further use of this method of vaccination shows it to be as harmless as believed by Metchnikoff and Besredka, apparently an important advance in protective inoculation has been made over the use of killed cultures. The latter method, it will be recalled, failed to protect chimpanzees against experimental infection with typhoid fever in the experiments of Metchnikoff and Besredka, while vaccination with sensitized cultures afforded complete protection.

PREVENTIVE METHODS AGAINST DIPHTHERIA

A great fall in the mortality-rate from diphtheria followed the inauguration of the general use of diphtheria antitoxin in 1894-1895. A death-rate of 100 to 150 per hundred thousand of population was soon replaced by one of seventy and sixty, and during the last few years the rate per hundred thousand in the principal cities of the world has been from thirty to forty in some, and less than one in others. The marked fall in death-rate which occurred during the first years after diphtheria antitoxin came into use must reasonably be credited to that agent. During more recent years the death-rate has tended to fluctuate but little in individual cities, and in many no downward tendency is noted.

Abel¹ has recently shown by statistics that the death-rate from diphtheria in most German cities is two or three times that of most other European cities. In 1907, eight German cities had a diphtheria death-rate of 1.48 to 3.17 per ten thousand, while during the same year, of eighteen European cities outside of Germany, in thirteen the rate fell below 1.5 and in only two was it as high as 2.0, except in Christiania, in which it was 4.71. In Brussels the rate was only 0.15. Abel calls attention to the fact that in Germany there are now more deaths from diphtheria than from scarlet fever. After showing graphically that Germany is not controlling diphtheria so well as her neighbors, he proceeds to indicate the reasons for the failure and to suggest remedies, many of which might be adopted with benefit by some American cities.

Abel emphasizes the fact that the practitioner, whose chief interest is naturally in the cure of the sick, since he is familiar with the remarkable curative power of antitoxin and has confidence in it, is less likely than is an official health physician to lay stress on the prevention of infection. Therefore the regulation and instruction of the patient and his family in regard to the prevention of the spread of the disease should be delegated to properly qualified health officers. The cooperation of the practitioner and the report by him of every suspicious case, that bacteriologic examinations may be made, is of the utmost importance.

2. Metchnikoff, Elie, and Besredka, A.: Recherches sur la fièvre typhoïde expérimentale, Ann. de l'Inst. Pasteur, March 25, 1911.

3. Metchnikoff, Elie, and Besredka, A.: Des vaccinations antityphiques, Ann. de l'Inst. Pasteur, December, 1911, p. 861.

4. Metchnikoff, Elie, and Besredka, A.: Sur la vaccination contre le fièvre typhoïde, Semaine méd., July 24, 1912, p. 355.

1. Abel: Centralbl. f. Bakteriöl., Orig., 1912, lxiv, 229.

The spread of the disease takes place through the agency of sick or convalescent diphtheria patients or bacillus-carriers who have never been appreciably sick, either by direct transfer or by means of intermediate carriers, as milk, etc. Hence, it is imperative that persons who harbor the bacilli be effectively isolated until repeated bacteriologic examinations have shown the secretions free of bacilli. Prophylactic injections of serum are useful to check an epidemic in a family, school or institution, but are useless as a measure for preventing the spread of the disease to uninfected persons. Whenever proper isolation cannot be carried out in the home, the patient should be placed in a suitable hospital.

Terminal disinfection is to be performed only when danger of infection is removed as shown by proper cultures. To disinfect a house which contains a bacillus-carrier is to give a false sense of security to the family and to their friends. When diphtheria bacilli remain a long time in the secretions, animal tests for virulence, as suggested by Kolmer,² should be made. This measure will secure the release of many patients from a long and needless quarantine.

The method by which Abel and other German writers attempt to stimulate interest by calling attention to the high mortality from diphtheria in Germany, as compared with other European countries, might be adopted with advantage in America. In 1911 the death-rate from diphtheria in New York was 2.39 and in Chicago 3.91. These figures are about on a par with those of German cities, and do not compare at all favorably with those of the cities of European countries aside from Germany. American cities have not generally appreciated the economic aspect of prophylaxis of disease.

Current Comment

CHICAGO'S NEW MILK ORDINANCE

Reference has heretofore been made to the unprotected condition of the milk-supply of the city of Chicago. This condition came about through the enactment by the Illinois legislature of a law prohibiting the requirement of the tuberculin test of cows which are the source of the milk-supply of cities, and the defeat of an ordinance in the city council providing for the inspection of dairies and the pasteurization of milk from the dairies not coming up to the requirements of such inspection. The defeated ordinance, in addition to other requirements, provided that milk should be labeled either "inspected" or "pasteurized." This ordinance was defeated largely through the influence of the so-called small dealers, who insisted that it would operate wholly in favor of the large distributors of milk. The situation was particularly unfortunate in that it left the milk-supply of a large city in a practically unprotected condition during the greater part of the warm season; its effects are demonstrated in the report of the health department of the city, which shows that notwithstanding a cool season, the

bacterial count of hundreds of specimens of milk is exceedingly high this season as compared with previous seasons under better legal restrictions, and that the death-rate among infants is higher than in 1911. After a short but vigorous campaign on the part of the sub-committee of the health committee of the council, and citizens through a citizens' committee, provided for at a public meeting, a slightly modified ordinance was passed by the council last week: The ordinance now provides for inspected and pasteurized milk, each of which must be so labeled. Inspected dairies must have scores of sixty-five or more on equipment and methods. Cows must be inspected by a competent veterinarian and the milk must be maintained at a temperature not above 60 degrees at first and at a later period, 55 degrees. The score of the dairies producing inspected milk must also later be raised to seventy. Milk coming from dairies scoring fifty-five points or less must be pasteurized by an approved efficient pasteurizer and by efficient methods. In addition to the objections of the small dealers, one of the particular objections raised by councilmen voting against the ordinance was the question of pasteurization. When they were made acquainted with the opinion of authorities at the present time on the effects of pasteurization, this objection was overcome. The objection of the small dealers to the ordinance was likewise not well founded, as in reality the ordinance places all dealers on an equal footing with regard to the matter of handling inspected or pasteurized milk. The new ordinance is a fairly good one and may be improved as the necessity for such improvement is shown. It embodies the recognized foundation principles for the production of safe milk-supplies for cities—inspection of cattle, equipment and methods, conditional pasteurization, and the maintenance of the proper temperature. The standards established, however, are really too low.

COUNTY PUBLIC HEALTH OFFICIAL

In Fulton County, Ga., it has been proposed to create an official with the title "Doctor of Public Health," whose duties would be considerably broader than those of the ordinary county health officer as he now exists in many states. The *Atlanta Journal*, in commenting on this proposal and the lack of enforcement of the present inadequate health laws of that state, says:

We have delivered ourselves of certain admirable opinions [health statutes] and have then left them to take care of themselves. It is for the purpose of making these statutes and regulations really count for the daily benefit of all the people that the office of Doctor of Public Health has been proposed. Such an official would be definitely responsible for sanitary conditions throughout Fulton County. He would regularly inspect all sources of water-supply, sewage and garbage disposal, public buildings and premises, with particular reference to the schools; he would be alert to discover and check every possible source of contagion; he would see to it that all dairies, bakeries and factories where food products are made or dispensed observe the laws for the public's protection. The work of such an official would be far more than merely corrective; it would be constructive and educational.

We understand that in one or more counties of South Carolina such an office has been created with the title of County Superintendent of Health. The idea of having

2. Kolmer: *Jour. Infect. Dis.*, 1912, xi, 56.

in each county a health official who would devote his whole time to the different aspects of public health and sanitation is a good one. Much more effective work could be done by such an officer working in the circumscribed area of a county than by the occasional or spasmodic efforts of the ordinary county health officer or by the more widely distributed and attenuated efforts of the present state health boards. Some such plan is undoubtedly to be a development of the near future in dealing with the important question of public health and sanitation. Ultimately, when the public has become educated to the importance of the physical welfare of human beings, we shall have county, state and national departments of health, all cooperating.

THE FIRST ESSENTIAL IN THE TREATMENT OF THE SICK

In the treatment of human ailments, the matter of first importance to the conscientious physician is the diagnosis: "What is causing the trouble?" On the answer to this question depends the treatment, no matter whether the "doctor" is a regular physician, an eclectic, an osteopath, a homeopath, a chiropractic, a Christian Scientist, a mental healer or what not. The first essential is the diagnosis; and unless the "doctor" is sufficiently well trained in the fundamental medical sciences to make a diagnosis, he is not qualified to treat the patient intelligently by any method whatever. Treatment is certainly of great importance, and from the patient's point of view is doubtless the most essential point. But without a knowledge of the disease—of the actual condition—any treatment would be pure guesswork, unscientific and as liable to do harm as good. These fundamental facts and principles are so often ignored in discussion of sectarian cults and fads that a recent, clear decision¹ by the United States Supreme Court is most encouraging. In a discussion of osteopathy the court made the following statement:

An osteopath professes to help certain ailments by scientific manipulation affecting the nerve centers. It is intelligible, therefore, that the state should require of him a scientific training. He, like others, must begin by a diagnosis. It is no answer to say that in many instances the diagnosis is easy—that a man knows it when he has a cold or a toothache. For a general practice science is needed.

At the same time the court distinguishes between osteopaths and nurses and masseurs in the following statement:

An osteopath undertakes to be something more than a nurse or a masseur, and the difference rests precisely in a claim to greater science, which the state requires him to prove. The same considerations that justify including him (under the requirements of the practice act) justify excluding the lower grades (nurses and masseurs) from the law.

The court therefore has pushed aside the masses of argument regarding the "rights" of this, that or the other medical sect, and has revealed the real point at issue—the necessity for sufficient fundamental knowledge of the human system to qualify one to make a diagnosis. The court emphasizes that in order to make a diagnosis the practitioner of osteopathy as well as the

physician must have had a scientific training. A scientific training is particularly essential since many diseases to be successfully treated require scientific methods of diagnosis. For example, the successful use of serum in the therapeutic or prophylactic treatment of a disease, such, for instance, as diphtheria, requires a positive knowledge of the particular form of bacteria causing the disease; this knowledge can be gained only by the use of the microscope and by scientific laboratory methods. The same may be said regarding malaria, syphilis and other diseases which can be positively diagnosed by scientific methods only. Mere guesswork in the diagnosis of such diseases should no longer be tolerated. This scientific training is essential for every practitioner of the healing art regardless of the "school" to which he may belong or the particular "methods" of treatment which he may profess to use. The duty of the state, therefore, is to provide an educational qualification which will guarantee that every licensed practitioner shall be competent to make an intelligent diagnosis. Hence, separate boards and special educational standards for certain cults, instead of being essential, are eminently unfair, and not for the best interest of the public. Certainly the public has the right to expect that only those who are competent will be given the state's endorsement, conferring on them the right to treat human ailments.

STATE LICENSE EXAMINATION FEES

So far as we have been able to learn, no other civilized country exacts so little of those who seek the right to practice medicine as do the various states in this country. This is true, not only with regard to educational qualifications, but also and particularly with regard to fees charged. Some of the state examining boards argue the impossibility of requiring practical laboratory and clinical tests at these examinations or of employing experts to conduct them, because of insufficient funds. The enforcement of more effective measures for testing the qualifications of those who desire to practice medicine, therefore, demands a decided increase in the finances of the licensing boards, and unless these finances can be provided generously by state appropriations—the better plan—they must come from the fees of applicants. In the various states at the present time the fees charged range from \$10 to \$25, the majority having the lower fee. In other countries the fees are very much higher. In the various provinces of Canada, the fee ranges from \$75 to \$200. In England, according to Mr. Hallett,¹ the fee charged each applicant is about \$210, while in the various South American countries the fee, at least for foreign practitioners, ranges from \$400 to over \$600. In other countries, furthermore, examinations are not necessarily conducted by the regular board members, but by medical practitioners who are expert examiners in the various branches, and who are especially employed for the purpose. In England, for example, according to Mr. Hallett,² ten physicians, ten surgeons and nine obstetricians are appointed as examiners for a term of four or five years, and it has never been found difficult to keep

1. *Ira W. Collins vs. State of Texas* (U. S.), 32 S. C. Rep. 286, *THE JOURNAL A. M. A.*, August 3, p. 392.

1. Hallett, F. G.: *THE JOURNAL A. M. A.*, March 16, p. 769.
2. *Ibid.*, p. 762.

the positions filled from among the ablest physicians and surgeons of England. In fact, it is looked on as a high honor to be asked to serve as an examiner. Considering, therefore, the great need in this country of more effective methods at state license examinations and the increased cost of the examination by the use of such methods, it is quite clear that a generous state appropriation should be made for the purpose. Otherwise a decided increase in state license fees is both necessary and justifiable.

SPURIOUS FOREIGN CREDENTIALS

Judging from investigations now being made by the biographical department of the Council on Medical Education there are between three and four hundred physicians practicing medicine in this country under spurious foreign credentials. The department has been securing an official check on those practicing in this country who claim graduation from foreign medical schools, with the astounding result that from one-fifth to one-fourth of these "doctors" are reported as not having graduated from the institutions claimed. Actual graduates of foreign medical schools, such as those of Edinburgh, Berlin and Vienna, should doubtless be given the privilege of obtaining the license to practice medicine in this country, since these institutions have long been recognized as sources of thoroughly qualified physicians. Nevertheless no foreigner, whatever his claim, should be registered until his credentials have been carefully verified. There needs to be more care taken to prevent charlatans from masquerading under spurious credentials as graduates of recognized foreign medical schools. Some of our states in the past have been only too lenient with the crooks at home; there is certainly no reason for letting down the bars for those from abroad.

SOCIAL LIFE OF THE MEDICAL STUDENT

Much attention has been given in recent years to the educational qualifications of the medical student and much has been written regarding the best methods of instilling into him the required amount of medical knowledge, but practically nothing has been said or done regarding his social life during the long four years of his medical course. The plea of Dr. J. Collins Warren¹ for suitable dormitories and other provisions for the student's social life therefore is worthy of careful thought. Says Dr. Warren: "The medical student, unlike the college undergraduate, is drawn toward the great centers of population and, therefore, unable to enjoy those advantages which time is constantly showing are of so much importance to the moral as well as the physical make-up of the member of the academic community. The medical student is usually tucked away in some Latin quarter, or its equivalent, situated in that part of the city where a great hospital usually finds its home. He has to live in unfavorable surroundings, and his means often do not permit him to indulge in more luxurious quarters than a hall bedroom." Thus, as a rule he is in insanitary surroundings and often exposed to contagious diseases. "And it is this particular class

of young men to whom the learned faculty preach about the laws of health." With the hard work required to master the course laid down by the average medical college, it is clear that much depends on the student's surroundings, his habits, his food, his recreation and his companions. Nevertheless, along these lines the medical student, often for the first time away from home influences and in a large city, is left mercilessly to shift for himself. So while millions of dollars are being spent on architecturally beautiful buildings and on marvelously equipped laboratories, is it not time that more attention be paid to the social and physical welfare of those for whose training so much has been expended? The student needs a medical training, surely; but of what value is that training if he leaves the institution a physical or moral wreck? Along with the progress being made in other phases of medical education the social aspect of the medical student's life should also receive some attention.

Medical News

COLORADO

Garbage for Hogs.—The board of supervisors of Denver has passed an ordinance requiring that pork from garbage-fed hogs be so labeled wherever exposed for sale.

The Health of Denver.—The annual report of the health department of Denver shows a death rate of 16.04 per 1,000 and records the death of 2,025 males and 1,399 females. Pulmonary tuberculosis led in the death causes, pneumonia was second, nephritis third and cancer fourth. The local mortality from diabetes is reported to have doubled within the last five years. The chief increases are in the deaths from diphtheria and scarlet fever, while deaths from measles and whooping-cough decreased in number.

ILLINOIS

Chicago

Provisions of the New Milk Ordinance.—The City Council passed a new milk ordinance August 14, taking effect August 27, which contains the following provisions: Two grades of milk are provided for—"inspected" and "pasteurized." Inspected milk may be produced only in dairies inspected by the health department and receiving a department permit subject to the condition that every case of contagious disease in connection with the dairy shall be reported at once. Permits will be issued only to dairies to which department inspectors give scores of 65 or more points out of a possible 100 on equipment and methods. These points cover the condition, health, comfort, feeding and watering of the cows, the condition of the milk-room, stable and utensils and the methods of handling the cows and the milk from its first production to its storing and its transportation. Before June 30, 1913, the producers must file certificates showing their cows have been inspected by a competent veterinarian and are free from tuberculosis and other infectious diseases. Rules are prescribed for equipment and methods as a basis for the scoring. Milk produced in conformity with standards slightly lower than these, from dairies scoring at least 55 points and under less stringent regulations must be pasteurized. The efficiency of the pasteurizer must be approved and in case of dispute this question is left to arbitration between the owner or operator and the department. All milk coming into Chicago must be kept at a temperature at least as low as 60 degrees, and after June 1, 1914, at a temperature not higher than 55 degrees. On Jan. 1, 1915, the score for dairies producing inspected milk is raised to 70. Maximum bacterial counts for both grades of milk are established. No milk failing to meet the requirements of one of these two grades will be permitted on sale in Chicago.

MAINE

Personal.—Dr. Adam P. Leighton, Jr., has recently returned from a stay of a year abroad and has reopened his office in Portland.

¹ Warren, J. Collins: Boston Med. and Surg. Jour., June 13, 1912, p. 875.

Hospital and Sanatorium Notes.—A new building is being constructed for the Portland charitable dispensary.—Dr. Francis J. Welch, Portland, has recently opened a private sanatorium in East Parsonsfield for the treatment of tuberculosis.—Dr. Philip H. S. Vaughan has opened a private sanatorium at Yarmouth for the treatment of neuropathic and psychopathic diseases.

NEW JERSEY

Typhoid at Woodbury.—The epidemic of typhoid fever at Woodbury has not abated and up to July 23, there had been eighteen cases and one death.

Typhoid at Moorestown Traced to Carrier.—The local and state experts, who have been investigating the epidemic of typhoid at Moorestown, declare Ellis Kensler, superintendent of the David Roberts dairy farm, to be a typhoid carrier. Up to August 13 there was a total of thirty-seven cases. The health board ordered all milk sold in Moorestown to be sterilized and a citizen's meeting was held in the Town Hall, August 12, to discuss the source from which the town's water is drawn—the upper branch of Pensauken Creek.

Dairy Closed Because of Typhoid.—Up to August 9, thirty cases of typhoid had been reported to the Board of Health from Moorestown and from Mount Laurel township, adjoining. The inspectors found that with but one or two exceptions, every victim of the fever had been using milk from one dairy. The town's water supply has also been found to be badly infected. Blood tests of employees at the suspected dairy have shown that one employee has a mild case of "walking typhoid," while several employees of a milk distributing station are showing symptoms of the disease. The state authorities have closed the infected dairy, ordered that all milk sold in the town be pasteurized and have posted public notices, warning residents to boil all water used for drinking purposes.

NEW YORK

Reporting Industrial Diseases.—The New York State Department of Labor, Bureau of Labor Statistics, is sending to all physicians of the state blank certificates of industrial disease together with a booklet on the "Reporting of Industrial Diseases" which contains the reporting law, the purpose of reporting, the occupation diseases and a list of harmful substances and their effects. For the material contained in this booklet the department is indebted to the New York Academy of Medicine, especially to Dr. W. Gilman Thompson of the Cornell University Medical College.

All New York Medical Colleges to Teach Public Health and Sanitation.—The State Department of Health has, with the cooperation of the deans of all the medical colleges in the state, formulated plans to include on the curriculum of each medical school a systematic course in public health and the prevention of disease. Some ten of the colleges have already been doing commendable work along this line. A committee consisting of Dr. William A. Howe, Deputy Commissioner of Health; Dr. Heffron, dean of Syracuse University College of Medicine; Dr. Royal S. Copeland, dean of the New York Homeopathic Medical College; Dr. Bensen, representing the Columbia University College of Physicians and Surgeons; and Dr. William H. Park, of the University and Bellevue Hospital Medical College, will meet shortly to draw up a syllabus of a course of instruction which will be submitted to Commissioner Porter and by him recommended to the deans of the medical schools. Part of the lectures in the course will be given by representatives of the State Health Department and in some instances by representatives of city health departments.

New York City

Personal.—Dr. Arthur J. Keating was thrown from his automobile, August 10, and sustained a dislocated shoulder and a fractured ear drum.—Dr. Robert B. Scofield, Yonkers, while driving his touring car, collided with a street car and had two ribs broken, while his aged mother who accompanied him received injuries which will probably prove fatal.—Dr. and Mrs. John A. Hartwell, Dr. Edward L. Corbett, Dr. A. B. Wadsworth and Dr. G. H. Grant have sailed for Europe.

Infant Death Rate Continues to Decrease.—For the week ending August 10 the infant death rate was lower than for any previous week this summer. There were 193 deaths for the Borough of Manhattan against 205 for the corresponding week of last year. The three other boroughs are still close to the records of last year. There have been 572 fewer deaths of infants under one year of age in the greater city this year than during the same period of 1911. During the week there were only thirteen deaths among infants cared for by the milk stations

Good Work Among Babies Continues.—The report of the Babies' Welfare Association for July shows that the enrollment of babies increased from about 14,000 to 18,000. The New York Diet Kitchen has shown the greatest increase in enrolment; at the beginning of the month there were 983 babies on the lists of their eight milk stations and on August 1 there were 1,347, while only eight deaths have been reported among the entire number. In the 55 stations run by the Board of Health the enrolment was increased during the month from 9,000 to 13,000, and among these there were only eight deaths.

The Typhoid Situation in Greater New York.—An increase in the number of cases of typhoid at this season of the year is expected and this year has proved no exception to the rule. There have been 349 cases reported in the greater city from August 1 to 16. There have been 236 cases in Brooklyn and Queens during this time. The Borough of Brooklyn had 138 cases as compared with ninety-two for the first fifteen days of August, 1911. In Queens there were ninety-eight cases or practically four times as many as during the same period of last year. Manhattan has had only ninety-six cases as compared with 172 for the corresponding period of 1911. The Bronx has had sixteen cases as compared with sixty-nine for the corresponding period of last year. The report that there was an outbreak of typhoid in the Wall Street district due to the use of bottled water has been pronounced as unfounded by the health department. Thus far the health department has not succeeded in tracing the Brooklyn epidemic to its source. The advisory committee on the administrative control of typhoid will meet next month in consultation with the board of health. This committee was formed early in the year and consists of Prof. William T. Sedgewick, Prof. George C. Whipple, Prof. C. A. E. Winslow, Dr. John W. Brennan, Dr. Alexander Lambert, Dr. Herbert Pease and Prof. Thomas W. Hastings.

PENNSYLVANIA

State Board Will Urge More Rigid Examinations.—The State Medical Board announces that 30 per cent. of the medical school graduates who underwent examination by the body last June failed to pass and were denied the right to practice in this state. The board recently revised its system of examination and the results showed even a greater need of advancing the five-year medical course, with probationary practice in hospitals, demonstrative examinations and the elimination of low standard colleges.

State to Close Unsanitary Dairies.—On August 5, a conference was held by Dr. C. J. Marshall, state veterinarian, and his corps of inspectors, and attended by a number of milk and dairy experts. Among the latter were: Dr. John R. Mohler, chief of the federal bacteriologic department, bureau of animal industry, Washington; Dr. John H. Turner, chief milk inspector of the District of Columbia; N. B. Critchfield, secretary of agriculture of Pennsylvania; Dr. L. A. Klein, dean of the veterinary department of the University of Pennsylvania; Dr. H. B. Felton, milk inspector of Philadelphia; Dr. W. S. Gimper, director of milk hygiene of Pennsylvania; Dr. W. H. Ridge, supervising inspector; Dr. Turner, supervising inspector of Bucks County, and Dr. Charles Schaffer, who has charge of the federal meat inspection in this city. The meeting was called to discuss plans for the improvement of the milk and dairy service. According to Dr. Marshall, of the 190,000 dairies in this state, 10 per cent. or 19,000, are so filthy as to be a menace to health; about 57,000 are near to being nuisances, while only 60 per cent. meet all sanitary requirements.

Philadelphia

No Decrease in Typhoid.—The records of the Bureau of Health for the week ended August 17 showed forty-seven new cases of typhoid, the same number reported the previous week.

To End Dispensary Abuse.—The Philadelphia County Medical Society, which has been making a thorough investigation of the abuse of hospital and dispensary privileges, will present a bill to the next legislature making it a misdemeanor, punishable by fine or imprisonment, for a person able to pay for medical treatment to accept gratuitous service from a charitable institution.

Hospital for Immigration Station Necessary.—According to Dr. A. A. Cairns, chief medical inspector of the Bureau of Health, much unnecessary illness and expense is imposed on Philadelphia by lax inspection and inadequate facilities at the state quarantine station. The state and United States quarantine stations pay great attention to the more virulent contagious diseases, small-pox, bubonic plague and trachoma,

but are lax when it comes to measles, chicken-pox and scarlet fever. When the new immigration station at Gloucester is put into operation, even greater difficulties will be encountered as there is no hospital for contagious diseases in Gloucester, Camden or South Jersey and Dr. Cairns urges the erection of a state hospital for contagious diseases at Marcus Hook.

U. S. Hospital Ship Here Fighting Plague.—The U. S. Marine Hospital ship, *W. D. Bratton*, which arrived at this port August 11, has disinfected seven vessels. The principal object of the *Bratton* is to kill the rats on board ships entering this port and for that purpose uses sulphur and is also equipped with the "Harker" system, which is a method of pumping poisonous gas into a steamer. Dr. Hugh S. Cumming, of the Marine-Hospital Service, assisted by Drs. J. Schwartz and D. Glassberg, is the physician in charge. United States government pathologists have examined about fifty rats, taken from vessels arriving at this port and in no case have they discovered any trace of bubonic plague. In the same way the laboratory of hygiene of the department of health has been examining rats brought from all parts of the city and has found no evidence of any disease. However, the response to the request for rats by the Health Bureau has not been great and the department is most anxious to obtain rodents from the water front.

TEXAS

New Officers.—Central Texas Medical Association at Gatesville, July 9: president, Dr. Edwin Graves, Gatesville; secretary, Dr. H. F. Connally, Waco.

City Bacteriologist Appointed State Inspector.—Dr. J. S. Abbott, food and drug inspector, has appointed Dr. I. B. Lee, bacteriologist of San Antonio, inspector in the food and drug department with full authority to act. The local board of health is conducting a vigorous campaign against the sale of impure milk and against insanitary conditions prevailing in some of the dairies of Bexar County.

Personal.—Dr. Ernest Boston, Taylor, while returning to his home after a professional call, August 9, was assaulted and would have been robbed but for prompt interference.—Dr. J. R. Nichols, Austin, has been appointed oculist of the Confederate Home, Austin, vice Dr. J. E. Howze.—Dr. E. B. Osborn, Cleburne, has been appointed a member of the State Board of Medical Examiners, vice Dr. J. D. Osborn, resigned.—Dr. P. D. Barnhill, Brenham, was seriously injured by the overturning of his automobile, July 26.—Lieut. W. L. Robinson, Hubbard, G. N. Decherd, Austin, and J. L. Denson, Cameron, have been commissioned captains in the Medical Corps of the National Guard of Texas.

Hospital and Dispensary Notes.—A free dispensary is to be established in Waco under the supervision of the city physician. The dispensary for the present will be open three times a week between the hours of 3 and 4 p. m.—The old City Hospital, Dallas, has been reopened for the reception of the city's patients. The buildings have been moved back from the original location and have been thoroughly cleaned and disinfected.—The Arlington Hotel has been sold to Drs. W. R. Newton, Buckholts, and Eduard Rischar, Chicago, who will convert the institution into a hospital and training school for nurses after it has been thoroughly remodeled and equipped.—Tarrant County Medical Society has endorsed the \$100,000 bond issue to be expended in the building of a new down-town hospital in Fort Worth.—A movement has been commenced in San Antonio to raise \$50,000 for a new hospital to be operated by the Free Clinic and Hospital Association.

VIRGINIA

New Officers.—Augusta County Medical Society at Staunton, August 7: president, Dr. Franklin McC. Hanger; secretary, Dr. Kenneth Bradford, both of Staunton.—Piedmont Medical Association at Orange, July 28: president, Dr. D. F. Weaver, Liberty Mills; secretary, Dr. F. G. Scott, Orange.

New Hospital.—A charter has been granted to the Stuart Circle Hospital Corporation, Richmond, with a capital of \$50,000. The new institution is to be located on Monument Avenue and the officers of the corporation are Drs. L. C. Boshier, president; Dr. Manfred Call, vice-president; Dr. Greer Baughman, secretary, and Dr. Charles R. Robins, treasurer.

GENERAL

Southern Medical Association to Meet.—The Southern Medical Association will hold its annual meeting in Jacksonville, Fla., in November under the presidency of Dr. J. M. Jackson, Miami.

Change of Name to Public Health Service.—By the act of Congress, approved Aug. 14, 1912, the name of the U. S. Public Health and Marine-Hospital Service was changed to the U. S. Public Health Service. The functions and duties of the service have been extended and a revision in the salaries of the officers made, as noted in *THE JOURNAL* last week.

Otologists Hold Meeting.—The Ninth International Otologic Congress was held in Harvard Medical School, Boston, last week and the following officers were elected: president, Dr. Clarence John Blake, Boston; vice-president, Dr. B. Alexander Randall, Philadelphia; secretary-treasurer, Dr. Henry O. Reik, Baltimore, and assistant secretaries, Drs. William F. Knowles, Boston; Ralph Butler, Philadelphia, and Jesse W. Downey, Baltimore. The International Laval prize was awarded to Dr. George E. Shambaugh, Chicago, for his work on the anatomy and physiology of the labyrinth. This is said to be the first time this prize has been awarded to an American.

Warning Concerning Insurance Agent.—From several points in Illinois information is being received concerning an insurance agent, with the request that we warn the readers of *THE JOURNAL* against being victimized. Our informants state that a Mr. Sumner P. Hinckley presents himself as representative of the Conservative Life Insurance Co. of Wheeling, W. Va. It is stated that he offers to appoint physicians as medical examiners, guaranteeing \$25.00 a month medical fees for one year on condition that the physician takes out an insurance policy for which Hinckley takes the money. Our informants state that investigation shows that the company repudiates the Hinckley appointments, and victims secure only the insurance. Our informants request us not to use their names, as they do not want to be called "easy."

The Plague.—The last case of plague in Porto Rico was reported August 6, making a total of forty-seven cases. Of these, thirty-two occurred in San Juan. The situation seems to be under control. Rat-proofing and the catching of rats are being pushed at San Juan and other points where the disease appeared.—Over a month has elapsed since the last case was reported from Cuba.—No additional plague rats have been found in New Orleans. The work on rat proofing and extermination of rats is being actively carried on in other coast cities.—*Public Health Reports*, August 16, contains the antirrat ordinances in force in the city of San Francisco. They include the requirements found by Surgeon-General Blane, while in charge of the plague eradication work in San Francisco, to be necessary in combating the plague, and are based on his recommendations. These ordinances should be of interest to other cities threatened with plague invasion.

Legislation Regarding Fake Cures.—The Sherley bill, which is intended to correct the defect in the Food and Drugs Act in regard to misbranding as interpreted by the recent decision of the supreme court, was approved by the House of Representatives, August 19. The Sherley bill provides that any drug shall be deemed misbranded "if its package or label shall bear any statement, design or device regarding the curative or therapeutic effect of such article which is false and fraudulent." The supreme court, in a divided opinion, decided, in effect, in the Johnson cancer cure case, an account of which was given in *THE JOURNAL*, that the makers of nostrums might make any claims they desired in regard to curative effects, provided only that the strength and purity of the ingredients conformed to the requirements of the Pharmacopeia or were published on the label. This decision defeated the efforts of the government to suppress the Johnson cancer cure fake and let down the bars for the exploitation of the public by almost any sort of fake cure.

Clinical Congress.—The third Clinical Congress of Surgeons of North America will be held in New York, November 11-16. The place of registration is the ball room of the Waldorf-Astoria, where the daily program will be bulletined one day in advance and where printed programs of each day's clinics will be distributed. The work of the congress will be divided into six branches, namely: general surgery, gynecology, genito-urinary surgery, orthopedics, obstetrics and eye, ear, nose and throat surgery. In the evenings literary and scientific programs will be given as follows:

Monday, November 11—Presidential Meeting—Albert J. Ochsner, Chicago: Address of the retiring president. Edward Martin, Philadelphia (president's address): Treatment of Hepatic Cirrhosis. William J. Mayo, Rochester, Minn.: Surgery of the Large Bowel. Discussion by Charles H. Peck, New York City.

Tuesday, November 12—George W. Crile, Cleveland: Kinetic Theory of Certain Diseases, With Special Reference to Internal Secretions. Howard A. Kelly, Baltimore: Paper on Kidney Surgery. Discussion by George E. Brewer, New York City. Olfried Foerster, Breslau, Germany: Indications and Results of Excision of the Posterior Spinal Nerve-Roots. Charles H. Frazier, Philadelphia: Paper on Surgery of the Spinal Cord. Discussion by Charles A. Elsberg, New York City.

Wednesday, November 13—Thomas S. Cullen, Baltimore: Radical Operation for Cancer of the Uterus, viewed from the standpoint: (a) permanent cure; (b) temporary relief. Ernest Wertheim, Vienna, Austria: Subject to be announced. X. O. Werder, Pittsburgh: The Cautey in the Radical Treatment of Cancer of the Cervix. Robert L. Dickinson, Brooklyn: Subject to be announced.

Thursday, November 14—W. Arbuthnot Lane, London, England: Chronic Intestinal Stasis. John G. Clark, Philadelphia: Summary of Results of Gastro-Intestinal Stasis. Robert C. Coffey, Portland, Ore.: Subject to be announced. Richard R. Smith, Grand Rapids, Mich.: Subject to be announced. Chevalier Jackson, Pittsburgh: Bronchoscopy, Esophagoscopy and Gastroscopy (lantern demonstration). Myles Standish, Boston: Paper on Surgery of the Eye. Ewing W. Day, Pittsburgh: Otitis Meningitis, the Indication of and the Operative Treatment for.

Friday, November 15—E. G. Abbott, Portland, Me.: The Treatment of Lateral Curvature of the Spine. Discussion by John Ridlon, Chicago, and Royal Whitman, New York City. John B. Murphy, Chicago: On Surgery of the Bones and Joints.

PROGRAM OF THE HYGIENE CONGRESS

An inspection of the advance sheets of the preliminary program of the Fifteenth International Congress on Hygiene and Demography shows what a valuable medical and sociologic convention will be held in Washington September 23 to 28. It is interesting to quote from the program. For example, the Section on Hygienic Microbiology and Parasitology will hold a joint session Thursday morning, September 24, with the Section on Control of Infectious Diseases and will take up the subject of poliomyelitis as follows:

POLIOMYELITIS. ETIOLOGY AND MODE OF TRANSMISSION

Etiology, Prophylactic Measures. Dr. Netter, Paris, France.
Epidemic Poliomyelitis in Norway. Dr. Francis Harbitz, Christiania, Norway.

Sanitary Measures Against Poliomyelitis. Messrs. and Drs. M. Lovaditi, Paris, France; Karl Landsteiner, Vienna, Austria; Simon Flexner, New York; Paul Römer, Marburg, Germany; Alfred Pettersson, Stockholm, Sweden.

Etiology and Symptomatology of Poliomyelitis. Dr. M. Neustaedter, New York.

A similar session is to take up the subject of hookworm:

HOOKWORM DISEASES

Biology and Terminology. Drs. M. Breton and L. Bruyant, Pasteur Institute, Lille, France, and Dr. C. W. Stiles, Washington, D. C.
Eradication. Drs. Bailey K. Ashford, Porto Rico; W. S. Rankin, Raleigh, N. C.; Hiram Byrd, Jacksonville, Fla.; John A. Ferrell, Raleigh, N. C.

Other interesting fragments from the program are:

THE HEALTHFULNESS OF OCCUPATIONS

Industrial Accidents and Trade Diseases. Messrs. Frederick L. Hoffman, Newark, N. J.; Robert E. Chaddock, of Columbia University; Henry J. Harris, Library of Congress; Lucien March, Director of Statistics of France; Arthur Fontaine, Director of Labor, Paris.

ALCOHOLISM AND ACCIDENTS, SICKNESS AND MORTALITY

The Relation of Alcoholism and Consumption. Dr. Jacques Bertillon, Paris.

Mortality from Alcohol in the United States. Edward Bunnell Phelps, Editor *American Underwriter*.

Alcohol as a Predisposing Cause to Accidents and Occupational Disease. Dr. William F. Boos.

HYGIENIC MICROBIOLOGY AND PARASITOLOGY

Filterable Viruses. Dr. Borrel, Paris, France.
Etiology of Measles. Drs. Joseph Goldberger and John F. Anderson, Washington, D. C.

A New Filterable Virus, Pathogenic for Rats. Dr. Frederiek G. Novy, Ann Arbor.

Experiments on the Nature of the Virus of Rabies. Dr. D. W. Poor and Dr. Edna Steinhardt, New York.

Transmission of a Malignant Tumor by a Filterable Agent. Dr. Peyton Rous, New York.

Etiology of Typhus. Dr. J. F. Anderson and Dr. Joseph Goldberger, Washington, D. C.

HYGIENE OF INFANCY AND CHILDHOOD

Instruction in Child Hygiene. Dr. Mary S. Macy, New York.
Hygiene of City Babies. Dr. Adolph Baginsky, Berlin.

Teaching School Hygiene. Dr. Ira S. Wile, New York City.
Open-Air Schools With Breathing Exercises to Prevent Tuberculosis and Other Diseases. Dr. S. A. Knopf, New York.

Fundamentals of the Hygiene of the Teacher. Dr. Grace N. Kimball, Poughkeepsie, N. Y.

Campaign Against Favus in the Schools of Mexico. Dr. Manuel U. v. Troncoso, Mexico.

Transmission of Disease by Books. Mr. William R. Reinick, Philadelphia.

Disinfection of the Posterior Nares—A Preventive Against Infection. Dr. John J. Cronin, New York.

Syphilis and Gonorrhea in Children by Direct Infection. Dr. Abraham L. Wolbarst, New York City.

Sex Instruction and Hygiene of Boyhood. Dr. Elias G. Brown, Director of the Mountain School, Allaben, N. Y.

The list of scientific sections into which the congress is divided is as follows:

HYGIENIC MICROBIOLOGY AND PARASITOLOGY.
DIETETIC HYGIENE; HYGIENIC PHYSIOLOGY.
HYGIENE OF INFANCY AND CHILDHOOD, SCHOOL HYGIENE.
MENTAL HYGIENE.
HYGIENE OF OCCUPATIONS.
CONTROL OF INFECTIOUS DISEASES.
STATE AND MUNICIPAL HYGIENE.
SEX HYGIENE.

HYGIENE OF TRAFFIC AND TRANSPORTATION.
MILITARY, NAVAL AND TROPICAL (COLONIAL) HYGIENE.
DEMOGRAPHY.

The portions of programs briefly given above illustrate the character and breadth of the scientific discussions to take place. The full program is given in the ninth edition of the preliminary announcement which may be obtained of Secretary-General John S. Fulton, Senate Annex, New Jersey Avenue and B Street, N. W., Washington, D. C. Any person who is interested in the study or practice of hygiene or demography may become a member of the Congress, entitled to take part in the proceedings, and to receive the published transactions, on payment of the membership fee of five dollars. It is planned to hold, in connection with the Congress, an Exhibition on Health during the three weeks from September 16 to October 4, at which the hygienic and demographic work of the United States and its dependencies is to be illustrated. The exhibition will be divided into the following groups:

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| Group | I. Vital Statistics and Demography. |
| Group | II. Growth and Nutrition; Food. |
| Group | III. Hygiene of Infancy and Childhood. |
| Group | IV. Physiology and Hygiene of Exercise. |
| Group | V. Housing. |
| Group | VI. Industrial and Occupational Hygiene. |
| Group | VII. Communicable Disease. |
| Group | VIII. State and Municipal Hygiene. |
| Group | IX. Care of the Sick; Life Saving. |
| Group | X. Hygiene of Traffic and Transportation. |
| Group | XI. Military, Naval and Tropical Hygiene. |
| Group | XII. Sex Hygiene. |

All communications concerning the Exhibition should be addressed to Dr. J. W. Schereschewsky, Director of the Exhibition, Senate Annex, Washington, D. C., who will promptly furnish prospectuses of the Exhibition and all other pertinent information on request.

ITINERARY OF HYGIENE CONGRESS VISITORS

A group of physicians from Europe who are to attend the International Congress on Hygiene in Washington next month are to make a tour of some of the principal cities of the United States, as we have already announced. Next week we will give the list of the physicians.

PROGRAM OF THE MEDICAL STUDY TOUR THROUGH AMERICA

From Sept. 17 to Oct. 9, 1912

September 17: Arrival in New York. Lunch in the Plaza, Savoy and Netherland hotels. Dinner and the evening at Coney Island.

September 18: Visit to the Battery, Ellis Island and to Bellevue Hospital for general inspection and luncheon. Then to the Rockefeller Institute and to Blackwells Island. Evening, 8:30: reception by the German Medical Society at Liederkrantz Hall.

September 19: Automobile trip to see upper part of the city—Riverside Drive, Grant monument, Central Park, Public Library, etc.

September 20: Automobile ride to the lower part of the city, then to the Philadelphia and Reading Railway, Liberty Street, New York. By ferryboat to Jersey City. Luncheon in the railroad station restaurant. Departure at 12 noon. Arrival at PHILADELPHIA at 1:50 p. m. Rest at the hotel. Afternoon reception by Mayor Blankenburg and inspection of the city hall. Dinner at the Bellevue-Stratford.

September 21: In Philadelphia as guests of the city and the local profession. In the morning a trip through Philadelphia and Fairmount Park. Inspection of scientific, medical and educational institutions. Special automobile drive for the ladies. Invitation to tea from the ladies' reception committee. In the evening, a banquet by the city and the medical profession.

September 22: Departure from Philadelphia, 10 a. m. Arrival at ATLANTIC CITY, 11 a. m. Departure for Washington, 12 midnight.

September 23: Arrival in WASHINGTON, 7:30 a. m. Headquarters at the New Willard and Raleigh hotels.

September 24 to 28: In Washington, at the Congress on Hygiene.

September 28: Departure from Washington, 12 noon.

September 29: Arrival in CHICAGO, 8 a. m. Breakfast at Congress Hotel and Annex. Visit to the stock-yards and trip through the city.

September 30: In Chicago. Inspection of clinics, hospitals, etc. In the evening, banquet.

October 1: In Chicago. Sight-seeing. Departure from Chicago, 8 p. m.

October 2: Arrival at NIAGARA FALLS, 8 a. m. Breakfast at the International Hotel; carriage drive to Goat Island. In the afternoon, the gorge trip.

October 3: Departure from Niagara Falls, 9 a. m. Arrival in TORONTO, 11:30 a. m. Lodging and meals at the King Edward. Prince George, Queens and Walker hotels. Sight-seeing trip. In the evening, reception by the university and the medical profession.

October 4: Departure from Toronto, 8 a. m. Arrival in KINGSTON, 12:15 p. m. Special steamer trip, with luncheon, through the THOUSAND ISLANDS. Arrival in MONTREAL, 7 p. m. Lodging at the Place Viger Hotel.

October 5: Sight-seeing trips about Montreal. In the evening, a reception by the city and the University of Montreal.

October 6: Departure from Montreal on a special train at 9 a. m. and arrival in BOSTON at 7 p. m. Copley-Plaza Hotel.

October 7: Sight-seeing trips about Boston.

October 8: Leave Boston at 12 midnight.

October 9: Arrival at ALBANY at 7 a. m. Then Hudson River Day Line to NEW YORK, arriving at 6 p. m. Dinner on the steamer *Viktoria Luise*, lying at the Hoboken pier.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Aug. 10, 1912.

The National Insurance Act

The British Medical Association has declined to accept a suggestion made by Mr. Lloyd George, the Chancellor of the Exchequer, to appoint a committee for the purpose of bargaining with him as to the terms on which the profession will consent to work the medical benefits of the national insurance act, and has informed him that the association adheres to its demands previously placed before him. The association argues that the figures supplied by the actuarial report obtained by the government on the practices in a number of sample towns (previously given in *THE JOURNAL*), so far from undermining its case, as the chancellor claims, on the whole support it. These figures show that the present income of a physician spread over the population of the towns is \$1 per head for an average of 1.8 attendances per annum—a figure which shows that a large number of the population is not attended at all, or insufficiently attended. Under any system of contract practice in which the patient can demand unlimited attendance without extra cost the average number of attendances has been found to be about four per annum, and this is under systems in which there is no choice of physician. It is certain that when the insured persons come under a contract system which allows free choice of physician the average number of attendances will probably be about five. On this calculation the capitation fee of \$2 demanded by the association compares unfavorably with the present remuneration. Moreover, this fee is paid at present by the government for medical attendance on postal servants and about the same is paid for attendance on policemen and firemen. In these cases, the persons concerned are picked lives, are living under excellent sanitary conditions and are invalided out of the service if they fall into permanent ill health. On the other hand, the insured persons under the new act will not be selected lives, cannot be invalided out of the insurance service and must be attended at the same rate up to the day of their death. Moreover, the profession feels that it is fighting for something even more important than adequate remuneration—its very existence as an independent body. It is faced by an entirely new set of circumstances, the full bearing of which nobody can estimate. The government proposes to set off a medical service which will at once include about 12 or 14 million people, a large number of whom have in the past received perfectly satisfactory attendance by direct arrangements with their own physicians. There is every indication in the future that it will be sought to include the dependents of the insured persons, so that the service will at no distant date include four-fifths of the whole population. It thus becomes a matter not only of professional but of national concern to ensure that the conditions now set up shall be such as will give the public the choice of the best men and will not tend to lower the standard of the men entering the profession. Under the conditions now offered the most experienced and trusted practitioners would decline to serve. The recruiting of the profession will be adversely affected if in the future more work is demanded without corresponding increase of remuneration, if the profession is to be placed to a large extent under government and lay control, and finally is to be subject to conditions which will restrict quite unnecessarily the scope of private practice, which, even at a lower remuneration, is preferred by the profession to any form of contract practice.

A State Medical Service

There are many indications that in time the medical profession will be transformed into a state service. Medical officialdom is constantly increasing. Beginning with army doctors, health officers, factory surgeons and public vaccinators, school physicians have recently been created and under the insurance act a large number of tuberculosis officers are being appointed. Moreover, the proposed arrangement under the act for the medical attendance on 12 millions of people will involve making the majority of physicians, to a certain extent, public officials. Many believe that the way out of the present deadlock lies in the appointment of whole-time physicians to attend the insured. These would, of course, be nothing more than officials. Dr. Benjamin Moore, professor of biochemistry in the University of Liverpool, recently produced a book entitled "The Dawn of the Health Age," in order to demonstrate the necessity for entirely remodeling the present system of medical practice in the interests of the whole community. He asserted that "at present we

possess sufficient knowledge of medical science to enable us to save at least 300,000 lives every year in this country alone," which could be done without costing the nation anything; on the contrary, many million pounds a year could be saved. He characterized the present system of state voluntary hospitals, state and private physicians as chaotic. During the meeting of the British Medical Association at Liverpool a State Medical Service Association was formed under Dr. Moore's inspiration. Its object is to advocate a state medical service on the following basis: (1) the whole profession to be organized on the lines of the other state services now in existence; (2) entry to the profession to be by one state examination; (3) each member of the service to be paid an adequate salary, increasing gradually according to the length of service and position in the service, and to be entitled to a pension after a specified number of years or in case of permanent disablement; (4) members of the public to have, as far as possible, free choice of physicians, but no physician to be called on to have charge of more than a specified number of patients; (5) one of the primary objects of the state service to be to unite preventive and curative medicine; all hospitals to be nationalized and used for the purpose of consultative, operative and therapeutic work at the request of and in conjunction with the patient's own physician; (6) the services of the state physicians to be open to every one, rich or poor; (7) the state medical service to be administered by a board of health under a minister of public health with cabinet rank, assisted by expert medical advisers. This movement was started before the insurance act was passed and is quite independent of the present *impasse*. It is intended that the work of the association shall form a branch of sociologic science and membership is to be open to all prominent sociologists, whether lay or medical.

Decline in the Number of Medical Students

In spite of the increasing population the number of medical students has been declining for some years. In 1893 the number of students entering the profession was 1,747, while the number who qualified as physicians was 1,579. Since then the number has steadily declined till last year when the entries amounted to only 1,232 and the qualifications to 1,042. Several factors have contributed to this result. The profession has been and is still overcrowded; the principal factor is the higher standard demanded as a result of the advance of science. The change in the length of the curriculum from four to five years has meant an increase in the cost of training of \$750. The fears expressed by the British Medical Association in regard to a detrimental effect on the recruiting of the profession seem already to have been realized, for a great drop has taken place in the number of entries for 1911—from 1,495 in 1910 to 1,232.

The Census of England and Wales

The first and second volumes of the detailed abstracts of the census of England and Wales have just been issued. On Sunday, April 2, 1911, the population was found to be 36,070,492—an increase of 3,542,649 over the number living in 1901. The increase for the decennium was 10.9 per cent., the lowest recorded. In 1881-91, the rate was 11.65 and in 1891-1901, 12.17. This decline in the rate of growth is not due to falling off in the excess of births over deaths, but to an increased loss by excess of emigrants over immigrants. For, although the increase per cent. by births was 3.01 less than in the previous decade, this deficiency was more than counterbalanced by the fall in the death-rate, and the resulting natural increase by excess of births over deaths was 12.43 per cent. against 12.39. The numerical difference between the natural increase and the actual increase, which is accounted for as a loss by migration, amounted to over 500,000 persons in the past decennium, as against only 60,000 in the previous one. Comparing the growth of population in other European countries for the same period, the increase in the German Empire was 15.2 per cent.; in the Netherlands, 14.8; in Switzerland, 13.2, and in Denmark, 12.6—all in excess of our rate. In new countries, of course, the excess is much greater. Thus, in the United States, the percentage was 21; in Australia, 18.1; in New Zealand, 30.5, and in Canada, 34.1. The average density of population in England and Wales is 618 persons per square mile. The growth of town populations at the expense of country districts is shown by the fact that while in 1851 the urban and rural populations were approximately equal, by 1881, 67.9 per cent. of the population were living in urban districts and by 1911 the proportion had risen to 78.1.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Aug. 2, 1912.

Tuberculosis Among Children Living in Contact With Tuberculous Parents

I have already mentioned l'Oeuvre de Préservation de l'Enfance contre la tuberculose, founded eight years ago by the late Professor Grancher to save the children of tuberculous parents by removing them to the country among healthy peasant families. To show statistically the value of the work of this society, Dr. P.-F. Armand-Delille has gathered figures showing the fate of children of these tuberculous families not so assisted. The investigation included 175 families, in which there were 787 children; of these 165 had died of tuberculosis, seventy-three are now affected with active tuberculosis, sixty-eight have died of other diseases including congenital debility, 323 healthy children have been cared for by the society, and 158 healthy children have not been so assisted. Thus, then, the proportion of tuberculosis among children not helped by the society amounts to 238 out of 396, a proportion of more than 60 per cent., including only the cases of fatal and pronounced tuberculosis. The proportion would be much larger if there were added to it the cases of latent gangliopulmonary tuberculosis among the children supposed to be well. The 323 children of these families placed in the country are all well. Moreover, out of more than 800 children placed by the society since its foundation, there have been in all four cases of tuberculosis, namely, one of tuberculous meningitis, one of cervical adenitis, one of intestinal tuberculosis and one of lupus of the hand, a proportion of less than 0.5 per cent. These four cases, moreover, developed in the months immediately following the separation of the children from their families, showing that the children were already infected at the time of their separation.

Admission of Persons Without the Bachelor's Degree to the Medical Schools

A recent decree has opened the schools of law, science and letters to large classes of persons without the bachelor's degree. Ostensibly it does not affect the admission of students to the medical schools, but, as Professor Grasset of Montpellier points out, it will actually allow the entrance of persons without the baccalaureate degree and will therefore be a dangerous measure, since the possession of the four certificates of higher studies given by a *faculté des sciences*, namely, physics, chemistry, botany, zoology or general physiology or general embryology, is accepted as a substitute for the baccalaureate at the student's entrance on the study of medicine. Thus opening the *facultés des sciences* opens the way to the medical schools. Professor Grasset emphasizes the dangers to medicine of permitting men to acquire the degree of doctor of medicine not only without Greek, without Latin, without philosophy, but without any bachelor's degree.

The Dieulafoy Prize of the Academy of Medicine

Madam Dieulafoy, widow of the late clinician, has given to the Académie de médecine, in memory of her husband, the sum necessary to found a prize of \$400 (2,000 francs) which will be awarded every two years to the author of the best work on the subject of internal pathology.

Genital Psychopathy

On July 30 Dr. Picqué, surgeon of the hospitals of Paris, read before the Académie de médecine an interesting paper on this subject. Without undervaluing the important rôle that the uterus may play in the production of certain deliriums, Picqué shows that this rôle has been singularly exaggerated of late, especially abroad. Cases have been rare in which the cure of a uterine affection has not resulted in the disappearance of the concomitant mental trouble. Clinical observation proves every day that uterine lesions no longer deserve the special place they formerly occupied in psychiatric nosology and this organ has no special properties of reaction with the brain. Any lesion of any organ or tissue may through infection produce identical effects on the brain. In numerous cases the extirpation of an infected uterus or any other organ readily leads to the disappearance of mental trouble. But even if it be admitted that infection may produce certain psychopathic conditions which disappear on the extirpation of the focus of infection, does the suppression of the menstrual affection cause the appearance of mental troubles as has been asserted? It may be unhesitatingly said that no psychopathic consequences follow removal of the uterus. Picqué declares that out of 450 women in the Villejuif asylum he could find only seven who had been placed there in consequence of a

surgical operation. In these seven patients it was necessary to eliminate two general paralytics and two psychopathics who had been placed in the asylum once or twice before being operated on. This leaves three cases of psychosis after the artificial menopause in a population of 450 insane. The occurrence therefore seems exceptional.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, August 2, 1912.

Personal

Professor Romberg of Tübingen has accepted the call as professor of internal medicine to the first medical clinic at Munich. Through this acceptance the Munich medical faculty has gained an advantage over the Berlin faculty, a circumstance which we of Berlin may well regret.

Professor Waldeyer has been elected an honorary doctor of the university at Oxford, and an honorary member of the Academia Romana at Bukarest.

Professor Eversbusch, director of the Munich eye clinic, has suffered a stroke of apoplexy.

Meeting of the German Scientists

The meeting of German scientists and physicians is to take place at Munich in the middle of September; the program of the general session presents a series of interesting addresses. Professor Czerny of Heidelberg will discuss the "Non-Operative Treatment of Tumors." Professor Becher of Münster will speak on "Life and Animation" (*Leben und Beseelung*), and the distinguished Berlin physician, Professor Nernst, will discuss "The Newer Development of Thermodynamics." Reports will be given on modern military surgery, the heredity and determination of sex and the science of life in its significance for present civilization. The banquet, which was to be given by the municipal authorities of Münster, was omitted at the wish of the executive committee. A request of this sort has often been made because it was thought that such festivities were a superfluous burden for the cities which entertain the association of scientists, and for this reason many a city might be hindered from soliciting the meeting of the association. It is the desire of the association that its meetings may be held in as many places in Germany and Austria as possible.

Reduction of the Consumption of Alcohol in Germany

I have several times referred to the resolution adopted in 1909 by the social-democratic party, by which all workmen were incited to avoid the use of spirits. The results of this action, as they are given by the official organ of the social-democratic party, *Vorwärts*, are well suited to present a new and brilliant example of the discipline of this party. In comparison with 1907-1908, there have been produced and consumed from October, 1909, to June, 1912, about 1,500,000 less hectoliters (39,630,000 gallons) of alcohol. As a hectoliter of alcohol will, on the average, make 3 hectoliters of whisky, the use of whisky as a beverage has been reduced, in the period mentioned, more than 4,000,000 hectoliters (105,680,000 gallons), that is, for the whole of Germany about 430,000 hectoliters (11,360,600 gallons) per day.

Municipal Crematory in Berlin

In accordance with the law for permitting cremation in Prussia, adopted some time ago, after overcoming a number of difficulties interposed by the church authorities, there is to be erected in October of this year a crematory in one of the Berlin cemeteries. Without doubt the number of cremations of Berlin citizens will then be considerably increased.

Meeting of the London Royal Institute of Public Health in Berlin

This society held its annual meeting in Berlin, July 25-27. It is unusual to hold this session outside of England, but according to the Transactions there were two reasons for doing this. In the invitation sent out by the president of the society to the English municipal authorities it was emphasized that not only the congress, but also the representatives of English cities, provincial councils and other health authorities would appreciate the opportunity afforded them to learn the sanitary arrangements of Berlin and its vicinity, and particularly the highly developed administrative and scientific methods. The other purpose was of still greater importance, namely, the promotion of a better understanding between Great Britain and Germany. In order to serve the first purpose of the congress, addresses by German scientists were announced, in accordance with the desire of the congress

management. Among the 250 Englishmen in attendance were such distinguished hygienists as Sir Ronald Ross, Sir William Lever, former Surgeon-General Sir Robert Jackson, now 85 years old, Professor Smith, the president of the Royal Institute, and the minister Earl Beauchamp, the president of the congress for this year. The proceedings were satisfactory in every respect. An excellent spirit was particularly evident during the official banquet. At that time telegrams were read in which Emperor William and King George expressed their thanks in reply to the telegrams of homage sent to them by the congress.

Comparison of the Health of the French and German Armies

An article by Professor Schwiening of the Kaiser Wilhelm Military Medical Academy, published in the *Deutsche medizinische Wochenschrift*, says that there has been in the German army during the last twenty years an almost constant reduction of the number of cases of tuberculosis (1890-91: 3.3; 1909-10: 1.9); while in France with slight variations, tuberculosis has remained at the same level, or even an inclination to increase may be perceived (1890: 5.2; 1909: 6.8). With reference to tuberculosis of the lungs (in which the percentage is distinctly higher than in the German army) a reduction appears to have occurred within the last two years in the French army. Schwiening's view, however, is that this decrease is only apparent. While in Germany each soldier in whom tuberculosis is discovered receives hospital treatment and remains isolated till he is discharged, in France a large number of tuberculous soldiers are annually discharged from service without having received military medical treatment. Moreover, a considerable number of tuberculous soldiers die in France without treatment by the military surgeon. Schwiening discusses further the important question on what this high frequency of tuberculosis in the French army depends. For one thing, the French minister of war recently emphasized that there is no doubt of the marked extension of tuberculosis in the civil population, so that a great part of the soldiers are already infected at the time of their enlistment. The French statistics permit us to see that the number of tuberculous soldiers in the first year of service exceeds by far that of the later years (1909: in the first year 13.6; in the later years 6.03). Similar proportions are also apparent in the German army although not nearly so pronounced as in the case of the French. If an average of the last four years is taken, the French army lost in the first years of service 8.3 times as many from tuberculosis of the lungs as the German, and if those suspected of tuberculosis are included, 13.2 times. Schwiening discusses further how it is possible that so many weak persons, generally those suspected of tuberculosis, are enlisted, and he finds the answer in the circumstances that the scarcity of those liable to military duty is the chief reason which compels the army surgeons to lower as much as possible the limit of unfitness, and that in consequence of this, many soldiers are enlisted who are not competent to meet the requirements of the service. Furthermore, the fact must be taken into consideration that tuberculosis is considerably more prevalent in France than in Germany, a circumstance that has again the result that men are enlisted in whom there are as yet no sure signs, or only slight symptoms of the disease. In France 88 or 89 per cent. of the entire population subject to military duty must be enlisted, in order to provide the requisite number of recruits, while in Germany 53 to 55 per cent. are sufficient for that purpose. From this it results that in France the number of those who are declared unfit for the service on account of *faiblesse de constitution* is on the average only 1.6 per cent. of the entire number examined, while in Germany about 8.5 per cent. are rejected as unfit for active service on account of constitutional inferiority. In France only the very weakest persons are freed from the service. The high number of weak recruits, according to Schwiening, influences not only the morbidity from tuberculosis in the French army, but also acts unfavorably on the condition of the army as a whole. Especially striking are the continuously high figures of the more frequent acute communicable diseases. The French minister of war, Millerand, in the discussion in the senate which I mentioned recently and to which Schwiening's article is a reply, stated that the morbidity from typhoid fever had been reduced from 11.15 per thousand of the whole strength in 1888 to 3.36 per thousand in 1910, and the mortality from typhoid had diminished from 2.97 to 0.44 per thousand. These figures are still considerably higher than those of the Prussian army; for here the morbidity from typhoid in 1909-1910 was only 0.38, and the mortality only 0.05 per thousand; that is, fewer became sick in our army than died in the French.

Marriages

GEORGE EVERETT BEILBY, M.D., Albany, N. Y., to Miss Nettie A. Nettleton, of Newark, N. J., August 1.

HAROLD THEODORE HOUG, M.D., Racine, Wis., to Miss Rose Helen Behnken, of Lake Mills, Wis., August 7.

LOUIS E. SAUNDERS, M.D., to Miss Edna Whitmore, both of Stewartsville, Mo., at St. Joseph, Mo., July 31.

JOHN A. PARMENTER, M.D., Morse Bluff, Neb., to Miss Augusta Urban, of Prague, Neb., June 19.

WALFRED ABOW VON ZELLEN, M.D., to Miss Emma D. Menge, both of L'Anse, Mich., August 2.

BASIL LINGER, M.D., French Creek, W. Va., to Miss Maude M. Teter, at Grafton, W. Va., August 3.

IRVING SOBOTKY, M.D., Boston, to Miss Wilhelmina Barins Andrews of Brookline, Mass., August 6.

LESLIE LEVI WILES, M.D., Amsterdam, N. Y., to Miss Helen Beattie, of Warwick, N. Y., July 31.

EDWIN HENES, JR., M.D., New York City, to Miss Irma L. Manegold, of Milwaukee, August 5.

EDWIN VAIL LAPHAM BROWN, M.D., to Miss Frieda Kirchhoff, both of Chicago, August 10.

HENRY JOHN PLENZ, M.D., to Miss Margaret Schultheis, both of Chicago, July 5.

MARY M. TAYLOR, M.D., and Rev. John Nelson, both of Philadelphia, August 9.

Deaths

Thomas B. McClintic, M.D. University of Virginia, Charlottesville, 1896; died in Washington, August 13, aged 39, from Rocky Mountain spotted fever, contracted while investigating the disease in Bitter Root Valley, Mont. Dr. McClintic was a native of Virginia and three years after his graduation in medicine entered the United States Public Health Service as acting assistant surgeon. He was soon commissioned as assistant surgeon and in 1904 was promoted to passed assistant surgeon. He was a member of the American Medical Association and of the Association of Military Surgeons of the United States. Dr. McClintic had extensive service on army transports and in domestic quarantine; was engaged in yellow fever quarantine work in Tampico, Mexico, in 1904; was on duty at the Marine Hospital at San Francisco at the time of the earthquake; was medical officer of the Revenue Cutter *McCulloch* on service in Alaskan waters; was later sent to the Philippines where he served as quarantine officer at Manila. At intervals between these various details he was engaged in special investigations at the Hygienic Laboratory, devoting especial attention to problems of practical disinfection. In 1911 he began his studies in Montana on the disease which ultimately caused his death; he continued his investigations on this subject at the Hygienic Laboratory in the winter of 1911-12 and returned to Montana in March of this year to put into practical operation certain measures for the eradication of the disease from certain areas. His work was highly successful and nearing completion when he contracted the disease. Not a single case, except his own, had occurred in the area in which he worked, demonstrating that this dread malady can, by proper precautions, be practically eradicated. He contracted the disease from the tick-bearing animals with which he worked. Dr. McClintic was one of the most efficient and popular of the younger officers of the Public Health Service. His quiet, unassuming and unselfish character endeared him to his colleagues and all who knew him; his tact, consideration and thoughtfulness made him popular even as a quarantine officer; his efficiency, firmness, resourcefulness and ever readiness for the most onerous and hazardous duties won for him the highest approbation of his superiors.

Herbert Norris, M.D. University of Pennsylvania, Philadelphia, 1866; formerly a member of the Philadelphia College of Physicians; who had resided, since his retirement from active practice, in Taormina, Sicily; died in Rochester, Minn., August 6, after a surgical operation.

Manuel J. Manent, M.D. Tulane University, New Orleans, 1900; since that time a practitioner of Orleans Parish, La.; died at his home in Algiers, August 7, aged 41.

Leon Vance Grove, M.D. Western Pennsylvania Medical College, Pittsburgh, 1892; of Renfrew; a member of the Medical Society of the State of Pennsylvania; consulting surgeon to the State Hospital, Mercer; local surgeon to the Bessemer and Lake Erie Railroad; while driving across an interurban track near Renfrew, August 6, was struck by a trolley car, and died on the way to the Butler County General Hospital, aged 46.

William H. Palmer, M.D. New York University, New York City, 1859; surgeon of the Third New York Volunteer Cavalry throughout the Civil War; medical examiner of Providence, R.I., for twelve years, coroner for nine years and later police surgeon; for one term president of the Rhode Island Medical Society; died at his home in North Woodstock, Conn., August 3, aged 83, from senile debility.

Albert Matson Belden, M.D. College of Physicians and Surgeons, Baltimore, Md., 1888; formerly a member of the American Medical Association; first president of the Hampshire County Anti-Tuberculosis Association; superintendent of the Norwood Sanitarium, Northampton, Mass.; died at his home in that city, August 5, from pernicious anemia, aged 46.

Frederick Earl Beal, M.D. University of Nebraska, Omaha, 1894; a member of the American Medical Association and New York Academy of Medicine; clinical professor of physical diagnosis in the New York Polyclinic Hospital; died in that institution, August 8, from pneumonia, aged 44.

Christian P. Seip, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1868; of Pittsburgh; a veteran of the Civil War, and a member of the State Bureau of Medical Education and Licensure; died in Atlantic City, N. J., August 6, from heart disease, aged 69.

Thomas Henry Brannan, M.D. Long Island College Hospital, Brooklyn, N. Y., 1871; for many years a practitioner of Canal Dover, Ohio, and local surgeon for the Baltimore and Ohio Railroad; died at the home of his daughter in Cleveland, August 4, from uremia, aged 66.

John M. Gahringer, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1896; formerly a member of the American Medical Association and a practitioner of Oelwein, Iowa; died at his home in Grand Island, Neb., recently, from cancer of the throat, aged 47.

Philip H. Pensyl, M.D. Jefferson Medical College, 1864; of Mann's Choice, Pa.; assistant surgeon of the Fifty-Sixth Pennsylvania Volunteer Infantry during the Civil War; died in the Memorial Hospital, Johnstown, August 5, from dysentery, aged 71.

Bernhard Ludwig Wilhelm Theodore Hansmann, M.D. University of Göttingen, Germany, 1856; for more than half a century an esteemed practitioner of Washington, D. C., died at his home in that city, August 13, from senile debility, aged 91.

George C. Armstrong, M.D. Northwestern University Medical College, Chicago, 1899; a member of the American Medical Association; formerly of Cambridge, Neb.; died in Los Angeles, Cal., after a surgical operation, August 5, aged 42.

Oscar C. Collins, M.D. New York University, New York City, 1860; a surgeon in the Confederate service during the Civil War; a member of the Medical Association of Georgia; died at his home in Forsyth, August 4, aged 76.

Robert Alfred Berry, M.D. University of Virginia, Charlottesville, 1882; of Montevallo, Ala.; for several years a practitioner of Birmingham; died in a sanatorium in Memphis, Tenn., August 3, from nephritis, aged 50.

Olive F. Gruver-Carson-Acton-Filmer, M.D. California Eclectic Medical College, Los Angeles, 1896; died at her home in San Francisco, August 4, from asphyxiation by gas, believed to have been with suicidal intent.

Henry Roland Walton, M.D. University of Maryland, 1850; formerly a member of the Medical and Chirurgical Faculty of Maryland; died at his home in Annapolis, August 8, from senile debility, aged 84.

James B. Hannah, M.D. Cooper Medical College, San Francisco, 1902; a member of the American Medical Association; died at his home in San Francisco, July 28, from acute endocarditis, aged 48.

Frank Cowan, M.D. Long Island College Hospital, Brooklyn, N. Y., 1872; a member of the Ohio State Medical Association; died at his home near Ashland, August 7, from cerebral hemorrhage, aged 63.

J. L. Jackson, M.D. Cincinnati College of Medicine and Surgery, 1884; died suddenly at his home in Chattanooga, Tenn., August 2, aged 54.

Lewis H. Watson, M.D. Eclectic Medical Institute, Cincinnati, 1867; of Chicago; died in the Columbus Hospital in that city, August 13, after an operation for disease of the kidney, aged 70.

Robert Hilton Walch, M.D. Illinois Medical College, Chicago, 1897; for several years a member of the faculty of his alma mater; died at his home in Chicago, August 12, from heart disease, aged 59.

William B. Goodman, M.D. Atlanta (Ga.) Medical College, 1890; a member of the City Council of Nashville, Ga., and a trustee of the Nashville High School; died recently in Atlanta, aged 54.

Leonard Morong Kimball, M.D. Pulte Medical College, Cincinnati, 1880; and later a member of the faculty of his alma mater; died at his home in Brookline, Mass., August 4, aged 64.

John Black McClelland, M.D. Hahnemann Medical College, Philadelphia, 1879; a veteran of the Civil War; died at his home in Pittsburgh, August 4, from heart disease, aged 69.

P. Sudler Roberts, M.D. Jefferson Medical College, 1886; a member of the Medical and Chirurgical Faculty of Maryland; died at his home in Oxford, August 6, aged 66.

Henry Light Trumbower, M.D. Medico-Chirurgical College of Pennsylvania, Philadelphia, 1908; died at his home in Coopersburg, Pa., July 31, aged 33.

Chalmers M. C. Prentice, M.D. University of Wooster, Cleveland, Ohio, 1872; died recently from diabetes at the home of his daughter in Texas.

Edwin D. Gibson, M.D. Medical College of Virginia, Richmond, 1854; died at his home in Lignum, Va., July 27, from senile debility, aged 84.

Charles L. Schmidt, M.D. University of Wurzburg, Germany, 1871; died at his home in Escanaba, Mich., August 6, aged 63.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

TYREE'S ANTISEPTIC POWDER

Now Advertised Direct to the Public as the "Best Preventative Known"

When the history of the "patent medicine" business comes to be written impartially and fairly, it will be realized that we, the medical profession, have been in no small degree responsible for its growth. Not a few widely advertised nostrums owe their commercial success solely to the ill considered use accorded them by physicians, to whom they were first exploited. As a well-known and brilliant advertising man once said:

"The patent medicine of the future is one that will be advertised only to doctors. Some of the most profitable remedies of the present time are of this class. They are called proprietary remedies. The general public never hears of them through the daily press. All their publicity is secured through the medical press, by means of the manufacturer's literature, sometimes gotten out in the shape of a medical journal, and through samples to doctors. . . . The medical papers will reap the harvest and the physician himself, always so loud in the denunciation of 'patent medicines,' will be the most important medium of advertising at the command of the proprietary manufacturer. In fact, he is that to-day."

Of the conditions here described probably no better example can be found than Tyree's Antiseptic Powder. For years this preparation was advertised to the medical profession under claims that were fraudulent as to both composition and therapeutic effect. Analyses published in *THE JOURNAL*¹ proved that the formula given out by Tyree was absolutely false and that the preparation was, essentially, nothing but a simple mixture of sulphate of zinc and boric acid.

From the first it would seem, that the manufacturers of this mixture had for their objective point that period when,

1. Oct. 20, 1906, and May 18, 1907.

thanks to the use of the nostrum by physicians, it would be widely purchased by the public. Lavish advertising was done in medical journals and Tyree's Antiseptic Powder gained admission to the pages of even those journals which required the publication of a "formula"—for a formula was forthcoming. THE JOURNAL itself, until seven years ago, carried the advertisements with a "formula" until chemical examination proved the falsity of the formula, and of the therapeutic claims made for the product. The medical profession in its turn prescribed the nostrum and the "original package" scheme did the rest.

Now, it seems, Tyree considers his preparation so well known that he can be independent either of the assistance of the physician or of his good-will. For Tyree's powder now goes to the public direct and newspaper readers find it advertised as:

"Ideal for douche."
"Unequalled as a douche."
"Best preventative known."
"Unequalled as a preventative."
"Has no equal as a preventative."

And the following, whose very truth must bring the blush of shame to all physicians who have the interest of scientific medicine at heart:

"Prescribed by physicians all over the world for twenty-one years."
"Ask your doctor or send for booklet."
"Used by doctors for the last twenty-one years."
"One of the highest tributes paid Tyree's Antiseptic Powder is the fact that the most successful physicians have been using it for the last twenty-one years."

Not that Tyree has entirely forsaken the medical journals, although he seems to be dropping them one by one. At the beginning of this year at least fifteen medical journals were carrying the Tyree advertisement; by March the number had fallen to seven, while in June the only journals carrying it were:

<i>Medical Record</i>	<i>Chicago Medical Recorder</i>
<i>American Journal of Obstetrics</i>	<i>Pacific Medical Journal</i>

Those who answer the newspaper advertisements receive a free sample of the powder and several leaflets and circulars giving the various uses (?) of the nostrum. Incidentally these leaflets advertise, in addition, Tyree's "Elixir Buchu and Hyoscyamus Comp.," which is recommended, in various combinations, for such conditions as acute nephritis, epilepsy, neurasthenia, gonorrhea and delirium tremens.

Bearing in mind the claim that is made in the newspaper advertisements that Tyree's Antiseptic Powder is the "best preventative" known, it is interesting to see what Tyree has to say to those druggists whom he offers to supply with circulars for free distribution:

"As these circulars deal with the care of rubber goods, for both medicinal and toilet purposes, they are of great value to the customer and will be retained for further reference. They are boosters for your rubber goods sales, too."

That a nostrum of this sort should go to the public is not surprising, but that it should have reached the public through the instrumentality of the medical profession is a serious reflection on the judgment of physicians. But the incident has a bright side. That the exploiters of this nostrum no longer find it profitable to use medical journals as a means of getting their stuff to the public but must needs use the more expensive newspaper advertising, is cause for optimism. It means that physicians are no longer prescribing, indiscriminately, proprietary products and that they are refusing to be, what they have been in the past, the unpaid distributing agents for nostrum vendors.

METHOD OF STANDARDIZING DISINFECTANTS WITH AND WITHOUT ORGANIC MATTER

The attempt to form a standard by which the germicidal power of disinfectants can be estimated has as the result of numerous investigations gradually narrowed itself to comparison with the germicidal powers of phenol (carbolic acid). This relative value is expressed by what is known as the

phenol coefficient. Thus if a disinfectant is shown to have three times the germicidal power of phenol, it is said to have a coefficient of 3. In determining this figure as coefficient the trials must be made with the substance under examination and with phenol under exactly the same conditions as to time of action, amount and kind of germ acted on, kind of medium in which growth is tested, etc. Much depends on the method used. Rideal and Walker devised a method which was based on the comparison of the relative dilutions which would kill the *Bacillus typhosus* within a definite time, the choice of which was left to the experimenter. The result of this latitude was that considerable variation in the coefficient obtained might occur from the figures of the same experiment. The manufacturer in such a case might be trusted to take the figures most favorable to his product. To obviate some of these defects, a commission appointed by the *Lancet* devised what is known as the "Lancet method." In this method the comparison is made between the lowest dilution of phenol and of the substance under investigation that will kill the *Bacillus coli* at the end of two and one-half minutes. A similar coefficient is determined for thirty minutes and the average of the two determinations is taken as the phenol coefficient.

J. F. Anderson and T. B. McClintic reported¹ on a method which they consider an improvement on the *Lancet* method. They adopt the *Bacillus typhosus* instead of *Bacillus coli* as the test organism and instead of MacConkey's bile salt medium, which is used in the *Lancet* method, they used standards extract broth. They also determined the exact amount of the culture to be used and measured it by a pipet instead of in drops as is done in the older method. Instead of taking the time limit of two and a half and thirty minutes they use two and a half and fifteen minutes. The standard obtained by this method they designate the Hygienic Laboratory phenol-coefficient.

In the first description of this method no organic matter was introduced. As, however, in the practical application of disinfection organic matter is always present it became desirable to take its modifying action on the germicidal power of a disinfectant agent into account. Accordingly Anderson and McClintic have modified their method so that it may be used with the addition of organic matter. The organic matter added consists of a solution of peptone and gelatin in water which is mixed with the typhoid culture in such proportion that by adding 1.1 c.c. of the mixture 0.1 c.c. of the culture is added.

It is to be hoped that this method will be generally adopted and that health officers and others having occasion to recommend or to purchase disinfectants will base their opinions on the efficiency—or otherwise—of the various preparations as demonstrated by this method.

Correspondence

The Use of Beans in Beriberi

To the Editor:—In a "Historical Note on the Use of Beans in Beriberi," (July 20, p. 201) you quote Dr. William H. Jefferys to the effect that beans have been used ten years or more in China to cure beriberi, and that the U. S. Army Tropical Board has no claim of priority in teaching their value in this disease. Dr. Jefferys is undoubtedly correct in stating that legumens (mongos) have been used as a curative agent in beriberi for many years. This is true not only of China, out of Java, the Philippine Islands and, I believe, the entire orient.

At the time (Sept. 30, 1909) when the Tropical Board recommended a change in the Philippine scout ration, reducing the rice and adding beans, the belief in the efficacy of beans was rather hazy and indefinite; many, if not the majority, of investigators were divided between infection theories of Hamilton Wright and others, and Braddon's theory of a toxic epiphyte. The board, of which I was a member,

1. Bull. 82, Hyg. Lab., U. S. P. H. and M.-H. Service.

did not claim to originate the legumen treatment of beriberi. From its studies of the actual dietaries of the Philippine scouts (native troops) it had determined the relative amounts of rice and other foods necessary for health (Kilbourne, E. D.: "Food Salts in Relation to Beriberi," *Philippine Jour. Sc.*, 1910, v, 127) and in its letter of recommendation to the adjutant general stated the maximum amount of rice allowable and the minimum amount of other foods, including beans, necessary for beriberi prophylaxis. It was an accurate estimation of the necessary amounts of the different components based on their past performances. Before that time the use of beans and rice and the proper proportion of each was a hit-or-miss affair. The correctness of the findings has since been proved by the eradication of the disease (Chamberlain, W. P.: "The Disappearance of Beriberi from the Philippine [Native] Scouts," *Military Surg.*, 1911, xxviii, No. 5, p. 509) following the adoption of the recommended ration.

This letter of recommendation antedated by a month or two the publication of Fraser and Stanton's feeding experiments with labor parties in the Malay Peninsula.

In giving credit to Chamberlain and Vedder for the suggestion of this ration and the use of beans you are wrong. The letter of recommendation was made by Captain J. M. Phalen, Medical Corps, U. S. Army, and myself, who then constituted the Tropical Board. Major Chamberlain and Captain Vedder were not in the Philippine Islands at that time; they joined the board later. Major Chamberlain, in his article on "The Disappearance of Beriberi from the Philippine (Native) Scouts" states this fact.

Chamberlain and Vedder's subsequent work in attempting to determine the exact preventive substance has been most valuable, but is not responsible for the eradication of beriberi from the scouts.

E. D. KILBOURNE, Columbus Barracks, Ohio.
Captain, Medical Corps, U. S. Army.

Beriberi Caused by Rice Stored in Damp

To the Editor:—I have been much interested in reading the comments on beriberi in THE JOURNAL. I cannot agree with the present theory of the cause; I believe that it is largely due to rice being stored in a damp place. No other construction can be placed on the cause of the great epidemic at Chiangmai in the north of Siam, which occurred several years ago after the wettest season in twenty years. During this epidemic hundreds of people died of beriberi on the side of the river where the floods were the worst and very few on the high side. These people all eat the unmilled rice, the kind that the scientists tell us will cure the disease. I have had an extensive experience with beriberi and never saw it except when the rice used for food had been stored in a damp place; when care was taken to store the rice in a dry place there was no beriberi.

CHARLES S. BRADDOCK, JR., M.D., New York,
Late Chief Medical Inspector Royal Siamese Government.

Pellagra in Barbados

To the Editor:—This island ought to afford scientists a good field in which to "run to earth" the real cause of pellagra, since the disease has been observed here only during the past twenty years. As a physician of over thirty years' practice, I am sure of my statement. The island is only 166 square miles in extent, a fact which would likewise aid in tracing the origin of the disease. To zeists the contention that pellagra cannot be due to any known fungus in growing corn will be established by the fact that the disease was unknown on the island until twenty years ago, although corn had been grown here for many years previously. A significant fact worthy of notice by zeists is this: Previous to twenty years ago, corn-meal was imported from the United States in oak barrels and the meal was thereby rendered impervious to rain and any other means of liquid contamination. Now, however, meal and flour are imported in cotton sacks, and when thus exposed to rain, etc., it readily cakes

in lumps which have to be crushed to pieces when being sold by the pound. In order to be so eaked, undoubtedly a fermentation has taken place, since I know that the meal is, through caking, often rendered so sour as to be unsalable. I think this fact worthy of careful examination in arriving at the true cause of the disease.

But aside from this, I am somewhat of the opinion that pellagra, or at least one form of it, is due to some kind of adulteration in the form of a preservative. So-called pellagra appears to manifest itself in two forms; in one form there is the usual inflamed and scaly condition of exposed surfaces; in the other, the first sign is a blackening or dark pigmentation of the extensor surfaces of the forearm, beginning from the elbow. Such a pigmentation is also found on the knees. The pigmentation may be the only sign for some months; ultimately, however, the tongue becomes bare and red and salivation is now a marked feature. A significant fact in regard to pellagra is that authorities, previous to ten years or so ago, directed no attention to the mouth signs, the salivation, etc., but restricted their notice to the recurrent inflammation of exposed surfaces and the subsequent emaciation, associated with diarrhea, etc. So general was this ignoring of the mouth conditions that the late Dr. Cuthbert Bowen of this island, taking into consideration the sprue or psilosis condition of the mouth and the pigmentation of the skin, termed the disease "psilosis pigmentosa" and wrote a brochure on the disease. This fact, I say, is significant, tending to prove that there are or may be really two diseases now known under the name of pellagra. I hold to the opinion also that pellagra may be due to some intestinal parasite since, of the many medicines used by me, I find *santonin* of most efficacy.

R. G. LECOREST, M.D., Barbados, West Indies.

Plague in Havana Controlled by Own Health Department

To the Editor:—In your editorial (Aug. 3, 1912, p. 375) speaking of plague, you state: "The work of eradicating the disease is being carried on by the Public Health and Marine-Hospital Service in cooperation with the Department of Sanitation of Porto Rieo, and by the local and United States authorities in Havana." As regards Havana, the above statement is incorrect and I am sure you will be pleased to make due acknowledgment of the facts on obtaining better information. The United States authorities have had nothing to do with the eradication of plague in this city. They have sent here a very efficient officer, Dr. von Ezdorf of the P. H. and M.-H. S. to look after vessels sailing for United States ports, and we have assisted him, with pleasure, in the protection of American commerce and passenger travel. But, if the plague has been eradicated promptly in Havana, it has been done by ourselves.

JUAN GUITERAS, Director of Health.

The Mongoos as a Plague-Carrier

To the Editor:—Apropos of Dr. Ruth's communication (THE JOURNAL, August 3, p. 386) concerning the mongoos as a possible plague-carrier, attention is invited to the following extract from page 123 of the annual report of the Surgeon-General of the U. S. Public Health and Marine-Hospital Service for the fiscal year 1910:

"Probably the most important work undertaken in the plague laboratory during the fiscal year is that now in progress to determine the part played in the spread of plague infection by the mongoos. These experiments were first undertaken at the request of Dr. J. S. B. Pratt of the board of health, as a result of observations made by him that the mongoos seemed to disappear from a locality prior to an outbreak of human plague. . . . When Pharmacist J. E. Beck succeeded in infecting the first mongoos in this laboratory the peculiarities of the case proved a genuine surprise. The mongoos was inoculated by the dermic method used with guinea-pigs. The material used was spleen from a guinea-pig that died of plague from inoculation from a case of human plague from the steamer *Nippon Maru*. On account of the extreme ferocity of the mongoos it had to be chloroformed before being inoculated. Death occurred in about eighteen hours, and it was at first thought to have been caused by the chloroform. Routine examination of the viscera was made, however, and plague bacilli were found in the spleen. The second mongoos inoculated died in

three days of septicemic plague. The third mongoos inoculated lived thirteen days. Smears from its tissues were not positive, but a gulnea-plg was inoculated and died of plague.

"This work is not entirely original, a few cases of mongoos infection having been reported by Simpson in 1905. But this is the first time, as far as is known, that the mongoos has been shown to be a possible, if not a probable, plague-carrier.

"The officials of the board of health at Honolulu regard this demonstration as very important and timely, owing to the prevalence of the mongoos throughout the Hawaiian Islands. Its influence on future insular quarantine and plague-prevention measures may be considerable."

The preceding is taken from the report of P. A. Surgeon Ramus, Chief Quarantine Officer for Hawaii.

Since this work was done mongooses have been regularly trapped in Hawaii and subjected to the same examination for plague infection as is customary for rats.

The mongoos of Hawaii has the nefarious habits which Dr. Ruth ascribes to that of Porto Rico and he is quite right in suggesting that the rodent should be destroyed, if for no other than commercial reasons.

J. E. BECK, Ph.G., M.D., Mobile, Ala.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE QUESTION OF THE EXISTENCE OF SCARLET FEVER IN JAPAN

To the Editor:—In the editorial columns of THE JOURNAL (July 20, 1912, p. 198), in a discussion of scarlet fever, the statement is made that "no race or country is immune" from this disease. I do not know that the question is one of supreme importance, but this statement fails to coincide with statements which I have noted elsewhere. Pepper says in his "Theory and Practice" (i, 208): "The disease [scarlet fever] is rare in Asia and Africa and is said to be (Wernich, 1871) entirely unknown in Japan." French, in his "Practice of Medicine" (p. 227) says: "So far as known the Japanese alone possess natural immunity."

A. NOEL SMITH, M.D., Dover, N. H.

ANSWER.—If we were content to quote authorities who do not speak from first-hand knowledge, we would be satisfied to counterbalance Pepper and French by quoting Osler's "Practice," p. 130: "It [scarlatina] is a wide-spread affection, occurring in nearly all parts of the globe, and attacking all races." The only reference Osler makes to racial immunity is: "The natives of India are said to enjoy comparative immunity." It will be noted that Osler ascribes, not absolute immunity, but only "comparative" immunity to East Indians. In the quotation from Pepper, only hearsay evidence is presented, and that is based on "Wernich, 1871," at which date one would hardly expect accurate data from Japan on a medical subject. French's statement is unsupported by other evidence. We do not consider this a sufficient answer to our correspondent, however. The question of scarlet fever in Japan can be best handled by quoting from those who are or have been on the ground.

M. Y. Mayeda (*Sei-I-Kwai Med. Jour.*, Aug. 31, 1898, translated in *Pediatrics*, 1898, vi, 544) says of scarlet fever, of which he goes on to give some clinical notes, "Until lately this disease was little known in the Japanese islands; it has become more frequent and the government has begun to take steps for its prevention." Baelz (quoted by A. S. Ashmead, *Med. Rec.*, N. Y., 1891, xxxix, 358) says that, while the disease is rare in the Japanese islands, it exists and that he had observed characteristic cases in Japanese youths and men (none in women and children) before the date of Wernich's statement quoted by our correspondent through Pepper. J. S. Kirkendall (*Med. Rec.*, Feb. 21, 1891, p. 246) reports a case of scarlet fever in a Japanese student in this country.

Notwithstanding this evidence, it must in fairness be admitted that the existence of scarlet fever among the Japanese is by no means proved beyond a doubt. The point at issue is one of diagnosis, and the difference of opinion seems to hinge, in part at least, on the alleged confusion with scarlet fever of a disease otherwise known in Japan as "wind-flowers." Those who believe in the actual immunity of the Japanese to scarlet fever seem to be undecided whether to attribute the phenomenon to racial, climatic or dietetic factors. Ashmead (loc. cit.) is altogether skeptical of the existence of the disease among the Japanese, and says that in 40,000 examinations in hospital and private practice in

Tokio he never saw a single case of scarlet fever or puerperal infection. He declares that Baelz is the only foreign practitioner who has reported scarlet fever among the Japanese. We are not aware of any case of Japanese scarlet fever or alleged scarlet fever that has been examined by partisans of both theories. Such joint examination might go far toward settling the question.

The universal negative is notoriously hard to defend. In medicine particularly, as some one has said, it is never safe to use the word "never." While we decline, therefore, to be responsible for the statement that "no Japanese have scarlet fever," our readers will oblige us by mentally inserting a saving "practically" or "probably" in the editorial statement that "no race or country is immune."

DIORADIN

To the Editor:—I have been reading an account of sixteen cases of tuberculosis, in the *Medical Review of Reviews*, in which Dr. Stephen W. Wells, of Liberty, N. Y., has used Dioradin with success. I have a case in which I wish to use Dioradin, but would like some more enlightenment on the subject first.

1. What is Dioradin? 2. What has been the experience of others with it? 3. Would you advise its use? P. H. P.

ANSWER.—1. Dioradin is a proprietary preparation said to be a mixture of menthol, iodoform and a preparation containing radium chlorid to the extent of 10 drops of a 1:100,000 solution in 100 c.c. of the preparation.

2. Most reports of the clinical experience with Dioradin appear to come from those who are biased in favor of the preparation. None from reliable, disinterested clinicians are available so far as we can learn. Most of the literature sent out by the proprietors comes from a Dr. Bernheim, of Paris. The preparation has been vaunted in the newspapers in England, Germany and in this country.

3. We would not advise its use because (a) it is a nostrum the composition of which has not been satisfactorily disclosed; (b) there is no reason for supposing that any of the ingredients, except possibly iodoform, is likely to be of service in the treatment of tuberculosis. The use of menthol by hypodermic or intravenous injection has not proved of value in the treatment of tuberculosis. Where iodoform has been used the results are still uncertain, but if it is to be used in tuberculosis it would be much better to give it unmixed with other remedies. There is no ground for supposing that radium, especially in the extremely minute amount present in this nostrum, is useful in tuberculosis.

LITERATURE ON WEIL'S DISEASE

To the Editor:—Please tell me where I can find some late literature on Weil's disease. F. A. CHAPMAN, M.D., Chicago.

ANSWER.—The following may be referred to:

Leslie, F. E.: Epidemic of Catarrhal Jaundice, *Boston Med. and Surg. Jour.*, Oct. 28, 1909; abstr. in THE JOURNAL, Nov. 13, 1909, p. 1690.

Barker, F. F. and Sladen, F. J.: Small Epidemic of Jaundice with Symptoms of Gastro-Intestinal Catarrh, *Bull. Johns Hopkins Hosp.*, October, 1909; abstr. in THE JOURNAL, Oct. 23, 1909, p. 1431.

Mancini, F.: Epidemic of Jaundice, *Policlinico*, December, 1909; abstr. in THE JOURNAL, Feb. 12, 1910, p. 578.

Hecker, A. and Otto, R. W.: Weil's Disease, *Deutsch. med. Wchschr.*, May 4, 1911; abstr. in THE JOURNAL, June 10, 1911, p. 1767.

Hallowes, R. R.: Epidemic of Infectious Jaundice, *Brit. Med. Jour.*, June 24, 1911; abstr. in THE JOURNAL, July 29, 1911, p. 428.

Collins, A. N.: Epidemic Jaundice, *Jour. Minnesota Med. Assn.*, July 1, 1911.

Pinniger, N. J. H.: Eight Cases of Catarrhal Jaundice in Epidemic Form, *Brit. Med. Jour.*, Nov. 18, 1911.

Williams, D. O.: Epidemic Jaundice, *Brit. Med. Jour.*, Dec. 23, 1911.

A POOR STATE EXAMINATION QUESTION

To the Editor:—On a recent state board examination the following question was asked:

"Give the origin, and (b) form of the pneumobacillus of Frankel, and (c) state in what diseases the bacilli have been found."

Will you kindly answer this question in the columns of THE JOURNAL? Incidentally, is it a fair question? I. X. B.

ANSWER.—There is no "pneumobacillus of Frankel" (Fraenkel). There is a pneumococcus of Fraenkel and a pneumobacillus of Friedländer. It is probable that one of these is the organism referred to in the question asked.

Questions asked in state board examinations should be unequivocal and they should cover knowledge which can be obtained from ordinary text-books and which is included in ordinary courses of instruction. The question is not a proper one to be asked in such examinations.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

THE ORGANIZATION OF THE DEPARTMENT OF PREVENTIVE MEDICINE IN THE UNIVERSITY OF MISSOURI

W. J. Calvert, M.D.
COLUMBIA, MO.

The recent¹ establishment of a department of preventive medicine in the University of Missouri at once suggests the two questions:

1. What are the purposes of a department of preventive medicine? 2. What are the plans for accomplishing these purposes?

Preventive medicine is that branch of knowledge which collects, arranges, and states in non-technical language the medical knowledge pertaining to the two great classes of diseases: (1) those due to germs and (2) those due to other causes such as alcohol, morphin, etc.—and to the means by which these diseases may be eradicated. Consequently the course in preventive medicine presents in simple language a brief history of medicine, placing special emphasis on Pasteur's discovery that infectious diseases are caused by specific germs; gives the life history of the pathogenic bacteria; and discusses the carriers of bacteria, modes of infection, methods of prevention, and means for stamping out infectious diseases. It also briefly states the theories of immunity and the methods by which infectious diseases may be cured. The important non-infectious diseases are briefly described and the means of their prevention explained.

Before the purposes of this chair can be realized, there are several seemingly disconnected medical, social and economic situations to be taken into account as having, to a certain extent, determined these purposes. There exist:

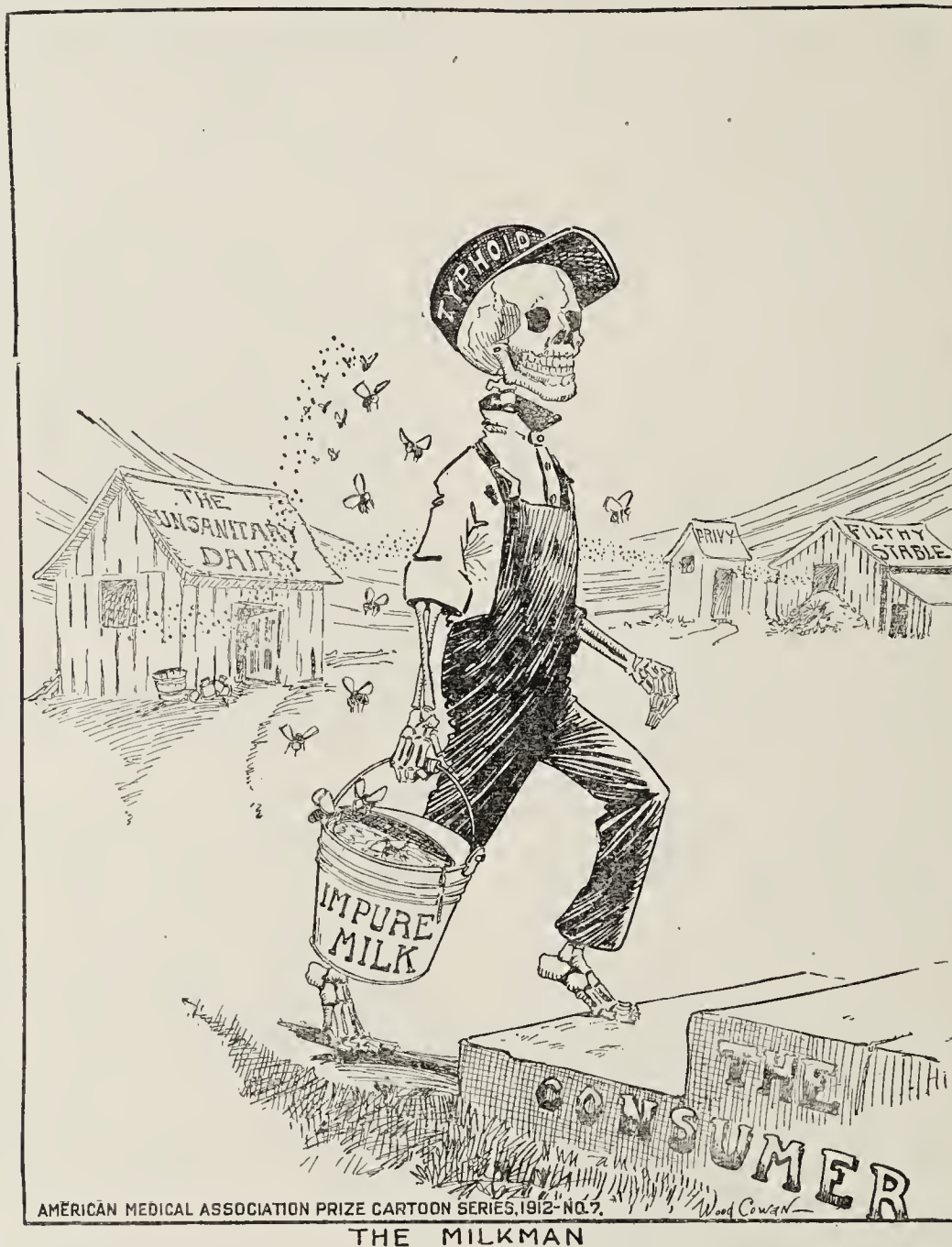
1. A considerable amount of useful knowledge pertaining to the prevention of diseases.
2. A wide-spread lack of information on the part of the masses pertaining to this knowledge.
3. A rather extensive field for research relating to the prevention of many of our more common diseases.
4. A well-developed system of elementary schools.

It is important that the specific knowledge now at hand regarding the prevention of diseases should be placed as quickly as possible at the disposal of the masses. Naturally the imparting of this knowledge to a large number of people uninformed in the most elementary principles of anatomy, physiology, etc., is an enormous undertaking; and its importance is sufficiently great to warrant the use of any or all existing organizations as means for reaching the people. If it were not for the cooperation of these organizations, the difficulties of the chair of preventive medicine would be well-nigh impossible.

The educational organizations, from the primary grades to the college, are those most available to the present needs of preventive medicine. Properly to utilize the opportunities afforded in the schools, it is necessary to have teachers prepared to give instruction in preventive medicine. To this end the School of Education at the University of Missouri has made a course in preventive medicine a requisite for graduation. These teachers go throughout the state to normal schools and high schools which, in turn, supply teachers to the grammar and elementary schools. The press is a second organization that efficiently serves the purposes of preventive medicine. Should the press of the United States champion the cause of preventive medicine, it would render inestimable benefit, monetary and physical, to the masses. To this end the School of Journalism at the University of Missouri also has made a course in preventive medicine a requisite for graduation. In addition to the requirements of these two departments, students of any department of the university may elect the course.

From the aid that the department of preventive medicine has sought to enlist from the teachers, the journalists and all the students in the university it is evident that it is striving to equip as many teachers as possible in order that they may introduce elementary courses of preventive medicine in the primary and secondary schools of the state; to give the journalists accurate, usable information about preventive medicine in order that they may make the most of the opportunities they have in the press; to instruct as many of the men and women of the university as possible in order that they may derive individual benefit and, at the same time, disseminate the knowledge of preventive medicine into all walks of life.

But the necessarily limited course that students may have had in the schools and the meager knowledge that the people may have accumulated apart from the schools, while important as a stimulus, must be supplemented in times of emer-



gency. When the people are aroused sufficiently to want to know how they may prevent diseases, they should have some authoritative source for additional information. This supplementary knowledge the chair of preventive medicine purposes to supply through its bureau of information which is now in the process of formation. This bureau is not for the treatment of diseases but only for instruction in matters pertaining to prevention. It renders its services without fee. Its functions are:

1. To answer, in so far as is possible, all questions pertaining to prevention asked by individuals or communities of the state of Missouri.
2. To assist in the diagnostication of diseases by performing such laboratory examinations as any physician in the state may desire.
3. To devote special attention to carriers of diseases, to assist in the detection of such carriers and to indicate in so far as is possible the disposition of carriers.
4. To send on request such literature as the bureau may issue.
5. To furnish to the press of the state brief articles on important aspects of preventive medicine.

The fulfilment of such duties by this bureau will of necessity develop a laboratory of clinical pathology which will, in turn, encourage and foster research work.

It is evident, therefore, that the University of Missouri is teaching preventive medicine to non-medical students in order that it may utilize two potent factors within the state—the public schools and the press. It also stands ready to answer questions and to give such information as may be necessary to establish and to maintain a normal, healthy people. The attendance, during the session of 1911-1912, on the course in preventive medicine by students from all departments of the university, their interest, and their comprehension of the subject-matter justifies the belief that non-medical students can, without undue effort, grasp the principles of prevention and that they are anxious for the practical benefits that may be derived from this branch of study.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ILLINOIS: Coliseum Annex, Chicago, September 24-26. Sec., Dr. James A. Egan, Springfield.
IOWA: Capitol Bldg., Des Moines, September 11-13. Sec., Dr. Guilford H. Sumner, State House.
MASSACHUSETTS: State House, Boston, September 10-12. Sec., Dr. Edwin B. Harvey, Room 159, State House.
NEW YORK: September 17-20. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

Kentucky June Report

Dr. J. N. McCormack, secretary of the Kentucky State Board of Health, reports the written examination held at Louisville, June 3-5, 1912. The number of subjects examined in was 15; percentage required to pass, 70, and not less than 60 in any one branch. The total number of candidates examined was 72, of whom 65 passed, including one osteopath, and 7 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Hering Medical College.....	(1912)		87
Louisville National Medical College.....	(1911)		76
Univ. of Louisville. (1910) 70; (1911) 76, 76, 82; (1912) 75, 77, 78, 79, 79, 81, 82, 82, 82, 83, 84, 84, 84, 85, 85, 86, 86, 86, 86, 87, 87, 87, 87, 87, 87, 87, 87, 88, 88, 88, 88, 88, 89, 89, 89, 89, 90, 90, 90, 90, 91, 91, 91, 91.			74
Eclectic Medical College, Cincinnati....	(1910) 80; (1912)		86
Ohio-Miami Medical College.....	(1912)		81, 90
University of Pennsylvania.....	(1912)		86
Vanderbilt University.....	(1912)		83, 84
University of Tennessee.....	(1912)		82
Meharry Medical College.....	(1909)		75
FAILED			
University of Louisville.....	(1911) 68, 68; (1912)		74, 74
Louisville National Medical College.....	(1911)		69
Kentucky School of Medicine.....	(1908)		54
Tennessee Medical College.....	(1909)		61

Minnesota June Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at Minneapolis, June 4-7, 1912. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 35, of whom 34 passed and 1 failed. Eight candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Southern California.....	(1910)		82
Northwestern University Medical School.....	(1912)		83
Rush Medical College.....	(1912)		84
University of Minnesota, College of Medicine and Surgery	(1912) 80, 82, 84, 84, 85, 85, 86, 86, 86, 86, 87, 87, 87, 87, 87.6, 88, 88, 88, 88, 88, 89, 89, 89, 89, 90, 90, 91.		
Hamline University.....	(1911)		81
Woman's Medical College of Pennsylvania.....	(1909)		80
McGill University, Montreal, Quebec.....	(1907)		86

FAILED			
St. Louis College of Physicians and Surgeons.....	(1909)		48

LICENSED THROUGH RECIPROCITY			
College	Year Grad.	Reciprocity with	
Northwestern University Medical School (1910)	(1911, 2)	Illinois;	
(1911) Wisconsin.			
Hahnemann Med. College and Hospital, Chicago..	(1911)	Illinois	
Kookuk Medical College, Coll. of Phys. and Surg.	(1908)	Iowa	
University of Pennsylvania.....	(1908)	Michigan	
Medical College of the State of South Carolina...	(1908)	S. Carolina	

New Jersey June Report

Dr. H. G. Norton, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, June 18-19, 1912. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 44 of whom 33 passed and 11 failed. Nineteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University, Washington, D. C.....	(1910)		77
College of Physicians and Surgeons, Baltimore....	(1912)		84
University of Maryland.....	(1911)		79
Long Island College Hospital (1908) 76; (1911) 77, 78, 80; (1912) 90.			
Cornell University Medical College....	(1908) 82; (1911) 77, 87		
Columbia University, College of Physicians and Surgeons.....	(1907) 82; (1912)		83
University and Bellevue Hospital Medical College.....	(1911) 84; (1912)		78
New York Homeopathic Med. College and Hospital..	(1912)		86
Medico-Chirurgical College of Philadelphia (1911) 75; (1912) 82, 82, 82, 85.			
Jefferson Medical College (1911) 81; (1912) 80, 80, 80, 84, 85.			
University of Pennsylvania.....	(1911) 78, 82; (1912) 78, 80		
Hahnemann Medical College and Hospital, Philadelphia.....	(1910) 77; (1912)		83

FAILED			
Kentucky School of Medicine.....	(1906)		64
College of Physicians and Surgeons, Baltimore....	(1911)		66
University of Maryland.....	(1906) 68; (1910)		*
New York University Medical College..	(1885) 69; (1891)		62
University of Naples, Italy (1893) 57; (1895) 66; (1901) 63; (1905) 68; (1908) 69.			

LICENSED THROUGH RECIPROCITY			
College	Year Grad.	Reciprocity with	
College of Physicians and Surgeons, Chicago....	(1903)	Illinois	
Chicago Homeopathic Medical College.....	(1886)	Minnesota	
Kentucky School of Medicine.....	(1899)	Kentucky	
Medical School of Maine.....	(1910)	Maine	
Baltimore Medical College.....	(1908)	New Hamp.	
Eclectic Medical College of the City of New York.	(1911)	Vermont	
Columbia University, College of Phys. and Surg..	(1907)	Vermont	
University of Pennsylvania (1897) (1898) (1904) (1908)		Pennsylvania; (1910, 2) Maine; (1910) Vermont.	
Hahnemann Med. Coll. and Hosp., Philadelphia..	(1910)	Maine	
Medico-Chirurgical College of Philadelphia.....	(1907)	Penna.	
Jefferson Medical College.....	(1909)	Penna.	
University of Vermont.....	(1909) (1910)	Vermont	
* Expelled for cheating.			

The following questions were asked:

ANATOMY

1. Describe the subscapular artery; name its branches and anastomoses. 2. What system of nutrient arteries for the cerebrum are derived from the circle of Willis? What is the danger of vascular obstruction in these vessels? Where do similar terminal arteries exist? 3. What vessels are engaged in the anastomosis around the elbow-joints? 4. Describe the superior longitudinal sinus. What veins does this sinus receive? 5. Name the muscles of inspiration and expiration. 6. In what way is a free communication established between the portal and general venous systems? 7. Locate and

describe the coronary sinus of the great cardiac vein. What veins does it receive? How is its opening guarded? 8. Give the relations of the abdominal aorta. 9. Name vessels and nerves of the stomach. 10. Describe the facial vein; mention its tributaries.

PHYSIOLOGY

1. Name all the hepatic functions. 2. Give six factors that affect the arterial circulation. 3. Give six factors that affect perspiration. 4. Give six factors that affect urine secretion. 5. What physiologic disturbances would follow ligation of a renal artery? 6. Define food. 7. Give the food values of meat, bread, milk, potatoes, asparagus and corn. 8. What is accomplished by the portal circulation? 9. Give physiologic explanation of an exaggerated knee-jerk. 10. Give the chemical composition of the body.

CHEMISTRY

1. What are alkaloids? Give the important alkaloids of opium, belladonna and nux vomica. 2. Name the constituents most frequently found in drinking water which render it unfit for use. Give tests for the detection of each. 3. Name the important chemical constituents of saliva, gastric juice, bile and pancreatic juice. 4. Write the chemical formula of nitric, hydrochloric, sulphuric and acetic acids with name and chemical formula of a sodium salt of each. 5. Describe the bromine as to its physical and chemical properties. (b) When and how does bromine occur in nature? 6. Define capillary attraction, electrolysis, dialysis isomerism. 7. What is lithium? (b) On what chemical hypothesis are lithium salts given in uric-acid diathesis? 8. Name the principal carbohydrates and their formulas. 9. What is pyroxylin and how produced? 10. Which is the most important of the celluloses? (b) Of what is wheat flour composed?

HISTOLOGY

1. Describe neuroglia tissue and where found. 2. Describe the dura mater. 3. Describe the cornea. 4. Describe the organ of smell. 5. Describe the fallopian tubes.

PATHOLOGY

1. Explain the derivation of sugar from fats and proteids in diabetes and its significance. 2. Give the pathology of diabetes. 3. Explain the presence of uric acid in the blood and urine. 4. Describe the blood pictures of chlorosis and pernicious anemia.

BACTERIOLOGY

1. Name the bacteria normally present in the intestines. 2. What is the action of the streptococci on different sugars? 3. Where do you find the *Streptococcus salivarius* and what is its function? 4. What do you mean by Koch's postulates? Name them.

PRACTICE OF MEDICINE

1. Give three characteristics of anemic murmurs. 2. Give the causes and significance of five different renal casts. 3. What, how much and how often would you feed a 3-months-old bottle-fed infant? 4. What is hemiplegia, paraplegia and paralysis agitans? Describe the walk in each. 5. Describe icterus and name three chronic diseases of the liver in which it is absent. 6. Where is bronchial breathing normally heard? What does it indicate when heard elsewhere? 7. Describe the eruption in its different stages of (a) measles, (b) chicken-pox and (c) small-pox. 8. Give names and causes of murmurs heard at the apex of the heart; also of the ones heard at the base. 9. What are the physical signs of a cavity of the lung (1) with elastic walls and (2) communicating with a bronchial tube? 10. What is the difference in length of time between inspiration and expiration and the significance of variations therefrom?

SURGERY

1. Describe Pott's fracture. Give treatment. 2. Diagnosis and treatment of strangulated inguinal hernia. 3. Etiology, diagnosis and treatment of mastoiditis. 4. Etiology, diagnosis and treatment of empyema of the antrum of Highmore. 5. Mention the non-malignant tumors of the breast. Describe one variety. 6. Early diagnosis and treatment of tuberculosis of the hip-joint. 7. Give indications for ligating the internal carotid artery. 8. Diagnosis and treatment of rupture of the urinary bladder. 9. Etiology, diagnosis and treatment of phlebitis. 10. Etiology, symptoms and treatment of tetanus.

MATERIA MEDICA AND THERAPEUTICS

1. Name (a) the source, (b) the preparation, doses and (c) the effects of opium, antidote and other measures used for resuscitation. 2. What is antidote for poisoning by (a) bichlorid of mercury, (b) arsenic, (c) atropin, (d) phosphorus? What disease does phosphorus poison simulate? 3. What are the indications and contraindications as to the use of digitalis as a cardiac stimulant? Give dose by mouth and hypodermatically. 4. Give therapeutic indications for the use of chloral hydrate, dose in each case. 5. By what rule would you determine the dose of any drug for a child? 6. Write a prescription for acute articular rheumatism in an adult, enterocolitis in a child aged 4 years; explain action of the various drugs. 7. What are the indications for producing diaphoresis? Name three diaphoretics. 8. Give therapeutic uses of chloroform, dose. How would you compare it with other anesthetics? 9. What would be your treatment for a case of uremic poisoning? 10. Name preparations of coca, uses, dosage. What would be your treatment for the cocaine habit?

HOMEOPATHIC MATERIA MEDICA AND THERAPEUTICS

Give treatment for: 1. Surgical neurasthenia. 2. Acute nephritis. 3. Iritis. 4. Mastitis. 5. Gall-stone colic. Name five remedies prominently affecting: 6. The skin. 7. The spinal cord. 8. The stomach and intestinal tract. 9. The nervous system. 10. The mental sphere.

HYGIENE

1. At what temperature would you keep a sick room, and how ventilate it for a patient with pneumonia? 2. Give details of fumigating a room recently occupied by a patient with scarlet fever. 3. In hospitals and prisons, what would be the minimum of cubic feet of air space allowed for each occupant? 4. What is the best general method of purifying drinking water? 5. What per cent. of the oxygen inhaled is consumed during an ordinary inspiration?

JURISPRUDENCE

1. State the difference between criminal and civil malpractice. 2. Give in detail the duties of the practitioner who is called to

inspect a dead body. 3. Name some of the violent causes of death. 4. Tell how strychnin causes death, and give post-mortem appearances, especially as regards rigor mortis. 5. Differentiate between hysteria and melancholia.

OBSTETRICS

1. Describe your examination of a woman presenting herself at an early period of her pregnancy. Give instructions as to dress, diet, sexual intercourse and subsequent examinations. 2. Give conditions occurring during labor which call for use of forceps and describe their application. 3. Describe briefly the stages of labor, and name the conditions which may delay labor in each stage. 4. Give three conditions which call for version, and describe in detail how it should be performed. 5. Give symptoms suggestive of eclampsia. Give preventive treatment and treatment when convulsions are present.

GYNECOLOGY

1. Give causes, symptoms and treatment of pelvic peritonitis. 2. Give the causes of tear of the cervix and of the perineum; their immediate danger; the conditions they may produce if not repaired; and the best time for the repair of each. 3. Differentiate between ovariitis, salpingitis and appendicitis. 4. Give causes, symptoms and pathology of chronic endometritis and differentiate it from early carcinoma. 5. Give causes, symptoms and treatment of retrodisplacement of the uterus.

Book Notices

A STATISTICAL SURVEY OF INFANT MORTALITY'S URGENT CALL FOR ACTION. By Edward Bunnell Phelps, M.A., F.S.S., Editor The American Underwriter, New York, 141 Broadway, New York. Cloth. Pp. 27.

This little monograph is a reprint of an address given at the first annual meeting in 1910 of the Association for the Study and Prevention of Infant Mortality by Mr. Edward B. Phelps, editor of the *American Underwriter*. The peculiar significance of this excellent address is that it was written by a non-medical man whose original interest in the subject comes through his connection with the life-insurance business. The object is to place on record and bring before the public in a simple form a convincing demonstration of the present appalling infant mortality, causing an utterly needless waste of infant life. The first important fact which Mr. Phelps emphasizes is the ignorance as to the infant mortality of the United States as a whole. As all students of this subject know, until all of our states adopt adequate vital statistics registration laws, it is impossible to arrive at anything except an approximation of the annual infant mortality rate. When it is remembered that after years of effort, the death registration area of the United States still lacks Illinois, Iowa and most of the southern states, while the birth registration area as yet only includes New England, Pennsylvania and Michigan, the difficulties of securing even the basic facts for such an investigation are apparent. Mr. Phelps points out that between 25 and 30 per cent. of all deaths under one year are due to diseases of the digestive system and that, as Dr. E. L. Holt has pointed out, the fundamental causes of infant mortality are mainly the result of poverty, ignorance and neglect. A number of tables grouped in the appendix contain a large amount of statistical matter.

EXERCISE AND HEALTH. By Dr. Woods Hutchinson. Outing Handbooks. Cloth. Price, \$0.70. Pp. 156. New York: Outing Publishing Company, 1911.

This collection of six articles published originally in *Outing*, and now forming one of the *Outing* handbooks, was written for laymen and is, therefore, popularized physiology. This, however, does not prevent it from being interesting and graphic. Dr. Hutchinson's ability to put scientific facts in original and striking form is well known. An excellent illustration of this is found in the first paragraph of the first article. "Exercise in primitive times was the price of life. It was only after we had learned to live by our wits and exercise became a luxury, that it began to run into fads. If primitive man neglected his *al fresco* Delsartean exercises and let his muscles soften, he simply provided a tender titbit for some of his confrères, carnivore or cannibal. It was a case of eat or be eaten and his motto was, 'Do it first.' The gorgeous possibilities of power through repose had not yet dawned on him."

This same happy faculty of illuminating scientific facts with humor and apt quotation is found throughout the little volume. This not only makes the reading of the book a pleasure, but also causes many of the bits of advice to stick

in the mind through the aptness of the illustration or the picturesqueness of the phrase employed. The chapters of the book are entitled "Errors in Exercise," "Athletics and the Heart," "Muscle Making Man," "Occupation and Exercise," "The Real Danger of Athletics" and "Exercise That Rests." The book is an excellent one to prescribe for business and professional men. In fact, it would be a good thing for the doctor to read before passing it on to his patients.

ELEKTROPHYSIOLOGIE MENSCHLICHER MUSKELN. Von Dr. Med. H. Piper, a.o. Professor der Physiologie, Kgl. Friedrich-Wilhelms-Universität zu Berlin. Paper. Price, 8 marks. Pp. 163, with 65 illustrations. Berlin: Julius Springer, 1912.

In this highly technical monograph the author reports his laborious experiments on the electrophysiology of human muscles. New methods and apparatus had to be invented for this work, whereby the author believes that he has proved beyond doubt the proposition that a voluntary contraction of muscles is caused by the dispatch of fifty impulses per second to the contracting muscle and that each of those impulses causes a distinct contraction-wave. This he has been able to prove by causing irritation of the motor nerve fifty times per second and observing as a consequence a muscular effect not distinguishable from natural contraction. In no other way has he succeeded in reproducing the mammalian muscle contraction, though he has experimented with high-frequency currents, cathodal-closure tetanus, stimulation with different electrical time-stimuli and strychnin-tetanus. We trust that some practical application in medicine may come from these interesting experiments.

ANNUAL REPORT OF THE BUREAU OF HEALTH FOR THE PHILIPPINE ISLANDS. By Carroll Fox, Acting Director of Health. Paper. Manila, 1911.

The tenth annual report of the director of the Bureau of Science of the Philippines gives an account of the work of the bureau during the year ending August, 1911. The work mainly concerns the biologic sciences and chemistry, and only indirectly refers to medicine. Investigations with regard to yaws, particularly with reference to the action of salvarsan, are noted. The opinion is expressed that the preparation is as important a specific for yaws as quinin is for malaria. Work on the parasitic amebas and on various worms, as well as investigations on leprosy, cholera, dysentery and rabies, is reported.

LE LABORATOIRE DU PRACTICIEN. Analyse Clinique—Méthodes et Procédés. Guide de Diagnostic et d'Hygiène Prophylatique des maladies Communes Exotiques et Tropicales. Par Louis Niclet, Dessinateur Photographe du Laboratoire Central de l'Hôpital Saint-Louis. First part. Paper. Price, 3 francs. Pp. 32, with 120 illustrations. Paris: A. Poinat, 121 Boulevard Saint-Michel (Ve), 1912.

This little pamphlet is the first of three sections dealing with the laboratory work of the general practitioner. In this portion, the general organization of a laboratory, the cost of equipment and maintenance, and many methods of examination (especially those dealing with the parasites and diseases of the skin and its appendages) are discussed. The illustrations are very good. The work should prove valuable both to the general practitioner, who may wish to install his own working laboratory, and to the laboratory worker, who may have occasion to give advice concerning the installation of hospital or other laboratories.

Society Proceedings

COMING MEETINGS

Amer. Assn. of Obstetricians and Gynecologists, Toledo, Sept. 17-19.
American Electro-Therapeutic Association, Richmond, Va., Sept. 3-5.
American Public Health Association, Washington, D. C., Sept. 18-20.
American Roentgen Ray Society, Niagara Falls, Sept. 11-14.
Colorado State Medical Society, Pueblo, Sept. 24-26.
Conf. State Bds. of Health of N. Am., Washington, D. C., Sept. 20-21.
Indiana State Medical Association, Indianapolis, Sept. 26-27.
Internat. Congress on Hygiene, etc., Washington, D. C., Sept. 23-28.
Medical Society of the Missouri Valley, Council Bluffs, Ia., Sept. 5-6.
Nevada State Medical Association, Reno, Sept. 10-12.
New Mexico Medical Society, Roswell, Sept. 12-14.
Pennsylvania State Medical Society, Scranton, Sept. 23-26.
Wyoming State Medical Society, Sheridan, Sept. 17.

Medicolegal

Chronic Appendicitis Not Necessarily An Illness

(*Miller vs. Maryland Casualty Company (U. S.) 193 Fed. R. 343*)

The United States Circuit Court of Appeals, Third Circuit, holds that the question should have been left to the jury whether the statement of an applicant for accident and health insurance did misrepresent or was false when it said that he had never received indemnity for any accident or illness, except for a sprained ankle, whereas he had had chronic appendicitis, had been operated on therefor and had after the operation remained in bed for some time, for which he was paid indemnity benefits of \$225. The court says that chronic is distinguished from acute appendicitis. In the former case, the removal of the appendix, while it may be beneficial or desirable, is not immediately imperative. The condition of acute appendicitis is fittingly described as an illness; but chronic appendicitis is not necessarily an illness in common speech, and therefore, when a man is operated on therefor, it does not follow that, when he remains in bed after such an operation, his condition is necessarily and only described as that of illness. A broken limb, an amputation, the removal of a growth, an optical or aural operation may be followed by the patient remaining in bed; but such cessation from physical activity does not necessarily imply illness in the common acceptance of the word. In such common acceptance illness is ordinarily associated with disease, with sickness, with ill health. From this and the terms of the policy it would seem that whether the statement was not literally true was itself a debatable question. And as bearing on the question of the materiality of one of the facts alleged to have been concealed, namely, the fact that the applicant's appendix had been removed, it was to be considered that such removal, instead of increasing the company's risk, actually relieved it from an obligation it assumed by the policy, namely, indemnity against operation for appendicitis. So regard was to be given to the general belief that the removal of the appendix is beneficial and the fact that this man's had been so removed six years before, and with no consequent ill effects.

School Liable for Malpractice—Admissibility of Evidence—Osteopathy

(*Atkinson vs. American School of Osteopathy, et al. (Mo.), 144 S. W. R. 816*)

The Supreme Court of Missouri, Division No. 1, in reversing a judgment for \$10,000 rendered in favor of the plaintiff and remanding the case for a new trial, decided several points of general interest. The plaintiff charged that the defendant, Charles E. Still, connected with the defendant school, in treating her for asthma, or a slight affection of the nasal passages that affected her breathing, while she was a student at the school and entitled to free treatment by it, negligently broke her sternum and forced the same into her lungs, forcing out the cartilages of her ribs on the right side of her body into an unnatural position, etc. The court holds that, there being no denial of the assertion that Still treated the plaintiff as the agent and employee of the school, that corporation would be jointly liable with him for damages resulting from his negligence.

The defendants asserted that the history of the plaintiff's alleged injury was incredible and impossible, for, "if she had suffered bone fractures, instant and severe pain and prostration would have followed, as certainly as fire will burn, or water run down hill." The inference seemed to be, the court says, that the plaintiff's assertion that, after suffering the alleged injuries, and a few days of confinement and pain therefrom, she so far recovered as to pursue her studies and engage in sports for more than six months before the serious phases of the injury developed, was contrary to some well-known and universally recognized natural law, or to universal human experience. The court fails, however, to appreciate the application of that argument to the evidence in this case. Many of us have not had the fortune to sustain similar fractures, and cannot therefore speak from personal experience; but we have

learned by observation as well as common information that apparently similar lesions of the human tissues produce widely different results, even in cases exposed to the most casual visual observation, and, in cases of internal injuries, we are prepared to receive the evidence of those skilled in observing such things as to their nature and probable results, as well as the testimony of those who have seen or experienced the effects which have actually followed them.

The plaintiff was permitted, over objection, to testify that the dean of the faculty, who treated her after her alleged injury, told her that her second, third and fourth ribs were broken, caused from Dr. Still's treatments. That was error. The question is one of importance, because, if such testimony is admissible, it opens one more door by which verdicts may be recovered on unsworn gossip, instead of sworn testimony, and makes it dangerous to furnish the first surgical aid to injured employees, which, happily, most employers are glad to render. Any fact material to the interest of either party to an action, which rests in the knowledge of another, is to be proved by his testimony, and not by his mere assertion, unless the party has authorized him to make the assertion.

The purpose of Section 8537 of the Revised Statutes of Missouri, which provides that osteopathy is "not to be the practice of medicine and surgery within the meaning of Article 1 of this chapter, and not subject to the provisions of said article," is simply to segregate this particular system from those for the regulation of which Article 1 was enacted. Each of these systems, methods, or sciences stands on its own merits.

Telephone Company Failing to Furnish Connection With Telephone of Physician

(*Deweese vs. Southwestern Telegraph and Telephone Company (Tex.)*, 144 S. W. R. 732)

The Court of Civil Appeals of Texas affirms a judgment dismissing an action for damages for the death of a woman alleged to have been caused by a negligent failure to make connection with the telephone of a physician whereby he might be summoned to the bedside of the woman, who was suffering from a hemorrhage from which she finally died. The court says that if there was any right of action it was by virtue of the Texas statute which gives a right of action for actual damages on account of injuries causing the death of any person when such death is caused by the wrongful act, negligence, unskilfulness, or default of another. But the complaint showed that the woman's death was the result of natural causes, and did not result from an injury to her person by the wrongful act of the telephone company. The failure of the company to provide a way of communication with the physician was a breach of contract, which may have indirectly prevented the woman receiving relief which might have saved her life, but such a contingency was too remote on which to base an action for damages under the statute. Again, while a telephone corporation is liable in an action for a death caused by its own wrongful act, it is not liable for the death of a person caused by the wrongful act of its servants, and this woman's death was charged to have been caused by the wrongful act of the company's agents, which failed to state a cause for recovery of damages.

Supervisor Authorizing Treatment

(*Belknap vs. Township of Benton (Mich.)*, 135 N. W. R. 101)

The Supreme Court of Michigan reverses a judgment rendered in favor of the township and grants a new trial in this action for services rendered by the plaintiff as a physician and surgeon to a boy who had his right arm shattered by a gunshot. It was claimed that the supervisor of the township had authorized the treatment at the public expense, although the boy's father had not requested public aid. The court says that, under the Michigan statute, the supervisor is the agent of the township for the transaction of all legal business. It was the duty of the supervisor when this question arose, and investigation had been made, to pass on the question whether or not the care of this boy should be made a township charge. He solely was charged with the duty of determining whether

or not the boy, or his father, was such a poor person as to bring the case within the law providing for the support of the poor by the township. The determination by the supervisor that this person was one entitled to relief was an official act which was binding on the township in favor of those who in good faith furnished medical attendance or supplies in reliance on the order and direction of such supervisor. This is not only common justice, but it seems to find support in the authorities. It appeared by the record that the distinction between township and county poor had been restored in the county of Berrien, in which the township of Benton is situated, in 1880, and that since that time each township cared for and supported its own poor.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

California State Journal of Medicine, San Francisco

August, X, No. 8, pp. 313-356

- 1 Hydrophobia and Its Present Status in California. W. A. Sawyer, Berkeley.
- 2 Clinical Symptoms of Alcoholism and Its Treatment. R. E. Bering, San Francisco.
- 3 *Experimental Surgery of Hypophysis Cerebri. H. E. Castle and H. A. L. Ryfkogel, San Francisco.
- 4 *Clinical Value of Arneith Method of Blood Examination. L. H. Briggs, San Francisco.
- 5 Case of Acromegaly With Thrombosis and Embolism. W. B. Coffey and W. T. Cummins, San Francisco.
- 6 Present and Future of Eye and Ear Section of Our State Medical Society. W. H. Dudley, Los Angeles.
- 7 Ocular Disturbances Caused by Cinematograph. M. E. Hart, San Francisco.
- 8 Appendicitis—Then and Now. J. C. King, Banning.
- 9 California State Tuberculosis Commission. G. H. Kress, Los Angeles.

3. **Surgery of Hypophysis Cerebri.**—The authors believe the pituitary body is a ductless gland which has an internal secretion closely correlated to that of some of the other ductless glands, especially to that of the thyroid, ovaries and testes. Their experiments have proved to them that the pituitary gland is essential to life, but they have not proved that part of the gland is capable of the maintenance of life indefinitely, without symptoms. They believe, as do the majority of experimenters, that the secretion of this gland has a controlling influence over the nervous system; in what manner this influence is initiated they do not theorize. This conclusion is drawn from the fact that hypophysectomized animals usually suffer from various nervous disorders. The anterior lobe, when *in situ*, has the greater control over the other ductless glands, for when it is extirpated there are often changes in the ovaries, testes and thyroid. There are also often manifested a general adiposity and irregular changes in the urine. This cachexia hypophyseopriva is not produced by the removal of the posterior lobe. With the vast amount of careful investigation that is now in progress they believe two very important questions relative to the pituitary gland will soon have been answered, viz.: (1) What is its function, and, (2) what is the value of its transplantation.

4. **Arneith Method of Blood Examination.**—In his investigations Briggs found that the nuclear formula of the neutrophils, the so-called "neutrophilic blood-picture," in the normal, agrees closely and constantly with that found by Arneith and many other workers. In tuberculous, typhoid, pyogenic and malarial infections, a deviation from this normal is regularly found, the so-called "shift to the left," consisting of an increase in the cells with fewer nuclear units and a corresponding decrease in the cells with many. The degree of this shift appears to be roughly proportionate to the severity of the infection, except in typhoid, in which it is uniformly present to a marked extent, irrespective of the individual case. In tuberculosis such changes in the neutrophils seem to offer a distinct aid in prognosis, although the reliability of this needs further confirmation. In typhoid, pyogenic and malarial infections such changes do not at present appear to be of much practical value. However, in the light of these constant and regular changes in the neutrophils in disease, Briggs says a blood examination should never be considered

complete without an estimation of these cells according to the method of Arxeth.

Colorado Medicine, Denver

July, IX, No. 7, pp. 193-220

- 10 Diagnosis of Mediastinal Growths. J. N. Hall, Denver.
- 11 Sarcoma of Breast. C. A. Powers, Denver.
- 12 Diseases of Frontal Sinus; Palliative and Surgical Treatment. T. J. Gallaher, Denver.
- 13 Case of Friedreich's Ataxia. B. Oettinger, Denver.
- 14 Intraperitoneal Injuries. L. H. McKinnie, Colorado Springs.
- 15 Typhoid With Acute Calculous Cholecystitis. R. W. Arndt, Denver.

Journal of Medical Association of Georgia, Augusta

August, II, No. 4, pp. 99-136

- 16 Importance of Correct Diagnosis of Skin Lesions and Exhibition of Case of Dermatitis Herpetiformis. C. Swanson, Atlanta.
- 17 *Treatment of Pulmonary Tuberculosis by Compression of Lung. S. T. Harris, Highlands, N. C.
- 18 Diagnosis and Home Treatment of Tuberculosis. W. B. Hardman, Commerce.
- 19 *Present Status of Specifics in Treatment of Tuberculosis. E. C. Thrash, Atlanta.
- 20 Tuberculin Not Even a Placebo. J. M. Anderson, Pinedale.

17. Compression of Lung in Pulmonary Tuberculosis.—

Harris has had thirty-four cases in which this operation has been performed, and he reoperated two patients after the gas had been absorbed, in one of them five months after the last filling. Nine of these cases were monolateral in which a complete pneumothorax or compression was produced. The process was arrested in each instance, giving 100 per cent. of successes. There were adhesions in two of them. There was an effusion in one during course of treatment, and in another five months after discontinuing the treatment, following an attack of influenza and pleurisy. The gas had entirely disappeared and the effusion could hardly have had any connection with the treatment. There were five monolateral cases in which there was an incomplete pneumothorax. All of them had heavy adhesions, which prevented its formation, but even with this the results were good in three of them, negative in one, and one died of heart failure. Ten of these cases, where complete pneumothorax or compression was produced, were bilateral. In nine of these the process was arrested in the lung operated on. One is too recent to classify, but the indications are good. In four, the process has remained arrested in both lungs, and in four the process on the unoperated side remained more or less the same, with periods of either bronchitis, perituberculous pneumonia or pleurisy. It would be hard to say if any influence was exerted on these unoperated sides. There were three effusions, one small serous and one massive. In the third case there was an empyema, and a rapid process set up in the other lung, resulting in death. This patient had made remarkable gain and had been home against Harris' advice for some months doing light housekeeping, with every evidence of the process being arrested. There was incomplete or no pneumothorax in ten of the bilateral cases. There were adhesions in all of them. In two of them no pleural cavity whatever was produced and consequently no collapsing of the lung. Five of them were remarkably benefited even with the small collapsing that was produced. Two died of intestinal tuberculosis, which the attempts at compression seemed to aggravate. In all cases in which a compression was produced uniformly good results were obtained in the lung operated on. In these cases the combined mono- and bilateral percentage, where the process was arrested, is 68.42 per cent.

19. Abstracted in THE JOURNAL, June 8, p. 1781.

Interstate Medical Journal, St. Louis

July, XIX, No. 7, pp. 577-655

- 21 Injection of Oxygen and Other Disinfectants Into Intestines Through Duodenal Tube. A. Schmidt, Halle, Germany.
- 22 Fallacies in Treatment of Gastro-Intestinal Diseases. I. A. Abt, Chicago.
- 23 Infant-Feeding as Taught by German School. J. M. Brady, St. Louis.
- 24 Technique of Wassermann Reaction for Syphilis. R. B. H. Gradwohl, St. Louis.
- 25 Clinical Diagnosis of Renal Insufficiency. D. Fulton, Los Angeles.
- 26 Peculiarities of Medical Practice in Porto Rico. C. E. Ruth, Des Moines, Iowa.
- 27 Better Utilization of City Health Resources in Summer. A. A. Howard, Boston.

Military Surgeon, Washington, D. C.

August, XXXI, No. 2, pp. 119-237

- 28 Medical Department of United States Army in Civil War. L. C. Duncan, U. S. Army.
- 29 Modern Methods of Quarantine Against Asiatic Cholera. A. J. McLaughlin, U. S. P. H. and M.-H. S.
- 30 Report of Board for Study of Tropical Diseases as They Exist in Philippines; Quarter Ending Dec. 31, 1911. W. P. Chamberlain and E. B. Vedder, U. S. Army.
- 31 Medical Department of Organized Militia Depends on Intelligent and Enthusiastic Cooperation of Headquarters and Line for Satisfactory Sanitary Conditions in Camp. H. H. Doan, U. S. Army.
- 32 *New Method of Venereal Prophylaxis. R. A. Bachmann, U. S. Navy.
- 33 Venereal Prophylaxis. W. T. Davidson, U. S. Army.
- 34 Scheme for Carrying Out Venereal Prophylaxis in Army Posts. H. H. Smith, U. S. Army.
- 35 Experiments With A. and N. Tube to Determine Its Efficiency as a Gonococcicide. F. F. Russell and H. J. Nichols, U. S. Army.

32. Venereal Prophylaxis.—To devise a means combining practicability, low cost and efficiency, Bachmann experimented with an application that should possess the triple property of being prophylactic against gonorrhea and chancroid as well as syphilis. Beginning with calomel ointment as a necessary ingredient, the next step was to find a suitable antiseptic to fortify its action against the other two diseases. He selected trikresol as the secondary ingredient because in laboratory tests it has been proven the most potent of the phenol group. In 1 per cent. solutions it is more active than phenol, ehinol, creolin, lysol, etc., killing not only gonococcus but also streptococcus, pneumococcus and bacillus typhoid after one minute's exposure. Ducrey's bacillus of chancroid is considered to be no more resistant to antiseptics than the above organisms, hence trikresol seemed to fill both requirements. As to the method of application, it has been Bachmann's opinion for a long time that to insure protection against gonorrhea after a time greater than an hour the prophylactic must be placed deep in the urethra and must remain there for some time. An ointment fulfils the latter requirement, and to facilitate its application he devised a soft rubber tip $1\frac{1}{2}$ inches long, which is attached to the end of the tube. The tubes are made of two sizes; a small one is intended to be carried on the person and used immediately after exposure. The large one is intended to supplement the smaller tube and should be used on board ship on those patients who report exposure without having used a small tube. It contains sufficient ointment to protect twenty-five men. The rubber tip is to be cleansed with bichlorid alcohol after each insertion.

Therapeutic Gazette, Detroit

July 15, XXXVI, No. 7, pp. 457-532

- 36 Limitations and Scope of Office Treatment in Gynecology. G. E. Shoemaker, Philadelphia.
- 37 Value of Extract Corpora Lutea. A. S. Jaeger, Indianapolis.
- 38 Quinin and Urea Hydrochlorid Solution as Local Anesthetic for Tonsillectomy. H. Kahn, Chicago.
- 39 Thiosinamin in Arteriosclerosis. G. F. Lydston, Chicago.

Bulletin of Johns Hopkins Hospital, Baltimore

August, XXIII, No. 258

- 40 *Cutaneous Reaction of Syphilis. J. M. Wolfsohn, Baltimore.
- 41 *Studies in Tuberculosis. G. B. Webb, Colorado Springs, Colo.
- 42 John Bell, Surgeon: 1763-1820. E. R. Corson, Savannah, Ga.
- 43 Some Suggestions to Those on Whose Aid the Success of Ophthalmic Surgeon, in Considerable Measure, Depends. S. Theobald, Baltimore.

40. Cutaneous Reaction of Syphilis.—In reviewing a series of one hundred and fifty cases, Wolfsohn noted that in many cases of tertiary and of latent syphilis the site of the control injection showed almost as marked a reaction as developed about the point where the luetin was injected. This, as was pointed out by Neisser and Bruck, and which seems to be confirmed by Noguchi and this series of tests, appears to be due to the susceptibility to trauma of the skin of syphilitics late in the disease (*Umstimmung*), for not one of the seventy control patients reacted on the side in which the control emulsion was injected. (Experiments are now under way in which a series of patients, not selected, are being inoculated with the control emulsions only.) The patients exhibiting the most marked "control" reactions (*Umstimmung*) were those suffering from syphilis in its later stages. Wolfsohn is convinced that the luetin reaction is specific for syphilis, and that it is

found of greatest value in the latent and tertiary stages of the disease. In some treated cases of secondary syphilis the reaction is positive. In parasyphilitics with the cardiovascular manifestations of the disease the reaction may be delayed for from nine to thirty days. The luetin reaction is helpful in the diagnosis of latent syphilis in pregnancy. The state of *Umstimmung* is well brought out in the tertiary and latent forms of syphilis.

41. Abstracted in THE JOURNAL, April 20, p. 1224.

American Journal of Urology, New York

July, VIII, No. 7, pp. 343-398

- 44 Time for Prostatectomy. B. Tenney, Boston.
- 45 Hypernephroma of Kidney of Particular Interest. W. Hutchinson, Montreal.
- 46 Essential Hematuria. A. Nelken, New Orleans.
- 47 Fracture of Pelvis Complicated by Extraperitoneal Laceration of Bladder. J. McCarthy, New York.
- 48 Ileo-Vesical and Appendico-Vesical Fistula Complicated by Stone in Bladder. P. M. Pilcher, Brooklyn.

American Journal of Public Health, New York

July, II, No. 7, pp. 499-590

- 49 Measures Taken by Canadian Government to Prevent Introduction and Spread of Cholera in Canada. F. Montizambert, Ottawa, Ontario.
- 50 Washington Sanitary Convention of 1905, With Special Reference to Yellow Fever and Cholera. J. Guiteras, Cuba.
- 51 Measures Adopted by United States Government to Prevent Introduction of Cholera. J. F. Anderson, Washington, D. C.
- 52 Defense of Mexican Republic Against Possible Invasion of Cholera. E. Liceaga, Mexico City, Mexico.
- 53 Inspection of Febrile Patients Non-Immunes to Yellow Fever and Inspection Service of Passengers from Mediterranean Ports. A. Cueto, Porto Rico.
- 54 *Atypical Anaerobic Gas Bacillus Isolated From Vaccine. W. R. Stokes and H. W. Stoner, Baltimore.

54. **Anaerobic Gas Bacillus Isolated from Vaccine.**—In the course of the routine examination by Stokes and Stoner of vaccine virus at the Health Department an organism was isolated from one set of ten capillary tubes which corresponded in many of its characteristics to the gas bacillus. The organism was recovered by inoculating a glucose fermentation tube with the tube of vaccine, and incubating under anaerobic conditions. The bacillus gave all of the microscopic characteristics of the gas bacillus, being nonmotile and taking the Gram's stain, some few of the bacteria, however, decolorizing by this method. The intravenous inoculation of a rabbit, killed and kept at a room temperature for twenty-four hours, showed no apparent formation of gas. Organs from this animal, however, when incubated at body temperature for twenty-four hours, showed abundant gas formation. Inoculations from the glucose tube into fresh glucose bouillon, lactose bouillon, milk, gelatin, blood-serum and shake glucose-agar showed growth only in the glucose bouillon and shake agar tubes. A second rabbit inoculated from the second-glucose-bouillon tube, killed and placed in the incubator for six hours, then kept at room temperature for eighteen hours, showed abundant gas formation. Cultures from the heart's-blood of this animal when inoculated into glucose bouillon, lactose bouillon and saccharose bouillon, fermented all three of these sugars, producing about 50 per cent. of gas in the glucose and lactose and about 20 per cent. of gas in the saccharose. Litmus-milk tubes inoculated from the heart's blood did not show any apparent change at the end of twenty-four hours, but at the end of forty-eight hours presented the characteristics usually produced by this organism. Gelatin inoculated and incubated for twenty-two days, and then solidified in the ice chest, showed no liquifaction.

Wisconsin Medical Journal, Milwaukee

July, XI, No. 2, pp. 39-70

- 55 *Growing Importance of Preventive Medicine. J. H. White, Washington, D. C.
- 56 *Antityphoid Vaccination. M. P. Raveuel, Madison.
- 57 *Spontaneous Hemorrhage in Newborn and Its Treatment. A. W. Myers, Milwaukee.
- 58 Intracranial Injuries; Value of Certain Signs in Diagnosis, Prognosis and Treatment. C. A. Evans, Milwaukee.
- 59 Phenolsulphonephthalein Elimination in Nephritis; Clinical Report of Cases. J. B. James, Wauwatosa.
- 60 Treatment of and Indiscreet Suturing of Lacerated and Contused Wounds. A. J. Pullen, North Fond du Lac.
- 61 Childbirth After Apparent Menopause. L. H. Nowack, Watertown.
- 62 Tonsil Enucleation. L. J. De Swarte, Milwaukee.

55 and 56. Abstracted in THE JOURNAL, June 22, p. 1969 and 1970.

57. Abstracted in THE JOURNAL, April 13, p. 1148.

Journal of Michigan State Medical Society, Battle Creek

August, XI, No. 8, pp. 471-544

- 63 Medical Situation in Michigan. D. E. Welsh, Grand Rapids.
- 64 Water Purification. J. W. S. McCullough, Toronto, Ont.
- 65 Tuberculin Therapy: a Rational Empiricism. E. S. Bullock and L. S. Peters, Silver City, N. Mex.
- 66 Etiology of Hemorrhage of New-Born: Report of Case. L. W. Haynes, Detroit.
- 67 *Constipation in Infant; Its Causes and Treatment. C. G. Grulee, Chicago.
- 68 A Year's Surgical Work. A. McLean and C. D. Brooks, Detroit.

67. **Infantile Constipation.**—As to the treatment of atonic constipation, Grulee says that the indications are for stimulation of the bowel musculature. Such stimulation is best brought about by the use of suppositories, which are a mechanical stimulus and act by irritating the rectal sphincter which, in turn, causes reflexly an increase in the peristaltic action of the intestinal musculature. The use of cathartics is usually not to be favored. Changes of food may at times bring results, but usually only when aided by the use of such mechanical means as suppositories and massage.

New Mexico Medical Journal, Las Cruces

July, VIII, No. 4, pp. 297-327

- 69 Relation of Psychology to Medicine. M. Silber, Albuquerque.
- 70 Arterial Pressure. C. T. Sands, Las Cruces.
- 71 Common House-Fly. T. C. Sexton, Las Cruces.

Bulletin of Manila Medical Society

June, IV, No. 6, pp. 125-136

- 72 *Typhus Fever in Philippines. W. E. Musgrave and C. R. Stanley.
- 73 Incarcerated Gravid Uterus. H. Acosta-Sison.
- 74 Congenital Hour-Glass Stomach; Report of Case. D. M. Molloy.

72. **Typhus Fever in Philippines.**—The authors are emphatically of the opinion that typhus fever occurs sporadically in the Philippines, and that it is one of the infectious diseases which must be added to the nosology of tropical medicine.

Lancet-Clinic, Cincinnati

July 27, CVIII, No. 4, pp. 83-110

- 75 Urinalysis and Relation It Bears to Medical Examiners' Work. A. T. Gaillard, Philadelphia.
- 76 Trace of Albumin. W. B. Stewart, Atlantic City, N. J.
- 77 Value of Urinalysis at Home Office in Each Case of Application for Life-Insurance From Experience of Seven Years. J. W. Guest, Louisville.

Vermont Medical Monthly, Burlington

July 15, XVIII, No. 8, pp. 157-182

- 78 Tobacco; Its Use and Abuse. D. Marvin, Burlington.
- 79 Fracture at Lower Third of Tibia. W. H. Grinnell, Danby.
- 80 Tuberculosis of Kidney, With Report of One Case. J. H. Woodruff, Bare.

Philippine Journal of Science

February, VII, No. 1, pp. 1-62

- 81 *Result of Past Two Years' Work in Study of Tropical Sunlight. P. C. Freer, Manila.
- 82 Mucocoele and Diverticulum of Vermiform Appendix of Inflammatory Origin. B. C. Crowell, Manila.
- 83 *Third Contribution to Etiology of Beriberi. W. P. Chamberlain, E. B. Vedder and R. R. Williams, Manila.
- 84 Schizogony of Trypanosoma Evansi in Spleen of Vertebrate Host. E. L. Walker, Manila.

81. **Study of Tropical Sunlight.**—From all of his observations, Freer draws the conclusion that a climate such as in the Philippines, land surrounded by the sea which modifies the extremes of temperature and with such a large proportion of cloud, is not by any means deleterious to the white man if he takes ordinary precautions which are not as elaborate as those he would take in a northern climate to keep out the cold. The differences in maximum insolation as compared with temperate regions are not great, if any, and many days occur in which the effect of the sunlight is greatly modified. The individual needs only to seek the shade to avoid any deleterious results from even the greatest isolation. If individuals must be exposed to the sun, as is the case with

troops on the march, they can be given adequate protection by light, preferably white, clothing and helmets, but it must be remembered that perspiration is a great factor in keeping the man normal under these conditions and that, during exercise in hot weather much water is lost during the day. Many of the untoward effects attributed to the sun, Freer says, are probably due to the rapid loss of water from the system and could be avoided if the individual were in a position to drink enough to preserve the equilibrium. Two canteenfuls per man are certainly not sufficient. The temptation to drink available water along the road, also, may become irresistible, and sickness caused by infection from such a source may be attributed to the sun as a predisposing factor. Even in places like Khartoum, where the average effect of insolation is much higher than in Manila, the results can be avoided just as they can be in Manila, and it is only in the places where the radiation from the earth at night is so great that no relief is experienced from excessive heat, that the climate may become such as to preclude the possibility of persons unaccustomed to such conditions living in health.

83. Etiology of Beriberi.—Further experiments made by the authors all substantiate the theory that polyneuritis gallinarum and beriberi are caused by the deficiency of some as yet unknown substance in the food. They have shown previously that this substance is not phosphorus. To the list of substances shown in previous papers to be of no importance in preventing neuritis of fowls there are now added the following: Nitrogenous compounds such as arginin, histidin, asparagin and various amino-acids; lipoids of the lecithin group and cholin; extract of onions. The neuritis-preventing principle is insoluble in ether and is absorbed by animal charcoal and the filtrate through the charcoal will not prevent neuritis. After absorption the active principle cannot be removed from the charcoal by maceration with water, absolute alcohol or ether. The administration of large quantities of sodium chlorid failed to produce edema in fowls suffering from polyneuritis. Five c.c. of extract (equivalent to 5 gm. of rice polishings) is sufficient to protect fowls subsisting on polished rice. Two and one-half c.c. (equivalent to 2.5 gm. of polishings) is insufficient to confer complete protection against polyneuritis.

Journal of Kansas Medical Society, Kansas City

July, XII, No. 7, pp. 255-300

- 85 Treatment of Cancer of Cervix. G. M. Gray, Kansas City.
- 86 Some Considerations in Diagnosis of Otitis Media and Its Complications in Infants and Children. E. N. Robertson, Concordia.
- 87 Case of Uterus Septus With Unusual Complications. W. G. Norman, Cherryvale.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

July, XV, No. 1, pp. 1-39

- 88 Hemochromatosis (Bronzed Diabetes); Report of Case. D. Vanderhood and Hutcheson, Richmond, Va.
- 89 Methods and Ideals in State Medicine. W. S. Rankin, Raleigh, N. C.
- 90 Medicine in Lay Literature. B. M. Randolph, Washington, D. C.
- 91 Operative Treatment of Ventral Hernia Following Laparotomy. B. L. Wyatt and K. L. Buckner, Bridgeport, Tex.

Cleveland Medical Journal

July, XI, No. 7, pp. 471-550

- 92 *Hemorrhage From Premature Separation of Normally Situated Placenta, With Report of Cases. J. L. Bubis, Cleveland.
- 93 Separation of Lower Epiphysis of Fibula. L. A. Pomeroy, Cleveland.
- 94 Cleveland's Maternity Dispensary System. A. J. Skeel, Cleveland.
- 95 *Traumatic Cataract of Unusual Origin. I. A. Tripp, Cleveland.
- 96 *Present Status of Therapeutics. J. B. McGee, Cleveland.
- 97 Syphilis in Pregnancy. W. T. Miller, Cleveland.
- 98 Later Advances in Pharmacology. J. D. Pilcher, Cleveland.

92. Placental Hemorrhage.—A very extensive review of the literature and the observation of four cases prompts Bubis to draw the following conclusions: There is no disease which has a greater variety of causes. Placental apoplexy, like placental infarct, is a cause of this complication of pregnancy and not a disease. The condition of the cervix

is the guide to the treatment and prognosis. Complications are numerous and dangerous. Prophylaxis should be the watchword of both patient and physician. The hospital is the best and safest place for the patient. There is no routine treatment. Each case must be treated "*per se*." The value of transfusion is acknowledged. The value of the Momborg belt is still in question. Pubiotomy, after the cervix is prepared, should be done if the child is living and the head is engaged. In concealed hemorrhage, with threatened shock due to increased intruterine tension, release the liquor amnii slowly through a pin-point opening and use the Kristeller method. Careful observation of the patient is very essential. Most authors are in favor of using ergot.

95. Traumatic Cataract of Unusual Origin.—An engineer, aged 30 years, presented himself to Tripp because of an injury to the right eye, produced seventeen hours previously by the bursting of a water-gauge on his engine. The eye was quiet looking, but painful at times. Vision was 20/40, the media were clear, the tension was normal. On dilating the pupil two slight scratches were readily seen on the cornea; these did not stain. Neither could anything be felt with a probe lightly carried over the area. The Roentgen-ray examination showed nothing. This condition remained until the tenth day, when the patient rubbed his eye while awakening from sleep and was frightened to hear something pop. This sound was accompanied by pain and by the discharge of fluid over the cheek. When next Tripp saw him the anterior chamber was shallow, the tension was minus and there was a slight loss of aqueous humor. Vision was now fingers at 5 feet. The pain was very severe, requiring opiates and bandaging. Tripp could not as yet find any foreign body and the eye improved daily. The anterior chamber formed and the tension became almost normal. With the ophthalmoscope a cataractous lens was found. Vision gradually grew dimmer, accompanied by great pain of a lancinating character. It was now fifteen days from the first injury and an enucleation had to be done, on account of the agony and of the fear of a panophthalmitis, an hypopyon having formed.

96. Status of Therapeutics.—A certain amount of judicious empiricism would seem to McGee to be an essential part of successful therapy on the one hand, as science is on the other, the best type of therapeutics today combining both. We cannot, he says, really dispense with either, for while we must unquestionably accept the results derived from a scientific source, we can by no means afford to discard the knowledge which comes to us with the testimony of professional tradition in its favor. As to drugs, on which we still largely rely, in spite of the value of physiologic therapeutics in certain conditions, McGee says, we are perhaps somewhat hampered by the number of new remedies introduced, mainly from a synthetic source, and while some prove worthy of professional sanction many are advanced without adequate or trustworthy trial to warrant their acceptance.

The Pharmacopeia and National Formulary embody essentially all the drugs and preparations which we usually require, but as it is sometimes a number of years before the admission of certain agents after they are well known, and others, although found of merit, may be too limited in their general use to warrant inclusion, the personal element of discrimination and choice is as essential and evident here as in the intelligent application of any other lines of therapeutic resource. The tendency of the profession is at present to restrict the number of drugs as much as possible and to have their uses more clearly defined. Such elimination should be especially of aid at the outset of the student's course, a thorough knowledge of a fair number of the standard drugs giving a far better practical foundation than a superficial acquaintance with many. While the use of drugs may have been at times carried to an extreme, and while at times, too, they may fail in the full production of their desired effects, McGee believes there is no question as to their worth when used with discrimination, and that the

more thoroughly we understand them the better we shall be able to employ them, and the more satisfactory results we shall obtain. With a knowledge of those on which we can rely, knowing, too, their limitations, for it is evidently as essential to know what a remedy cannot accomplish as to recognize what it can, we can have more confidence in their prescription.

Iowa Medical Journal, Des Moines

July 15, XIX, No. 1, pp. 1-50

- 99 Prevention of Typhoid by Vaccination. O. Clark, Keokuk, Iowa.
- 100 Modern Progress in the Knowledge of Syphilis. A. Schalek, Omaha.
- 101 Practical Management of Normal Labor. C. A. Henry, Farson, Iowa.
- 102 Omentum in Abdominal Surgery. C. E. Ruth, Des Moines.
- 103 Surgeon Lister. H. O. Williams, Ottumwa, Iowa.
- 104 Malignancy. G. W. Hinkle, Harvard, Iowa.
- 105 Cholecystitis and Cholelithiasis in Their Relation to Pregnancy. L. H. Branson, Iowa City.

Boston Medical and Surgical Journal

August 8, CLXVII, No. 6, pp. 181-216

- 106 Some Unsolved Problems of Gastro-Enterology. W. B. Cannon, Boston.
- 107 *Mexican Scorpions and Treatment of Scorpion Sting. L. H. Mills, Esperanza, Sonora, Mexico.
- 108 Importance of Differentiating Catarrhs of Large and Small Intestine. A. E. Austin, Boston.
- 109 Traumatic Rupture of Diaphragm, With Other Injuries; Operation; Recovery. F. J. Cotton, Boston.
- 110 Multiple Cramps of Psychogenic Type in a Telegrapher. T. A. Williams, Washington, D. C.

107. **Treatment of Scorpion Sting.**—The treatment of scorpion sting, Mills says, varies with the severity of the symptoms. In general it consists of simple incision and the local use of evaporating lotions. In severe cases, incision should be employed, combined with lumbar puncture, which may be repeated if necessary, and the repeated hypodermic injection of scorpion blood to total about 1 c.c. per kilo of body weight. The internal administration of stimulants such as black coffee and aromatic spirits of ammonia, or hypodermic and rectal stimulation if unconscious are also indicated.

New York Medical Journal

August 10, XCVI, No. 6, pp. 257-304

- 111 The Proteins. D. D. Van Slyke, New York.
- 112 Comparative Value of Physical Signs and Roentgen-Ray in Determining Chest Conditions. E. A. Miller and A. J. Quimby, New York.
- 113 Heath's Conservative Mastoid Operation and Its Pathologic Foundation. F. A. Leslie, Toledo, Ohio.
- 114 Sketch of Cancer Question to Date. E. E. Hubbard, Kansas City, Mo.
- 115 Ten Sex Talks to Girls. I. D. Steinhardt, New York.
- 116 Tuberculous Meningitis. H. Rabinowitsch, New York.
- 117 Antivaccination and Medical Profession. I. W. Brewer, Fort Niagara, N. Y.
- 118 Prenatal Influences. L. D. McEvoy, New York.

Medical Record, New York

August 10, LXXXII, No. 6, pp. 230-276

- 119 Birth-Rates, Overpopulation and Cost of Living. C. E. Woodruff, U. S. Army.
- 120 Sporadic and Epidemic Poliomyelitis. W. H. Thomson, New York.
- 121 Persistence of Certain Racial Characteristics. P. Kintzing, Baltimore.
- 122 *After-Care of Discharged Cases of Pulmonary Tuberculosis. A. Meyer, New York.
- 123 Insurance Examiner and Blood-Pressure Test. F. A. Faught, Philadelphia.
- 124 Race Resistance. H. Greeley, Brooklyn.
- 125 Exophthalmic Goiter. A. A. Eshner, Philadelphia.
- 126 Case of Henoch's Purpura Treated With Human Blood-Serum; Recovery. S. J. Wilson, Brooklyn.

122. **After-Care of Discharged Cases of Pulmonary Tuberculosis.**—Meyer believes that the time seems ripe for the introduction of another factor into the after-care of apparently cured and arrested cases, and that is the establishment of industrial and farming colonies. A few small farm colonies have been established: nothing has been done along industrial lines. In this country the experiment has been tried on a very small scale by the Eudowood Sanatorium, Maryland. It purchased a tract of land adjacent to the institution and eight men and boys who had been discharged were put to work raising hay, corn and tomatoes. Wages were given. It is claimed "that this is the first attempt in this country to provide those leaving a sanatorium with work in

a field where they may be able either partially or completely to support themselves under such guidance and in such favorable surroundings that the cure they have made is likely to become permanent." Meyer advocates the establishment of farming and industrial colonies by one of the following methods; either as annexes to existing sanatoria or by the establishment of such colonies as independent undertakings, by public and private philanthropy apart from preexisting institutions.

Of the two methods he prefers that of annexes to existing institutions for the following reasons: It will be easier to get the patients to remain because of familiarity with their environment and because of restoration to health at that place. It will be easier to prepare the way for the settlement of other members of the family in the same community during the last weeks or months of sanatorium care, and pending discharge. It will be easier to acquire land for factories and farms because communities where sanatoria already exist would not oppose their establishment, for they have not the phthisiophobia prevalent everywhere else. It will be easier to enlist the aid—both by counsel in the developing stage and by guidance and supervision in the fully developed stage—of many medical men who have been most enthusiastic in the tuberculosis campaign. The same applies to the volunteer boards of lay people now administering some of these institutions. It will avoid much of the delay that would be caused by hunting for new sites and a discussion of their general availability for the care of convalescent tuberculosis cases. It may prove easier to obtain financial aid from state, municipal and private sources as an extension and evolution of the humanitarian work already undertaken by them, rather than for the initiation of an entirely independent scheme.

Journal of Arkansas Medical Society, Little Rock

July, IX, No. 2, pp. 37-60

- 127 Importance of Early Diagnosis in Appendiceal Disturbances. C. R. Shinault, Little Rock.
- 128 *Auto-Intoxication. H. P. Collings, Hot Springs.
- 129 Duty of Physicians to Teach Mothers. W. Crutcher, Pine Bluff.
- 130 Dermatology and Syphilology. W. R. Bathurst, Little Rock.
- 131 Climate in Tuberculosis. J. S. Shibley, Booneville.
- 132 Adenoid Vegetation and Nasal Occlusion, With Special Reference to Their Influence Over Cerebration. J. M. Wallace, Fort Smith.

128. Abstracted in THE JOURNAL, June 29, p. 2049.

Laryngoscope, St. Louis

July, XXII, No. 7, pp. 917-996

- 133 Cases of Plastic Surgery. J. C. Beck, Chicago.
- 134 Case of Otosclerosis, With Pathology. A. M. Amadon, Boston.
- 135 Physiology of Cochlea. E. D. Wales, Indianapolis.
- 136 Bacteriemia in Its Relation to Purulent Otitic Disease. J. H. Guentzer, New York.
- 137 Mucocoele of Frontal Sinus With Dilatation. G. C. Hall, Louisville, Ky.
- 138 Fibroma of Nose and Naso-Pharynx With Sudden Malignant Degeneration. V. Dabney, Washington, D. C.
- 139 Circumcision of Uvula. H. Hays, New York.
- 140 Unusual Case of Elongated Uvula. C. W. Kollock, Charleston, S. C.
- 141 Prognosis and Treatment of Tuberculosis of Larynx. W. Freudenthal, New York.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

July 27, II, No. 2691, pp. 157-212

- 1 *What Are We? What Are We Doing Here? Whence Do We Come and Whither Do We Go? Sir J. Barr.
- 2 *Relations of the Circulation. G. A. Gibson.
- 3 *Personal Experiences in Surgery of Large Intestine. F. T. Paul.

1. "What Are We? What Are We Doing Here? Whence Do We Come and Whither Do We Go?"—Barr speaks of eugenics, venereal disease, sanitation and prevention of disease. He concludes as follows:

The path of progress which I have tried to point out will in the future devolve on such great associations as the British Medical—associations which have got no selfish interests to serve, but which have only the honor and dignity of the medical profession and the welfare of the public at heart. We often hear such bold statements as that the general medical practitioner is doomed, his occupation has gone, and his livelihood has vanished. Those who

thus talk have their heaven *in statu quo*—they think there is no blessedness beyond the maintenance of their own ignorance. In my opinion the future of medicine will rest with enlightened and highly educated general practitioners—men who will look after the health of the community, who will see that mechanism of a high order is produced, and who will see that the machinery of the individual is properly lubricated and not subjected to any unnecessary friction or strain. The enlightened public will look to their medical attendants as guides, philosophers and friends, both in health and disease.

As has been long advocated by the British Medical Association, we must have a properly regulated state examination, and the vested interests of corporations must not be allowed to prevail against the public weal. Mere examining corporations which have done practically nothing for medical education, and are chiefly engaged in extracting fees from students, should be allowed to retire into obscurity. There is here plenty of good work for an able statesman—a man determined to lead and to prevent the present policy of drift. The work of the medical profession should be such as to attract the brightest youths in the country. We must recognize that the outlook of the medical profession, though at present somewhat dismal, is merely a transition stage which will soon pass away.

2. **Relations of the Circulation.**—Gibson points out that the circulation in all the higher animals may be regarded as based on four primary groups of principles, viz.: its mechanical arrangements, the chemical changes by which it is maintained, its modification by glandular secretions and its adjustment by nervous agencies. While reviewing recent work on all of these it is to the effect of glandular and other tissues on the circulatory mechanism that he devotes the greater part of his address. He first instances the closeness of the connection between glandular and circulatory changes by reviewing the symptoms and pathologic anatomy of exophthalmic goiter, myxedema, acromegaly and Addison's disease, and then summarizes some of the chief facts in regard to our knowledge of internal secretions and hormones. The well-known properties of thyroid extract and of epinephrin are briefly discussed, but the functions of the pituitary body and the actions of extracts from its different parts are considered at some considerable length.

After referring to the well-established value of thyroid extract in myxedema and cretinism, he points out that it may also afford invaluable service in several conditions which are very likely to be overlooked, such as the minor degrees of thyroid inadequacy occurring at the climacteric period or shortly afterward. He also instances its usefulness in conditions of lack of growth in the youth of both sexes. He believes that thyroid extract influences blood distribution and nutritive possibilities in the most powerful manner. In regard to suprarenal extract or epinephrin Gibson alluded to its use by J. D. Rolleston to prevent heart failure in diphtheria and also to its employment in conditions in which pyrexia has led to diminished function of the suprarenal bodies. He has also found this substance to be of great value in the treatment of exophthalmic goiter, and states that it has no rival in the management of this affection. He has found that under its influence the pulse-rate is reduced, the protrusion of the eyeballs disappears, the thyroid gland gets smaller, and the tremor, together with the other nervous symptoms, vanishes. He therefore inveighs strongly against the present tendency to submit patients with exophthalmic goiter to surgical operation. He also advises the use of pituitary extract in the treatment of certain conditions in which the arterial blood-pressure tends to fall, as in pneumonia and other acute diseases.

3. **Surgery of Large Intestine.**—Paul restricts himself to the consideration of cases in which the following operations have been employed: 1. Colotomy. 2. Short-circuiting. 3. Colectomy. 4. Excision of the rectum. He has done colotomy on sixty-eight patients in private practice during the past ten years. In forty-four of these there was no obstruction, or it was chronic in type, and all recovered. In twenty-four acute obstruction was present, and nine deaths occurred. These were mostly in old people with vomiting (often fecal), meteorism and collapse. It is interesting to note that eighteen of the cases of complete obstruction were met with during the first period of five years, and accounted for seven of the nine deaths; while in the remaining period there were only six cases with two deaths, showing that practitioners are recognizing the importance of earlier surgical treatment. Paul does not recommend short circuiting operations in the presence of any severe form of obstruction such as is likely to be fatal without immediate relief. He has had the best success when

he has cut out of circuit the smallest possible amount of bowel. He therefore usually short-circuits just around the growth or other obstruction. In non-malignant cases the bowel appears to be quite normal afterward, and in malignant cases the patients often enjoy a considerable period of comparative comfort. During the last ten years Paul has only short-circuited in twelve private patients with no deaths. Ileum to colon eight, colon to colon four, cancer seven, inflammatory five.

Paul has undertaken colectomy on eighteen private patients during the last ten years. Only one died, the patient in whom he attempted primary suture, an otherwise favorable case of malignant growth in the transverse colon. The remaining seventeen were done by the glass tube operation, and all recovered, though some of them were advanced in years. Among the most interesting points noted in the table is the long survival of patients who have been operated on for cancerous growths. Of the seventeen cases, three were non-malignant, and fourteen cancer. Of the latter, eight patients are still living, and not known to have recurrence; two have died from apoplexy, and four have died from recurrent growth at two and a half, three and a half, three and a half, and seven years respectively. During the last ten years Paul has excised the rectum for cancer in twenty-eight private patients. Two deaths occurred, one the double route operation in a male, the other a high resection in a female. Neither were good subjects, and Paul says he would now probably exclude them both, doing a colotomy instead. Of the twenty-eight, thirteen are still living at one, one, two, two and a half, three, three and a quarter, three and a quarter, five, six, six, seven and a half, nine and ten years respectively. Of the remaining fifteen, twelve died from recurrence after an average duration of life of thirteen months. One died from other cause without recurrence, and two died from the operation.

Lancet, London

July 27, 11, No. 4639, pp. 209-282

- 4 *Relations of the Circulation. G. A. Gibson.
- 5 *Personal Experiences in Surgery of Large Intestine. F. T. Paul.
- 6 *Syphilitic Lung Affections and Immunity in Native Races. H. C. French.
- 7 *Causes Leading to Educational Deafness in Children. M. Yearsley.
- 8 *Distribution of Chloroform in Blood. G. H. Clark and D. Lindsay.
- 9 *Two Unusual Forms of Meningitis Occurring in Infancy. E. B. Smith and A. W. G. Woodforde.
- 10 Two Cases of Pulsating Exophthalmos, in Which Carotid Artery was Ligatured. R. R. James and W. F. Fedden.

4 and 5. Abstracted from the *British Medical Journal*, Nos. 2 and 3.

6. **Syphilitic Lung Affections.**—French is inclined to the belief that neglect, dirt and pus, and those factors that conduce to phagedena are primarily responsible for perpetuating severe early forms of syphilis in addition to diminished resistance in the individual dependent on blood conditions. As regards prevention, local measures, such as pure phenol and ethyl chlorid applied in the initial stages to chancres of all kinds, rapidly heal them, and to ensure good general health is probably quite as important as to administer mercury, potassium iodid or salvarsan.

7. **Educational Deafness in Children.**—Yearsley pleads strongly for a better recognition and more systematic teaching of otology in medical schools. Instead of being the Cinderella of the specialties, it should be insured that no student receives a qualification to practice until he has a competent knowledge of the causes of ear disease and their prevention. The prevention of deafness needs a universal knowledge on the part of the profession of the etiology and treatment of the causes leading to defective hearing, and such a universal knowledge can only be made possible by the recognition of otology as an important part of the syllabus. The importance of good hearing in the intellectual and moral development of children and the serious handicap of moderate or even slight degrees of deafness, Yearsley says, has been patent to a limited group of educationists and otologists for some time past. It is but lately that the full significance of the sense of hearing in education has become at all widely recognized. The long neglect of diseases of the ear, especially in infancy and childhood,

has but comparatively recently given place to a better knowledge of their etiology and a better understanding of their treatment, while the work done on the pathologic conditions of the upper air passages, to which the great majority of them owe their origin, has supplied ample means for their prevention. There is still, however, Yearsley says, an enormous number of children suffering from ear disease who are allowed to go untreated, some of whom fill deaf schools while others become hopelessly deaf in after life and swell the numbers of physically defective citizens, but whose condition could have been prevented by timely and skilful intervention. Yearsley claims that of the children who thus suffer 50 per cent. are curable, and of the remainder a considerable proportion could be improved, while the greater number are preventable.

8. Distribution of Chloroform in Blood.—Evidence is given by Clark and Lindsay that in rabbits the blood contains a larger proportion of chloroform in the plasma when the anesthetic is given subcutaneously than when it is given as an inhalation. This is considered to be the reason for the delay in elimination and the consequent greater injury to the tissues which is associated with this mode of administration.

9. Meningitis in Infancy.—The interesting features of the first case cited by Smith and Woodforde are: (1) The long duration of the case, viz., fourteen weeks; (2) the appearance in the first instance of a suppurative meningitis due apparently to a leptothrix alone; (3) the slight initial symptoms associated with this form of suppurative meningitis; and (4) the apparent tendency to recovery from this infection which was prevented by the very unusual sequence of a secondary infection of the meninges by the tubercle bacillus. The second case was one of meningitis due to the *Bacillus coli communis*.

Practitioner, London

July, LXXXIX, No. 1, pp. 1-156

- 11 Some Relationships Between Fits and Mental Disorder. Sir G. H. Savage.
- 12 After-Treatment of Abdominal Sections Based on 1,232 Cases. E. S. Bishop.
- 13 Cyclical Vomiting. F. Langmead.
- 14 Primary and Early Secondary Tuberculous Cystitis. D. Newman.
- 15 Orthopedic Surgery. A. H. Tubby.
- 16 Measurement of Deformity. P. B. Roth.
- 17 Literature on Diseases of Children. H. Thursfield.
- 18 Recent Advances in Syphilis and Gonorrhea. J. S. Joly.
- 19 Treatment of Syphilis by Salvarsan. P. E. Tresidder and S. Tresidder.
- 20 Treatment of Syphilis of Nervous System by Aachen Methods. R. Hayes.
- 21 Should Venereal Diseases be Notifiable? S. Melville.
- 22 Diagnosis and Treatment of Chronic Suppuration of Maxillary Sinus. J. Harper.
- 23 New Method of Applying Carbon Dioxid Snow. W. K. Sibley.
- 24 Surgical Shock. W. B. Secretan.
- 25 Treatment of Cellulitis With Special Reference to Hand and Arm. B. Hughes.
- 26 Drs. Bonjat and Bidloo. J. Rac.

Indian Medical Gazette, Calcutta

June, XLVII, No. 6, pp. 209-256

- 27 Medicolegal Work in Calcutta Morgue, 1911. O. S. Moses.
- 28 Intracapsular Operation for Cataract (Smith's Method) from Point of View of Civil Surgeon. F. P. Connor.
- 29 Ten Months' Work in Military Employ. J. H. Burgess.
- 30 Psycho-Analytic Method of Treatment of Neuroses. O. Berkeley-Hill.
- July, XLVII, No. 7, pp. 257-300
- 31 *Second Clinical Report on Treatment of Leprosy by Use of Vaccine Prepared from Cultivations of Leprosy Streptothrix and Further Experiments. E. R. Rost.
- 32 Outbreak of Rat-Plague in Suffolk and Manchurian Epidemic of Human Plague. W. C. Hossack.
- 33 *Discovery of Hitherto Undescribed Infective Disease Occurring Among Population of Rangoon. A. Whitmore and C. S. Krishnaswami.
- 34 Use of Ultra-Violet Rays in Sterilization of Water. W. W. Clemesha.
- 35 Diameter of Cornea, Especially in Its Bearing on Cataract Extraction. H. F. L. Taylor.
- 36 Outbreak of Epidemic Jaundice. E. H. V. Hodge.

31. Vaccine in Leprosy.—Commenting on his twenty-two patients, five of whom have practically recovered and fifteen have shown marked improvement, while the remaining two patients showed neither improvement nor increase, Rost says that improvement is very slow. The anesthetic patients should be given much larger doses of vaccine than the tubercular ones. Rost says that these twenty-two patients have had no other treatment beyond the weekly injections of vaccine and have

all been under observation at the Kemmendine Leper Asylum. But some private patients treated by Rost showed more rapid improvement by adopting the salt adjuvant, stopping the consumption of sugar and fish in the diet and causing erythema of the skin by very hot baths, irritating application or friction a few hours after the injection of the vaccine.

33. Unknown Infection.—There is prevalent in Rangoon a peculiar septiceemic or pyemic disease caused by an infection with a bacillus whose characters are so distinct from other known pathogenic bacteria that it can be readily isolated and certainly identified. The disease so far as the present evidence goes is peculiarly prevalent among chronic morphia injectors. The authors' clinical knowledge is at present so meager that only a bare suspicion of such infection can be excited by clinical signs, but bacteriologic knowledge is sufficiently complete to allow such suspicion to be decided rapidly by the aid of the laboratory. In very many cases the macroscopic appearance of the lesions caused by the infection are sufficiently characteristic to permit a confident diagnosis to be made immediately in the mortuary without the aid of bacteriology, though of course such aid should be sought wherever facilities for laboratory work exist. The disease has certain resemblances both clinically and bacteriologically to glanders, but the two infections can be readily differentiated if a proper bacteriologic examination be carried out. Confusion would be due to a reliance on the positive results of Strauss' test, as a positive result with this test is common to the two infections.

Journal of Laryngology, Rhinology and Otology, London

July, XXVII, No. 7, pp. 353-408

- 37 Technic of Auditory Examination in Infancy. P. M. Constantin.
- 38 Case of Congenital Occlusion of Right Posterior Naris by Bony Plate. H. B. Tawse.
- 39 Reports for 1910 and 1911 from Ear and Throat Department of Royal Infirmary, Edinburgh. R. Vérel and J. M. Dickie.

Journal of Obstetrics and Gynecology of the British Empire, London

June, XXI, No. 6, pp. 319-382

- 40 *Vaccines in Treatment of Puerperal Infection. R. J. Rowlette.
- 41 Adenocarcinoma Complicating Myomata of the Uterus in Twin Sisters. J. H. Croom.
- 42 Cause and Treatment of Procidentia Uteri as it Occurs in the Parous Woman. H. Jellett.
- 43 Case of Obstructed Labor Due to a Uterine Contraction Ring. H. Williamson.
- 44 *Case of Retention of the Fetus by an Internal Contraction Ring Treated by Continuous Weight Contraction. J. A. Willett.
- 45 *Retraction Ring as a Cause of Dystocia. D. Shannon.
- 46 Splenic Hemorrhage Complicating Pregnancy. J. E. Gemmell.
- 47 Pregnancy Complicated by Appendicular Abscess. J. E. Gemmell.
- 48 Pregnancy Associated With Left Chronic Inflammatory Appendage; Adherent to Pelvic Floor, and to Uterus, Simulating Fibroids in Uterine Wall. J. E. Gemmell.

40. Vaccines in the Treatment of Puerperal Infection.—Rowlette is convinced that vaccines, given in small doses, do no harm in puerperal sepsis; in fact, in the great majority of cases they do good. In many cases they produce immediate and remarkable improvement. Autogenous vaccines are more trustworthy than stock vaccines, and sometimes succeed rapidly where the latter fail. Anti-streptococcus serum given simultaneously increases the effect of streptococcal vaccine. To get the best results accurate bacteriologic diagnosis is necessary.

44. Retention of the Fetus.—To have performed an embryotomy in this case, Willett says would have been extremely difficult and the result of this operation in previous cases had seemed to him to be unsatisfactory, so he determined to try the effect of continuous weight traction before interfering further. To this end the head was perforated, a cranioclast screwed firmly home and attached to its handle by a towel was a weight of approximately eight pounds which hung over the foot-rail of the bed. (Estimated under as nearly as possible similar conditions the total pull on a spring balance was 6½ pounds). A hypodermic injection of morphin ½ gr. was given partly in the hope that it might aid in the relaxation of the spasm, but chiefly to keep the patient quiet. For three hours the patient slept, and during this time there was a

complete absence of uterine contractions. She then awoke, and a few slight pains rapidly delivered the child, which weighed 6 pounds 14 ounces minus the brain. The remaining liquor amnii which escaped was stained with meconium and offensive. The placenta was born naturally twenty minutes later. A hot intrauterine douche was given, and it was then noticed that the obstructing ring had disappeared. Willett says that this was an ideal case in which to try the effect of continuous weight traction, since the child being dead and the mother's condition not really urgent there was no necessity for rapid delivery.

45. Retraction Ring as a Cause of Dystocia.—The proper treatment in these cases, Shannon says, is cesarean section if the child is alive, and craniotomy if the child is dead. In his case immediately after the uterus was emptied the ring suddenly disappeared. The patient made an uninterrupted recovery.

Annales de l'Institut Pasteur, Paris

June, XXVI, No. 6, pp. 401-496

- 49 *Influence of Indol on Development of Arteriosclerosis. (Influence de l'indol sur les scléroses.) S. Dratschinski.
50 Technic for Serodiagnosis. (Technique rationnelle de la réaction de fixation.) M. Weinberg.
51 Biologic Properties of Albuminoid Substances Extracted from the Brain. (Propriétés biologiques des substances albuminoïdes extraites du cerveau.) A. Marie.
52 Catalytic Fertilizers. (Études sur les engrais catalytiques). E. Boullanger.
53 *Gall-Bladder Favorable Site for Inoculation. (De la vésicule biliaire envisagée comme lieu d'inoculation. Contribution à l'étude de l'immunité et à la physiologie générale.) H. Violle. Commenced in No. 5.

49. Influence of Intestinal Poisons on Development of Arteriosclerosis.—Dratschinski's communication issues from Metchnikoff's laboratory where so much work has been done in this line. The results of the later research confirm the previous announcements as to the toxic influence of indol. Guinea-pigs given moderate doses developed symptoms of acute intoxication of a neuromuscular nature. The symptoms may subside or run a progressive, fatal course. Long continued small doses by the mouth (0.04 gm. a day) induced in guinea-pigs an atheromatous degeneration of the aorta and chronic interstitial processes or the first phases of cirrhosis of the liver in monkeys and guinea-pigs; sclerosis of the adrenals in monkeys, and the primary stage of sclerosis of the aorta and brain in guinea-pigs. A natural specific sclerosis was sometimes found in the ascending aorta in guinea-pigs, mice and rats, evidently an age phenomenon. Several colored plates show the findings in the indol sclerosis.

53. Gall-Bladder as Site for Inoculation.—Violle concludes this long report of his extensive experiments with the statement that by arranging conditions in the rabbit so that the gall-bladder is made an empty, closed sac, it offers an unexcelled opportunity for the production of antibodies when inoculated with antigens. The technic is remarkably easy, he says, and there is no severe reaction of any kind. Immunization thus induced develops rapidly and seems to be quite durable. If the immunization does not seem ample, a supplementary intravenous injection of the same antigen effectually supplements the inoculation. The bacteria used as the antigen induce an active immunization while the serum of the animals thus treated acquires immunizing properties, bacterial and antitoxic, sufficient to induce passive immunization. The phenomena observed confirm the assumption that the antibodies are formed at the expense of the leukocytes, which, attracted to the gall-bladder by the antigen, readily make their way into it through its vascular connection with the liver, the latter organ serving as a reservoir of blood and hence of leukocytes.

Presse Médicale, Paris

July 6, XX, No. 55, pp. 577-584

- 54 *Chloroform and Its By-Effects. (L'Anesthésie chloroformique. Faits expérimentaux. Hypothèse sur la genèse des accidents post-chloroformiques.) M. Nicloux and G. Forquier.

54. Cause of Chloroform Accidents.—Nicloux and Fourquier report extensive experimental research which has demonstrated that chloroform has a special affinity for fat tissue and next in order for the nerve tissue, liver and kidney, spleen and

striated muscle. The chloroform passes into the milk and cerebrospinal fluid and into the fetus; the proportion of chloroform in the liver of the fetus is generally larger than in the mother's liver. The organs with the largest blood-supply take up the chloroform most rapidly and lose it again rapidly, while the fat tissue is very slow in becoming saturated with it, but once in it, the chloroform stays there. The chloroform is decomposed in the blood, and the chlorids and carbon monoxid thus released take up the normal alkali in the blood so that it loses its alkaline reaction, and this, they think, is the cause of the accidents under chloroform. Every gram of chloroform split up in the blood takes up alkali equivalent to 1 gm. of sodium, and more than this of potassium. As the total alkalinity of the blood does not surpass 15 gm. of sodium or potassium, half of this, more or less, is thus neutralized by the splitting up of the chloroform. Their research indicates that about 50 per cent. of the chloroform is broken up in the body. The practical conclusion of their work is that administration of an alkali will restore what has been neutralized by the chloroform. Their experiments with sodium bicarbonate, given for this purpose, have not been very encouraging, but they are convinced that further research in the line of remedying acidosis will suggest means to avoid or enre accidents under chloroform.

Revue Prat. d'Obstétrique et de Gynécologie, Paris

June, XX, No. 6, pp. 161-188

- 55 *Disturbances of Micturition of Obstetrical Origin. (Troubles de la miction d'origine obstétricale. Destruction et réfection de l'urètre chez la femme.) A. Guldjoglou.
56 *Abdomino-Pelvic Syndrome in Gynecology. R. de Langenhagen.
57 *Laminaria With Guard. (Laminaire avec butoir.) R. Bonneau.

55. Disturbances of Micturition of Obstetric Origin.—Guldjoglou gives a historical sketch of operations devised to repair obstetric injuries to the bladder and urethra, including Marion's new technic, which he has applied most successfully in two cases. The injuries of the urethra rarely heal spontaneously, and chronic incontinence is the rule afterward. Even when a plastic operation has been done on the urethra, the weakness of the new walls sometimes allows the incontinence to persist. To avoid this, Marion utilizes as far as possible what is left of the old urethra, piecing it out with a flap from the anterior wall of the vagina and covering it with flaps from the vulva. Then, to reenforce the new walls of the urethra, he makes a new canal for the urethra in the subpubic tissues, tunneling through them. The outcome was entirely satisfactory in the two cases mentioned. In another case there was sudden total retention of urine at the third month of pregnancy and it was found that the uterus in retroversion had mechanically obstructed the outlet of the bladder. The retroversion was corrected by manipulations and the vagina tamponed to hold it temporarily in place. The uterus soon adjusted itself to the changed conditions and there were no further disturbances in micturition. Mechanical disturbance of this kind seldom occurs after the third or fourth month. The urethra may be dragged out long by traction from the gravid uterus and it may be forced against the pubic symphysis, in which case there is liable to be edema and swelling, obstructing the lumen. Incontinence of urine at the beginning and toward the end of a pregnancy is frequent and is generally ascribed to the pressure on the bladder from the enlarged uterus but it may be the result of traction on the urethra, dragging and pulling on its walls until they lose their elasticity. An abdominal band to support the uterus might prevent this, but repose for a time is generally sufficient in the milder forms.

56. Abdomino-Pelvic Syndrome in Gynecology.—Langenhagen warns that the disturbances from loss of balance and inflammation in the genital organs and abdomen, "the abdomino-pelvic syndrome," in women with a constitutional neuroarthritic tendency, do not require surgical measures. The diathesis is characterized by a tendency to venous stasis, defective nutrition and defective circulation in the pelvis—thus the soil is prepared for congestions, spasmodic contractions and pathologic conditions in any or all of the pelvic organs, or viscera, the kidneys, liver, bladder, uterus or

adnexa. He ascribes the frequency of enterocolitis in women to the fact that they have uterus and adnexa. The contents of the lower abdomen and pelvis have lost their physiologic balance, and the result is a crowd of congestive and painful reflexes setting up spasms of various kinds. If the ligaments lose their elasticity, trouble is sure to follow, as the organ they support is stretched or displaced, especially as the small pelvis is so extra abundantly supplied with blood-vessels. Treatment should be by general, not local measures; rest, strict regulation of the diet and bowel functioning, massage of the pelvic organs and especially of the ligament found defective, working to restore its elasticity and the circulation in the region. Massage is most effectual by its reflex action, which is also the explanation of the benefit from Swedish movements in these cases. Even more important, perhaps, is the soothing effect of hot or tepid general baths and douches and flushing out the vagina in the course of the baths. The author practices at Luxeuil and has found the thermal mineral baths there peculiarly effectual in treating this class of patients.

57. **Laminaria With Guard.**—Bonneau was twice called in consultation in cases in which a laminaria introduced into the cervix had worked its way upward and into the uterus until its outer end rested against the posterior lip of the cervix and every contraction of the uterus forced this outer end deeper into the cervix tissue, rendering its spontaneous expulsion impossible. He was inclined to ascribe this mishap to defective technic until a similar mishap occurred in his own experience. Since then he has the laminaria made with a rubber disc that fits over the outer end; this prevents the laminaria from working up into the uterus while it also prevents it from slipping out, when the vagina is loosely packed with gauze.

Berliner klinische Wochenschrift

July 8, XLIX, No. 28, pp. 1309-1356

- 58 *Operative Treatment of Nephritis. (Die chirurgische Behandlung der verschiedenen Formen der Nephritis.) H. Kümmell.
- 59 Preliminary Entero-Anastomosis for Gangrenous Hernia. (Ueber die frühzeitige Anwendung der Enteroanastomose vor dem Bruchkanal zur Behandlung der gangränösen Hernien.) Y. Noguchi.
- 60 Palpation in Gynecology. (Neuerungen für das Studium der gynäkologischen Diagnostik.) L. Blumreich.
- 61 Production of Mucin and Albumin by Tubercle Bacilli. (Bildung von Eiweiss und Mucin durch Tuberkelbacillen.) F. Weleminsky.
- 62 Composite Radiography. (Polygramme mit erkennbarer Aufeinanderfolge der einzelnen Bewegungsphasen.) M. Levy-Dorn.
- 63 Chemical and Physical Factors in Coagulation of the Blood. (Ueber die Gerinnung des Blutes.) E. Fuld and E. Schlesinger.
- 64 Testing Resistance to Salvarsan of the Blood-Corpuscles. (Versuche mit dem Boehm'schen Schnelldestillator und die Salvarsanresistenz der Blutkörperchen.) H. Mühsam.
- 65 Improved Technic for Killian's "Floating Laryngoscopy." (Eine Modifikation der Schwebelaryngoskopie.) Albrecht.
- 66 Music as a Therapeutic Factor. (Shakespeare und sein Heilfaktor Musik.) H. Schelenz.

58. **Operative Treatment of Nephritis.**—Kümmell states that he has operated in twenty-six cases of bilateral chronic nephritis or Bright's disease. In five cases no benefit was apparent, but in fourteen marked improvement followed, the edema and albuminuria subsiding in large measure and the patients being able to return to business. Three must be considered cured both from the anatomic and clinical standpoints. One young man who had had nephritis for four years and was treated by double decapsulation seemed in perfect health when examined a year afterward, and the urine was free from pathologic elements. Another of the cured patients is a nurse in the hospital who was treated by double decapsulation after failure of prolonged internal treatment of her chronic nephritis. She passed through a severe streptococcus angina recently but the urine persisted normal throughout. The third cured patient has had no signs of nephritis since the double decapsulation done as a last resort after two years of ineffectual internal treatment of the nephritis which had reduced him to a deplorable condition. This was five years ago and he has had no trace of recurrence although he leads an active life in the tropics with much horseback riding. A boy of 12 still has traces of albumin

but seems cured otherwise. The improvement in these cases under decapsulation of the kidneys cannot be explained as a spontaneous subsidence, as no benefit had been realized before under years of persevering internal measures. The effect was often most striking, following close on the operation. Kümmel reiterates that acute nephritis with abscess formation indicates nephrotomy without delay, while the form of chronic nephritis distinguished by pain in the kidney, mostly on one side, is also favorably influenced by decapsulation, or still better by nephrotomy, and the patients for a long time are free from disturbances and have their earning capacity unimpaired. The same favorable effect is observed with hemorrhagic chronic nephritis. In medical nephritis—Bright's disease—operative treatment is not always successful, but the most threatening symptoms, the anuria and uremia, are frequently favorably influenced, and in a certain proportion of the cases the albumin and tube-casts disappear from the urine or become reduced in amount and the subjective improvement is marked over long periods and a complete cure is possible.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 20, XLII, No. 18, pp. 665-696

- 67 Anaphylaxis. (Die Ueberempfindlichkeit.) W. Silberschmidt.
- 68 Prognosis of Rupture of Tympanic Membrane. (Ueber Trommelfellrupturen und ihre Prognose.) J. Hegetschweiler.
- July 1, No. 19, pp. 697-728
- 69 *Heliotherapy of Surgical Tuberculosis. (Die Sonnen- und Freiluftbehandlung der chirurgischen Tuberkulose im Hochgebirge.) A. Hüsey.
- 70 Epidemic Suppurative Processes. (Ueber epidemieartig gehäuftes Auftreten von Eiterprozessen.) C. Widmer.

69. **Direct Sunlight in Treatment of Surgical Tuberculosis.**—Hüsey was house physician during 1911 at one of Rollier's sanatoriums at Leysin in Switzerland, where the results of heliotherapy and conservative measures have recently attracted the attention of the medical world. Hüsey since then has spent some time at Berek where Calot is doing similar work but without much reliance on sunlight treatment, as he has the benefit of sea air. Both are convinced of the imperative necessity for immobilization in bed for all patients with tuberculosis of the spine, hip joint, legs, abdomen, etc., and they keep it up long after all painfulness is past, until roentgenoscopy shows that the focus has entirely healed. This standpoint will be appreciated by those who note the extensive and irreparable destruction of bones and joints in patients treated elsewhere with walking appliances, permitting the patients to be up and about. Hüsey says that the time is now past when a physician can keep in bed for a few weeks a child with incipient hip-joint disease and then allow it to get up and go to school. Calot relies mainly on immobilization in plaster but Rollier prefers extension, wherever possible, as this avoids the atrophy of the muscles liable to occur with a plaster cast. Rollier's patients with spondylitis are fastened down on their backs to a hard mattress which can be opened for exposure of the focus to direct sunlight. Hüsey comments on the complete transformation of Calot's views; from being the most radical advocate of surgical measures, the results obtained have converted him to the direct opposite. He says now: "Recovery is certain for closed tuberculosis. To open a tuberculous process or to let it open itself, is to throw the door open through which death too often will enter. In tuberculosis the knife rarely cures, often aggravates and always mutilates." In his first year at Berek he did eighty hip-joint resections, but for years has done no resections or amputations. Hüsey comments further on Bardenheuer's recent conversion to similar views after a visit to Leysin. He declares that the state should provide places where surgical tuberculosis can be treated with fresh air and direct sunlight, preferably in the mountains; they are needed just as much as for treatment of pulmonary disease for which alone the state seems to concern itself at present. Rollier puts all arriving patients to bed for a few days, to ensure acclimatization (altitude about 4,000 feet). After two or three days the bed is wheeled out on the gallery and the sunlight exposures begun, the focus exposed three times for five minutes each the first day, ten minutes the second, until by the end of the week the patient is getting the sunlight exposures for an

hour and a half a day. At the same time the body is gradually exposed to the sunlight, at first the feet, then the legs, until the patients become accustomed to lie all day in the open air, the head protected, and take the sun baths for hours at a time. During the intervals the wounds are covered with an aseptic dressing and occasionally the ultraviolet rays and Bier's hyperemic treatment are applied. Thin, excitable and restless patients do not bear the direct sunlight as well as others. Each patient has a gallery to himself (except in the cheapest sanatorium), where he can lie naked exposed to the light during the day and night also if he wishes. Hüsey states that he scarcely ever saw any one catch cold. The children allowed to be up and long acclimatized, ran around in winter with snowshoes and bathing trunks for their only apparel.* (Another recent communication on heliotherapy was summarized in these columns June 1, p. 1729.)

Deutsche medizinische Wochenschrift, Berlin

July 18, XXXVIII, No. 29, pp. 1361-1400

- 71 Sympathetic Ophthalmia. (Diagnose und Therapie der sympathischen Augenentzündung.) A. Peters.
- 72 Metastatic Extradural Suppuration. (Metastatische extradurale Eiterung.) G. Sultan.
- 73 Immunity to Diphtheria. (Ueber Diphtherie-Druckschönung und Diphtherie-Immunität.) B. Hahn.
- 74 *Writer's Cramp. (Zur Kasuistik und Behandlung des Schreibkrampfes.) Nochte.
- 75 Oppenheim's Index to Express State of Nourishment. (Branchbarkeit der Oppenheimschen Indexzahlen zur objektiven Darstellung des Ernährungszustandes.) von Solern Jun.
- 76 Frequency of Stupor and Amnesia in Exanthematous Typhus. (Ueber Psychosen bei Flecktyphus.) N. Hirschberg.
- 77 Sources of Error in Serodiagnosis of Syphilis. (Erfahrungen und Experimente über die Fehlerquellen in der Serodiagnostik der Syphilis.) R. F. N.-Geyer.
- 78 Hyperemia, Massage, etc., in Treatment of Scars. (Narbenbehandlung.) F. Kirchberg.

74. **Writer's Cramp.**—Nochte describes a few cases of writer's cramp to emphasize the importance of psychic, emotional factors in the development and also in the treatment of this affection. Arthritic, neuritic or other local processes may also be involved; these and long use of the hand invite the psychogenic affection to locate here, but they alone cannot induce the development of true writer's cramp, he insists. Treatment must be by psychotherapy in large measure, associated with exercises in writing, first moving the arm loosely in the air as if writing. When the patient can do this, he is trained to make straight marks and then write the simplest letters, stopping at the slightest sign of fatigue. The psychic measures and these writing exercises promptly cured his three patients in a few weeks.

Monatsschrift für Kinderheilkunde, Berlin

July, XI, No. 2, pp. 49-92

- 79 *Cure of Summer Diarrhea by Correction of Infant's Food With Buttermilk. (Behebung von Durchfällen der Säuglinge durch Korrektur ihrer Nahrung mit Buttermilch.) K. Stolte.
- 80 Association Tests in Children. (Zur Bewertung des Assoziationsversuches im Kindesalter.) T. Goett.
- 81 Calcium Metabolism in Children. (Kalkstoffwechsel des gesunden und des rachitischen Kindes.) J. A. Schabad.
- 82 Influence of Reaction of Medium on Transformation of Calcium and Phosphoric Acid in the Infant's Large Intestine. (Eine Demonstration des Einflusses der Reaktion auf den Umsatz von Kalk und Phosphorsäure in Dickdarm des Säuglings.) K. Blühdorn.
- 83 Quantitative Elimination of Hexamethylenamin in Human Milk. (Ueber die quantitative Ausscheidung von Urotropin in der Frauenmilch.) K. Kieder.

79. **Buttermilk in Treatment of Diarrhea in Infants.**—Stolte reports in detail, with the weight curves, four cases of diarrhea in infants from three to five months old. They were losing weight from the diarrhea and he substituted buttermilk for two or more of the ordinary feedings during one day, with almost immediate improvement in the stools and ultimate gain in weight and general condition. Buttermilk is effectual, he says, on account of its low fat content and high lime content and the considerable proportion of albumin.

Münchener medizinische Wochenschrift

July 16, LIX, No. 29, pp. 1585-1640

- 84 *Can the Blood-Stream Be Reversed? (Zur Frage der Umkehrbarkeit des Blutstroms.) H. Coenen.
- 85 Muscular Architecture of the Stomach and Radiography. (Beziehung der auf den Röntgenbildern hervortretenden Formen des menschlichen Magens zur Muskelarchitektur der Magenwand.) G. Forsell.

- 86 Antiperistaltic Movements in the Large Intestine in Severe Constipation. (Zur Frage der Antiperistaltik im Dickdarm bei schwerer Obstipation.) H. Albrecht.
- 87 Estimation of Amount of Stomach Content by Siphoning and Radiologic Control. (Bestimmung der Mageninhaltmenge durch Ausheberung und ihre radiologische Kontrolle.) A. Weil.
- 88 Roentgenotherapy of Gynecologic Skin Diseases. (Behandlung gynäkologischer Hauterkrankungen, mittels Röntgenstrahlen.) E. Runge.
- 89 Bismuth Salve in Treatment of Fistulas; Ultimate Outcome. (Dauerresultate nach der Behandlung von Fisteln mit Beckcher Wismutsalbe und Ersatzversuche des Bismutum subnitricum.) M. Brandes.
- 90 Heat Generated in Slaking Lime Utilized in Formaldehyd Disinfection. (Verwendbarkeit der beim Kalklösen entstehenden Wärme für die Zwecke der Raumdeseinfektion mit Formaldehyd.) H. Hammerl.
- 91 *Prophylaxis of Coryza With Acetylsalicylic Acid. (Chirurgische Prophylaxe des akuten Schnupfens mit Salizyl.) P. Sick.
- 92 Characteristic Variations in Blood-Pressure in Tuberculosis and Other Diseases. (Studien über die Technik der klinischen Blutdruckbestimmung.) C. J. Enebuske.
- 93 Etiology of Scoliosis. K. Port.
- 94 By-Effects After Intramuscular Injection of Hormonal. (Unangenehme Begleiterscheinungen nach Intramuskulärer Hormonalinjektion.) G. Kleinberger.

84. **Reversability of the Blood-Stream.**—Coenen concludes from his experimental research and his clinical observation that there is no physiologic basis yet at hand for arteriovenous anastomosis as an effectual measure for gangrene of the leg.

91. **Prophylaxis of Coryza With Acetylsalicylic Acid.**—Sick has found that one or two doses of 1 gm. each of acetylsalicylic acid, taken at the first indication of an oncoming cold in the head, will arrest it. The drug is especially effectual when the first tickling in the throat is felt towards evening, and the drug is taken then and again in the morning. This permits him to go about his surgical tasks after breakfast without any further symptoms of coryza. If acute rhinitis has developed or the coryza relapses, two or three further doses always cured it completely. He does not think the drug acts on the bacteria but it seems to enhance the resisting powers of the tissues. He regards the salicylic preparations as physiologic drugs, as they do not injure the tissues while they reenforce them, just as we are learning to appreciate and utilize iodine more and more.

Therapie der Gegenwart, Berlin

July, LIII, No. 7, pp. 289-336

- 95 *Appendicitis and Colitis. E. Sonnenburg.
- 96 *Salvarsan Fever. (Ueber "Salvarsanfiebers.") A. Bingel.
- 97 Intermediate Position of the Colloid Metals Between Inorganic and Albuminous Substances. A. Wolff-Eisner.
- 98 Collapse Under Hormonal. (Vorsicht mit dem Hormonal!) R. Mühsam.
- 99 Reform in Advertising Medicinal Articles. (Die Arzneimitteliste des Deutschen Kongresses für innere Medizin.) G. Klemperer.

95. **Appendicitis and Colitis.**—Sonnenburg comments on the grave prognosis of diplococcus peritonitis in children. It is most frequent in girls, and almost invariably it is diagnosed as appendicitis and operative treatment is applied. This is a mistake, he declares, as diplococcus prognosis is seldom influenced for the better by a laparotomy. The noticeable increase from the start in mononuclear cells in the blood-picture, shows the seriousness of the affection. In peritonitis of appendicitic origin, he does not suture the laparotomy incision if there is over 50 per cent. increase in the neutrophile cells. He regards chronic appendicitis as more frequent than the acute form, although it often escapes detection. The resulting digestive disturbances and headaches are referred to the stomach, as this usually suffers sympathetically by reflex action. Constipation is the rule. Removal of the appendix puts an end to all these disturbances, and he urges prompt resort to it in such cases. Roentgenoscopy has demonstrated the pathogenic importance of adhesions and displacements left from old, possibly unsuspected inflammatory processes in the region, and has explained the persistence of trouble after the appendix alone has been removed. In acute, chronic and ulcerative colitis, the cause should be determined in each case so far as possible as a guide to treatment, whether it is due to appendicitis or some previous local condition. Only after failure of persevering internal treatment is an operation justified. The operation should aim to rest the colon by diverting its content, and to sterilize it by copious flushing and rinsing with some soothing and healing fluid.

96. **Fever Under Salvarsan.**—Bingel explains the fever and other by-effects of salvarsan as the result of the escape of toxins from the bodies of the spirochetes as they are killed by the salvarsan. The toxic action is greater the larger the number of spirochetes in the body. The by-effects are thus not the work of the salvarsan directly but only indirectly.

Wiener klinische Wochenschrift

July 4, XXV, No. 27, pp. 1036-1070

- 100 Medical Chemistry and Cancer Research. (Aufgaben der medizinischen Chemie in der Geschwulstforschung.) E. Freund.
101 *Chemistry of Cancer. (Zur Chemie des Karzinoms.) S. Fränkel.
102 Physiology of the Midbrain. (Zur Physiologie des Zwischenhirns.) B. Aschner.
103 *Peptolytic Ferment Index in Differentiation of Exudates. (Vorkommen von peptolytischen Fermenten in Exsudaten.) R. Lenk and L. Pollak.
104 *Vasomotor Hemiplegia in a Child. A. Soucek.
105 Clinical Study of the Pupil Phenomena. (Zur Klinik der Pupillenphänomene.) S. Goldflam. Commenced in No. 26.
106 Retrospection and Outlook. (Rückblicke und Ausblicke.) A. Barkan (Stanford University, Cal.).

101. **Cancer Research.**—Fränkel is chief of the laboratory at the L. Spiegler-Stiftung at Vienna, and in this address delivered at the recent meeting of the national cancer research society, he discussed the peculiar behavior of tryptophan in malignant disease and in pregnancy, and qualitative tests to determine the amount present in the fluids examined. None other of the amino-acids, he stated, is able to do the physiologic work of tryptophan, and only those albuminous bodies which contain tryptophan are able to supply the organism with the needed albumin. On the other hand, the albumin used in the structure of cancer contains no tryptophan, or only traces. He thinks that further research on tryptophan will clear up some of the mysteries of cancer. As cancer and embryonal cells seem to be peculiarly sensitive to the action of alkaloids, he has been experimenting with the action of compounds of arsenic and chinolin, the first time, he states, that heterocyclic compounds of arsenic have been produced.

103. **Improved Tryptophan Test for Cancer.**—Lenk and Pollak announce that they have succeeded in determining a peptolytic index in various body fluids which differentiates the various exudates and some of their causes. They determined the dilution of the solution at which there is no further trace of free tryptophan, and accept this as the peptolytic index. They examined the effusion in pleurisy, the ascitic fluid and cerebrospinal fluid, in 165 cases, and found that in normal conditions and with stasis exudates the fluids have only slight glyeyltryptophan-splitting power; it is more marked with inflammatory effusions, but it is strongest with cancer juice and with exudates of tuberculous origin. The peptolytic power of the cerebrospinal fluid obtained by lumbar puncture will thus reveal at a glance whether the symptoms are due to uremia, serous meningitis or tuberculous meningitis. In some cases they were able to ascertain by this means the coexistence of a tuberculous peritonitis with ascites from cirrhosis of the liver, in others to exclude it positively. [A number of articles on the tryptophan test have appeared in THE JOURNAL, Oct. 20, 1911, p. 1420, and April 27, 1912, p. 1319, and others.]

104. **Vasomotor Hemiplegia.**—In Soucek's case the boy of 10 had mild cerebral apoplexy develop while exercising in a gymnasium. The right hemiplegia was accompanied by severe pain in the opposite temple, but all the symptoms subsided without a trace after three days. Soucek states that the boy had an unusually unstable vasomotor system and the father and brother were subject to migraine. He is inclined to explain the trouble as merely a vasomotor phenomenon, the result of local ischemia of the brain, such as is responsible for intermittent limping and nervous angina pectoris. The boy's arteries were hard and stiff, a frequent finding in these "vasomotorers." Féré described a case of recurring transient vasomotor hemiplegia in a man of 43 who had suffered from migraine since he was 19.

Policlinico, Rome

July 7, XIX, No. 28, pp. 1001-1030

- 107 *Bicycle Tire for Extension of Fractured Leg. (Nuovo metodo di estensione della gamba.) P. Soria.
108 *Malaria in Relation to Operations and Trauma. (Studio dell'infezione malarica in rapporto agli interventi operativi ed ai traumi.) B. Prampolini.
109 Malarial Cerebellar Syndrome. P. Pozzilli.

107. **Technic for Extension After Fracture.**—Soria winds a bicycle tire around the leg and inflates it with the air-pump. This holds the fracture firm, even an oblique fracture, and permits traction from the start with two strips of cloth lengthwise of the leg under the inflated tire and extending below the foot to form a loop. The tire can easily be removed at any time and is readily replaced. If the pressure is too tight, a little air can be allowed to escape or the pressure can be increased by pumping in a little more air. The method has been applied with excellent results in the hospital at Tunis. The facility of procuring a bicycle tire and pump almost anywhere are special advantages.

108. **Malaria in Relation to Trauma and Operations.**—Prampolini practices in a malarial district and he calls attention to the way in which malaria is liable to flare up after an accident or operation, the onset of fever frequently proving misleading to the surgeon or physician. When the organism is weakened from any suddenly acting cause of the kind, it is possible for malaria to get its grip on the patient for the first time. He reports the details of nine cases to show the puzzling conditions that may result unless the possibility of malaria is borne in mind. The syndrome of malaria may be present even although the number of parasites in the blood is very small; it may be necessary to examine a number of slides before one is discovered. In one of his cases the enlarged spleen suggested malaria but the blood was sterile before the operation; afterward the parasites were comparatively numerous in the blood.

Riforma Medica, Naples

June 29, XXVIII, No. 26, pp. 701-728

- 110 *Modification of Peristalsis With Gastric Tumors. (Sul valore diagnostico dell'alternata peristalsi nei tumori dello stomaco.) F. Perussia.
111 *Chronic Enlargement of Spleen and Liver With Multiple Lymphadenitis. (Splenopatomegalia cronica febbrile—de virus ultramicroscopico?—con varieta poliadenitica.) U. Gabbi. Commenced in No. 25.

110. **Peristalsis of the Stomach With Local Tumors.**—Perussia analyzes the roentgenoscopic findings in six cases of gastric cancer emphasizing the modifications in the peristaltic movements. The modified peristalsis may be evident before any other signs permit differentiation of the lesion. The behavior of the peristalsis is characteristic for malignant or benign stenosis and for cancer or ulcer. In one case the only sign that suggested cancer rather than ulcer was the fact that the peristaltic wave, starting in the middle portion of the stomach, seemed to be arrested for a moment as it neared the pylorus region, and then continued, but very sluggishly. In two cases the peristaltic wave ran along the greater curvature but died out as it approached the pylorus. In another, the wave seemed to turn back on itself as it reached the pylorus region, without any absolute contraction of the pylorus. In the sixth case the peristalsis was very torpid throughout the greater curvature and died out before it reached the antrum of the pylorus. Cancer was found at the operation in all these cases except the last in which the trouble was advanced primary ulcerative tuberculosis of the stomach, its effect on peristalsis being much like that of malignant disease.

111. **Chronic Febrile Enlargement of the Spleen and Liver With Multiple Lymphadenitis.**—Gabbi gives the details of four cases in which this clinical picture was presented. The features of the cases excluded malaria and pernicious anemia, but the course seems to be invariably slowly progressive. No benefit was observed from the different measures tried. The patients were adults, and the constantly negative bacteriologic and protozoologic findings and the multiple lymphadenitis in the absence of tuberculosis and syphilis, give the affection its special imprint. It is possible, Gabbi remarks in conclusion, that certain other cases of febrile splenomegaly on record may belong in this category.

Ugeskrift for Læger, Copenhagen

July 11, LXXIV, No. 28, pp. 1017-1046

- 112 Advantages of Albumin Milk for Sick Infants. (Om Aeggevidemælk.) V. Poulsen.

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PROGNOSIS IN CHRONIC HEART DISEASE AS ADVERSELY AFFECTED BY CER- TAIN MEDICAL TRADITIONS*

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Despite the astonishing achievements of the last thirty years in the study and solution of cardiovascular problems, we are still acting for the most part on obsolete principles of therapeutic initiative.

It is doubtless impossible to maintain the ideal balance and relationship between research on the one hand, and diagnosis, prophylaxis, therapy and prognosis on the other. Unscientific pseudodiscoveries are promptly inflated, widely heralded and too often hastily adopted, whereas important isolated truths may lack general acceptance because of their publication in journals inaccessible to the great body of our profession and the less fervid propaganda of the scientific investigator who is often too deeply immersed in the individual problem to devote either time or attention to its possible points of contact and articulation. Frequent, periodic, systematic and authoritative reporting of the discoveries of modern medicine with well-considered suggestions as to their application to diagnosis, therapy and the prevention of disease, in a more complete and exhaustive way than is done by any existing year-book, would be invaluable to both general practitioner and specialist and enormously broaden and stimulate coordinate and productive research in the clinical field. Difficult above all is the task of establishing new rules of action when these traverse and run counter to a theory and practice so fixed by long usage as to have become traditional.

PROGRESS IN KNOWLEDGE OF THE HEART

We have now learned that heart-muscle is paramount in clinical cardiovascular problems even though valvular lesions, arteriosclerosis or pericardial inflammation be the more obvious and obtrusive elements in the given case.

A flood of light was thrown on the problems of the circulation when Gaskell formulated his myogenic theory, and his shrewd and experimentally buttressed assumption of an impulse-conducting bridge in the human heart has now become an accepted anatomic and physiologic fact through the discoveries of Kent and His the younger, amplified and reinforced by the work of Tawara, Keith, Flaek, Aschoff and others, which has demonstrated the nodes of initial contraction and regu-

lation in the wall of the right auricle at the confluence of three great venous rivers.

The modern conception of heart-muscle function rests on Gaskell's demonstration of the heart's potential autonomy as proved by the capacity of the individual fiber for stimulus production, reception, conduction, contraction and tonus, and this concept has so advanced our solution of vital circulatory problems as to render negligible the minor points yet at issue between the respective adherents of the neurogenic and myogenic doctrines. To these discoveries have been added the experiments of Merunowicz, Ringer, Loeb and Howell showing that the maintenance of cardiac rhythm depends on the presence and interaction of balanced solutions of certain metallic salts or their ions in the circulating blood.

The marvelously specialized muscle fibers of the heart are naked, freely anastomosing, so disposed and inserted as to make each fiber a constituent of both ventricular chambers and so attached as to afford the maximum of required contraction with the least expenditure of energy. Kiehl, Ludwig and MacCallum have demonstrated the presence of a separate band surrounding and strongly supporting both mitral and aortic orifices.

H. P. Bowditch's law of "maximal contraction" and that of Marey relating to "the refractory period" have been sustained and amplified and play an important part in modern studies relating to rhythmia and cardiac reserve.

Engleman has formulated the influence affecting each of the functions of the cardiac muscle fibers. A host of observers have extended our knowledge of the nervous mechanism of the circulation, Hering has given us a new classification of the arrhythmias, and Thomas Lewis has beautifully stated the scope and limitations of instrumental methods in clinical work.

Mackenzie has done yeoman service for the patient and practitioner by insisting on the closer observation and more rational interpretation of symptoms in heart-disease, has demonstrated unexpected values in the polygraphic record and with Cushman and Lewis has established the nature, importance and diagnostic signs of auricular fibrillation.

Contributions relating to residual blood and intramural pressures have proved of great value, and a new chapter in medicine has resulted from the introduction and ever-widening clinical employment of the sphygmomanometer, reinforced by the ingenious and promising auscultatory method of Korotkow and the introduction of accurate graphic records. The invaluable information thus obtained may now be supplemented by the apparatus of Eyster and Hooker for registering venous pressure, the determination of blood-viscosity by the apparatus of Dietermann, or of the total blood-volume by the method of Haldane.

* Oration on Medicine before the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

The x-ray has greatly extended its field and shown unexpected value in both experimental and clinical work. Through it we obtain heart-outlines, recognize the enlargements of individual chambers, detect aneurysm, and may even take kinematographie records or photograph the heart in single phases of its cycle.

Einthoven's string galvanometer (the electrocardiograph) records the rhythmic flow of the electric action currents of the heart through the deflections of an almost microscopic filament suspended between the poles of a magnet, and connected with the body of the patient. This thread is magnified and its movements photographed on a moving film, thus yielding a record of the stimuli preceding the contraction of the heart-chambers. Its possibilities are great, though as yet not fully developed, and it has already taken its place among the diagnostic instruments of precision of the hospital clinic and the laboratory.

Among the modern miracles of refined method is the registration of heart-action by Meara and Crehore's method of light interference rings and the success of Joachim and Weiss and of Ohm in photographing both heart-sounds and murmurs.

Esophago-atriography is the name given to the making of graphic records (esophago-atriograms) of the left auricular contraction by means of Rautenbach's, or Monkowski's esophageal bulb. Janowski not only secures simultaneously records from both right and left auricles by means of the venous pulse and the esophageal bulb, but by using a modification of the turgosphygmograph of Strauss, can add a record of the heart-sounds.

I cannot now do more than thus suggest by these few references the astonishing activity of the investigator in this department of medicine, nor even touch on the wealth of clinical and pathologic contributions of great direct and indirect value.

PERSISTENCE OF OLD IDEAS

Despite this progress we for the most part hold to our traditions in relation to prophylaxis and treatment, and hence fail to secure that longer lifetime for the victim of chronic heart-disease to which he is clearly entitled.

It would seem that this fact depends chiefly on:

1. Our traditional fear of so-called "meddlesome interference," combined with either a dangerous and statistically unwarranted optimism on the one hand or a no less extreme and equally dangerous pessimism on the other, with relation to the after-lifetime of these patients.

2. A traditional disregard of subjective symptoms and a consequent failure to classify, group and articulate with physical signs those subjective expressions of minor cardiovascular insufficiency of the utmost importance in diagnosis and treatment.

3. A widely prevalent misconception of the nature of so-called compensation and its adequacy as a protective agency.

4. Our consequent failure to come to the relief of the heart at the time when therapeutic interference is most valuable to the patient in relation to his after-lifetime.

5. An unreadiness to recognize and apply such means of prevention as have been placed in our hands.

6. A general tendency to neglect chronic ailments and chronic heart-disease in particular.

OUTLINE FOR A REVISION OF IDEAS

I believe that we should act on diametrically opposite principles, namely, that:

1. While deprecating the treatment of hearts merely because arrhythmia or murmurs are present, we should

nevertheless realize that we cannot harm any patient by administering a few doses of digitalis or any other appropriate drug, by temporary physical rest or by regulated exercise.

2. The therapeutic test is not only useful in our analysis of the cardiac arrhythmias but is often an indispensable aid to the early diagnosis of those lesser cardiac insufficiencies which attest a struggling heart and should be dealt with wherever and whenever encountered.

3. With a broader conception and better knowledge of the subjective symptoms of cardiac insufficiency we are not only justified in timely therapeutic interference, but constrained to exercise that closer supervision and control necessary to conserve and prolong the life of the patient.

4. We should recognize the fact that so-called perfect compensation never exists, save in the mechanical sense of an adjustment of circulatory equilibrium; that dilatation is the primary change in valvular lesions; that hypertrophy is slowly produced, never concentric but always associated with varying degrees of dilatation to which must too often be added a progressive degeneration of the heart-muscle and a defective coronary circulation.

5. So-called compensatory cardiac changes are adaptive rather than truly compensatory, and physician and patient alike are chiefly concerned with the margin of heart-muscle response.

6. The incidence of heart-disease may be largely reduced by the practical application of modern views relating to the etiology, diagnosis and treatment of those infections chiefly responsible for endocarditis, myocarditis and the vascular degenerations.

7. Of the entire domain of medicine chronic disease offers the most grateful field for the exercise of the specialist and research worker.

8. Chronic sufferers endure a sum-total of deprivation and suffering infinitely greater than that entailed by acute conditions, whether medical or surgical; and finally chronic heart-disease even though it be incurable is wonderfully responsive to timely and well-directed effort.

9. The average after-lifetime of the patient having heart-disease may be long or short according to the nature of his lesion and the interaction of so many personal factors as to render each case a matter of individualization. Individual examples of long life justify encouragement of the patient but must not deceive the physician as to the average life expectation of cardiac cases as determined by the recorded and tabulated experience of life-insurance companies.

CARDIAC INSUFFICIENCY

Five years ago I observed that an apparent splitting of the second heart-tone, as heard over the third left intercostal space near the sternum, seemed to represent the earliest recognizable sign of aortic insufficiency occurring in men above 40, and that it was usually, though not invariably associated with a history of acute heart-strain, which initiated a series of most interesting and misleading subjective symptoms. As is usually the case after an initial observation, such instances have multiplied and I now have a considerable number under observation and have been able to follow closely certain of the curiously instructive phases of the early lesion. The split second sound is usually inaudible at any point removed from the immediate vicinity of the third left sternochondral junction or third left inter-space near the sternum. It has in nearly every case alter-

nated later with a distinct but atypically short diastolic murmur, which has tended to become established as a persistent murmur or, as has happened in three instances, entirely disappear.

A capillary pulse has invariably been present, usually varying directly in intensity with the auscultatory phenomena, together with a radial pulse of the modified Corrigan type showing the decided but peculiar differences between systolic and diastolic readings characteristic of aortic incompetence in middle-aged individuals.

The heart-outline in these walking patients as developed by percussion and checked by the x-ray examination has invariably been distinctly large and of the aortic type, but any decided clinical signs of hypertrophy have been lacking over long periods. On the contrary, recession of the border under cardiac stimulation and physical rest has been prompt, definite and decided; and in three cases of a similar type in younger individuals abnormal sounds have entirely disappeared under such measures and the heart has nearly or quite resumed a normal outline. In an elderly patient with interstitial nephritis and high arterial tension, who has carried for at least ten years a relative mitral insufficiency, an aortic lesion of this type has been evident at times for the past two years, varying from the definite murmur of a relative aortic insufficiency to a split second tone or a mere impurity. Coincident dilatation and excessive blood-pressure seem to initiate his more decided manifestations.

Equally interesting and more important from my point of view are the subjective symptoms observed in these cases. Although almost without exception men of good or even athletic build, several presented the mental and nervous symptoms of so-called "neurasthenia" and had previously been treated accordingly. Nearly all complained of nervous irritability, disturbed sleep, precordial and epigastric oppression or actual pain, various gastric disturbances and lassitude or easily induced fatigue. The prompt amelioration or complete removal of symptoms following treatment directed wholly to the heart has been illuminating.

This particular group of cases has yielded clinical evidence of two cardinal and fundamental facts, namely:

1. Even in what is probably the slightest recognizable degree of aortic insufficiency dilatation occurs to a sufficient extent to produce subjective symptoms and a definite and characteristic increase in the cardiac area without a clinically recognizable hypertrophy.

2. With only a split second tone of extremely limited audibility and no definite murmur, an adherence to the traditional disregard of subjective symptoms would prevent a correct diagnosis in the absence of marked dilatation. Certain of these symptoms were unquestionably those of cardiac weakness.

I may say that no examples of the normal heart of excessive size have ever come under my observation at post-mortem, nor can I believe that the weight-differences established by the pathologist for normal hearts can result in an outline which exceeds the maximum percussion boundaries recently established orthodiagraphically by Dietlen. On the other hand, I find that many dilated hearts are regarded as normal in size because of a disregard of the law of proportionate weights, of the peculiarities of body structure and of the conformation of the individual.

I have been deeply interested in the study of another group of patients showing predominant subjective manifestations together with clearly defined evidences of either cardiac dilatation or ready dilatability. The con-

dition seems to correspond to what Mackenzie calls the X disease. His extended and clever description is precisely that of a common type of so-called "passive neurasthenia," but the physical and mental characteristics are in all respects such as to permit one to replace the sign of the unknown quantity by the term "chronic congenital asthenia," that composite ailment of which Berthold Stiller, of Budapest, has drawn so clear and vivid a picture. In the absence of dilatation these patients have usually a misleadingly small and narrow, low-lying heart (the *tropfenform Herz*), and there is usually an associated arterial hypoplasia and marked vasomotor instability.

The heart-muscle and vessels are alike singularly deficient in tonus, and the readiness and frequency with which minor dilatation occurs, with or without murmurs of a peculiarly transitory and evanescent character, is a most striking clinical phenomenon to which Stiller apparently has paid no attention. These murmurs are systolic and may be mitral, tricuspid or pulmonary in type, and the latter two are usually ascribed to anemia, though in such cases they may and often do occur in its absence or tend to persist or recur after any existing initial anemia is relieved.

These cases present diverse subjective symptoms many of which are directly dependent on the cardiac weakness and more or less continuous overstrain, as may be readily proved by properly directed treatment. In addition they show a wealth of subjective symptoms resulting from their structural deficiencies, their chronic tendency to subnutrition and the congenital muscular weakness and relaxation, which as manifested by uterine displacements, loose kidneys, gastropnoia, kinks and the like, have afforded a large, though usually a thankless field for surgical enterprise.

In this connection I venture to express the hope that "neurasthenia" as a descriptive name for a supposedly concrete ailment will soon drop out of medical literature, or be confined to the extremely few cases left without a more definite assignment under modern diagnostic methods. It served a useful purpose as did the term "heart-failure" in the days of less accurate diagnosis, but of all names in the medical dictionary it seems to me to be at this time the most obscuring and misleading and least truly descriptive. If we deduct the cases of demonstrable visceral lesions, of incipient insanity, chronic congenital asthenia, hyperthyroidism and larval syphilis from the "neurasthenic group," the remainder will closely approximate zero.

Fortunately the "rest cure" so widely and effectively employed exactly suits the needs of the asthenic from the standpoint both of nutrition and of cardiac muscle tone, as indeed it applies to a vast number of other chronic diseases.

Such cases as are included in the two groups just described, namely, those of early aortic incompetence and those of chronic congenital asthenia with weakened hearts, seem to me to throw a flood of light on the subjective manifestations of cardiac insufficiency of the minor grades.

It is a fundamental and damaging error to assume that one must await the onset of pulmonary or renal congestion, hepatic engorgement, marked dyspnea, ascending edema and flagrant and obtrusive dilatation before feeling justified in active therapeutic interference in heart-disease. Yet these are the signs of "incompensation" as given by every text-book. These major symptoms represent the expression of extreme cardiac weakness and, fortunately for the patient, often serve at

once as danger signals and emergency brakes; but they ought not to determine therapeutic initiative.

The history of any chronic lesion is rather one of adaptation than of true compensation. The nature, site and severity of the lesion varies widely in different affections, but each and all diminish the radius of cardiac response, i. e., they diminish cardiac reserve.

Crippling valvular lesions, progressive myocardial degenerations, sclerosis of the coronary arteries or of the entire vascular system, high arterial tension and the like, embarrass and hamper the intricate and delicate mechanism of the entire circulation and tend constantly or intermittently to force the heart to a degree both damaging and dangerous.

If one assumes as an example the production of aortic leakage, one finds primarily a dilatation of the left ventricle, limited and constantly resisted by muscle tonus and contractility, and usually by an increased frequency calculated to lessen the load per heart-beat. Hypertrophy follows and after a variable period, in young hearts at least, the increase of muscle and the dilatation limiting tonus establish a circulatory equilibrium with diminished field of cardiac response and constantly progressing damage in the vascular field, and we say that "the lesion is compensated." So wonderful is this adaptive change that for years a man may pursue a laborious occupation without serious breaks in this circulatory equilibrium, but he may and often does break down suddenly under some unusual physical strain no greater, less perhaps, than that of his daily labor, to the peculiar strains and vicissitudes of which cardiac and skeletal muscles alike have become trained and habituated. His cardiac muscle strength is temporarily increased but his reserve is impaired. Year by year the margin of relative safety for such patients diminishes under the effects of abnormal pressure, the toxins of fatigue, disturbed metabolism, the constantly impaired and ever-diminishing coronary blood-supply, and the almost invariable progressive cardiovascular degeneration.

Certain decompensatory factors are common to all valvular and myocardial lesions and the chief of these are muscle-strain, diminishing tonus with increase of dilatation and dilatability, progressive fatigue and again the constant contraction of the field of cardiac response. It is incredible that we should receive no suggestive signals other than the obtrusive symptoms of the later stages of decompensation. Any muscle in the body may give rise to manifestations varying from mere subjective discomfort to agonizing pain when forced to continuous maximal labor under conditions of excessive strain and fatigue. We have the reports of forced marches, the records of various long-distance contests, as well as the histories of acute heart-strain in patients to attest this fact. Our clinical interest must then be chiefly directed to the lesser painful or distressing manifestations of cardiac fatigue and overstrain and the regions to which these may be referred.

Many other factors diminish the tonus and contractile power and in varying degree the other functions of the heart-muscle until accustomed use, and later mere living, involves serious overstrain. Long before this crisis is reached, from time to time the struggling heart cries out for relief. This cry varies somewhat in different lesions but may take the form of pain or find expression in mere discomfort, pressure, constriction, subjective dyspnea, a persistently quickened pulse, anorexia, disturbed sleep, bad dreams, an overwrought mental and nervous condition, lassitude, weakness or even syncopal attacks.

Alexander Lambert has recently directed attention to the work of Henry Head, Sherrington, Mackenzie and others which shows that despite the insensitiveness of the heart itself painful sensations having their source in cardiac embarrassment may be referred to the chest-wall, axilla, neck, shoulders, inner aspect of arm, epigastrium and even the right and left hypochondrium. The auricles refer their pain to the lower axilla and shoulders; the ventricles to the chest-wall, epigastrium, inner aspect of the upper arm, ulnar surface of the forearm and the wrist. Pain from the ascending aorta may be referred to the entire neck, including the occiput. Mackenzie reports a case of major angina in which the gums were painful.

With such a wide area of distribution for cardiac pain, and granting the logical assumption that various sensations of discomfort may substitute pain in cardiac overstrain and fatigue as in like conditions affecting any other muscle, we see the importance of many axillary, neck, shoulder, thoracic and upper abdominal referred pains or uncomfortable sensations such as are generally given the more obvious interpretation suggested by their surface relation to underlying tissues. Many a patient with chronic myocarditis or coronary sclerosis and a struggling heart has been confidently but vainly explored for gall-stones or gastric ulcer under a not unnatural misinterpretation of referred cardiac pain.

We must certainly revise our ideas also in relation to many of the less painful seizures and the minor discomforts occurring in the upper abdominal zone. In the case of the elderly patient especially we should reverse the traditional rule, and instead of considering first the stomach when he complains of his heart, look rather to his heart when he complains of his stomach.

The subjective symptoms of heart-disease are many and varied and few are peculiar to cardiac disease, but the fundamental factors in their interpretation are: 1. The relation of their onset to concurrent or precedent physical exertion. 2. Their association with the lesser grades of dilatation. 3. Especially in the case of the middle-aged patients and to a less degree in younger persons, their relation to excitement or emotional strain. 4. Their response and that of the cardiac outline, when this is increased, to cardiac stimulation with or without physical rest or regulated exercise.

Variations in rhythm are often of great importance especially in persons above 30 years of age, but afford too large a field for present discussion. Auricular fibrillation, extrasystolic manifestations and various grades of heart-block are of chief importance. Vagus influences are readily tested by the appropriate use of atropin on the one hand or of digitalis on the other. A persistently rapid or abnormally slow pulse, and the pulse which varies abnormally on a change of posture are helpful elements in diagnosis. Subjective dyspnea, diurnal or nocturnal even in the milder types, is a striking symptom of great value frequently ascribed to hysteria and persistently increased respiratory frequency is frequently overlooked in the absence of any complaint of dyspnea. Indeed, slight and transient edema is by no means so strikingly objective as to shield the careless observer from serious error especially if, as in several ambulatory cases observed by me, it is present only over the calves of the legs.

A sense of lassitude, easily induced fatigue, unexplainable drowsiness, lack of concentration and sustained application, mental confusion, heaviness of the legs and the wading sensation, together with disturbed sleep and subjective gastric disturbances of the most varied kinds,

are extremely common symptoms. In cases of insufficiency associated with high arterial tension, numbness and prickling of the lower extremities frequently occur, often being manifested only under the coincident increase of cardiac dilatation and increased arterial pressure, subsiding as these are relieved.

Harlow Brooks has shown both the rarity of classical angina pectoris, and the remarkable frequency of embarrassing or crippling grades of coronary sclerosis.

I have been struck by the frequency with which relatively mild precordial and epigastric anxiety, constriction, subjective dyspnea and the like, have been associated with a fear and a sense of impending dissolution quite beyond that referable to simple nervousness, and believe that in the light of recent reports this element should always indicate a careful investigation of the heart and blood-vessels as pointing to a minor but genuine angina. Again and again an attack of "hysteria" proves to be a beautifully accurate miniature of angina pectoris, and "pseudo-angina" is one of the most misleading and misused terms in medicine.

Hair-splitting differential diagnosis of the various forms of myocardial degeneration and a tendency to greatly overuse the term "chronic myocarditis" are giving way to a more rational tendency to use the former term, not to attempt the impossible, and with a proper realization of the value and importance of the specific lesion, to concentrate on the question of functional efficiency.

We have long sought, but never found, a direct and simple test of cardiac sufficiency. Even modern instruments of precision fail to supply this need to a degree at all commensurate with the time and training necessary to their intelligent use. The muscle-antagonism test of Herz, Gräupner's test or that of Katzenstein are alike uncertain and unreliable, but fortunately we may in most lesions detect cardiac weakness by the response of the subjective symptoms and the percussion area of the suspect to adequate doses of a cardiac stimulant with or without absolute rest.

As may readily be shown by *x-ray* control, serious error in skilfully applied percussion, though occasionally unavoidable, is far less frequent than is generally believed if one adheres to like conditions on the different occasions, outlines both borders, and substitutes a modern percussion method for the heavy flat-finger technic of former days.

In dilated hearts the shrinkage of outline is usually so marked and the lesser outline so well maintained under and following the therapeutic test as to be most illuminating, but as before stated many dilatations are overlooked by reason of the large variation accepted as within normal limits and too often applied without reference to the physical build of the individual.

One need hardly refer to the gross errors which occur when a variable landmark like the nipple replaces the measuring tape. Another aid is afforded by variations in the total daily urinary output, though this is too often misleading and requires careful control.

In respect to auscultation, one may venture to suggest the need of more careful attention to weak and impure sounds and abnormalities of accent, and a less exclusive concentration on actual murmurs.

PROPHYLAXIS

With relation to prophylaxis, much of the recent clinical and pathologic work is of extremely great value. Lesions of the aorta, aortic valves and the myocardium are far more commonly associated with syphilitic infec-

tion than we have formerly believed, which no doubt in large measure accounts for the relative rarity of aortic valvular lesions in childhood. It is evident also that the process is one of relatively early development as relating to the stage of the disease itself. Harlow Brooks, who has recently made an interesting report on cardiac syphilis, also emphasizes the extraordinary frequency with which a history of luetic infection is denied, as is proved by both autopsy findings and the results of the tests of Wassermann and Noguchi, now extended and simplified by the luetin test of the latter investigator. These facts emphasize the diagnostic and protective value of these tests, and the importance of prompt and intensive treatment.

Neither time nor space permits a general consideration of the prevention of arteriosclerosis, or of myocarditis in general, but I may say a word in relation to acute rheumatism and certain other infections producing endocarditis and myocarditis.

The onset and course of acute rheumatism have always suggested an acute infection of a modified septic type, and the relatively recent work of Poynton and Payne, Beattie, Ainley Walker, Beatson, Longcope and many other observers, has shown that a diplostreptococcus may be quite constantly recovered from the subsynovial areolar tissue of the inflamed joints of rheumatic patients, grown in pure culture and passed through a series of susceptible young animals in which it consistently produces an acute arthritis. It is recovered somewhat rarely from the blood, and with difficulty from the joint exudate, in both of which fluids it seems promptly to be destroyed, and in spite of its tendency to diplococcus arrangement in culture mediums represents probably a specific streptococcus strain not yet clearly differentiated. During the same period many reports have appeared relating to the portals of infection in rheumatism, among which the contributions of D. J. Davis of Chicago are notable.

The intimate relationship between rheumatism and streptococcus infections of the tonsil, accessory sinuses and pharynx, seems to be definitely established not alone by the extraordinary frequency with which pure or nearly pure cultures of various strains of pathogenic streptococci occur in the depths of the tonsils of rheumatic patients, but also by the astonishing immunity to, or relief from, the disease, following the complete, painstaking removal of all tonsillar tissue, or the cure of other foci of infection.

Guerich advocates the removal of tonsils at any stage of an active rheumatism, and though we may consider this a too radical rule of action, we must admit that their extirpation whenever found diseased is indicated in all persons who show a rheumatic tendency, or who have passed through an attack of the disease. Indeed, bearing in mind the early or primary involvement of these structures in diphtheria, influenza, scarlatina and other acute infections in which endocarditis and myocarditis frequently occur, it would seem that we are justified in placing tonsils in the same category with adenoids and suppurating accessory sinuses in relation to operative procedure. They are natural incubators and food depots for invading organisms and may appear perfectly normal on inspection even while they are breeding generation after generation of pathogenic organisms, or as is stated by Guerich and others, containing actual pus in considerable quantity.

With the careful investigations of tonsillar flora now in process by Rosenow and D. J. Davis of Chicago, the work that is being done by Schottmüller and others on

endocarditis lenta and the *Streptococcus viridans*, and by Poynton and Payne on the flora of the periarticular tissue in rheumatism, we may hope to obtain more specific information of yet greater value in relation to the various strains of streptococci attacking the heart; but even now we are fully justified in believing that early attention to the tonsillar field alone will serve to diminish greatly the incidence of heart-disease in both children and adults.

Yet another practical point of value is to be found in the consideration of our treatment of acute rheumatism, diphtheria, scarlatina, influenza and indeed any affection associated with marked physical prostration. In such cases I believe that the excessive weakness is ordinarily not one primarily or chiefly arising from or affecting the skeletal musculature, though this must of necessity be a factor, but rather in large degree the weakness of a poisoned myocardium. In the presence of prostrating acute infections the cardiac muscle invariably shows the greater or less effect of circulating toxins at autopsy even though endocarditis or actual myocarditis be absent.

The heart's intrinsic circulatory capacity is ten times that of the skeletal muscles. It is an extraordinarily delicate and highly specialized tissue, and it must maintain constant activity under direct and disproportionate exposure to the toxins of disease. Furthermore, auricular fibrillation, the lesser degrees of heart-block and extrasystolic irregularities occur with suggestive frequency in acute infection. The skeletal muscles, on the other hand, are at rest, they receive a far less abundant blood-supply and in most instances of brief prostrating infections fail to show under dynamometric tests anything at all in accord with the subjective manifestations of exhaustion. In many of these cases, carefully conducted percussion will reveal an abnormally increased cardiac outline, especially in such persons as structurally fall under the head of chronic congenital asthenia. Furthermore, one will often find even in the absence of profound anemia or actual endocarditis, not only transitory murmurs, but also weakness, undue sharpness, and muffling or abnormal accentuation of the cardiac tones of variable persistence and duration.

Many a case of persisting weakness and ultimate chronic degeneration of the myocardium dates its inception from the onset of such an attack and too prompt resumption of customary activities, and the need of prolonged cardiac rest after all prostrating acute infections is a matter of vital importance in prophylaxis too little regarded.

CONCLUSIONS

In closing, I desire to emphasize again the contentions on which this address is based:

1. An early diagnosis of cardiac insufficiency is absolutely essential to the patient's welfare.
2. Such early diagnosis necessitates a change in the general attitude of medical men with relation to the valuation of subjective symptoms and the determination of the symptomatic relationships of lesser cardiac dilations.
3. A large group of chronically diseased individuals, usually classed as neurasthenics, while usually free from serious organic heart disease, are peculiarly lacking in heart-muscle tonus and possess extremely dilatable, symptom-producing hearts as a part of their fundamental and usually congenital defects in general bodily structure and function.
4. So little basis now remains for the retention of the term "neurasthenia" as descriptive of a concrete dis-

case, and such serious errors of omission result from its continued prominence in the field of chronic ailments, that it should be dropped from the literature of medicine, or be given its true valuation under a proper terminology.

5. The term "perfect compensation" in heart-disease is a misnomer, and the pathologic events in such cases make it evident that there is a constant, more or less gradual but progressive limitation of the field of cardiac response, and periods must inevitably occur from time to time, long before the onset of emergent or gross symptoms, when appropriate therapeutic measures will support and aid the embarrassed and laboring heart, relieve suffering and prolong life.

6. To make the symptoms of extreme cardiac exhaustion one's only justification for active therapy is both illogical and dangerous.

7. The recent studies of the causative agents and portals of infection in acute rheumatism, a better knowledge of the nature and means of detection of syphilitic infection and the introduction of new agencies and better methods for the intensive treatment of lues make both the avoidance and permanent cure of these conditions easier, and indicate the possibility of greatly limiting the large group of myocardial and aortic lesions of which they are the causative factors.

8. Chronic disease in general, and cardiac disease in particular, are granted far less critical attention and direct control than is properly due them.

9. Chronic heart-disease, though incurable, is wonderfully responsive to intelligent and properly timed treatment, and always benefited by such proper supervision and control as is indicated in the individual case and obtainable only through early diagnosis, tactful disclosure and a well-balanced optimism.

THE TREATMENT OF DIPHTHERIA-CARRIERS BY OVERRIDING WITH STAPHYLO- COCCUS AUREUS *

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The practice of "overriding" the throats of chronic diphtheria-carriers with suspensions of *Staphylococcus aureus* was introduced by Schiotz¹ in 1909. He was led to the use of *Staphylococcus aureus* by the observation that a patient with a sore throat due to the staphylococcus did not contract diphtheria when exposed, and also that several convalescents failed to show positive diphtheria after an attack of staphylococcus sore throat. He treated six cases with prompt disappearance of diphtheria bacilli in all of them.

Page,² in 1911, reported the successful use of staphylococcus in one case in which the bacilli had persisted in the throat for three months after clinical recovery.

In 1911, Catlin, Scott, and Day,³ of Rockford, Ill., reported the successful use of staphylococcus in eight cases on the advice of Dr. Harris of Chicago.

* Read at the Annual Meeting of the Medical Society of Wisconsin, Wausau, May 21-24, 1912.

1. Schiotz: Ugeskr. f. Læger, 1909, lxxi, No. 49; abstr. in THE JOURNAL A. M. A., Jan. 29, 1910, p. 422.

2. Page, H.: Arch. Int. Med., Jan. 15, 1911.

3. Catlin, S. R., Scott, L. C., and Day, D. W.: THE JOURNAL A. M. A., Oct. 28, 1911, p. 1452.

Lydia M. De Witt⁴ has carried out an extensive series of experiments in animals. She reports that of thirty-two animals inoculated with diphtheria and afterward treated with a staphylococcus culture, nine were apparently not influenced by the treatment, fourteen were worse, and nine better. De Witt concludes that there is no rational basis for treating diphtheria cases with *Staphylococcus aureus*. She reports also two cases of sore throat in which diphtheria developed, and in one gained and kept the ascendancy. De Witt admits, however, that the animal experiments indicate that a certain percentage of acute cases may clear up more quickly under staphylococcus treatment than under ordinary antiseptic treatment.

These favorable reports induced us to try the method in a troublesome outbreak of diphtheria in the State Hospital at Mendota, the clinical report of which is given here by Dr. Lorenz.

During this epidemic carriers were found and were the source of considerable annoyance. The usual antiseptic methods of treating these cases were found ineffective and at the suggestion of Dr. Ravenel, pure cultures of *Staphylococcus pyogenes aureus* were used. Various strains were tried, though the results were the same irrespective of the strain used.

In the diagnoses of the cases here reported every effort was made to rule out the personal equation. For the most part cultures were examined by two of us in the laboratory. At our request Dr. Lorenz did not indicate which patients were receiving the staphylococcus spray and which not.

In all, seventeen patients received this form of treatment. Three were carriers pure and simple, that is, they never showed clinical manifestations either local or constitutional. We will refer to this type of carrier as Class 1. Six patients showed clinical symptoms of diphtheria. The local signs ranged from congestion or hyperemia to distinct membrane formation. These patients had all received the routine local antiseptic but persisted as carriers long after convalescence had been established. We will refer to these as Class 2. In eight cases the staphylococcus spray was used early in the course of the diphtheria. In these instances no other form of local treatment was employed (with one exception). The treatment was begun immediately after the first positive or suspicious bacteriologic report had been received.

The results in Class 1 were uniformly good. In two cases negative reports were received after six applications of the spray. Three months later one of these patients again became a carrier and the reinfection was cured in the same manner. The third case did not clear up under the staphylococcus spray alone though after a combination of nasal and throat application negative cultural reports were received. In this instance nine combined applications were made three successive days while in the first two cases six applications sufficed to bring about a cure. These three patients were attendants on duty in the isolation ward and, as previously mentioned, never showed clinical manifestations of diphtheria.

The six patients referred to as carriers of the second class received the following treatment during the acute stage of the diphtheria: antitoxin in various amounts from 5,000 to 25,000 units, some by the intravenous method and others by deep muscular injections. The local treatment used was hot saline douches every four hours alternating with a spray of liquor antisepticus,

liquor sodii boratis compositus (Dobell's solution), potassium permanganate solution, chlorin water or mercuric chlorid solution. In spite of this treatment the throats continued to show the diphtheria bacillus long after the patient was well, in one instance, nine weeks. The average was seven weeks.

The local antiseptic treatment was discarded and the staphylococcus spray was substituted. Four of the cases cleared up within one week; in two the results were not so good. These exceptions can possibly be accounted for and a more detailed report is warranted.

REPORT OF CASES

CASE 1.—The patient, E. F., was first isolated owing to a congestive condition of the throat. The first bacteriologic report was "suspicious." The clinical manifestations rapidly improved following the administration of antitoxin, and local antiseptic. The patient was discharged from quarantine after three consecutive negative cultures had been obtained. These cultures were made at two-day intervals. One week after the last negative culture a fourth swab taken was reported as "suspicious" and the patient was again isolated. Staphylococcus spray was now employed and after four applications made at four-hour intervals two negative reports were received. In this and the other cases no local treatment whatever was given during the time negative reports were being received. A third swab taken eight days after the first negative was diagnosed as "positive." The spray was then applied on the two succeeding days at four-hour intervals, and the bacteriologic reports following were "suspicious" and one day later "positive." The combined method of application was now used. In all, twelve applications were thus made, and following this procedure three negative reports were obtained over a period of two weeks. Ordinarily this was sufficient to warrant removal from isolation, yet a fourth swab was made and much to our surprise the report returned was "positive." The combined method was again resorted to and for six days applications were made at four-hour intervals (three per day). This was followed by five negative cultures, though one of a "few suspicious organisms" was found between the second and third examinations.

The peculiar course is rather difficult of explanation. The recurrence of positive cultures after two and even three negative findings may have been due to reinfection, the patient having been on the diphtheria ward throughout this period. On the other hand, the possibility of a focus of infection so situated in the nasopharynx as to prevent proper application of the spray must be considered. In all, this patient received the staphylococcus spray six weeks before the repeatedly negative cultures were obtained.

CASE 2.—Patient, H. O. of Class 2, is equally interesting and exceptional. This patient had a moderately severe clinical diphtheria. He received the routine treatment mentioned and was removed from the isolation ward after two negative reports had been received. Up to this time he had been in isolation fifty-two days. One month after his removal he showed a slightly inflamed condition of the tonsils. The bacteriologic report made was "positive." The patient was then returned to the diphtheria ward and treatment with the staphylococcus spray was started. At first the throat spray alone was used and the cultures continued "positive." The combined method was then employed and after nine applications made on three succeeding days, the first "negative" report was received. After a week of non-treatment the swab taken was reported as "positive." This fluctuation from negative to positive continued several times after three negatives had been obtained. In fact, four negatives and two suspicious cultures were made from this throat during a period of sixteen days, when a return to positive occurred. At this point massage of the tonsil was attempted. Pressure was made about the tonsil with an ordinary tongue-depressor. Accompanying

4. DeWitt, Lydia M.: Jour. Infect. Dis., January, 1912.

this procedure staphylococcus spray in extremely concentrated form was used, and finally a series of negative cultures was received.

In this case fifty days of treatment with staphylococcus spray elapsed before the patient was thought to be cured. In this instance it seems probable that the source of trouble lay in the large spongy tonsil, and it seems to illustrate the condition which has received special attention by Dr. Kretschmer,⁵ namely, that the diphtheria bacilli are harbored in the crypts of the tonsil in many instances.

We give a history of several other cases as follows:

CASE 3.—The patient, W. F. D., a student at the University of Wisconsin, became ill with diphtheria, Feb. 5, 1912. Antitoxin was administered and clinical recovery was prompt, but diphtheria bacilli persisted in the throat. On the twenty-sixth day Dr. H. M. Kay, the physician in charge, asked advice concerning the matter. We recommended to him the use of the staphylococcus spray. This was supplied to him in the form of a twelve-hour-old culture in bouillon, the directions being to spray it thoroughly into the throat and nares. Thirty-six hours later a culture taken was negative to diphtheria, and five consecutive cultures remained negative. In this case the action of the staphylococcus spray was rapid and permanent.

CASE 4.—X., a boy, aged 13, was taken out of school as he was found to be carrying an almost pure culture of Klebs-Loeffler bacilli. As the condition persisted for over two weeks, Dr. J. M. Furstman, health officer of LaCrosse, consulted the State Hygienic Laboratory, and cultures of the staphylococcus fifteen hours old were sent to him. The throat was sprayed every second day. At the third spraying, the number of diphtheria bacilli was very much decreased. The fourth culture also showed diphtheria bacilli, but four subsequent cultures remained negative.

CASE 5.—In a factory in the city of LaCrosse, owing to an outbreak of diphtheria, the throats of approximately 350 operatives were examined. Six carriers were found and isolated. Five of these cleared up under ordinary treatment within a week. The diphtheria bacilli persisted in the sixth patient, a woman, aged 19. Dr. Furstman began the use of the staphylococcus spray, using it, however, only every second day. Two cultures from the throat after the beginning of the spray were positive, but after that all cultures taken remained negative.

RESULTS OF USING THE SPRAY

The use of the staphylococcus spray early in the course of diphtheria was tried in eight cases. Each patient received antitoxin, though locally no treatment other than the staphylococcus was used (except in one case). In four of these cases the results were very good; that is, negative cultures were obtained within one week and after the use of four to eight applications of the spray. The duration of the entire quarantine in these cases was from six to fourteen days. Two cases were clinically typical while two were mild, the local manifestations being simply a congestion of moderate severity.

In three cases the results were fair. Almost invariably after six or eight applications were made the first swab taken would be negative. In several instances this negative finding was repeated only to be followed by a positive. The duration of suspicious or positive reports in these three cases was twenty, twenty-two, and thirty-six days, respectively.

One case was mild; there was no membrane and very slight constitutional reaction. The throat symptoms cleared up within a few days after the administration of antitoxin though the cultural reports continued positive.

Frequently two and even three consecutive cultures would be negative, and the next positive. On one occasion the throat continued negative for nine days when a return to positive occurred. At this point the staphylococcus spray was abandoned and a 1:2,000 solution of mercuric chlorid was used. Six applications were made, but a culture taken was reported as "positive, almost pure culture." The former treatment was then resumed and finally the case cleared up. The total duration was thirty-nine days.

In the last series of cases the staphylococcus spray was not used until the first swab had been reported on, while the antitoxin was usually given at the first indication of any throat involvement, irrespective of its severity; in fact, many patients had had immunizing doses. The result was that local signs of involvement had in most instances disappeared by the time the spray was used. In other words, no effect on local manifestations of diphtheria was observed following the use of the staphylococcus spray. In those cases in which membrane was present the spray was not used until after the membrane had separated.

The method of employment was arrived at in a rather tentative manner. Our early timidity and caution, judging from subsequent experience, was unwarranted. Over 200 applications were made and the few exceedingly mild conditions attributable to staphylococcal infection would indicate that the method is essentially a safe procedure.

A combined nasal and throat spray is advised, to be given at four-hour intervals on two succeeding days; the first swab for examination should be made the third day.

The preparation used is a fresh suspension of the *Staphylococcus pyogenes aureus* in normal saline solution or a bouillon culture twelve hours old. An effort was made to keep the spray at a temperature of about 96 F. The application itself was made first into the pharynx, the spray being directed over the uvula, each tonsil and the posterior wall of the pharynx. Following this the application was made into each nostril. The amount used was sufficient to produce a "dripping-wet" condition of the pharynx and the nasal cavities were sprayed until, as one patient expressed it, "I can feel it run down the back of my throat."

The untoward symptoms attributable to staphylococcal infection can practically be ignored. Three patients developed a coryza and one an exceedingly mild laryngitis, while two developed small furuncles at the tip of the nose. Other than these trivial conditions no complications or sequelæ developed in any of the cases treated.

In the last series of cases it seems that better results were obtained in those patients treated with the staphylococcus spray than in those treated by the ordinary antiseptic application. With one exception no other form of local treatment was used. Consequently, we feel justified in attributing the results entirely to the use of the staphylococcus spray.

The variability of results in the two classes of carriers arbitrarily referred to as Class 1 and Class 2 can possibly be explained on the following ground: In the first class it is presumed that the location of the diphtheria bacilli is superficial, the intact mucous membrane, or immunity of the individual, or both, preventing propagation and systemic infection; and the spray can come into direct contact with the bacilli. The less successful termination in Class 2 may be caused by the less accessible position of the diphtheria bacilli. Those superficially located are probably acted on as indicated by the

5. Kretschmer, quoted by Rubrah, John: Prog. Med., March, 1912

fact that one or more negative cultures immediately following the use of the staphylococcus spray are almost always obtained. The later "positive" findings are probably due to the bacilli deep in the glandular crypts, which are possibly protected by plugs of mucus or detritus.

CONCLUSIONS

1. Pure cultures of *Staphylococcus pyogenes aureus* sprayed into the throat and nasal cavity will cause a disappearance of diphtheria bacilli.
2. The above-described method of treatment is most effective in carriers of the first class.

PNEUMOCOCCUS INFECTION AND IMMUNITY *

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During the past few years there has occurred a revival of interest in the study of the nature of infection with the pneumococcus. It will be impossible to review all the discoveries of interest and importance that have been made. The intention is to confine the present discussion mainly to certain observations made by my colleagues and associates and myself, which seem to have some value in enabling us to obtain a clearer conception of the process in pneumonia. Certain of the hypotheses advanced must be considered to be purely tentative and further work may show that different explanations are the correct ones.

Biologically as well as clinically the course of lobar pneumonia consists of these phases: First, there occurs the infection and onset of the symptoms, which events may or may not be simultaneous; second, the clinical disease itself or the intoxication; and third, the recovery or immunization, using the latter word in a broad sense as signifying the onset of a refractory state, whether this be insusceptibility or resistance to the infection or to the intoxication.

THE ONSET OF PNEUMONIA

In the first place, why does a person contract pneumonia? Is it merely that a pneumococcus, a normal inhabitant of the mouth, possibly riding on a drop of moisture, is accidentally carried into the healthy bronchus, and, after being tossed backward and forward on air currents, finally settles on the mucous membrane of one of the bronchial branches, begins at once to multiply and so induces the disease? The disease, according to this view, must be considered purely as an accident due to the pneumococcus reaching the lung. It hardly seems possible that this simple explanation can be the correct one. It is quite probable that pneumococci normally invade the lung in small numbers, at least occasionally. However this may be, the fact is established that in pneumonia the pneumococci are in the lung and multiply there, which is not normally the case. The usual explanation of this occurrence is either that the pneumococci are more virulent than usual, or that the resistance of the host is lowered.

Much work has been done in order to determine whether or not pneumococci obtained from patients with pneumonia are more virulent for animals than those obtained from normal persons. This is an extremely

difficult problem to solve, and it is impossible to review all the evidence in regard to this point. An observation made lately, however, seems to have a bearing on the important question as to whether or not pneumococci of low virulence may be responsible for the onset of pneumonia. In making cultures from the blood of pneumonia patients during the past year we have tested the virulence of all the organisms obtained. Most of the organisms so cultivated have been of high virulence for mice and rabbits, but in at least two instances organisms of extremely low virulence have been obtained. While it is possible that in these cases the organisms may have lost their virulence in the body, we know from experiments that exaltation of the virulence of organisms when grown in the animal body is the rule. The experiments of Meltzer and his associates, which I shall mention shortly, also establish the fact that in dogs, at least, pneumonia may be induced by organisms of low virulence.

That a decreased general resistance on the part of the body is present and is responsible for the onset of the pneumonia is possible, but at present the experimental evidence in favor of this view is not convincing.

We have experimental evidence to support the view that the onset of pneumonia occurs because there is a changed condition in the lung which permits pneumococci to grow there. Meltzer, Lamar and Wollstein have elaborated a technic by means of which it is possible to produce, uniformly and constantly, in dogs, lesions in the lungs which closely resemble, if they are not identical with, lesions found in the lungs of men dying from acute lobar pneumonia. The method consists in the direct injection of quite large amounts of the culture fluid through a catheter inserted into the bronchus. It is a most important fact that these lesions have been produced, not only with organisms having high virulence for rabbits and mice, but also with pneumococci having practically no virulence for these animals. A second important point is that in order to produce these lesions, quite large amounts of culture fluid must be injected, and this must be blown into the finer air-passages, probably, as Meltzer has pointed out, so as to occlude them. This experimental work permits a new conception of the onset of pneumonia. What may first occur in pneumonia is an exudate which may be entirely non-specific in character and may be dependent on circulatory changes due to cold, trauma, etc. The smaller bronchioles being occluded, a true cavity is formed. The lining of the involved air-sacs no longer forms a part of the surface of the body, but lines a true cavity filled with fluid. Pneumococci, being the organisms most commonly present, begin to grow and change the character of the fluid so that it is irritating. An observation by Gillespie shows that the reactions induced by the growth of pneumococci may be quite different, depending on whether free oxygen be present or not. When pneumococci are grown on the surface of serum agar directly in contact with the oxygen of the air, the medium is not clouded, or only to a slight extent. Probably little acid is produced. When, however, they are grown in the depths of the medium so that no air comes in contact, there occurs a marked clouding of the medium.

There is much evidence against the old view that the lesions of lobar pneumonia begin uniformly throughout an entire lobe. Clinical evidence is decidedly against this. Moreover, examination of the lungs of persons dying of lobar pneumonia shows that extension is

* Read in the Symposium on Recent Advances in Our Knowledge of the Acute Infections in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

constantly going on. The extension is not uniform, but is patchy and lobular. The classical description of the lesion of lobar pneumonia in an exudative stage, a stage of red hepatization and one of gray hepatization, is responsible for this old conception. Supported by all these observations, we may conceive that the pneumococcus is not the first cause of pneumonia, but that pneumonia probably arises because in a small portion of the lung a non-specific exudation occurs, and later the pneumococci grow in this and produce irritating substances. From this small focus, or from a few or many small foci, extension occurs until the entire lobe is involved. As the pleura forms a natural barrier to extension, the process tends to become lobar.

THE CLINICAL DISEASE

The clinical features of pneumonia are those of an acute intoxication. The pulmonary changes are not essential to the condition since pneumococcus septicemia, entirely apart from lung involvement, may exist. Moreover, severe symptoms may arise when the pulmonary lesions are comparatively slight, though this is not usually the case. We have been much impressed with the fact that extension of the local process is associated with a continuation and increase of the symptoms, so that it seems improbable that the general symptoms are entirely independent of the extent of the local lesions. The most severe symptoms, however, arise when, instead of the process being entirely a local one, a general infection supervenes.

There have been several theories to explain the intoxication. It has been suggested that it may be due to the absorption of the products of digestion of the local exudate. But we know that the patient may be free of symptoms when this process is most active, namely, following the crisis. So far, all attempts to discover a toxin in the culture fluids of pneumococci have been unsuccessful. But it is possible that the metabolic products of the growth of pneumococci within the body are different from those formed when the organisms are grown in the test-tube. To test this point, rabbits were profoundly infected with pneumococci. Just before death they were bled, the serum was passed through a Berkefeld filter and the filtrate was then injected into a second series of rabbits. No signs of intoxication could be detected. It is well known that pneumococci, when grown in a medium containing carbohydrate, produce acid, and it is possible also that by the growth of the organism in the body the normal metabolism may be so altered that the normal reaction of the body tissues may be changed. Complete metabolic studies and studies of the oxygen and carbon dioxide content of the blood, carried on by Peabody, have not tended to support this point of view. A mild grade of acidosis occurs in all febrile conditions, but the evidence seems to indicate that the symptoms in pneumonia represent more than an acidosis.

In our experimentation we have turned to the isolation of toxic substances directly from the bodies of the bacteria. Years ago Pfeiffer showed that the killed bodies of certain bacteria are toxic when injected in considerable amounts. To these so-called endotoxic substances have been loosely ascribed the symptoms in a large number of infectious diseases. Pneumococci, when killed by heat, have very little toxicity. It has been shown by Friedberger, however, that if bacteria are first treated with immune serum, then centrifugalized, and these so-called sensitized bacteria are then treated for a number of hours with serum containing

complement at 37 C., a change, supposedly digestive, occurs and the resulting extract is toxic. Owing to the fact that the death resulting from the injection of this extract into guinea-pigs is like that seen in anaphylactic death, Friedberger gave to this substance the name "anaphylatoxin." He thinks that the substances in question are identical with those producing death in anaphylactic shock following the second injection of horse serum. Based on this experiment, Friedberger and others have developed a theory of intoxication in the various infectious diseases, namely, that the bacteria growing in the body stimulate the production of antibodies, and that these sensitize the bacteria, which are then acted on by the complement, and the intoxicating substances result.

We, as well as others, have repeated these experiments with pneumococci and have found them correct, but differences of opinion exist as to their interpretation. It has been shown that under certain circumstances similar results may be obtained by the action of normal serum on the bacteria without previous treatment with immune serum. Dold and also Rosenow have shown that if bacteria are merely allowed to stand in salt solution for from twenty-four to forty-eight hours, so as to undergo what has been termed autolysis, the resulting extract is toxic also. We have also repeated these experiments with pneumococci, injecting the extracts into a large number of guinea-pigs, and have found that under certain circumstances such extracts are toxic, but that their action is inconstant and that it is extremely difficult to determine the exact conditions under which such extracts will be uniformly toxic. Instead of dying acutely, many of the animals die in from three to eight hours, and at autopsy marked hemorrhages are found in the cecum and stomach, and punctate focal hemorrhages are present in the lungs. Based on the experimental production of toxic autolytic extracts, Rosenow has formulated a theory of virulence. He states that virulent pneumococci autolyze readily and set free the toxic substance; non-virulent ones do not. Therefore virulence depends on the readiness with which pneumococci autolyze. We do not feel that the matter is as simple as this. While it is true in general that the more virulent pneumococci do autolyze more readily, yet these two properties, virulence and ability to autolyze, do not run parallel. Typical pneumococci, in our experience, always autolyze, whether they possess high virulence or not. Moreover, if a typical pneumococcus is allowed to grow on artificial culture medium until it has lost its virulence, it still continues to autolyze.

In our efforts to obtain these toxic substances more constantly, in order that more might be learned of their nature, we tried a large number of procedures which need not be mentioned in detail, but finally tried dissolving the bacterial bodies in a dilute solution of bile salts. It is well known that pneumococci are readily soluble in these substances. Much to our surprise, we found that such a solution of pneumococci in bile salts is highly toxic, killing guinea-pigs when injected intravenously within a few minutes. In the experiments the pneumococci were grown in bouillon, washed once in physiologic salt solution, and made into an emulsion in as small an amount of salt solution as possible. The latter procedure is due to the experimental observation that the solubility of pneumococci in bile solutions is dependent on the concentration of the bile in the solution, and not on the relation of the number of pneumococci to the amount of bile present. After solution has

occurred, the dilution may then be made to any degree desired. In the experiments a 2 per cent. solution of sodium cholate has been employed, 0.2 c.c. of which is sufficient to dissolve the bacteria from 100 c.c. of bouillon culture, if the bacterial emulsion be sufficiently concentrated. Many times the amount of sodium cholate used for the single injection may be injected into a normal animal without producing symptoms. It is necessary to use considerable amounts of the dissolved bacterial substance, but not more than needs to be employed in producing an active amount of Friedberger's so-called anaphylatoxin, or in producing a lethal dose of the so-called antolytic extract. Not only is this solution toxic for guinea-pigs, but it also produces acute death in rabbits when injected in proper amounts. The symptoms produced in rabbits are exactly like those described by Auer as occurring in acute anaphylactic shock in rabbits.

It does not seem important to insist on the relation of the toxic substance to anaphylaxis except in connection with the fact that this toxic substance may be produced by allowing the mixture containing bacteria and bile salts to remain at 37 C. for as short a time as ten minutes, or on the ice at 4 C. for thirty minutes. It is generally accepted at the present time that the toxic substance responsible for acute anaphylactic shock is a product arising from the splitting of the protein. If we admit that the intoxication arising from the injection of the bacteria treated in these various ways is identical with that in anaphylactic shock, we must consider that some other explanation of the nature of the intoxicating substance in anaphylaxis must be probable, for it seems hardly possible that a digestive process could be effectual, acting at such temperatures in such short spaces of time. It would seem more likely that the substances concerned are preformed in the bodies of the bacteria and are set free by the solution of the bacterial wall. It would thus seem that in this instance the conception of Pfeiffer of an endotoxin is more likely to be correct than the present conception that such substances are digestive products. In any case, an active poison may now be readily and constantly produced from the bodies of pneumococci. It may or may not be that responsible for the symptoms in pneumonia. This substance is labile, being destroyed at 60 C. for one hour. It not only produces acute death in rabbits and guinea-pigs, but by regulating the dose, death may be induced at different intervals. In the less acute death, hemorrhages into the peritoneum are common, frequently there is an acute nephritis, and the liver is pale.

MODE OF RECOVERY

The third problem in pneumonia relates to the outcome of the disease. It would seem that in pneumonia, with its sudden crisis—one of the most startling and dramatic events that confront the physician—an ideal opportunity would be offered to learn the nature of the process of recovery; but up to the present little evidence as to the nature of crisis has been accumulated.

It has been thought by some that the crisis is only the general manifestation of the onset of resolution. The theory supposes that in the consolidated lung absorption is constantly taking place, that the exudate is under tension, and that when there has been a sufficient setting free of ferment by the breaking down of leukocytes to induce lysis, tension is relieved, absorption stops and the symptoms disappear. Instead of the surgeon inserting a knife, Nature injects a ferment. This is a fascinating theory, but has little to support it. The crisis often occurs before any signs of resolution

may be discovered; indeed, resolution may occur long after all symptoms have disappeared.

In case the toxic substance previously discussed does bear some close relation to that involved in the production of acute anaphylactic shock, it is conceivable that the crisis may be merely the onset of a refractory state analogous to that seen after acute shock. As we are not yet in a position to draw any such conclusion, this is offered merely as a suggestion.

Naturally the main attempt to explain the crisis, as well as recovery by lysis, has consisted in the attempt to demonstrate antibodies in the blood-serum. So far the attempt to demonstrate an increase of the ordinary bactericidal substances which act in conjunction with complement have been unsuccessful. Attempts have been made, by combining leukocytes and serum, to show an increase of bactericidal or possibly phagocytic power, but these studies are not free from objection. Most of them have been made with organisms of low virulence. In the experiments in which plating methods were employed, the possibility of agglutination of the cocci has not been excluded. The experiments of Neufeld are of more importance as showing an increase in immune substances in the blood of patients following recovery from pneumonia. These results were obtained by testing the protective power of the serum for mice against a known lethal dose of pneumococci. He was able to show that while normal human serum had no such protective action, that obtained from patients following the crisis did have such an action. Certain writers, as Strauss and Seligmann and Klopstock, have not confirmed these results.

During the past year Dochez has studied the blood of patients suffering from pneumonia to settle this point and has obtained results which, in general, confirm those of Neufeld. The technique of the experiments was as follows: Specimens of blood were obtained at frequent intervals during the course of the disease, and also at the time of crisis and during recovery. These specimens were all kept on ice until the final specimen was obtained. Then, on the same day, the protective power of all these samples of serum was tested by mixing constant amounts with varying doses of pneumococci and injecting the mixtures into mice. A large number of mice were required, as many as 100 for a single experiment. The organisms used in most cases were those obtained from the patient whose serum was being tested. If they were not virulent when isolated, they were rendered so by passage through animals. The serum from fourteen cases was studied in this way. In one case the serum two days before crisis showed no protective power. Three hours after the crisis 0.2 c.c. of the serum protected a mouse against 0.0001 c.c. of the culture. In this case 0.000001 c.c. of the culture uniformly killed when given alone, or when mixed with the serum obtained before the crisis. The serum obtained two days after the crisis protected a mouse against 0.001 c.c. of the culture. Serum obtained seven days after the crisis showed no protective power.

If this were a constant finding one might conclude that the development of protective immune bodies in the blood of the patient with pneumonia was the cause of crisis, or at least that the crisis was associated with such a change; but this development of immune bodies in the blood serum cannot be demonstrated in all cases. In fact, among the fourteen cases studied, no other showed such a typical curve as this. In certain cases the appearance of immune bodies did not occur until several days after the crisis had occurred, and in other cases no

appearance of immune bodies could be demonstrated. In the majority of cases, however, there occurred an increase in the immune bodies of the blood at or about the time of crisis, and this increase usually persisted for over a week or ten days. The irregular results obtained make it seem hardly possible that the crisis is directly dependent on this one factor alone. From clinical observation it would seem much more likely that the crisis represents a kind of neutralization of the intoxication rather than a destruction of the bacteria existing within the body.

It is nevertheless true that the presence of bacteria in the blood apparently bears some relation to the outcome, for while in the patients that recover the bacteria are absent, or present in small numbers in the circulating blood, in the cases that go on to a fatal termination bacteria are usually present in large numbers. Moreover, while the virulence of the organisms concerned seems to play but a slight rôle in the onset of the disease, this factor is apparently an important one in the outcome. In practically all cases in which large numbers of highly virulent organisms were present in the circulating blood, death resulted. On the other hand, in several cases in which the organisms in the circulation were of low virulence, recovery ensued. It therefore seems probable that while the crisis may result from a neutralization of the intoxication, the possibility of this phenomenon is dependent on the power of the body to overcome the vegetative functions of the bacteria. At the present time, at least, our only definition of virulence as regards pneumococcus must be power to vegetate within the body. In other words, the virulent organism has become adapted to this environment. This adaptation is apparently a property both easily acquired and easily lost by the pneumococcus. It is evident, then, that the crisis in pneumonia is still an obscure phenomenon, and at the present time it cannot be stated positively whether it represents a destruction of the bacteria, a neutralization of the poison, a kind of anaphylactic shock, or a combination of all these phenomena.

ACTION OF IMMUNE SERUM

Finally, we may briefly consider the newer work concerning specific therapy, especially treatment with immune serum. Observers who have attempted to produce active immunity to pneumococci have usually found little difficulty in doing so. By the injection of living cultures intravenously in horses, as the method was first described by Neufeld, we have succeeded in so immunizing a horse that it will stand as much as 2,500 c.c. of the virulent culture. But while many observers have succeeded in producing an efficient active immunity in various animals, more difficulty has been encountered in producing passive immunity, especially in producing a serum having curative value. When injected together with the culture, the serum which we have employed has been so active that 0.2 c.c. will protect a mouse against 1 c.c. of a culture of which 0.000001 c.c. kills—a protection against 1,000,000 lethal doses; but if the lethal dose of pneumococci is given first and the serum injected only a few hours later, it is difficult to protect, no matter how much serum is injected. This is the stumbling-block in the whole question of treatment with immune serum. Various explanations have been offered. Neufeld, who has done the most valuable work lately in connection with this question, has endeavored to show that the failure to cure is due to the fact that sufficient serum is not employed. He bases this view on certain experiments which he has performed, which show that as one

injects mixtures of serum and bacteria into a series of mice, gradually reducing both in the same proportion, a point is reached where the small amount of serum injected fails to be efficacious. He therefore thinks that the reason why our immune serums have failed to cure is that too small amounts, in proportion to the body weight, have been employed.

Dochez has performed experiments which seem to indicate that there may be another explanation for the failure of immune serums to be curative. He has studied the results obtained by injecting mixtures of immune serum and culture into a series of mice, not only decreasing the amounts of serum and bacteria in the same proportion, but also gradually increasing the amount of bacteria injected, and he finds that as one increases the amount of bacteria it is necessary to inject proportionately more and more of the serum in order to protect, and that finally a point is reached where no amount of serum, however great, is sufficient to save the animal. This seems to indicate that, in addition to the presence of immune bodies contained in the serum administered, it is necessary for the body of the infected animal to play an active part, and that where the infection is very severe the body is unable to react to a sufficient degree.

In pneumonia we are dealing not with a mild infection but with a most severe one, in which the body contains an enormous number of organisms. It seems probable that the reason the serum is not efficacious in these cases is not that a sufficient amount of immune body is not being given, but that the body is not able to complete the action of the immune substance. If we are to make such serums efficacious in treatment, we must find some method of increasing this completing action of the body. Since we apparently do this in active immunization, we may be able to obtain curative effects by combining active immunization, that is, vaccination, with the supplying of immune bodies—the administration of immune serum. It becomes more and more evident that such methods should be carefully worked out on animals before being applied to patients. By careful animal experimentation along this line it is quite possible that favorable results may be obtained even with the resources we now possess.

There is one further point in regard to the use of immune serums which should be borne in mind. Our experiments with blood-cultures have shown that our univalent serum, that is, one produced by the injection of a single strain, has been efficacious in protecting animals against about only 40 per cent. of the cultures obtained from the circulating blood of patients. This means that at least 60 per cent. of cases are due to organisms other than those of the type strain. Whether a polyvalent serum will enable us to overcome this factor is not certain.

In regard to the results of the practical application of specific forms of treatment, but little need be said at the present time, as so far the value of none of them has been sufficiently established. Interesting observations on the specific treatment of experimental pneumococcus infections by means of mixtures of soap, serum and boracic acid have been made by Lamar. This work is based on sound experimental evidence, but so far has not received practical application. Leukocytic extracts, vaccines and watery extracts of bacteria have been employed as therapeutic measures. Their exact value still remains to be determined. Moreover, Morgenroth has prepared a derivative of quinin, ethyl-hydrocynprein-hydrochlorate, which is said to have curative value in experimental infections

and has already received some clinical study. Unfortunately, several cases of amblyopia have resulted from its use.

This report and brief review of some of the work that has been done in connection with pneumonia during the past few years shows that there is considerable interest in the subject and that much work is being done, and while it is difficult at the present time to see exactly where the solution of the whole problem will lie, nevertheless the outlook is not without hope for arriving at a better understanding of the nature of the process, and possibly for obtaining a specific cure.

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ABSTRACT OF DISCUSSION

DR. S. J. MELTZER, New York: Medicine has been and is still dominated by the anatomic view of disease. The pathologic changes found after death from some disease are generally identified with the disease itself. But these anatomic changes might be only a consequence of the disease, or what is more important, they might be the result of the body's attempt to defend itself against disease, or an attempt to repair the injuries caused by the disease. When a patient succumbs to pneumonia, at autopsy we find anatomic changes in the lungs; they are partly consolidated and inflamed; they show red or gray hepatization, and we generally say that the patient died from inflammation of the lungs. But these phenomena may be looked on from another point of view, a view which I am inclined to advocate on the basis of some experimental observations. The essential features of inflammation are hyperemia and exudation. The hyperemia assists in the exudation of serum and cells. It is now generally assumed that the mission of the exudate is to defend the body against the invading infection. The leukocytes destroy the bacteria which are prepared for this end by the serum; the leukocytic and serum enzymes antagonize in some way the bacterial toxins, and the lymphocytes digest the debris of the coagulated serum, the fibrin and the broken-down leukocytes. In short, inflammation is a defense against disease and not the disease itself. Does the inflammation of the lungs have another meaning? It is plausible to assume that here, too, the anatomic changes present simply defensive reactions of the lung tissue against the invading pathogenic organisms. In many instances, however, the defenses fail and large numbers of the virulent bacteria succeed in escaping from the exudate and entering into the circulation at a period when the blood has lost a great deal of its defensive ammunition; this leads often to a fatal issue, which explains why Dr. Cole and others could easily find bacteria in the blood only in fatal cases of pneumonia. In experiments made by Lamar and myself by intrabronchial insufflation of cultures of a very virulent pneumococcus, typical pneumonic lesions were produced in every instance. The experiments gave a mortality of 16 per cent. and bacteriemia was present only in the fatal cases. In recent experiments which Dr. Wollstein and I have made with a non-virulent pneumococcus, again typical consolidations of the lungs were obtained but with no mortality and no bacteriemia. Apparently the anatomic changes in pneumonia are not the cause of death. Neither do they present the essential features of the disease. On the contrary, they are manifestations of the body's fight against the disease.

DR. V. C. VAUGHAN, Ann Arbor, Mich: Under ordinary conditions we are protected against infection by the proteolytic ferments in our bodies. These dissolve the bacteria with which we become inoculated. The pneumococcus is constantly with us. When for any reason our tissues fail to furnish in an active form the ferment that splits up the pneumococcus, it grows uninterruptedly, and pneumonia results. Of the protective proteolytic ferments with which our bodies are furnished there are two kinds: One is non-specific, but there are many reasons for believing that this is the one that protects ordinarily against pneumonia. Increased resistance to pneumonia is easily induced experimentally in the lower animals.

DR. WILLIAM D. ROBINSON, Philadelphia: The condition of toxemia in the alveoli precedes that in the bronchioles very often for days. Is Dr. Cole sure that the pneumonia began in the bronchioles, and was found only secondarily in the alveoli? I have found record of the presence of the pneumococcus in the very clear serous exudate in the alveoli. Afterward these organisms are apt to be found multiplied, but it seems to me that something was at work previous to the multiplication of the germs causing pneumonia that made it go into the alveoli, pus from there causing infection before the invasion of the pneumococci from the blood-current.

Almost every one of the cocci that produces inflammatory conditions, except the gonococcus, can produce pneumonia. The pneumococci have produced everything that the streptococci and other organisms can produce. If there is anything in that idea worthy of consideration, it might be worth while for some one with capacity and ability to make researches in this direction. We often have intoxications from the pneumococci resulting in the picture seen in blood invasion, without any lung involvement. Eliminate dysentery, and we evidently have mixed infections in very many of our cases, and a great many pneumonias without any pneumococci entering into them. It is impossible to separate these from pneumococcus pneumonia through the general symptoms. The only way to differentiate is by a study of the bacteria themselves.

DR. E. C. ROSENOW, Chicago: The "endotoxin theory" of Pfeiffer has interested me very much. The experiments, cited as proof that certain bacteria contain endotoxin, show that his animals died in from four to twelve and twenty-four hours after the injection was made. In repeating these experiments I find that when I inject unautolyzed suspensions or extracts of pneumococci into guinea-pigs they die in from eight to twenty-four hours, depending on the size of the dose. At a certain period, after the suspension or extracts have been kept at 37 C. the toxicity is greatly increased and the guinea-pigs die in two or three minutes from bronchial spasm, whereas later they show no immediate or subsequent symptoms. These changes have been proved to be associated with proteolysis. Suspensions of mechanically broken-up pneumococci, made by grinding in a mortar, and when autolysis is prevented by cold, kill in from six to twenty-four hours, but the animals show no immediate symptoms. When these suspensions are placed at 37 C. the appearance and disappearance of the toxic substance follows the same rule as in the case of pneumococci which are not previously broken up. From these experiments it would seem that, in the case of pneumococci at least, the toxic material is largely made during their disintegration whether *in vivo* or *in vitro*. By testing the effects of extracts in sodium chlorid solution of consolidated lungs and other pneumococcus exudates I have found that similar substances are formed *in vivo*. When the freshly washed material from these exudates is suspended in sodium chlorid solution and placed at 37 C., the toxic substances appear in solution and then disappear just as do those in suspensions of pneumococci. Since the toxicity disappears after a time in the suspensions of pneumococci to which bile-salts are added, it is apparent that the changes which take place in each case must be of a similar nature. In the case of autolysis in extracts of pneumococci, and in the action of normal and immune serum on pneumococcus extracts I have proved that the appearance and disappearance of the toxic substance is associated with proteolysis. While protein-splitting here and *in vivo* may not be the whole factor, I feel that the evidence is strong that in pneumonia, for instance, proteolysis plays an important rôle in the destruction of toxic substances, which may be specific to a certain degree and non-specific to another degree. Indeed, Dr. Dick has shown that at the time of crisis, or soon after, the specific proteolytic power against pneumococcus protein of the serum is definitely increased.

DR. A. D. HIRSCHFELDER, Baltimore: My father, Prof. J. O. Hirschfelder, of San Francisco, immunized rabbits by means of a pancreatic solution of pneumococci digested with pancreatin in an alkaline solution for about fifteen minutes. He

thus was able completely to dissolve the pneumococci. He then acidulated slightly with hydrochloric acid, and filtered with a Pasteur filter. The rabbits injected in this way with 35 to 40 c.c. of this solution acquired immunity for a period of from six to twenty days. In contrast to the bile solution that Dr. Rosenow and Dr. Cole have spoken of, this vaccine was able to retain its power to immunize for at least three months after its preparation, at room temperature, when the laboratory temperature varied from 45 to 65 F. The serum of a dog immunized with this dissolved pneumococcus was capable of protecting a rabbit against an ordinarily fatal dose.

Some experiments performed a couple of years ago by Dr. Ralph Major and Dr. Douglas Morse at Johns Hopkins, as a medical thesis for the medical clinic, and intended for publication along with other theses of fourth-year students, about two years ago, were undertaken at my suggestion, with a view to determining whether the crisis in pneumonia is an anaphylactic phenomenon, as Dr. Anderson had suggested. A cutaneous reaction was produced by the use of a very concentrated solution of pneumococci, which they were allowed to autolyze. A small number of cases (about five) were experimented on; the tests that were made before the crisis set in were all negative. There was no local reaction, any more than appeared in the controls. In the tests made at the time of and after the crisis, a peculiar papular reaction, which somewhat resembled the huetin reaction of Dr. Noguchi, but which consisted in the development of a much harder and more horny papule, took place. There was in some cases always a certain zone of erythema in the positive cases; but it did not bear a striking resemblance to the von Pirquet tuberculin reaction. On the other hand, in the patients who died, there was no reaction whatever. At the time of the crisis, there was no appearance of a large or an exclusive anaphylactic reaction that differed from the tests made on days subsequent to the crisis.

DR. RUFUS COLE, New York: If, as Dr. Vaughan and Dr. Rosenow maintain, the toxic effects of the bacterial extracts are due to the presence of products arising from the digestion of the bacterial protein, we must agree that in the case of bile-treated bacteria the splitting must be of an unusual kind, not comparable with that due to the action of ferments, like pepsin, since the bile extracts may become toxic within one-half hour in the ice-chest, and we know of no proteolytic ferments that act with such rapidity at low temperature. It is possible that the splitting is of a different and unknown kind, or that the digestion occurs only within the body of the animal and that the action of the bile is merely to render the protein suitable for such a rapid digestion. Even in the case of the so-called autolytic extracts, the evidence that the toxic substance is a product of protein digestion does not seem entirely conclusive. By shaking, I have been able to increase the rapidity of formation of the toxic substance, but the shaking was carried on at room temperature and the possibility that shaking merely increased the rapidity of digestion cannot be excluded. I have made no observations that would afford evidence for or against the view that infection in pneumonia occurs through the blood-stream.

CORPUS LUTEUM EXTRACT

WITH SUGGESTIONS AS TO ITS USE IN GYNECOLOGIC PRACTICE *

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The corpus luteum of the ovary, first described by Volcherus-Coiter,¹ was given its name by the celebrated anatomist, Malpighi. That it is a periodically forming body following each ovulation, and also that the corpus

luteum of pregnancy is a more stable body than the ovulation corpus was recognized by Bischoff and other anatomic investigators of the first half of the nineteenth century.

Claude Bernard was the first to attribute to the ovary the function of elaborating an internal secretion. It is now fully established that the ovary does furnish a secretion which induces menstruation, maintains pregnancy during the early months, exercises a potent influence in the development of the individual, determines all the secondary sexual characteristics, i. e., the development of the breasts, the uterus, etc., and maintains with other internal secretory glands an important trophic influence on the bones, the fatty tissues and the general metabolism.

The first to suggest that the corpus luteum is the part of the ovary concerned with internal secretion was Gustav Born, while to L. Fraenkel² is due the credit of establishing firmly on an experimental basis that the corpus luteum is a most important secretory gland, and probably represents the principal source of the internal secretion of the entire ovary. This important contribution immediately attracted world-wide interest. He showed in rabbits that the maintenance of pregnancy during its first half depends on the integrity of the corpora lutea! And in woman he demonstrated that removal of all the luteum tissue is followed by a failure of the next menstrual period to appear. Other investigators have repeated his experiments and while some have obtained contrary results, taken as a whole all of these conclusions have been substantiated. According to Fraenkel, the fresh corpus begins to form nineteen days after the beginning of the last menstruation, reaches its height with the beginning of the next, and then gradually retrogresses, so that at its end, lutean tissue has almost entirely disappeared.

In addition to work along the lines taken by Fraenkel, others have sought to establish experimentally the undoubted relationship between the corpus luteum and other internal secretory glands. Every clinician now recognizes that disturbances in the hypophysis, the thyroid, the adrenals and the pancreas are often followed by upsets in the ovarian function. Whether this is due to an inhibitory influence on the ovary, whether to the fact that the ovarian secretion in an effort to replace others fail completely to carry out its own, or whether the effect is some less direct action are most important problems and will be solved only by prolonged and pointed experimental work. Some of this work has already been done.

Rebaudi³ has shown on rabbits that removal of the corpora lutea is followed by a proliferation of the cells of the islands of Langerhans in the pancreas. When, after removing the corpora, he injected lutean extracts, this proliferation was markedly decreased.

Giorgi⁴ has shown that after removal of the corpora lutea there are marked changes in the hypophysis.

Hallion⁵ has shown that intravenous injection of the extract of corpus luteum causes, in addition to a general fall in blood-pressure, a marked congestion of the thyroid gland.

Conversely, definite changes in the ovary have been noted after extirpations of the hypophysis of the pancreas and of the thyroid gland.

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Volcherus-Coiter: *Anat. exercit. observationesque variae Norimbergae*, 1573, p. 124.

2. Fraenkel, L.: *Arch. f. Gynäk.*, 1903, lxxviii, 438.

3. Rebaudi: *Zentralbl. f. Gynäk.*, 1908, No. 41.

4. Giorgi: *Ginecologia*, 1906, iii, 725.

5. Hallion: *Compt. rend. de seanc. et mém. de la Soc. de biol.*, 1907, li, 40.

The anatomic structure of the corpus luteum has been so thoroughly worked out and is so familiar that it would be superfluous to redescribe it here; likewise, the important question as to the histogenetic origin of the structure must be omitted for lack of space. Suffice to say that the lutean cells seem to develop both from the granulose layer of the ripe graafian follicle, as suggested by Sobotta, and from the internal theca cells, as described by John G. Clark.

While in the human being, the ape, the cow, the sow, the mare and the bitch, corpora lutea are being continuously formed with each ovulation as distinct compact structures, in other mammals, as the rabbit, the guinea-pig and the cat, the lutean cells are organized in a definite body only during pregnancy. In this latter class of mammals there is, however, a diffuse dissemination of lutean-like cells in the ovarian stroma between the primordial ova, to which the name of interstitial gland of the ovary has been given.

The most extraordinary specimens which I have ever had opportunity to study in reference to the formation of lutean cells have been afforded by the bilateral cystic ovaries removed with the uterus from a woman suffering with deciduoma malignum. In this specimen the ovaries were transformed into irregular polycystic masses and were as large as a grapefruit. Microscopically, they proved to be almost entirely composed of lutean tissue. Not only about the cysts, however, but around the primordial follicles could be seen grouping themselves the lutean cells, while scattered through the stroma everywhere were similar cells, just as they are sometimes found in the cat's ovary.

From this specimen, I am inclined to believe that lutean cells under this unusual condition can develop in almost every part of the human ovary. Whether this overgrowth of lutean tissue is responsible for the wild development of the syncytial layer of the chorionic epithelium on the placenta, causing the deciduoma malignum, has never been determined but does not seem impossible.

OVARIAN INSUFFICIENCY

It would seem that the internal secretion of the ovary plays a rôle in the development and metabolism of woman only during that period which begins a few years before puberty and extends to a few years after the menopause.

Entire absence of internal ovarian secretion, in the years just before and during puberty leads to a failure in development of the girl so affected. The uterus and other genital organs remain small and infantile. The mammary glands do not develop. The pelvic bones maintain more resemblance to the male than to the normal female type. There may be a failure of pubic and axillary hair development.

While such extreme cases are the exception, various lesser degrees of insufficiency are common. The girl may show the general anatomic secondary sexual characteristics, but she is abnormally slow in developing, and menstruation is usually greatly altered, i. e., it may not appear at all, it may return at very irregular intervals, or be associated with extreme dysmenorrhea, or as is sometimes the case it may be almost continuous, leading to severe anemias. Some of these girls will show a great increase in the fat of the body; they constitute a distinct group; others are not fat, but extremely thin and anemic and generally poorly developed.

Marked digestive disturbances may occur. The symptoms from the urinary organs are usually slight. Gen-

erally speaking, the nervous phenomena are markedly less than those which occur at the time of the menopause. They may, however, be most pronounced, producing all varieties of neurasthenia and hysteria up to and into definite psychoses.

Normally, the change from childhood to adult life is a very gradual, and, probably, a very continuous one. It is not uncommon in young girls to have, before actual menstruation begins, several recurrent phenomena in every way suggestive of the menstrual period, with the exception that there is merely a little leukorrheal flow and no blood. In such cases, the assumption seems justifiable that the blood-vessels of the uterus are small and the corpus luteum but partly developed. When the new secretion furnished by the ovary begins to exert its influence on metabolism, there is doubtless a readjustment of all the internal secretions to meet the changed conditions and the greater the irregularity of the ovarian supply the more the disturbance must be.

At the menopause the ovaries cease functioning with the result that menstruation stops, the genital organs atrophy and the influence on metabolism is taken up by other internal secretory glands. This change is always progressive and slow; under ideal conditions it should hardly be noted in the general condition of the patient. This ideal is rarely met with, for during the period before its complete disappearance there is usually marked irregularity in the functioning of the ovaries, with resultant irregularities in menstruation, various functional disturbances of the heart, gastro-intestinal tract, the vascular system and especially of the nervous system. The degree of these symptoms varies immensely, from almost nothing to most extreme psychic and physical disturbances.

These disagreeable disturbances are so familiar to every physician that one needs only recall the heart palpitations, the rushes of blood to the head, the so-called hot and cold flushings, the general irritability, the weakness and incapacity to work to have a perfect picture of the condition.

Similar in every way but usually more stormy is the progress of the artificial menopause, which follows the removal of the ovaries at an operation. Here, however, it is of interest too that some patients show no disturbance so far as general nervous manifestations are concerned. In such the ovaries may have been taking but a small part in general metabolism.

Not only at the extremes of sexual life, but also during the intervening period many women suffer from insufficient functioning of the ovaries. In some there are periods of amenorrhea and an accumulation of fat, in some amenorrhea and nervous phenomena, in some nervous phenomena without any disturbance of menstruation. These symptoms are encountered in some cases with definite evidence of disease in the thyroid gland, the pancreas or the hypophysis; such, however, constitute a small number when compared with those in whom there is no indication of disease outside the ovary.

The indications for the use of the active principle of the internal secretion of the ovary are therefore very varied. Up till the time of L. Fraenkel's first contribution we had been using various ovarian extracts with partial success in some cases and entire failure in many. Stimulated by his report, we began in 1904 the use of corpus luteum tissue for a variety of functional disturbances. Dr. Howard A. Kelly began this work with me and has employed the substance extensively ever since. Our results have been so definite and so superior to those obtained with ordinary ovarian extract

that we have become fully convinced that the corpus luteum plays the principal, if not the entire rôle, in the internal secretory activity of the ovary, so far as it has to do with causing menstruation and so far as it represents the substance whose removal brings on nervous manifestations of the menopause. It is not, however, the purpose of this paper to attempt to demonstrate that the corpus luteum extract is the active principle of the ovary or that the rest of it is inactive or that other organ extracts may not be sometimes efficacious with the same patients; it aims only to show what can be done in treating apparent cases of ovarian insufficiency in women with the corpus luteum tissue of animals.

CORPUS LUTEUM EXTRACT

Lebreton⁶ began using corpus luteum in 1899 for the vomiting and other toxic symptoms which occur during some pregnancies. His results were partially favorable. Fraenkel⁷ in 1910 published a review of his extensive employment of dried corpus luteum of the cow, and stated that he has had little or no success with it in relieving patients suffering with dysmenorrhea or the disturbances incident to toxemia of pregnancy. In marked contrast he has observed relief of the nervous and particularly cardiovascular disturbances of both the natural and artificial menopause, relieving about 90 per cent. of his patients. Dr. Charles A. Hill⁸ of Pittsburgh has reported very favorable results in controlling the menopause nervous symptoms, following double oöphorectomy. Drevet⁹ employed in Pozzi's clinic a glycerin sulphuric acid extract in the same class of cases with quite satisfactory results. Godart¹⁰ has employed a similar prepared extract in treating patients who have suddenly grown fat and developed amenorrhea. In his cases the menstrual periods have been restored and there has been a marked reduction in the fat.

In addition to such therapeutic experiences, there have been a large number of valuable contributions bearing on the pharmacologic and toxic effects of lutean tissue. Ferroni,¹¹ Lambert,¹² Villemin¹³ and others have shown that extracts of the corpus luteum when injected intravenously into rabbits, guinea-pigs and dogs are extremely toxic. They lead to rapid fall in the blood-pressure, paralysis of the muscular system and general symptoms resembling strychnin poisoning. On the other hand, given by mouth or hypodermically to rabbits, they are entirely non-toxic.

PERSONAL EXPERIENCES

My personal work has been done almost exclusively with the corpus luteum of the sow. In the beginning, I employed the fresh material, feeding it as a salad or raw-beef sandwich. After a little while, however, I began giving the dried product. The preparation of the substance was finally turned over to Hynson, Wescott & Company of Baltimore, who have been making it ever since. They put the gland up in the form of tablets, each of which contains 20 grains of fresh corpus luteum. These tablets deteriorate with age, but when fresh are apparently as effectual as the raw material.

EXPERIMENTS WITH DOGS

When fresh corpora lutea of the sow are taken, thoroughly cut to pieces, ground up and allowed to stand

in salt solution for several hours and then filtered, there is obtained a clear fluid, which when intravenously injected into the dog causes general toxic symptoms, manifested by a general fall in blood-pressure, with final cardiorespiratory paralysis and death. This is in conformity with the experiences of all observers. A slightly different experiment was tried as follows: The animal (dog) was anesthetized and one-half of the double uterus carefully removed and put into suitable preservative; the animal was then immediately given intravenously a large dose of the extract, following which the blood-pressure was studied by a manometer connected with the carotid artery. At the end of three hours the other half of the uterus was removed. The purpose of this experiment was to determine if the injection of the extract produced any hyperemia of the uterus. Careful subsequent microscopic studies demonstrated that there was no more hyperemia after the injection than before it was given.

The above experiment was carried out on only two bitches, and the method, I know, is not conclusive in showing that luteum extract does not produce hyperemia of the uterus. Perhaps smaller doses and over several days should have been given, and better still, a sow should have been employed instead of a bitch. It would not be remarkable for the sow luteum not to be in this direction specifically effectual with the dog.

FEEDING RAW LUTEUM TO PATIENTS

My first experience was with a negro woman, aged 26, who came into the Johns Hopkins Hospital Dispensary, complaining of nothing but amenorrhea, of twelve months' standing. Examination showed a healthy, strong woman, with pelvic organs normal in size and in every other way. Her menstruation had begun at 14 years and had always been regular until the present trouble arose. This patient was admitted to the ward and was fed three times a day a considerable amount of the fresh corpus luteum of the sow. On the third day she began menstruating profusely and continued to do so for five days, when the luteum was stopped. She menstruated regularly for several periods subsequently without the product and was finally lost sight of.

The next step was an attempt to produce menstruation in three patients in whom the ovaries had been removed but the uterus left in. Two had had their operations over a year previous to the experiment; one was still convalescing in the hospital. All three were given enormous quantities of luteum, but not one of them showed any sign whatever of menstruation. From this, I conclude that when given by the mouth, even in very large quantity, the corpus luteum of the sow cannot entirely replace the normal function of the ovary of the woman, so far as producing menstruation is concerned. On the other hand, when the ovary is partially functioning, it can supplement it and relieve amenorrhea.

EXPERIENCES WITH THE DRIED PRODUCT

My experience with the lutean tablets represents personal observations of a large number of private patients in my own practice and in the practice of Dr. Howard A. Kelly.

We have used the material principally for the relief of the nervous manifestation of the real and artificial menopauses and for vague nervous symptoms which occur during the active menstrual life. In addition, we have employed it in a number of cases of amenorrhea, or infantile genital organs, in a few cases of sterility, in a number of cases of dysmenorrhea and in two cases of repeated abortions.

6. Lebreton, cited by Fraenkel.

7. Fraenkel: Arch. f. Gynäk., 1910, xci, 752.

8. Hill, C. A.: Surg., Gynec. and Obst., 1910, x, 537.

9. Drevet: Thèse de Paris, 1907.

10. Godart: Thèse de Paris, 1908.

11. Ferroni: Ann. di ostet. e ginec., 1907, i.

12. Lambert: Compt. rend. Soc. de biol., 1907, lxii, 18.

13. Villemin: Thèse de Lyon, 1908.

MENOPAUSAL SYMPTOMS

The hot and cold flushings, the extreme irritability and nervousness and other manifestations of the menopause are greatly improved in about 90 per cent. of the cases. Some patients will show no improvement whatever, and even apparently are made worse by the therapy. The patients of this class in no way seem different from the others, and the cause is not evident. The method of determining them is by the trial of the extract.

The dosage varies greatly with the individual patient; in some, one tablet, three times a day, suffices; in others, in whom we have obtained satisfactory results, the dose has been as much as eighteen or twenty tablets a day; doubtless, even larger doses might be of advantage, but the expense of the drug precludes giving much more.

Some patients complain of the taste of the tablets and occasionally of slight gastric upset; otherwise there are no disagreeable symptoms. In those patients who are relieved, the effect is generally noted within a day or two. In some patients, after the drug has been given for a few weeks, it can be stopped; in others, it has to be given continuously over much longer periods; some patients of ours have taken it for a year or more.

SYMPTOMS OF OVARIAN DEFICIENCY DURING MENSTRUAL LIFE

Certainly our most striking results have been obtained with a class of patients usually described as neurasthenics. Most of them are over 35 years of age. Menstruation is regular in its periodicity and in the duration and amount of flow, and usually there is no complaint of hot and cold flushings; the patient is simply excessively nervous, very easily fatigued by either mental or physical work, usually more so at the menstrual periods than at other times. Many will improve slowly on rest-cures; immediately, however, on trying to resume the duties of a normal life, they go back. Occasionally they will complain of slight dyspeptic symptoms and frequency of voiding. The general physical, as well as the local pelvic, examinations are entirely negative. Many patients complain of marked periods of psychic depression.

It must be clearly understood that this group of symptoms may arise from other causes than insufficient ovarian function. It is, however, astonishing how quickly and completely many such patients will respond to lutean therapy. It has been my custom to give about nine tablets a day in the ten days before menstruation, to reduce this to six after the flow begins, and in the period from the end of the flow until the next time to give three tablets a day. Often this therapy carried out for a month will give relief for many months. The result is, as it were, a reestablishment of a broken compensation between the internal secretory glands. Rest and freedom from care help in this treatment, but are by no means essential. A good example is furnished by the following case:

Mrs. P. D., aged 35, married 12 years, was the mother of six children. Menstruation was regular. She complained of nervousness, irritability, inability to carry on the household duties, and depression. All symptoms were worse at the menstrual period. This patient was first seen in October, 1911. To nine-tablet doses per diem, she responded at once; reported that she had not felt so well in years. After one month of this treatment, the dosage was reduced to three tablets a day and continued another month. She then gave it up altogether, and is still feeling perfectly well.

AMENORRHEA

The amenorrhea due to the real precocious or artificial menopause is not relieved by the extract. On the other hand, we have had quite striking results in the cases of functional amenorrhea both in young girls and in adult women. This applies both to the type in which much fat has been taken on and to that in which no fat has developed. The drug is also quite efficacious in many cases in increasing the amount and duration of the flow. There are, however, exceptions to this. In one patient with thyroid insufficiency and marked upset at the menstrual period, with scant flow, I was unable to obtain even with very large doses the slightest effect. Undoubtedly, the other internal secretions and the general condition of the patient play a necessary part in the question of menstruation. It is, however, my opinion that in most girls, in whom there has been some flow and in whom we have reason to believe that the ovaries are still to some extent active, the lutean tissue will produce menstruation. The following cases will serve as illustrations:

Miss M. H., aged 25, was seen Feb. 16, 1912. Menstruation began at 14, was always irregular, sometimes months elapsing between periods. She had had no menstruation for eighteen months. She had some headaches. Examination showed a rather poorly developed girl. Breasts were small, the pubic hair poorly developed, the uterus small and in ante flexion, the ovaries small but otherwise normal. An x-ray picture of the head showed a normal sella turcica. Patient was put on six lutean tablets per day; returned on March 8, twenty days later, reporting some improvement in headache, but no menstruation. The dose was then raised to twelve tablets a day, under which she began to menstruate on the third day, and passed through a normal menstrual period, five days' duration.

Miss A. M., May 22, 1911, aged 22, had menstruated normally from the age of 15 until one year before we saw her. She then suddenly ceased menstruating and after a while was seized with the obsession that she was pregnant. Every effort was made to disabuse her mind of this idea, but without avail. Five weeks previously to coming to Dr. Kelly, she had a retroflexed uterus suspended, but without result. The general examination showed a healthy girl, with apparently normal pelvic organs. One of the principal reasons that she argued for her pregnancy was the lack of menstruation. She was seen by an expert psychiatrist, who took charge of her case. He assured her that she would menstruate in a few days, which she did under doses of twelve tablets per diem. The return of the menstruation with the psychic treatment which she received sufficed to relieve her.

Miss L. M., May 21, 1912, aged 22, complained of amenorrhea and nervousness. The menstruation began at 13, had always been irregular, lapses of from two to eight months occurring. There was no dysmenorrhea; the flow lasted two days; and was very scant. This patient was quite fat, did not look at all ill. The general examination showed a healthy girl, pelvic organs normal but rather infantile. This patient was started on six grains of luteum per diem and after a few days began to show a trace of menstruation, which had not appeared for seven weeks. The dose was increased to twelve tablets a day when the flow became profuse and lasted in all five days, when the luteum was discontinued. She stated that she had never had a menstrual period similar to this before.

DYSMENORRHEA AND STERILITY

We have employed lutean extract in a number of patients with dysmenorrhea, giving the tablets in some cases during the entire month, and in others at the time of the menstrual period alone. The results have been so uncertain as to lead us to think that the drug does not have much of a field in relieving menstrual pain; in some cases it increased it. On the other hand, it does in some cases help the nervous symptoms.

Our use of the extract of luteum in cases of sterility has not yielded any results. In these cases, we hoped that the increased congestion might help the ovum in setting itself. Nearly all of these patients, however, suffered from leukorrhea, stenosis of the os uteri and other conditions.

REPEATED ABORTIONS

Fraenkel's work gave the hope that some of the unexplained abortions in the early months of pregnancy might be due to an absence of lutean secretion. In two of these patients, I tried the giving of large doses of luteum for several weeks. Both of them aborted just as they had previously done repeatedly about the end of the third month. I do not feel that this line of work, however, is closed. The definite opinion can be formed only after an extensive trial.

CONCLUSIONS

1. When given by the mouth, corpus luteum tissue of the sow, even in large doses, has little or no toxic effect on woman.
2. It affords us a valuable means of controlling the nervous symptoms which occur in so many patients at the time of the natural or artificial menopause, giving relief to most sufferers.
3. It is a valuable remedy in treating patients with insufficient internal ovarian secretion during the menstrual life. This class constitutes a very large number of women.
4. It is an excellent remedy to induce menstruation in young women suffering from functional amenorrhea. Those who are fat, in addition to regaining menstruation, usually, but not always, lose weight.
5. There would seem to be a possibility for the drug in cases of unexplained sterility and repeated abortions.
6. Extensive use should be made of corpora lutea from the cow, sheep and other animals to determine if these extracts work more successfully than those of the sow. The ideal lutean tissue for any animal is doubtless tissue from its own species, but this cannot be obtained for the woman.
7. So far as it goes, my work strengthens my conviction that Fraenkel is correct in attributing menstruation to the internal secretion of the corpus luteum.
8. From clinical experiences I am inclined to believe that the corpus luteum possesses different properties due to different chemicals. One of these substances causes hyperemia of the pelvic organs; another relieves nervous symptoms of a toxic character as at the menopause. It would seem that this product acts as a neutralizer, since even large doses of the lutean cause no disturbances of a toxic nature. On the other hand, the toxic results of intravenous injections of the lutean extracts as well as the nervous phenomena of menstruation show that there must also be some toxic material present which is not absorbed from the stomach or intestines. All of these various substances may in the future be separated.

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ABSTRACT OF DISCUSSION

DR. JOHN ROGERS, New York: The great difficulty is the definition of the groups of cases in which organotherapy is beneficial. It is best to define them as belonging to the fatigue or functional, rather than to the structural, organic disorders. Nearly all of these patients present a history or evidence of fatigue inability, or inability to stand stress of any character. The symptoms of which they complain may be most diverse—thyroid enlargement with hypo- or hyperthyroid symptoms, gastro-intestinal disturbance and high or

low blood-pressure. The blood-pressure (in addition to the thyroid) is the single guide in the physiology of the subject. This has its origin in the "sympathetic-adrenal" or chromaffin system, as far as we know. The character of the adrenal is that of a secreting gland, therefore, subject to fatigue. Many of the cases mentioned by Dr. Burnam can be relieved by thyroid feeding as well, or almost as well, as by corpus luteum. Furthermore, treatment directed toward the genitals will relieve disturbances in a totally different part of the body, and some hypothetical physiology must be formulated to explain these phenomena. For this purpose I assume that the chromaffin system exerts a trophic effect on glandular structures. We know that the cortical portion of the adrenals has a trophic influence on the genitals, that the medullary portion of the adrenals, through its epinephrin, controls the contraction of the blood-vessels (in this region) and that the sympathetic is the only nerve-supply. The disorders which can be relieved by thyroid or ovarian feeding are usually accompanied by an abnormally high or low blood-pressure. The corpus luteum represents the only known secretory product of the ovary. If feeding with this or thyroid substance relieves symptoms which are traceable to local congestion or anemia it is possible or probable that one of three factors necessary for perfect function in any organ of internal secretion is lacking. The first factor is the nutritional matter in the blood, the second is some substance peculiar to the secretory epithelium of each gland, (in the ovary the cells of the corpus luteum) and the third is the terminal filament of the sympathetic which conveys a vitalizing element from the cortical part of the adrenals permitting or compelling the assimilation of nutrition from the blood by the ovary. When relief is obtained by feeding corpus luteum, we must assume there is some fatigue or functional defect in the product of the patient's ovary, and when this is supplied the nutritional chain is completed. A structural or organic defect cannot be thus relieved, and this must be the explanation of the failures in organotherapy, for a complete absence in any bodily secretion or structure cannot be remedied by any known means at our disposal.

DR. CHARLES MAYO, Rochester, Minn.: There is no question but that there is a correlation of the glands as described by Dr. Rogers. We are probably given a greater amount of each of them than is necessary, since we can probably get along with a tenth of the pancreas and with from a sixth to a tenth of the adrenals. One-sixth of the thyroid in the adult seems to furnish all that is necessary, though it is probably not enough for the child. In certain invertebrate types the genital organ is the anlage of the thyroid in higher animals. This suggests the relationship which exists in higher animals between the thyroid and the genital organs and which is most noticeable in the female at puberty. The thyroid is also enlarged in the pregnant woman. Vomiting of pregnancy is perhaps best treated by the administration of corpus luteum. Also the hot flashes, the cold feet and hands, the changes in circulation, etc., noticeable at the menopause, are best controlled by this extract. In young women who take on fat and who have scanty and colorless menstrual flow which may cease entirely at 28 or 30 years of age, thyroid feeding has, in some cases, been helpful. All of this supports the correlation of which Dr. Rogers has spoken.

DR. S. M. D. CLARK, New Orleans: For the last two or three years in our clinic at Tulane we have been making some observations in reference to the extract of the corpus luteum. In the beginning I was careful to caution the men not to become enthusiasts over it, and not to imagine that they had any good from its use unless it were actually there. In other words, we were skeptic. We went along gradually and after a certain time began to observe some good results which we felt could be attributed to the extract. I have used it in amenorrhea, and in postoperative nerve disturbance cases, and though there have not been uniformly good results, sufficient benefit has been observed to warrant its continuance. The point on which Dr. Burnam has instructed me is in the dosage. We have not been using so large doses as he gives. I am going to increase the dosage and watch results carefully.

DR. J. C. LITZENBERG, Minneapolis: For two years we have been using the corpus luteum in the outpatient department of the University of Minnesota Hospital. Like Dr. Clark, I feel that our results have not been such as to make us enthusiastic; also, like him, I feel encouraged. One of the first effects noticed was absence of the nervous symptoms usually associated with the menopause. One case may illustrate my meaning. The woman came into the hospital at the age of 34 with all the symptoms of a premature menopause. She gave the history of the other women of her family, who had the menopause at 35 and 36, her mother ceasing to menstruate at 35 years. We put her on the corpus luteum extract and the result was an immediate discontinuance of the nervous symptoms with scarcely any influence on the menstruation. She was continued on the extract for a long time and the menstruation began gradually to increase. Her normal menstruation was not reestablished until she had been taking the medication for about eight months. I presume that if we had given such large doses as Dr. Burnam has given, we might have obtained earlier results. We have other cases in which the results have been the same.

DR. EMIL NOVAK, Baltimore: It seems to me that for the present our employment of the corpus luteum extract must be in large measure empirical. In the first place, it must be borne in mind that the work of Fraenkel has not been generally accepted. Loeb, for example, has arrived at conclusions almost diametrically opposite to those of Fraenkel. According to Loeb not only is the corpus luteum essential to menstruation, but, as a matter of fact, it lengthens the sexual cycle, preventing the occurrence of menstruation and increasing the duration of the intermenstrual period. The work of Halban, moreover, seems to indicate that perhaps the ovary is not quite so essential to menstruation as we have been in the habit of believing. This investigator brings forth evidence to show that the ovary is not the primary cause of menstruation, but that it is only the activator of some underlying stimulus arising in some other organ, most probably the ductless glands. The administration of corpus luteum in cases of amenorrhea must be founded on individualization of the cases, on our ability to discriminate the underlying cause of the disturbance whenever possible. In any of these cases it would seem that the pituitary body is more closely bound up in a causative way than in the corpus luteum. If this be the case the treatment would very rationally consist in the administration of pituitary extract rather than that of corpus luteum. This is especially true of those cases of amenorrhea associated with adiposity which there is now much reason to believe are of pituitary origin. I have employed corpus luteum in a limited number of cases of the type indicated by Dr. Burnam, but on the whole the results have not been very striking. Advance along these lines, I repeat, may be expected when we are better able to distinguish the underlying cause.

DR. C. F. BURXAM, Baltimore: The question of the hypersecretion and hyposecretion of the internal secretory glands is a live one, but still obscure. It is certain that other glands can vicariously assume the functions of the ovary to a large, if not complete, extent. What I desire to emphasize now is, first, that when taken by the mouth, luteal tissue is non-toxic; second, that large doses often act when small doses fail; that it is an efficient product for inducing menstruation in cases of amenorrhea; furthermore, patients with scant menstruation, when given twelve tablets a day, will have normal periods. The symptoms, such as hot flushings, nervousness and sweatings, characteristic of the normal and artificial menopauses, can be greatly relieved. I have tried thyroid and pituitary extracts for these conditions, but have not secured satisfactory results. Everybody is thinking and many are working along this line and the results which will add to our therapeutic means are sure to come. I feel that I have made just the slightest beginning in this direction.

The Essentials of a Good Doctor.—It takes a good man to make a good doctor. It takes a sensible man to make a wise doctor. It takes an honest man to make an honest doctor. It takes a virtuous man to make a trusted doctor.—S. D. Swope in *New Mexico Medical Journal*.

PUERPERAL INFECTION

A STUDY OF SOME OF THE MOST INTERESTING AND PRACTICAL FEATURES OF THE DISEASE *

THOMAS J. WATKINS, M.D.

CHICAGO

From the study of recent literature and also from personal observation, I am impressed by the great difference of opinion that exists concerning the treatment of puerperal infection. My investigations indicate that too much local treatment continues in use, mostly the result of tradition. The clinician has not kept pace with the pathologist in the study of infections and immunity.

I. EXTRACTS FROM GERMAN AND AMERICAN LITERATURE ON PUERPERAL INFECTION

Schottmüller¹ is credited with reawakening interest in study of anaerobic infection in puerperal sepsis; he showed anaerobes in the blood and demonstrated that they are a frequent cause of thrombophlebitis.

Bondy² reports one hundred abortions, of which eleven were from anaerobic streptococcus infections. In one of these cases he obtained the anaerobic streptococci in pure culture from the blood and in one from a pelvic exudate.

Fellner³ believes in non-interference except when retained tissues cause severe intoxication.

Palmer Findley⁴ is of the opinion that in virulent streptococcus infection it is better to encourage spontaneous expulsion by ergot; failing, the uterus must be emptied by mechanical means, the finger preferred.

Mayer⁴ would remove placental rests with the least possible injury to the uterus and at the earliest possible moment.

Fromme⁵ believes in prompt removal of placental remains in cases not streptococcal. He irrigates, packs twelve hours, then cleans out with the finger. If hemolyzing streptococci or liquifying staphylococci are present, the placental remains are not removed unless chills occur or fever greatly increases.

Harrar⁶ advocates intra-uterine douches in puerperal infections with streptococci or the colon bacillus. In cases of infection with other organisms he believes douches are not indicated.

Montgomery⁷ believes generally in non-interference, although he advocates operation in all cases in which occur localized collections of pus.

Pankow⁸ favors hysterectomy in severe, virulent infections.

Polak⁹ advocates digital exploration of the interior of the uterus to ascertain its contents; needless to say, a well-contracted uterus with closed cervix is not entered. In putrid or saprophytic endometritis the uterine contents are removed with the finger or placental forceps.

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* I am indebted to my associate, Dr. Arthur H. Curtis, for a perusal of all of the indexed literature on puerperal infection by American and German authors for the last two years and for valuable suggestions.

1. Schottmüller: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1909, xxi, 450; München. med. Wchnschr., 1911, lviii, 557, 787, 2051, 2123, 2170.

2. Bondy: München. med. Wchnschr., 1911, lviii, 2354; Monatschr. f. Geburtsh. u. Gynäk., 1911, xxxiv, 536; Zentralbl. f. Gynäk., 1911, xxxv, 297.

3. Fellner: Berl. Klin., 1909, xxi, 1.

4. Findley: Interstate Med. Jour., 1911, xviii, 1082.

5. Fromme: Prakt. Ergebn. d. Geburtsh. u. Gynäk., 1909, i, 355; Monatschr. f. Geburtsh. u. Gynäk., 1911, xxxiv, 645.

6. Harrar: Am. Jour. Obst., 1911, lxiii, 599.

7. Montgomery: Tr. Am. Gynec. Soc., 1910, xxxv, 215.

8. Pankow: Ztschr. f. Geburtsh. u. Gynäk., 1910, lxvi, 215.

9. Polak: Tr. Am. Gynec. Soc., 1910, xxxv, 221; Am. Jour. Obst., 1911, lxiv, 461.

The uterus is then packed for half an hour with gauze soaked in iodine. Nothing more is done after removal of the gauze. He believes that vaccines of all forms are useful in puerperal sepsis.

Ries¹⁰ would leave the uterus alone except for hemorrhage.

Mermann's¹¹ rule is never to examine any case post partum, irrespective of fever, except when hemorrhage occurs or when symptoms and external examination show a likelihood of a vaginally accessible exudate.

Schottmüller¹ is of the opinion that expective treatment is not productive of as good results as active treatment. This includes all types of infections. He obtained positive blood-culture in five out of fifteen cases of anaerobic *Streptococcus putridus*. Positive blood-cultures were obtained two times in fifteen cases of hemolyzing *Streptococcus erysipelatis*. He concludes that hemolyzing streptococci and the anaerobic *Streptococcus putridus* are of almost equal frequency in puerperal infections; *Bacillus coli*, staphylococci and the Welch bacillus are found much less frequently.

Sachs¹² advises as follows:

1. In cases with infections spread beyond the uterus, never give intra-uterine treatment.
2. If no extension occurs beyond the uterus:
 - A. If no hemolyzing streptococci, remove the uterine contents. This is preferable to expectant treatment and does no harm.
 - B. In the presence of hemolyzing streptococci, let alone.
3. In cases of infection with anaerobic organisms, further study is desirable.

Semon¹³ has never seen non-hemolyzing streptococci in the blood-cultures of puerperal infections.

Venus¹⁴ in acute thrombophlebitis removes the uterus and ligates the pelvic veins. Lenhartz and Trendelenberg claim that thrombophlebitis is present in 50 per cent. of the cases of puerperal infection that come to post-mortem.

Veit¹⁵ practically rules out all indications for hysterectomy in puerperal infection. If only avirulent streptococci are present, he cleans out the uterus. Expectant treatment is advised if hemolyzing streptococci cause the infection.

Vineberg¹⁶ advocates hysterectomy in selected cases. Acute salpingitis and ovaritis of puerperal origin he treats by an extraperitoneal incision parallel with Poupart's ligament. He advises against extensive intra-uterine treatment.

Winter's¹⁷ routine treatment:

1. Cultures are made.
2. Vaginal examination is then made.
3. If no hemolyzing streptococci are found it is permissible to clean out the uterus, but Winter usually waits a week or more for expulsion of the uterine contents.
4. If hemolyzing streptococci are present, local treatment is advised against.
5. If parametritis exists, the uterine cavity must not be touched.

Zangmeister,¹⁸ from bacteriologic work, concludes as follows: Streptococci (hemolyzing and non-hemolyzing) are responsible for 86 per cent. of post-abortive and puerperal infections. Streptococci are present in the vaginas of 32 per cent. of pregnant women. During the first ten days of the puerperium they are present in 43 per cent. Hemolyzing streptococci are never found in pregnant women before labor. During the puerperium they are present in 13 per cent. The treatment advocated by Zangmeister is as follows:

1. With retained tissues, he would leave to Nature.
2. In cases of retained tissues, he agrees with Winter.
3. With abscesses and exudates, he will incise only when pointing. Concerning ligations of the pelvic veins, Zangmeister agrees with Bumm that this is of no value in acute cases, and that the value of ligation in chronic cases is beyond a doubt.

From personal observation, especially as regards the family physician, I find that, in most cases of puerperal infection, curettage, douches and intra-uterine medication are common treatment. Most of my patients with puerperal infection had been subjected to these remedies before they were sent to the hospital.

II. PATHOLOGY—A SUMMARY OF SOME CHANGES ON WHICH THE TREATMENT SHOULD BE BASED

The disease is essentially systemic. It has ceased to be local after fever has developed; the bacteria probably soon invade all the tissues of the body. The following facts support this statement:

1. The bacteria easily gain direct access to the general circulation through the infected thrombi in the uterine sinuses.
2. The lymphatic vessels are large and active.
3. Blood-cultures frequently show the presence of bacteria. Negative results from blood-cultures are probably due to the absence of delicate tests, and are often due to the fact that anaerobic cultures are not made.

Evidences that the infection is essentially systemic are:

1. The severity or duration of the disease show little or no relation to the presence of remnants of conception or inflammatory pelvic reactions.
2. The severity and duration of the disease depend mostly on the virulence of the invading bacteria and the time required to develop a general immunity.
3. The temperature curve is much the same as in many of the other general bacterial infections.
4. Excision or incision and drainage of abscesses do not usually lessen the severity or shorten the duration of the disease.
5. The presence of inflammatory exudates is not an essential feature of the disease, as they are largely accidental, depending on the amount of irritation the infective material may produce and on emboli that may result.

The fact that in offensive cases the patients seldom die with expectant treatment is interesting and possibly suggestive of the relation of putrefactive to the more virulent bacteria. The presence of putrefactive bacteria in cases of mixed infection may diminish rather than add to the virulence of the other bacteria.

Cultures from the uterus have a large element of uncertainty, as Rosowsky¹⁹ found in the vaginal discharge of sixty-one normal non-pregnant women the

10. Ries: Physician and Surg., London, 1909, xxxi, 385.

11. Mermann: Arch. f. Gynäk., 1907, lxxxii, 28.

12. Sachs: Zentralbl. f. Gynäk., 1912, xxxvi, 193.

13. Semon: Monatschr. f. Geburtsh. u. Gynäk., 1911, xxxiii, 148.

14. Venus: Centralbl. f. d. Grenzgeb. d. Med. u. Chir., 1911, xiv, 484.

15. Veit: Prakt. Ergebn. d. Geburtsh. u. Gynäk., 1910, i, 1; ii, 223.

16. Vineberg. Tr. Am. Gynec. Soc., 1910, xxxv, 237; Surg., Gynec. and Obst., 1910, xi, 30.

17. Winter: Med. Klin., 1910, vi, 127; Zentralbl. f. Gynäk., 1911, xxxv, 569.

18. Zangmeister: Prakt. Ergebn. d. Geburtsh. u. Gynäk., 1910, i, 395.

19. Rosowsky: Zentralbl. f. Gynäk., 1912, xxxvi, 4.

anaerobic *Streptococcus putridus* in 40 per cent. Zangmeister¹⁸ found hemolyzing streptococci in 13 per cent. of women during the puerperium. Winter¹⁷ states that approximately 33 per cent. of women have virulent streptococci in the vagina. Numerous observers have reported the frequent presence of virulent bacteria in the lochia of afebrile cases. Blood-cultures are the only means at present for accurate diagnosis of the variety of infection. Although bacteriologic examination is not of much value as yet to the patient, it should be done as an interesting, instructing and fruitful research problem.

III. LOGICAL METHODS OF COMBATING THE INFECTION
The disease is essentially systemic and should be treated chiefly by general remedies

As puerperal infection is a combat between the invading bacteria and the body resistance, the logical treatment resolves itself into the use of remedies to injure the bacteria or to strengthen the resisting forces of the body. As yet no remedies are known that directly limit the growth or destroy the bacteria of puerperal infection.

1. It should never be emptied, except for hemorrhage.
2. It should always be emptied, except when hemolyzing streptococci or pelvic inflammatory exudates are present.
3. It should always be emptied when products of conception are known to be present, irrespective of bacteriologic findings.

Never to explore or empty the uterms except for hemorrhage seems to me to be consistent with the modern interpretation of infection and immunity. The infected uterms, if left alone, will soon spontaneously expel any retained products of conception. There is no evidence that the presence of such tissue increases the growth or virulence of the more dangerous bacteria. Emptying the uterus removes most of the bacteria of decomposition, but they are often if not always associated with virulent bacteria and are not of much importance as regards health or life. Curetting with the finger or instrument produces raw surfaces, disseminates the infection, may dislodge septic thrombi and thus produce embolic infections and pelvic inflammatory exudates.

TABLE SHOWING RESULTS OF OTHERS

Name	Cases Treated	Percentage Cleaned Out	Method Employed	Other Operations	Percentage of Mortality	Treatment at Present Advocated
Bondy.....	420	100	Finger or curette.	.....	8.7 of febrile cases.	
Pelak.....	200	All except cases with cervix closed.	Finger or forceps; ½ hour iodine-gauze pack.	Pryor operation, 12 cases.	3.0	Digital exam.; removal with finger or forceps; pack uterms one-half hour with iodine-soaked gauze.
Schottmüller.	1,000 abortive febrile and afebrile.	.....	.....	.....	3.0	In experience of Schottmüller expectant treatment is not accompanied by as good results as is removal by use of finger, even in cases of streptococcus infection. Thinks question not definitely settled by our present knowledge.
Schottmüller.	70 infective with hemolyzing streptococci.	81	Finger.	.....	5.2 of cases cleaned out; 30.7 of cases treated expectantly.	Abortion with no infection, cleans out the uterus; if no hemolyz. strep., cleans out only if high fever, severe intoxication or if placenta remains in uterms a week or two; if hemolyz. strep., is extremely slow in considering any invasion of uterms; if paruterine infec., does not touch uterms.
Winter.....	100 abortive with "septic infection."	.....	.....	.....	13	

The use of vaccines and serums continues to be in the experimental stage, with the possible exception of colon bacillus infection. To increase the body resistance one has to depend chiefly on food, liquids, rest, sleep, cheerful surroundings and general hygiene. The use of a large amount of liquids to dilute the toxins and to promote elimination is an important part of the treatment. I have found that these patients usually improve very rapidly when they can be kept out of doors much of the time. With the out-door treatment they usually are able to assimilate a large amount of food and to procure much sleep. Anodynes and sedatives when indicated are given, but stimulants are not used, as rest, not action, is needed. I believe that much of the local treatment and operations that have been and continue to be so generally used favor the bacteria and injure the resisting forces of the body:

IV. LOCAL REMEDIES

The greatest amount of difference of opinion in the treatment of puerperal infection obtains in the indications for surgical intervention. The various opinions as regards the indications for emptying the uterus may be classified as follows:

In case of hemorrhage which means separation of decidua or placenta, a gauze pack in the vagina or in the lower uterine segment will stop the bleeding and hasten spontaneous expulsion of the retained tissue. There is more danger of surgical intervention in the absence than in the presence of a pelvic inflammatory exudate, as in the latter instance the vessels are "blocked."

It would seem inconsistent to advise curettage in mild infections and to advocate non-interference in infections due to hemolyzing streptococci. It suggests that some patients are "too sick to be treated," that some have not enough strength to tolerate the treatment. It is difficult to appreciate how a treatment that is dangerous for the very ill can be of much value to those not so sick.

What of the so-called saprophytic cases in which removal of the decomposed tissue is often soon followed by recovery? Even in these cases it would seem better to await spontaneous expulsion or to use gauze packing rather than to traumatize the tissues. In none of these cases can one be certain that a mixed streptococcus infection is not present. There is some objection to the use of gauze as it obstructs drainage, but I believe it is the lesser of two evils. It is not uncommon in these cases to have the temperature drop to normal in the morning,

without removal of the placenta, after it has been up to 103 F. or 104 F. the previous night. Retained tissue will soon be expelled spontaneously. If there is not a virulent mixed infection, the retained tissue does not much prolong morbidity and does not endanger life. If the retained tissue contains virulent bacteria, the traumatism resulting from interference is dangerous.

The use of douches in puerperal infections is of historic interest only.

V. PELVIC INFLAMMATORY EXUDATES

In non-puerperal cases, gynecologists agree that operations should seldom be done during the acute period of the disease. There is less indication and more objection to operation in the acute puerperal than in the acute non-puerperal case. In the puerperal case the exudate in nearly all cases entirely disappears by absorption. This exudate is less amenable to surgery than the non-puerperal. The tissues changing by involution and the parturient patient have a relatively diminished resistance to surgical interference. The exudate rapidly disappears spontaneously after a general immunity has developed. To attempt drainage of a solid exudate usually means a secondary infection. Even with cases with suppuration, the abscesses are generally multiple, can not all be drained, and secondary infections are nearly certain to result. In a few cases the abscess will point to the surface, generally in secondary colon bacillus infections, and indicate incision and drainage.

VI. HYSTERECTOMY

Hysterectomy is very seldom indicated. The patients infected with hemolyzing streptococci will usually die when hysterectomy is done, and that in the other infected cases the patients will live without hysterectomy would seem to be a conservative statement.

VII. ABDOMINAL SECTION FOR THROMBOPHLEBITIS AND GENERALIZED PERITONITIS

The valuable work of Williams and Trendelenburg is interesting and suggestive. I have not done this operation, and have had but one case of thrombophlebitis in which excision of the affected veins might have been of value. The operation would seldom, if ever, seem to be consistent with the modern interpretation of infection and immunity.

Abdominal section for suppurative peritonitis may have a limited field. The patients of this kind, operated on early in our practice, who were treated by abdominal section, died. The operation to be of value would have to be done early in the infection. Most of these cases could probably be as well treated by free puncture and postural drainage through the posterior vaginal fornix as by abdominal section. We have had but one case in which puncture through the posterior vaginal fornix seems to have been of value.

VIII. PERSONAL OBSERVATION

Eighty-nine cases are included in my series which dates from seven years ago, when operative interference was discontinued in acute cases except in rare individualized instances. Nearly all of the patients were the severely infected ones who are usually referred to the hospital. The greater proportion had been curetted one or more times and had received intra-uterine antiseptic douches.

Of the eighty-nine patients, eight died. Six deaths were from generalized peritonitis and the patients were in a hopeless condition when admitted to the hospital.

One died from large multilocular pelvic abscess; colon bacillus infection, which was incised and drained, and terminated in generalized peritonitis and death. The other died from a hemolyzing streptococcus infection with numerous mycotic emboli.

Local treatment was employed more in my earlier cases and all except two deaths occurred in the first half of our series. With the progress of time less operative work has been practiced, with coincident decrease in morbidity and mortality.

Fifty of the patients received supportive treatment only. In the thirty-nine other cases the treatment was mostly expectant. About 50 per cent. of our patients have had pelvic exudates. Nearly all of the patients with exudates had had intra-uterine treatment before they came under my care. In only one instance in the last sixty-nine cases, that of a metastatic abscess in the gluteal region, was drainage made. The exudates varied in size from slight thickening to masses that extended nearly to the umbilicus. There was usually very slight diminution in size during the acute period, but when the temperature became normal—when a general immunity had developed—the absorption was very rapid. Some of the patients had slight relapses of fever for two-day or three-day intervals. In all of the cases the exudate had practically disappeared when the patient left the hospital. The average stay in the hospital was about three weeks.

IX. CONCLUSIONS

1. Puerperal infection is essentially a systemic infection; the treatment should be chiefly general.
2. The only general treatment of established value consists of remedies which strengthen the body resistance, hastening the development of general immunizing bodies.
3. Retained products of conception should be left to escape spontaneously. In individual instances gauze packing should be used to check bleeding, to hasten separation of the tissues and to stimulate uterine contractions.
4. Pelvic inflammatory exudates usually will disappear entirely by absorption; exceptional cases, usually secondary colon bacillus infections, require incision and drainage.
5. Cases of suppurative peritonitis should be operated on early.
6. The vigorous operative treatment that is often used is more dangerous than the disease.

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ABSTRACT OF DISCUSSION

DR. DAVID J. DAVIS, Chicago: There can be little doubt that the main theme which this paper discusses—namely, the systemic character of these infections—is fundamentally correct; and, furthermore, that the method of treatment advocated is, generally speaking, based on sound pathologic principles. Acute infections in all parts of the body in many respects behave much alike, though anatomic relations are important. An acutely inflamed appendix, for example, early in the process can be easily removed with practically all the infected tissue, and there is little danger of spreading the infection. This is on account of its peculiar anatomy. The uterus, on the other hand, especially during the puerperium, is a very different organ. Here is a loose, spongy, highly vascular tissue intimately connected with neighboring parts through lymphatics, blood-vessels, etc., and excellently adapted for absorption of bacteria and their products. Naturally, there exist all grades of infection.

Generally speaking, immunity factors, as, for instance, the phagocytes, are more sensitive to external agents, antiseptic fluids and the like, than bacteria. Also mechanical interference might remove some bacteria, but with them it would remove defenders of the body and open fresh wounds for further invasion of bacteria, scattering them about or perhaps forcing them deeper into the tissues. In many ways the acutely infected uterus resembles the acutely infected tonsil with deep crypts crowded with bacteria. We do not advise gonging out or extirpating a tonsil when in an acutely inflamed condition, because experience has shown it to be disastrous.

The systemic effect of puerperal fever is, as has been stated, due to absorption of bacterial products or general invasion by germs. The former takes place undoubtedly in every case. The direct invasion of blood-streams often occurs, as shown by the positive blood-cultures so often obtained. It should be pointed out that in reality invasion of the blood-stream is undoubtedly more common than positive blood-cultures indicate, common as they are. Bacteria are not thrown into the circulation from such infected foci always in a continuous stream, but often from time to time in masses in the form of small infected emboli. Such masses may soon be destroyed, and in a short time the blood be sterile again. One can therefore understand that positive blood-cultures may depend on obtaining blood at a time coincident or nearly so with such an embolic distribution. I think it is probably true as in typhoid, pneumonia, possibly tuberculosis and other infections, that bacteria probably may be found in the circulation sometime during the course of the disease in practically all cases of puerperal sepsis.

DR. H. J. BOEDT, New York: We may not be able to draw a conclusion as to prognosis from the result of our blood-culture. When we have something left in the uterus and there is the slightest evidence of an elevation of temperature, it does not seem to me that it is proper at any time to wait until that temperature rises sufficiently to endanger the life of the patient. Whether it be a saprophytic or septic infection, we do not know how soon that infection will become dangerous. The main point is that when something is in the uterus to get it out as soon as possible and with as little traumatism as possible. I never use a curet in such cases.

DR. J. O. POLAK, Brooklyn: When an exploration with the finger reveals the presence of something within the uterus the contents should be removed, but we should stop there with our intra-uterine treatment. Each case of puerperal infection has to be diagnosed and treated on its clinical and bacteriologic findings. We must determine in each particular case: 1. Is the uterus empty? That is the starting point. 2. Has this infection spread beyond the uterus into the parametrium, or is it in the blood? 3. If in the blood, what is the character of the infection? 4. What is the resistance of the individual patient? The first point is met by the exploration of the uterus with the gloved finger to know that it is empty. If it is not, its contents should be removed with the very least trauma. The method is determined by the period of pregnancy. Although one may use a curet in a pregnancy before the eighth week, the curet should never be used in midpregnancy or the later months. The finger is the only method that will give satisfactory results. If the material cannot be completely removed with the finger, packing the uterus with gauze saturated with tincture of iodine and leaving it in the uterus for twenty minutes will remove the detritus. The high Fowler position to attain postural drainage has its largest field in puerperal sepsis. If a woman has a rise of temperature and she is placed in this position, the temperature will improve if nothing else is done. This can be carried out in every home, and it secures uterine drainage.

DR. C. O. THIENHAUS, Milwaukee, Wis.: About five years ago many a patient suffering from puerperal septicemia was curetted and maltreated with iodine over and over again, and without question many a woman lost her life on account of this pernicious polypragmasia. To-day, Dr. Watkins goes to the other extreme and advocates absolute apragmasia, and believes that we should rely entirely on the *vis medicatrix Naturæ*. To this, however, I cannot agree. To leave pieces of stinking placental tissue within the uterus, so that the sur-

roundings of the patient get unbearable and even tympania uteri may ensue, is, I believe, conservatism going a little too far. I agree with Dr. Boldt and the other speakers that if placental tissue is left within the uterus, it should be removed carefully with the finger.

DR. J. B. DELER, Chicago: I wish to support the position taken by Dr. Watkins. I base my judgment on the results of the treatment of a large number of cases in the service of the Chicago Lying-In Hospital. In view of the great diversity of opinion on this subject, I would recommend the appointment of a commission to decide it as far as we can, and report at our next meeting; i. e., whether or not a uterus containing infected placental remains should or should not be emptied. The Germans decided in the affirmative on this point, but not unanimously. At a recent meeting in Chicago the sentiment of the discussion was that infected placental remains should be removed.

DR. GEORGE M. BOYD, Philadelphia: The practice of curetting in the abortion case with a dull or sharp instrument has led to the curetting of the uterus in the early stage of the puerperium, and that use of a dull or sharp instrument for investigation early in the puerperium, I take it from my own experience, is harmful in many ways. It is an old story. I remember Lusk giving out the conservative word twenty years ago at a meeting of the New York Obstetrical Society, cautioning those who were advocating instrumental interference against the dangers, speaking of the formidable results which usually followed in these cases. To go carefully into the history is a very important point in every case of infection. This will reveal the variety, focus and extent of the infection and will tell whether or not the uterus is empty.

DR. T. M. BURNS, Denver: I have irrigated the uterus and found the temperature lower the next day. I have omitted irrigation the following two days and found the temperature no lower. On the third day I have reirrigated and have found the temperature lower than after the first irrigation. I have done this for the purpose of showing the effect of uterine irrigation. I have given a sweat by means of weak, hot lemonade in a number of cases with very gratifying results and have seen no harmful effects. In the onset of typhoid fever following the sweating the temperature sweeps up, while in puerperal infection the opposite occurs.

I have seen ennetage do good and have seen it do harm. I have curetted the uterus in thrombophlebitis with excellent results. I have employed hot fomentations in about twenty cases of thrombophlebitis, and in all immediate relief was obtained and never any signs of embolism. Sustaining treatment and suggestion are always of great value. Some infected patients die of fright.

DR. E. G. ZINKE, Cincinnati: Puerperal infection is so varied and so different, even at different times in the same patient, that it is utterly impossible to present a clear picture of what you have in your mind within three minutes. Dr. DeLee has presented the subject, about as nearly as possible, from my own point of view. I agree with many of the statements made by Drs. Watkins and Curtis. I agree with Dr. Boldt that the uterine cavity should be emptied gently. It can be done gently. Under no circumstance would I permit a woman with a puerperal infection to go on with a mass within the uterine cavity, no matter what the period of gestation. I know the difference in the several puerperal infections, and the avenues which these infections may pursue, whether by the blood-vessel route, by way of the lymph-channels, or whether the poison finds its way directly into the circulation. And this makes all the difference in the world. In cases in which the *Streptococcus septicus* gets into the circulation at once, unless the germ is not very virulent, the patient is hopelessly lost from the start. Unless the woman's resisting powers, the army of defense, is thoroughly prepared to fight the enemy which has entered the system, little can be accomplished with drugs; nevertheless, the parturient tract must be cleared and kept clean. Again, it is different when the blood-vessel route becomes involved. Uterine irrigation in a uterus no longer the site of disease cannot affect the progress of a thrombophlebitis. We know that many of the cases of streptococcal infection, with extensive thrombophlebitis, recover spontaneously. The life of the germ

is limited; absorption of the thrombi takes place; the caliber of the vessel is reestablished and the circulation restored.

DR. SWITHIN CHANDLER, Philadelphia: It seems to me that it may clear the subject a little if we would endeavor to classify the varieties of septicemia. In our institution in Philadelphia we have classified (due to my suggestion) the puerperal septicemias in three varieties: the hemic, abdominal and pelvic. In the hemic variety we have the invasion of the blood-vessel system. In these cases we find post mortem no septic material in the uterus. In these cases it is our belief that there is no justification of operative interference. In the abdominal cases there has been great abdominal swelling with pus from the pelvis up to the diaphragm. It seemed as if every part of the abdominal cavity was covered with infection, and in these cases it is absolutely impossible to recommend any treatment except the vaccines, and in our experience they have been unsatisfactory. In fifteen cases in which the vaccines were used they produced an exaggerated irritation of the kidneys and casts in the urine. In one case, twelve hours after using the vaccines, the woman was taken very much worse, although I cannot say that the condition was the result of the treatment. She vomited and purged and had the typical gastro-enteritis accompanying these septic cases. The pelvic variety, it seems to me, is the only form in which we may have an operation of any kind. I believe that if you have an exudate there, it is better to leave it alone unless you have the formation of pus. If you believe that the abscess will not break until the acuteness of the attack is over, it is infinitely better to wait and operate then.

DR. JOHN A. MCGLINN, Philadelphia: In going to the Medico-Chirurgical Hospital in response to a call in regard to a case of puerperal sepsis, I have no fixed idea of what I am going to do for that particular case. It is a mistake to have a fixed routine to follow in every case. The cases present so many very different phases clinically that we have to treat each case as it presents itself. To my mind there are certain principles in puerperal sepsis which we should follow. If the uterus is occupied with a putrient mass I believe it should be emptied at the earliest possible moment with the least possible trauma. If there is an abscess opening into the posterior culdesac which can be opened without particular trouble, we should remove the pus. I do not believe that, as a general rule, we should open the abdomen and remove the pus in these cases, following up the procedure by hysterectomy. For localized infection I believe the Fowler position will tend to save many cases. That and supportive treatment are methods which I believe we can adopt as sheet-anchors, but we have to vary the treatment to the individual case. One point not sufficiently emphasized is that of etiology. I do not believe that any man teaching obstetrics and gynecology at the present time advises that the puerperal uterus should be curetted with a sharp curet, but the general practitioner gets the idea from some place, because many of them are doing it. If the teachers would emphasize the fact that Nature is the best obstetrician and that a patient should be let alone unless there was some reason for interfering, we would have fewer cases of puerperal infection, and we would not have a discussion on how to cure, but rather on how to prevent.

DR. C. A. RITTER, Kansas City, Mo.: The best barrier against infection is a healthy woman. If the patient is constantly under care of the attendant during gestation, that he may note and early combat the various danger signals as they arise, strict antiseptic precautions had, as to physician, nurse, patient, bedding, instruments and dressing during labor and puerperium; vaginal examinations reduced to the minimum, due care had in repairing lacerations, infection would be rendered less frequent; hence, morbidity and mortality would be greatly reduced. Too little attention is given to drainage. The old idea that the patient should lie on her back for nine days is positively unphysiologic. It is our custom, after the first twenty-four hours, to put the patient in the semi-Fowler position, thereby securing constant drainage and favoring early involution, for a soft uterus invites infection, against which a hard and well-contracted organ is a barrier. It is surprising to note, in consultation, how frequently, and we might say,

ignorantly, the uterus is entered. The first rise of temperature, a slight offensive discharge, is regarded as sufficient indication for the use of a curet, thus breaking down Nature's barriers and often converting local into general infection. In the presence of infection, with retained products of conception, the uterus should be thoroughly emptied with the least possible traumatism, and free drainage, coupled with supportive treatment, should be secured.

DR. A. D. WILLMOTH, Louisville: Most of the speakers have assumed that the infection was introduced through the vagina and uterus. I believe a large percentage are attributable to disease in the tube at the time the woman is pregnant, over which we have no control. If that is true, then we are not liable for the large percentage of cases indicated by the trend of the discussion. From a medicolegal standpoint I believe we would be held responsible largely for all cases occurring under the care of the obstetrician if the infection enters through the vagina and uterus.

We must differentiate between the sapremic and septicemic cases. In one instance, as referred to by Dr. Zinke, you have a nidus of infection which has to have time for decomposition before you get the chill, fever, etc. In the other instance, you have the fatal condition starting immediately and nothing will be gained by interference with the uterus. In the sapremic condition local treatment is indicated.

DR. T. J. WATKINS, Chicago: We have heard a good many opinions about emptying the uterus. Although these opinions are interesting, personal opinions are not very valuable unless they are backed up by some reason and observation and by careful reports of a number of cases. To say that a man empties the uterus and the patient recovers* does not mean much. If it means anything it means only that the patient may have recovered as a result of the treatment or in spite of it. We may divide these infections into purulent and non-purulent. If we have saprophytes alone the uterus should be emptied. But how can we tell the condition present if investigators tell us that 40 per cent. of the lochia in non-febrile women during the first ten days contain streptococci? Bacteriologic examination, as has been pointed out, is uncertain. Take it for granted that we do have a saprophytic infection and that we do not empty the uterus, what will happen? An infected uterus that contains retained tissue will soon empty itself. It is not dangerous. If we remove the retained tissues the woman's morbidity will be slightly shortened, but there will be no difference in the mortality. Suppose, on the other hand, that the sapremic infection is mixed with the saprophytic. Many are of the opinion that streptococcal cases should not be touched. We believe that one of the greatest dangers of manually emptying the uterus consists in dislodging septic thrombi causing embolic infection. Nearly all the patients sent to us with "septic" infection have been enretted. An extremely interesting experience in this line has been cited in regard to retained placenta in animals. You may know that the cow is very liable to this complication and that 5 to 6 per cent. have retained placenta. These cases are left to Nature. They are not touched, although the umbilical cord is exposed to infection. The placenta is almost always expelled on the ninth or tenth day. These cows never die. I never heard of but one, and that was one in which the veterinarian said the placenta should be removed and he removed it.

Childbirth After Pubiotomy.—P. Deus reports seventeen cases from the Berlin Charité maternity and compares them with others from the literature, his material embracing sixty-eight cases of delivery in women who had previously been pubiotomized. He tabulates this material under various headings. The possibility that the pubiotomy can modify conditions so as to facilitate future deliveries he says is abundantly proved by these experiences; the pelvis may be permanently enlarged or it may stretch more readily in later childbirths. These favorable results were evident in 31.8 per cent. of the total cases; an absolutely negative result is recorded in only 15.2 per cent. The final instalment of his article appeared in the last *Gynaekologische Rundschau*, 1912, vi, 435.

THE RADICAL TREATMENT OF ABORTION
WITH OBSERVATIONS ON AND AN
ANALYSIS OF 3,500 CASES *

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The term "abortion" has come to have both a social and a pathologic significance, and while this paper is intentionally occupied with the latter phase of the subject only, it is impossible to ignore entirely the social difficulties complicating the situation. The truth of this will be sufficiently elucidated as we follow the analysis.

There is a second class of difficulties meeting us at the outset of discussion due to the popular ignorance which neither reports nor treats abortions until after they have brought such evils in their train as may only too frequently be expected to follow neglect.

These last might properly be termed educational difficulties, and to meet them a series of articles is needed for the public rather than for this present audience, in order to demonstrate how enervating and progressive is the tendency of neglected abortions to produce future interrupted pregnancies and resulting uterine disease.

That a woman with a past history of abortions or premature labors will be less likely to carry succeeding children to term is demonstrated by the fact that in the following record, for example, 26.68 per cent. of the women having abortions or premature labors acknowledged previous abortions; more than 9 per cent. of these had aborted more than twice previously, and in more than 1 per cent. of the cases the present abortion was at least the sixth. There were several patients with nine, ten and eleven previous abortions, and two women had reached their fourteenth and fifteenth interrupted pregnancies, respectively, without one living child. That there were many women who could not give a very clear record and did not know how many times they had aborted, and sometimes did not know if they had or not, denotes a somewhat lamentable lack of intelligence — or in some cases, doubtless, of honesty — on their part; but this is not wholly unnatural when one considers that the expulsion of the ovum may seem to be merely a belated menstruation accompanied by a clot of blood, the expelled ovum varying from the size of one's thumb nail to the size of two fists or more.

The woman of the people who must be up and about her tasks in the midst of slatternly surroundings, with little or no privacy, and with no one to take her place if she ceases to work even for a day, frequently permits what she "guesses" might have been a "miscarriage" to pass without attention until its sequelæ force her to seek medical aid. It must be said that while this is a more necessitous condition among the very poor, the women in comfortable circumstances, who do not have the same reason for lack of intelligence nor the same compulsion in their surroundings, are not one whit more sensible of the dangers of abortion or more ready to seek aid for it when not compelled by alarming symptoms.

For these reasons, and others, many authorities account that a polyclinical record with careful questioning of the mothers is the only means of acquiring anything like an accurate knowledge of the proportion of

abortions to the total number of births, and that even this must be constantly discounted by unintelligent and false testimony. Necessarily, therefore, statistics as published by hospitals and physicians vary enormously. The Paris Maternité, for instance, gives out a proportion of one abortion to every seven and nine-tenths births; the Russian maternités, one to every ten births; and Kyssner, one to every five and six-tenths. The last is a polyclinical record. Taussig,¹ who made a careful outpatient investigation, estimated as high as one abortion to every two and three-tenths births.

In the statistics previously given by Markoe,² of the staff of the New York Lying-In Hospital, the proportion of abortions was only one in every 23.61, with a mortality of less than 2 per cent.; but this was in a neighborhood where outside help would be sought if grave symptoms occurred.

The word "abortion" has been subjected to somewhat artificial subdivisions, such as abortions and miscarriage — the latter signifying later instances of the same abnormality; early and late abortions; abortions and premature labor; but for my particular purposes at present I shall not consider these subdivisions at all. All cases of interrupted pregnancy coming within the first twenty-eight weeks will be included under one general term whose definition is, according to Taussig, "the previable expulsion of the human ovum." After the twenty-eighth week "premature labor" is a properly substituted phrase for the interruption of pregnancy.

The actual occurrence of abortion is scientifically an "abnormality of the pregnant uterus," and is a variation of a normal physiologic action but occurring too soon. The etiology of fetal death is not to be confounded with that of abortion and must be studied separately, for while "it is the most frequent cause of abortion, it is the most difficult one to avoid." There are predisposing factors in the condition of the mother causing her to abort which may generally be summed up as: (1) increased sensitiveness to nerve stimulation; (2) a greater tendency to placental thrombosis; (3) a lessened resistance to expulsion. While these are all justly considered as explanatory of the condition, they are not primary reasons, and we need still to know what temperamental, accidental or pathologic causes underlie them.

Immediate excitants to ovum expulsion may be of four kinds: mechanical, thermal, toxic and nerve irritation, with fetal death as a fifth determinant. Fetal death may be the result of a number of reasons: congenital, nutritive, infectious or hyperpyretic, but its occurrence acts in reality as a mechanical irritation from within producing expulsive contractions, since the dead fetus is, as it were, "a foreign body" in the uterus.

Among these irritations producing ovum expulsion, the first and fourth only, with some indirect evidence as to the fifth, will be noticed in our analysis, since the thermic and toxic irritants are not tabulated to any extent.

Among mechanical irritations, such as falls, blows and strains, we had seventeen cases of falls, one of a blow on the abdomen, one injury from accident, and one woman had lifted a heavy weight. Psychic conditions causing abortion were cited in about four cases. The accidental causes of abortion, then, all told in this list, amounted to less than 1 per cent. of the whole. This,

1. Taussig, Frederick J.: The Treatment and Prevention of Abortion.

2. Markoe, James W.: Observations and Statistics on 60,000 Labors.

* From the Service of the Lying-In Hospital of the City of New York

therefore, is correctly accounted an insignificant cause by most authorities.

Uterine disease occasioning a greater tendency to placental thrombosis are among the frequent causes of abortion. These are naturally to be found among multiparæ more often than among primiparæ, and abortions among primiparæ are notably less in lists recorded by nearly all writers. Franz found less than 0.5 per cent. among his 844 patients to be primiparæ.

In our series there were 580 primiparæ, or 16.5 per cent.—approximately one primipara to every six aborting women. This becomes more exact when we divide the 3,500 cases into two groups with separate sets of factors. The first group was composed of 1,781 neighborhood cases, mainly made up of women in their own homes subject to the ordinary accidents of pregnancy; and the second was the hospital group, including many cases of criminal abortions, and almost all of the accidents and emergency cases. The percentage of primiparæ for the latter group alone was 25 per cent., leaving the low percentage of 8.9 for the first group.

We shall see that these two classes of cases fall apart in more ways than one during the process of analysis, but mainly in the mortality percentage. The division into two groups affects the ratio of primiparæ in proportion to the criminal abortions. Among these, primiparæ made up 35 per cent. of the hospital group and only 16 per cent. of the neighborhood group.

The next interesting set of figures deals with the relation of the abortion to the month of gestation in which it falls. In our series there were 1,320 cases between the sixth and twelfth week, 1,220 cases in the three months following this and 800 in the first six weeks of pregnancy. These figures are given in their relative importance of frequency. There were 140 unnoted cases, and some twenty cases of premature labor which do not properly come under our definition, "the non-viable expulsion of the human ovum."

Viability has not, as yet, been actually determined, but premature births to the limit of the twenty-fourth week have produced living children. Ahlfeld believes the assumption of the non-viability before the end of the twenty-eighth week altogether too arbitrary, and Budin and Tarnier of the Paris Maternité show a number of living children even at the twenty-fourth week. Budin claims 30 per cent with the use of incubators.

The manner of the expulsion of the ovum varies with the anatomic changes of pregnancy, which may be divided into three groups of unequal time limit but covering the first two-thirds of the pregnant period. The first period occupies the six weeks in which the ovum is implanted in the uterus, and the second group of six weeks is that of placental formation. Careful study of the marked increase of abortions within this latter period show that they are due to the nutritive changes of the fetus at this time: to circulatory disturbances in the uterus from the developing placenta and, finally, the fact that this is the time when the pressure symptoms from malposition of the uterus would be felt.

There is a fourth cause—syphilis—given by Thomas as a reason for the increased number of abortions in the second six weeks; but if it is true, as I believe, that syphilis is liable to occasion fetal death, then a later period of gestation would be more likely to be affected by this infection.

During this second period—that of the most frequent abortions—there is a firmer adherence of the

chorion to the uterine mucosa, and with it a greater tendency to the retention of portions of the placenta after the ovum is expelled. When the membranes have been ruptured by instruments to induce abortion the entire placenta may be left adherent or the decidua may come away in shred-like discharges after the abortion.

It should always be borne in mind that the record of abortions for the first two months, even leaving out of account cases of criminal abortion, which certain authorities place at as high a figure as 50 per cent. of all that occur, are harder to keep than those happening later; and, therefore, it is not surprising to find the number of abortions in the first six weeks the smallest of the three periods under consideration.

In the first three months, 1,320 abortions occurred (60.5 per cent of the whole number), and the fetus was not found in 1,183 of these cases. This was often due, no doubt, to the fact that the physician was not called in until after the abortion had taken place, sometimes not until a long while after; but it gave additional reason for the needful ennetage to avoid resulting conditions of sepsis and disease.

In the entire series the ovum was expelled broken up in 547 instances, and unruptured in 480 (13.7 per cent.).

Three stages, as for labor at term, may be detected in abortions occurring between the twelfth and twenty-fourth weeks; that of cervical dilatation may be extended over several weeks followed by rupture of the membranes and the expulsion of the fetus. While the placenta is more easily detached from the uterus in its later stages of development, it is expelled more slowly during premature deliveries than at term, because the uterine contractions are less powerful at the earlier period and the placenta, being somewhat larger than the fetus, may require greater dilatation of the cervix. The uterine mucosa will also be found more closely connected with the ovum when inflammatory processes are present.

The general analysis of the product in this series gives the following results: fetus found macerated in fifty-two cases; spontaneously delivered, 167 cases; manually extracted, eighty-six cases; instrumentally extracted, eighty-three cases; found and measured, 143 cases; multiple pregnancies and monstrosities, eight cases; not found, or unobserved, 2,961 cases. It is worthy of observation here that the 2,961 cases of unfound products of abortion make up nearly 85 per cent. of the whole number and point significantly to the fact that the uterus needs careful investigation after every case.

Abortions are also due to an infection producing inflammatory conditions or syphilitic changes, and finally to hydrops of connective tissue known as hydatid mole. In my series, there were three cases of hydatidiform mole, fourteen of tumors, cysts, etc. Syphilitic, tuberculous, nephritic or other cachectic symptoms are often accompanied by degeneration due to anemic infarcts producing albuminuria. There were thirty-five such cases noted in my list, beside other degenerative results.

Suppurative deciduitis may finally occasion sepsis, a pathologic condition following the expulsion of the ovum. It will be found in considering the mortality of the cases before us that sepsis of some kind is the most frequent cause of death.

The total mortality of the 3,500 cases was sixty-six, or 1.8 per cent. This is slightly less than the percentages of deaths from abortion given by careful authorities

elsewhere; 1.9 per cent is more usual. Continuing the interesting subdivision of cases into two groups as we have done previously, we shall observe that in the neighborhood subdivision there were only three deaths out of 1,781 cases, giving practically the negligible percentage of a little over .016 per cent. On the other hand, the percentage of deaths in 1,719 hospital cases was sixty-three, or 3.6 per cent.

The number of induced abortions in the whole series was seventy-four, or 2.11 per cent.; in the hospital alone, sixty-nine, or 4.07 per cent. In the hospital practice there were thirteen deaths from criminal abortion, or 6.3 per cent. of the mortality list.

The remaining fifty-three deaths were from the following causes: pneumonia, three; septicemia with other complications, twenty-three; toxemia of pregnancy, six; peritonitis with pyosalpinx and other complications, eight; pyemia, four; staphylococcus infection with general peritonitis, one; shock from hemorrhage, one; asphyxia from chloroform, one; unknown, three; ruptured uterus, one (this and placenta prævia were combinations in several of the above cases); albuminuria, one (this and nephritis were complications several times); ruptured tubes, ectopic gestation and hysterectomy combined, one.

TREATMENT

The two symptoms which are always present in an abortion are pain and hemorrhage. It is, nevertheless, necessary to obtain a more complete history of the case since other pelvic conditions cannot always be differentiated from abortions without careful diagnosis. A thorough vaginal and abdominal examination is, therefore, necessary since the abdominal examination alone often gives only the rather negative results of a general tenderness.

After the third or fourth month, an enlargement and softening of the uterus, with a partially dilated cervix, may be found on vaginal examination; if the symptoms have persisted for some time, the cervical canal may even permit the finger to enter, and in such cases there can be no room for doubt.

The character of the hemorrhage should be obtained, if possible. By the previous analysis it has been shown that in most instances of early abortion the fetus is lost and, therefore, it is difficult to determine without this evidence how much may be remaining within the uterus; if, however, the cervix is dilated, the bulging mass of membranes may usually be felt.

PROPHYLAXIS

If the cervix should be tightly closed and the patient not bleeding profusely, of course, every effort should be made to prevent the further stages of abortion. The patient should be put to bed, the rectum emptied, an opiate administered if necessary, and absolute quiet should be ordered. I prefer to use a combination of sulphoethylmethanum and codein, given almost to the point of stupefaction, for quieting the patient. In private practice, especially, by this means many initial symptoms of abortion may be checked and the pregnancy continued normally.

It seems scarcely necessary to emphasize the fact that the surgical treatment of abortions should be as carefully aseptic as that for any surgical operation. When a careful examination has been made and the physician finds that the abortion is incomplete or inevitable, let him at once proceed to pack the uterus with iodoform gauze $\frac{1}{4}$ inch wide, after having placed the woman in

the lithotomy position with the usual preliminaries of thorough scrubbing and shaving of the external genitals. The packing may be done with the aid of a bivalve speculum and a volselum forceps on the cervix, using a uterine-dressing forceps or a sponge forceps to introduce the gauze. "If a clot, or the fetus, or the placenta, is within the grasp of the cervix and ready to be expelled this is extracted with the sponge holder or with the finger"³ (Kosmak, p. 34). The uterus and vagina should be packed as tightly as may be without using force, and the patient should be kept absolutely quiet for another twenty-four hours.

After the first twenty-four hours of packing, every patient should be prepared for a curettage since, no matter how complete the expulsion may have appeared to be, the curet will bring down bits of tissue, liable, if not removed, to adhere to the uterine wall. These adhering tissues often produce inflammatory conditions and further uterine troubles, such as endometritis, with attendant leukorrheas, and so forth. It is of the utmost importance that there should be no focal point left within the uterus for the growth of pyogenic organisms.

Complete anesthesia is desirable for the second stage of treatment in abortions. If the cervix is not sufficiently dilated, this is accomplished with a Goodell dilator, and the uterine interior is explored with a sponge forceps for the purpose of extracting any large masses of tissue within its grasp. Careful curetting with a large sharp curet is then performed until the uterine cavity is clean. It is not desirable to douche the interior of the uterus since the ostia of the tubes may be relaxed in the general muscular relaxation of the uterus, and the douche water may find its way into the peritoneal cavity through the fallopian tubes. Scrubbing out the uterus with a bit of gauze serves the double purpose of final cleansing and of stimulating contraction of the uterine muscles, so much so that the cervix may even demand a further application of the dilator before the packing is finished. The entire uterine cavity is then wiped out, first with dry gauze and then with tincture of iodine, and an iodoform gauze drain reaching to the fundus inserted. If obstinate hemorrhage persists, the uterus may be packed, although this is usually unnecessary.

This technic generally follows the course outlined by Kosmak, of our staff, in a recent article, and with a few minor changes is that universally used by all the surgeons of the hospital. Radical treatment in the above manner was given in 2,803 of our 3,500 cases. Of these so treated, there were only forty-four who were not left in good or fair condition, and thirty-eight who died; eighty-two in all (2.9 per cent.). Of these forty-four, twelve refused further examination and treatment; fifteen were sent for treatment elsewhere for such general causes as syphilis, phlebitis, pneumonia, puerperal mania, etc.; six had tuberculosis; nine left against advice; two had severe complications.

SUMMARY

In summing up the entire situation the following points are evident:

A. Abortions are more common than we realize, and the sequelæ are frequently serious.

B. After every prophylactic measure has been tried and the abortion which has threatened becomes inevitable, the following statements seem to have been proved by the foregoing analysis:

3. Kosmak, George W.: The Radical Treatment of Abortion.

1. Rarely, if ever, is an abortion complete. Only in 13.7 per cent. of the cases analyzed was there the slightest reason to believe that the ovum was expelled unbroken.

2. All abortions should be investigated and the uterine cavity explored.

3. When this is done according to the outlined method, we can show a mortality in all classes of cases of not more than 1.8 per cent. and in ordinary cases, exclusive of accidents and malignant complications, of not more than .016 per cent.

4. We can also show, which is perhaps most important of all, satisfactory results in 97 per cent of all cases so treated.

NOTE.—In addition to the authorities previously cited, the following may also be consulted:

Edgar, James Clifton: *The Premature Interruption of Pregnancy*, Medical Report New York Lying-In Hosp., 1897.

Harrar, James A.: *The Results and Technic of the Lying-In Hospital Outdoor Service in 4,500 Confinements*.

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ABSTRACT OF DISCUSSION

DR. J. M. BALDY, Philadelphia: This whole question of the treatment of abortion is to be viewed from two standpoints. From the scientific standpoint I might be willing to grant that the paper is somewhat near the truth. The statement is made that all abortions under four months are incomplete. Those of us who have practiced in the slums, in well-appointed hospitals and otherwise, know that that is not a correct statement. The majority of these cases, unless brought on by criminal abortion—I mean coming on from inherent disease—are complete—perhaps not complete at the moment they are seen, but if handled properly they will be complete. I am talking largely to the body politic of the medical profession and not the experts. All women miscarry on an average of one in four, and abortion is therefore not an unusual thing. I would say not to use an instrument for abortion unless there was special indication for that interference. Ordinarily I would say that, unless a patient is septic, I would never interfere, but wait and see the result, whether there is an elevation of temperature or pulse or undue bleeding. Of course, the patients that come to us septic and with temperature and pulse elevated, are an entirely different class of cases than the ones I have been discussing. There we are dealing with a pathologic condition and not what might be called a physiologic one. The whole teaching of this eternal interference with abortion under any and all circumstances has done more harm to women and to the medical profession as a whole than almost anything else I know of in the way of teaching. What an advanced specialist can do with safety and what is best for the ordinary family doctor to do are two entirely different things.

DR. F. J. TAUSSIG, St. Louis: I have had occasion to look into the literature of this subject rather extensively; Dr. McPherson's paper is the first thoroughly systematic review of cases from any large American institution. In regard to treatment, I do not believe that he meant to say that the form of treatment that was adopted at the lying-in hospital would be that which could be adopted by the profession at large, and yet, I feel that unless this is explicitly stated, the profession at large would be tempted to adopt such a method. I feel that particularly in obstetric matters, we are inclined to recommend, for cases that are usually treated by the general practitioner, methods of treatment that require special training and technique. I am thinking now more particularly of the treatment for eclampsia, for which some have recommended vaginal cesarean section, an operation that certainly could not be done

by the average practitioner. As to the treatment of abortion, I believe that in the long run we would do better to follow Dr. Baldy's advice and teach the general practitioner to leave abortions alone, unless special complications ensue. I would differ with Dr. Baldy regarding the complications demanding interference. It seems to me that the cases in which there is a large portion of placental tissue retained are the ones that demand operative treatment. When, however, there is a septic condition I should hesitate very much to recommend operative interference by the practitioner.

DR. A. M. HAYDEN, Evansville, Ind.: The curet is the most dangerous instrument that can be put into the average practitioner's hands. I do not believe it should be used in abortion under any circumstances. Of course, if you have a pathologic condition, a portion of the placenta remaining in the uterus undergoing decomposition, it is well enough to clean out the uterus, but that can be done without using the curet. If a curet is used at all it should be a very dull one. If the portions of placenta are sufficiently large, I take them away with placental forceps. In the majority of such cases, if the uterus is packed aseptically as in a laparotomy with iodoform gauze, which is removed once in twenty-four hours for two or three days, the uterus will be made thoroughly clean and aseptic. This thing of meddling with abortions or interfering in such cases, unless there is special indication, I think does harm. The average patient will do better if let alone than if interfered with.

DR. HENRY SCHWARZ, St. Louis: I believe the sharp curet should not be used in recent cases of abortion. Dr. McPherson has particularly emphasized the fact that abortions are apt to lead to pathologic conditions of the uterus, which will create the habit of abortion, and in these cases I have been in the habit of using the sharp curet six or eight weeks after the miscarriage has taken place for the purpose of insuring a thorough involution of the uterus.

DR. ROSS MCPHERSON, New York: In regard to Dr. Baldy's statement that abortions are always complete and also in regard to his reference to the treatment practiced, I would say that 1,718 of our cases occurred in tenements, and that each case was taken care of by our staff, not by the more highly trained members. Every case was examined by the pathologic laboratory and, in every instance, detritus was removed which could not have been removed had the operation not been performed. If Dr. Baldy will recall the figures he will remember that the mortality was 0.016 per cent., which is a negligible death-rate. The cases occur in the worst districts of this country and the work is done by our interns under supervision, but the surrounding conditions are as bad as they can be. I do not believe that over 20 per cent. of any abortions are ever complete, and I still adhere to the theory that a great many of the endometritis conditions are due to untreated abortions. I cannot change my opinion on that. I would agree with Dr. Taussig that it would be better for the general practitioner not to do curettage, but the general practitioner, in New York at least, will do curettage, and therefore it is better that he be trained to do it properly rather than as he so often does it now, without an anesthetic and with no aseptic precautions. Therefore, I think it proper to bring forward such statements. The danger of the curet, of course, is a question that comes up annually for argument. The curet is dangerous, and so is a knife or a pair of scissors, but both are very efficacious if properly handled. I believe that gauze packing will bring away much of the extraneous matter, but I am certain that repeated packing is fully as dangerous from the standpoint of infection as is a proper curettage, if not more so.

Alcohol a Narcotic Poison.—Careful study of the effects of alcohol on vital resistance, the phagocytic power of leukocytes, heat production, digestion, the heart's action, blood-pressure, the kidneys, the liver, the brain and the nervous system has led scientific observers to the conclusion that alcohol is a narcotic poison to be classed with such drugs as chloroform, ether and chloral.—B. C. Keister, in paper read before the Medical Society of Virginia.

GYNECOLOGIC DISEASE IN THE INSANE
AND ITS RELATIONSHIP TO THE VARIOUS FORMS
OF PSYCHOSES *

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The influence of gynecologic disease in the causation and prolongation of insanity among women in the past has been the subject of the most extravagant statements. Even yet we hear, usually from those with limited experience, that most of these women can be cured by operation. I am particularly struck with the lack of judgment displayed by some of the writers abroad. Professor Bossi of Milan, who devised the well-known uterine dilator, recently published an article on the relationship of suicide to gynecologic disease based on half a dozen observations and many hypotheses. Professor Schultze of Jena, a month later agreed with Bossi's assumption that a large percentage of psychoses in women could be cured by operation. He referred to the work of Hobbs of Canada, but seemed entirely ignorant of the important work of Manton of Detroit, and Leroy Broun of New York. It is primarily to Manton and Broun that we owe our present knowledge of this subject. Their work has extended over a long period of years and is characterized by carefully drawn, conservative conclusions. It was primarily concerned with the results of operative treatment and the character of psychosis most favorably influenced thereby.

A question of perhaps equal importance has as yet hardly been touched on; it is that of the percentage and exact character of gynecologic lesions found in insane women, and above all, the relationship of such lesions to the different forms of insanity.

EXAMINATIONS

As gynecologist to the St. Louis City Sanitarium I have examined personally, during the past year, 537 out of about 900 women inmates with a view to making a complete gynecologic diagnosis. The violent patients and those suffering from paresis were in great part omitted, but otherwise patients were taken in regular order without selection. The patients could usually be quieted easily; some here and there — approximately one in ten — would offer resistance. The attendants were instructed to watch the patients for a day or two after examination to note if the psychosis was in any way unfavorably influenced by the examination. Only in very rare instances was a temporarily increased excitability observed.

Patients examined in the observation ward of the St. Louis City Hospital before being transferred to the sanitarium were usually very difficult to manage and the gynecologic examination was most unsatisfactory. Even after they had been at the sanitarium for some time it was by no means easy to make a complete bimanual examination. For this reason I preferred to make all the examinations personally, while Dr. Keim and the nurse reassured and quieted the patient. By such means I was often enabled to obtain the necessary relaxation, when it seemed almost impossible to accomplish it otherwise. Let me say at this point, that the report of Dr. J. K. Mitchell of Philadelphia on postoperative and

postanesthetic insanity convinced me that only in cases of emergency would an anesthetic for diagnostic purposes be justified; so far, I have not employed it. In several instances when the patient at first resisted, I was able later, as the psychosis improved, to obtain complete relaxation.

RESULTS OF EXAMINATIONS

As a result of these examinations, 252 of the 537 women were found to have some lesion in the pelvic organs sufficient either to cause symptoms or to be in a position to cause them sooner or later in their lives. Minor abnormalities such as are found in practically every woman (small cervical tears, tears of the perineal body only, slight discharge, movable retroversions of the first degree), I classified as normal. In about one-fifth of the women showing gynecologic disease more than one lesion was found. There were altogether 319 pathologic conditions in the 252 women (Table 1).

TABLE 1.—CLASSIFICATION OF GYNECOLOGIC DISEASES
FOUND IN INSANE WOMEN; 319 PATHOLOGIC CONDI-
TIONS IN 252 PATIENTS SO DISEASED

Retroverted uterus	87	Polyp of urethra.....	4
Anteflexion - retroversion of uterus	22	Urethritis	2
Atrophy of uterus.....	8	Vaginitis	4
Laceration of cervix.....	13	Endocervicitis	19
Relaxed pelvic floor.....	52	Endometritis	19
Markedly relaxed abdomen..	4	Salpingitis	20
Prolapsed uterus	13	Tubo-ovarian mass	3
Prolapsed urethra	1	Parametritis	5
Prolapsed rectum	3	Condyloma acuminata.....	1
Fibroid uterus	20	Bartholinian cyst.....	1
Ovarian cyst	3	Pruritus vulvæ.....	1
Cystic ovary	2	Postoperative condition....	13
Polyp of cervix.....	8		319
Arrest of development, 30.			
Tears and relaxations, 86.			
Tumors, 23.			
Polyps, 12.			
Inflammations, 63.			

It is of particular interest to note the character of pelvic disorder prevalent among these insane women. Cervical lacerations were seen in only about 5 per cent. of the diseased women. Serious inflammatory trouble was only rarely found. Not a single case of malignant disease appeared in this number. Other tumors were of about average frequency. On the other hand, mild chronic inflammatory trouble was frequent; retroversions of the uterus were present in a large proportion, and, above all, relaxations of the pelvic floor and abdominal walls were very common. To what degree the prolonged institutional life of many of these patients, together with its attendant constipation, was responsible for this frequency of relaxation I could not say but the assumption that it was responsible seems justifiable. Polyps of the cervix or urethra were also frequent, out of all proportion to the average. Conditions indicative of an arrest of development of the genital tract were found in over 10 per cent. of the diseased women.

ANALYSIS

The percentage of women with gynecologic disorders, as shown in Table 2, is usually given as much higher than the 47 per cent. figured in the present report. It seems probable that gynecologic disease is only slightly more common in insane women than in the sane. The point of real interest is the distribution of these lesions among the different forms of insanity.

In three of the important groups — senile dementia, terminal dementia and paranoia — the percentage of women with pelvic trouble was only about one-third. In dementia præcox about one-half the women were diseased. About two-thirds of the imbeciles were to be so

* The work of the present report was done with the collaboration of Dr. J. P. Keim, Assistant Resident of the St. Louis City Sanitarium.
* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

classed; and in the manic-depressive group the percentage of women with gynecologic lesions was as high as 74 per cent. The psychic diagnoses were carefully revised by the superintendent, Dr. Johns, to whom I wish here to express my thanks. Considering the large number of patients examined, it could hardly be mere chance that such a striking difference should appear between the women in the manic-depressive group and those in some of the other groups.

Analysis of these examinations according to the character of disease associated with the particular psychosis

TABLE 2.—PERCENTAGE OF PELVIC DISORDERS IN INSANE WOMEN

Physician Reporting	Number Examined	Diseased	Percentage Diseased
Manton	100	81	81
Lawrence	100	84	84
Hobbs	220	188	85
Claus	54	...	15
Danille	200	138	69
Hall	154	...	38

TABLE 3.—REPORT OF 537 GYNECOLOGIC EXAMINATIONS OF INSANE WOMEN CLASSIFIED ACCORDING TO PSYCHOSIS

Psychosis	Total	Gynecologic Disease	Normal	Percentage Diseased
Terminal dementia	82	30	52	36
Paresis	5	3	2	60
Senile dementia	106	30	76	28
Dementia præcox	92	47	45	51
Manic-depressive insanity ..	61	45	16	74
Imbecility	52	33	19	63
Paranoia	50	18	32	36
Melancholia	20	8	12	40
Toxic insanity	8	5	3	62
Hysterical insanity	4	3	1	75
Postapoplectic insanity ...	3	0	3	0
Epileptic insanity	18	6	12	33
Unclassified	36	24	12	67
Total	537	252	285	47

brought out several additional points. The terminal dements showing only 36 per cent. abnormal had a proportionately large number of postoperative cases. Among the senile dements I found the increased number of relaxations that might be expected in old women. The dementia præcox patients showed an unusually large number with arrest of development. That there is some co-relationship between the gynecologic lesion and the form of the psychosis seems more than probable. In the group of imbeciles arrest of development was also more frequent than normal. Of special significance, however, was the frequency of inflammatory trouble and its associated misplacements of the uterus in the manic-depressive group. Since the psychic diagnosis made by the hospital authorities was only recorded after all the gynecologic findings had been tabulated it came as a complete surprise that there should be such a definite relationship between certain psychoses and certain gynecologic disorders.

TREATMENT.

Although these examinations showed that almost one-half of the insane patients had some pathologic condition of the genital tract, it by no means follows that all of them required treatment. It was not always an easy matter to determine whether a given condition was giving rise to symptoms, but in all doubtful cases the

attendant was instructed to watch the patient closely for several weeks. As nearly as could be determined, 141 out of the 252 women required some form of gynecologic treatment. Forty-seven were put on conservative measures such as douches, tampons, pessaries, etc., and in the remainder the question of operative relief came up for decision. Before any patient was subjected to an operation, the following precautions were taken: (1) Consent was obtained from the relatives; (2) the patient was put in the best possible psychic condition; (3) the ailment must be clearly giving rise to symptoms of moderate severity or be in itself a danger to the individual.

Ninety-four patients in this series belonged to the possibly operative class, or 17 per cent. of the total number of patients examined. Probably not over two-thirds of this number will eventually require operation or submit to operative procedures. So far, only seventeen have been subjected to such treatment. One operation was an emergency one for double-sided suppurating ovarian cysts; the rest were undertaken only after the patient was in a favorable mental condition. Although the number of operations is as yet too small to justify any conclusions, it is interesting to see that all the patients showed physical improvement and some mental improvement as well, and that none showed any untoward effects either physically or mentally. Whenever possible, it was my aim, when doing a laparotomy, to keep a portion of the ovaries intact, and at the same time to resect a portion of the uterine end of the tubes. My opposition to double ovariectomy is based partly on the observations of such men as Manton, Raimann and Broun, partly on the history of the twenty-two postoperative psychoses in my own series. Over two-thirds of these women had had a double ovariectomy done on them; in some it had clearly been the exciting factor in the psychosis; in others it had made the condition worse; in none had it been beneficial.

My reason for resecting the tubes whenever the abdomen was opened for any other cause, provided always that the consent of the relatives was obtained, is based on several sad instances in which imbeciles and insane women became pregnant during lucid intervals while away from the institution and gave birth to imbecile or defective children.

In this connection, it is interesting that out of 313 women in this series of examinations 186 were married and 127 were single. In ninety married women tabulated for this purpose, there had been 216 children, an average of 2.4 child per mother. When we consider the domi-

TABLE 4.—TABULATION OF AGE OF 107 INSANE WOMEN AT ONSET OF PSYCHOSIS

No.	Age	Per Cent.	No.	Age	Per Cent.	No.	Age	Per Cent.
4	*	..	34	30-40	..	11	12-18†	10
14	20	..	11	40-50	..	11	42-52‡	10
33	20-30	..	9	50-60	..	..	20-40	60

* Congenital. † Puberty. ‡ Menopause.

nant part played by heredity in the causation of insanity, the question naturally arises whether the state should allow such propagation of the insane to continue indefinitely. With the growth of eugenics as a science, this matter is bound soon to receive proper attention. I believe the time will come very soon when the sterilization of the insane will be considered necessary for the progress of the human race.

A brief additional study was made of the relationship of the age of the patient to the onset of her psychosis.

Table 4 shows that out of 107 women, about 10 per cent. developed their psychosis at the time of puberty, 10 per cent. at the time of the menopause and over 60 per cent. between the ages of 20 and 40. Only here and there was the psychosis aggravated during menstruation or the direct result of a foregoing pregnancy.

OPERATION IN MANIC-DEPRESSIVE INSANITY

Let us return for a minute to the question of operative treatment for these insane women. In Table 5 is a

TABLE 5.—OPERATIONS AND RESULTS ON MENTAL CONDITIONS

Operator	Number	Mortality Per Cent.	Recov- ered Per Cent.	Improved Per Cent.	Un- changed Per Cent.	Worse Per Cent.
Hobbs...	173	2	42	24	32	0
Mayo...	60	0	..	16	..	0
Angelucci	109	.	..	..	..	21
Henry...	28	3	..	57	40	0
Rohe....	34	0	41	15	44	0
Brown...	242	2	18	..	..	0
Taussig..	17	0	17	17	66	0

summary of some of the operative work done so far. While the percentage of mental recoveries is not very great in the more careful statistics of such men as Brown, there can be no doubt that the operative measures are absolutely justified merely by the bodily welfare of the patients. The most important fact brought out by Leroy Brown's last report is the fact that a large percentage of the women who recovered their normal mental condition were of the manic-depressive group. The exact numbers as stated by Brown are fifty-one out of seventy-two, or about 70 per cent.

We have therefore three facts pointing to some sort of relationship between gynecologic disease and manic-depressive insanity. They are:

1. The decidedly greater frequency of gynecologic disease in this form of insanity—74 per cent. as compared with average of 47 per cent.
2. The large proportion of chronic inflammatory conditions of the genital tract in this form of insanity.
3. The proportionately large percentage of mental recoveries after gynecologic operations done on women having this form of insanity.

I conclude, therefore, that in manic-depressive insanity every patient should be subjected to a gynecologic examination and that when a definite lesion is found this should be corrected either by local or operative measures.

ABSTRACT OF DISCUSSION

DR. T. M. T. McKENNAN, Pittsburgh: In the psychopathic department of the hospital we have about 100 women all the time, and it would seem desirable—in fact, a duty—on the entrance of a woman patient to have every form of examination gone through with. The plan of procedure that we adopt is about as follows: The history is taken in the receiving-ward and then all the physical examinations are gone into by competent men—the internist and the psychiatrist—and then the various laboratory tests are made. In a very small percentage of cases it is possible to have a gynecologic examination made. In the acute cases it is rare to have such examination unless the patient is subjected to anesthesia, and as Dr. Taussig has said, it is advisable to do this but rarely. We have really formed no definite conclusions, although this matter has been going on for several years. The dementia præcox patients do not show a large number of disturbances except in the matter of undeveloped uteri. This is in harmony with the other anatomic stigmata in these cases. The general hospitals for the insane in many of the states have gynecologists associated with them. In Pennsylvania all of the state hospitals have a

woman resident physician who is supposed to do this work. Unfortunately, I believe that in most institutions this work is rather neglected, and it comes down to the question of these chronic cases, many of them cases of dementia præcox, and the senile type in which it is thought hardly worth while to examine unless actual attention is called to the case.

Our gynecologist, Dr. Huggins, has operated in quite a number of chronic cases. I am not competent to speak on the matter except from the psychic standpoint. So far as our observation goes, operation is borne badly and the postoperative care is very difficult, especially if they show maniacal tendencies. The subject is one to be approached from the scientific standpoint. Institutions should have a competent gynecologist associated with the work. It is difficult to avoid wrong conclusions. Recovery in an individual, especially in this class of cases, does not indicate that the means used have been actually productive of recovery. This is especially true of the manic depressives, among whom the ordinary recovery rate is from 60 to 85 per cent.

DR. C. O. KEPLER, Boston: About a year ago I had a paper published in the *American Journal of Obstetrics and Gynecology* on the subject of complete procidentia in the nulliparous woman, with special reference to physical degeneration. I was surprised to find how many cases there were of congenital stigmata associated with mental perversions. I found that the physical stigmata that were not gynecologic included hare-lip, cleft palate, spina bifida and various stigmata of that sort; also umbilical hernia and obstetric stigmata. I also found cases of congenital absence of perineum, atresia and absence of the vagina and the uterus and its appendages; also in quite a large number of cases complete absence of the pelvic floor and many cases of relaxation. In another case that was not congenital there was femoral hernia, associated with procidentia. This is a true hernia in Douglas' pouch. Of the complete procidentia in the nulliparous woman I was able to collect in the literature reports of seventy cases. Through the kindness of gynecologists and alienists in this country and Europe, I was able to collect about eighty more cases of complete procidentia associated with all forms of mental perversion from a low-grade mentality to complete imbecility, even cretinism and idiocy and from hysteria to all forms of mania.

DR. M. A. CONN, Brooklyn: Only last week I saw a case of nymphomania in my office. The woman was bordering on insanity, and I am almost sure that sooner or later she will land in an insane hospital.

DR. WALTER P. MANTON, Detroit: From my experience I doubt whether pelvic disorders ever cause insanity. There is no doubt whatever, however, that pelvic conditions—foci acting as points of irritation—do keep up the insane condition and add more or less to its severity. I can also say that I have never yet seen an insane patient cured by surgery *per se*. We have had many cases of so-called cures, and there is no doubt that surgical procedures in their proper place do act as factors in helping to restore the disordered mind, but I doubt very much whether surgical operations alone on the insane have a curative effect. The statistics of Dr. Taussig as to the frequency of pelvic disorders among the insane correspond very closely with mine, about 50 per cent. in unselected cases. Some years ago in a series of unselected cases at the Pontiac State Hospital I found the frequency to be about as stated.

An anesthetic is absolutely necessary in the successful examination of certain patients. I have not yet seen any evil effects from the anesthetic used either for examination or operation. Some years ago I looked into the question of the legality of operations on the insane and found that such operations were not permissible unless the consent of the friends of the patient was obtained, or in the absence of friends, in the instance of state charges, of the superintendent. Relative to the large number of cases of manic depressive insanity and dementia præcox in which pelvic disorders were found, I think that dementia præcox occurs, roughly speaking, in something like 10 per cent. and manic-depressive insanity in perhaps the largest proportion of all cases of insanity in institutions. This being so, naturally we should expect to find the largest number of pelvic and abdominal conditions in the insane associated with these two mental disorders.

DR. GUY L. HUNTER, Baltimore: I have a patient in the Hospital who brings out very strongly the importance of knowing about what we ought to expect from operating on patients of this class. A very prominent woman of Washington consulted me about two months ago, saying that her family physician, whom I know to be a very good man, had told her that she must be operated on for her relaxed outlet and partial descensus of the uterus. She is 36 years of age, has three children, and has had increasing trouble after her menstrual epoch in reference to mental disturbances, almost suicidal. Were it not for her children she feels that she would take her life. The family history is very bad, which seems to me to have more to do with her condition than the relaxed outlet and partial descensus which would be seen in almost any woman who had had three children. To test the question of whether a supportive operation would help her, I had her wear a pessary for six weeks or two months, but it seemed to do absolutely no good. I operated on her the day I came down here, because she had the idea firmly fixed in her mind that she was not going to get well until operation was done, and because she had some little trouble in the pelvis. I had urged that she wear the pessary for the summer, but she did not agree to this. It is only by having many statistics, such as Dr. Taussig has, that we shall be able to draw very definite conclusions concerning the value of operating on patients suffering from this sort of trouble. The cases that perplex me most are those of so-called epilepsy—menstrual epilepsy. In almost every case the family and family physician are convinced that the attacks occur at or near the menstrual period. Practically, they occur at almost any time. I have operated on four or five patients, explaining thoroughly beforehand that I had no faith in the results, and have had but one good result in removing the ovaries. That case was the only one in which the epilepsy did occur at the time of the menstrual period. The patient is well and is most grateful for the outcome. I should think that twelve cases of polypi, eight of the cervix and four of the urethra, in 500 cases, not a very high percentage. It seems to me that about 1 per cent. of all office patients have urethral polypi and eight out of 500 have cervical polypi. The urethral caruncle is almost one of the most painful conditions a woman can have. In regard to the inflammatory conditions in these maniacal depressive cases, I wonder if it is not just the class of patients who have had abortions performed and have done such things during pregnancy that would bring on inflammatory disease, and whether the gynecologic condition was not subsequent to the mental rather than the other way about.

DR. F. J. TAUSSIG, St. Louis: In nymphomania and epilepsy it seems to me we may have gynecologic symptoms, but not gynecologic disease, as a rule. Six out of eighteen epileptic insanities in my series showed only slight gynecologic abnormality, and while I have not tabulated the nymphomania cases I recall three or four cases in which there was absolutely nothing wrong with the genital organs. Particularly in nymphomania we must consider the eroticism as a part of the mental condition and not ascribe these symptoms to gynecologic lesions. Dr. Manton stated that gynecologic disease does not directly cause insanity. I am quite in accord with that view, but it seems to me that we must consider the fact that in women gynecologic disease is the most frequent form of irritant, acting as a factor in the production of insanity. If we can correct that irritant, we may perhaps prevent a recurrence of the insanity. The patient may not be assisted in getting over her manic-depressive condition by the gynecologic treatment or operation, but at any rate she is not so liable to recurrence after the removal of the gynecologic irritant. When a laparotomy is indicated for other reasons, I think we are justified in doing a simple sterilizing operation on the tubes in a woman who is insane. Knowing the tremendous factor of heredity in the causation of insanity, we are merely doing our duty if we prevent more insane being born into the world. Several instances in which imbeciles were allowed to leave institutions and had children, who in turn were imbeciles, have particularly led me to this conclusion. The operation of sterilization of the tubes is such a simple one that I believe it has practically no mortality when done in conjunction with other operative work.

THE EPIDEMIC OF SORE THROAT IN CHICAGO

A PRELIMINARY REPORT

P. G. HEINEMANN

CHICAGO

During the past winter there was an extensive epidemic of sore throat in Chicago, the main features of which have been fully described by Capps and Miller.¹ It is, therefore, needless to repeat in detail the data published by these authors.

Capps and Miller investigated conditions in eight hospitals, two of which were using milk from a certain dairy, designated Dairy X. In two of these hospitals the morbidity among the nurses was respectively 48 per cent. (H) and 53 per cent. (M. R.). The other six hospitals were not using milk from Dairy X and had a morbidity of less than 10 per cent. A canvass of 584 households was made by Capps and Miller with assistance from the Department of Health of the City of Chicago. Of this number 153 were attacked; 51 per cent. of households using milk from Dairy X were affected, while 7.2 per cent. of households using other milk-supplies were affected. Employees of the health department investigated conditions in B, where one of the pasteurizing plants of Dairy X is located. They also visited a large number of farms contributing milk to Dairy X, with the object of finding whether or not cases of sore throat existed among the milkers and their families or cases of mastitis among the cattle.

I have made no attempt to duplicate the data reported by Capps and Miller, but have made some inquiries in other directions, covering the following points:

1. The sources of supplies of Dairy X, the distribution of their milk in Chicago and the efficiency of the pasteurizing machines.

2. The conditions in all hospitals and public institutions using milk from Dairy X.

3. The conditions in certain households using milk from Dairy X.

1. THE SOURCES OF SUPPLIES OF DAIRY X, THE DISTRIBUTION OF THEIR MILK IN CHICAGO AND THE EFFICIENCY OF THE PASTEURIZING MACHINES

Dairy X obtains supplies from two localities, which may be designated as G and B. At G the milk is obtained from 122 farmers. The milk is pasteurized by the continuous process at a temperature of 162° F. The time of exposure of the milk to this temperature is less than one minute. No milk is bottled at this plant. One hundred to 200 cans are shipped to Chicago daily, according to the demand. The balance of the milk is made into butter and cottage cheese. There are six employees at this plant, all of whom were in good health and had not suffered from sore throat during the winter. Physicians controlling the bulk of the practice among the farmers contributing to this dairy stated that they had not seen a single case of sore throat among the farmers.

At B the milk is obtained from eighty-eight farmers and from a dairy located a few miles from B. All bottled milk and cream sold in Chicago by Dairy X is obtained from the pasteurizing plant located at B. The milk is pasteurized by the continuous process at 160° F. The temperature of the milk in the pasteurizer is recorded automatically in red ink on a chart. On exam-

1. THE JOURNAL A. M. A., June 15, 1912, p. 1848.

ining the temperature records for December and January, it was noticed that there were numerous deviations from 160 F.

Inquiry as to the cause of these deviations brought out the fact that the steam is shut off whenever the process has to be interrupted. The bottle-washing machine used up to Jan. 1, 1912, was not working well and it happened that the pasteurizing machine had to be shut off temporarily whenever there were not bottles enough to work with. A new machine has been substituted for the old one so that the supply of clean bottles was adequate after January 1.

It happens also that the producers do not arrive in time with their supplies so that the pasteurizer is stopped sometimes for this reason. Whenever steam is shut off, the outflow pipe from the pasteurizer is closed, so that no milk which has not been heated to the required temperature can leave. The records on the charts, therefore, do not necessarily indicate that milk at any time had not been heated to 160 F.

The bacterial efficiency of the process is apparently good. Counts made by the department of health and by the dairy's own chemist show that the pasteurized milk in bottles at the plant did not contain more than 25,000 bacteria, and not more than 50,000 in Chicago.

II. THE CONDITIONS IN HOSPITALS AND PUBLIC INSTITUTIONS

I have made inquiries at four hospitals using milk from Dairy X, not including hospitals M. R. and H., which were investigated by Capps and Miller. In these four hospitals the morbidity among nurses and other employees was: A., 9 per cent; N. C., 29 per cent.; W., 26 per cent., and C., no cases. Hospitals N. C. and C. obtain milk from Dairy X in bottles only. Hospitals A., W., M. R. and H. obtain milk from Dairy X in cans only. Cases of septic sore throat did not occur in Hospital A, while in N. C., and W. about one-third of the cases were septic. In four public institutions with more than 650 inmates, all of which were using milk from Dairy X, a number of cases of ordinary sore throat occurred during the winter months. The cases of septic sore throat were about 2 per cent.

Hospitals M. R., H. A. and W. and the four public institutions receive milk in cans only. The sealed cans are delivered by three drivers, who place the cans in the hospitals and break the seals. The dipping of the milk out of the cans in the hospitals is done by employees of the hospitals. Inquiries among the drivers showed that they had not suffered from sore throat during the winter and, so far as could be learned, had not been in contact with persons suffering from sore throat, either in their families or among their friends. Since only two out of six hospitals, using milk from Dairy X, had an unusual amount of sore throat among the employees, it seems reasonable to assume that infection of the milk, so far as milk was responsible, took place after delivery at the hospitals.

The source of the milk delivered in cans to hospitals and public institutions has some bearing on this assumption. Hospitals A. and H. obtained cans from G only during the winter months. The other hospitals obtained milk from G from Dec. 2 to 8, 1911, December 10 to 15, Dec. 17, 1911, to Jan. 6, 1912, January 8 to 16, January 18 to 19, and January 21 to 26. During the period of the height of the epidemic, namely from Dec. 25 to 31, 1911, all hospitals and public institutions obtained milk from G only, and no source of infection of this milk has been detected.

III. CONDITIONS IN HOUSEHOLDS USING MILK FROM DAIRY X

All bottled milk sold by Dairy X in Chicago is obtained from the pasteurizing plant at B. Three carloads are shipped daily. Two of these carloads are distributed on the north and south sides of Chicago. The third carload is distributed in a suburb near the northern limits of the city, which will be designated R.

Since Capps and Miller's investigations covered only the first two carloads, it was thought expedient to investigate also conditions in R. I visited a large number of physicians practicing in this locality, who gave me the names and addresses of patients, with dates and histories. I gathered in all records of 105 cases in seventy-eight households. After this list was secured the milk-supplies of the households were ascertained, thus eliminating the personal equation; 29 per cent. of the households were found to be users of milk from Dairy X. Since this dairy supplies at least one-third of the milk consumed in R, it is clear that users of this milk were not affected to a higher degree than users of other supplies.

The result of my investigation in R is thus in some respects different from the results obtained in other localities by Capps and Miller. The cause of the epidemic, therefore, may be attributed to a partial infection of the milk-supply rather than to infection of the whole. This condition is possible when infection takes place after pasteurization. In my judgment, infection from mastitis streptococci is not probable. It has not been definitely shown that mastitis streptococci are infectious for man. On the contrary, many observers consider mastitis streptococci avirulent for man. Early work on this subject is contradictory. Exhaustive recent publications² have shown that mastitis streptococci are probably not virulent for man and that their infectiousness has been exaggerated by earlier workers. If streptococci from milkers should have gained access to the milk, there is every chance of their having been destroyed by pasteurization, as it has been shown that the milk of Dairy X has apparently been uniformly pasteurized.

Infection of bottles after pasteurization by a germ-carrier is conceivable. There was, during the winter, an epidemic of sore throat of unusual severity in B. Among the twenty-five employees of Dairy X, five suffered. Among these five there was one case of septic sore throat. The patient handled the bottles previous to passing them on to the filling machine. He worked at the dairy from December 18 to 23, while suffering from swelling of the cervical glands. He was operated on in a Chicago hospital for drainage of the cervical glands. The man, by coughing or by contact, may have infected some of the bottles.

CONCLUSIONS

1. An epidemic of sore throat was prevalent in Chicago during the winter of 1911-1912, the primary cause of which remains undetermined.

2. Of six hospitals using milk from Dairy X, two had many cases of septic sore throat, the other four did not.

3. In four public institutions using milk from Dairy X, ordinary sore throat was common, but septic cases were relatively rare.

4. The hospitals and public institutions received milk in cans and no infection of the milk could be traced.

² Schulze: München. med. Wochenschr., 1907, p. 1167. Puppel: Ztschr. f. Hyg., 1912, lxx, 449. Gmünder: Contribut. f. Bakteriöl., Abt. I, 1912, lxiii, 152.

5. Households using milk from Dairy X in some districts of Chicago suffered severely. Households using milk from Dairy X in other districts did not suffer out of proportion.

6. Since the apparent infectiousness of bottled milk from Dairy X was intermittent, the solution must be looked for in partial infection of the bottles.

7. The bottle-supply of Dairy X may have been partially infected by an employee suffering from sore throat.

5756 Monroe Avenue.

FAMILY HEMATOPORPHYRINURIA AND ITS ASSOCIATION WITH CHRONIC GASTRO- DUODENAL DILATATION, PECU- LIAR FITS AND ACUTE POLYNEURITIS

A PRELIMINARY REPORT *

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AND

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We desire to give in this paper an epitome of a report in preparation on a peculiar syndrome which we have recently had the opportunity of studying.

Patient.—In the spring of 1910, a patient, an unmarried woman of 18, was referred to one of us for study by Dr. Ira J. McCurdy, of Frederiek. Dr. McCurdy reported that for more than a year the patient had been passing urine of a very dark color, that she had been losing weight without apparent cause, and that during the illness she had suffered from recurring attacks of nausea and vomiting with some pain in the lower abdomen on the right side. She had also complained of some vertigo, severe enough to cause her to fall on several occasions, but never associated with loss of consciousness.

Family History.—The family history is of great interest. One sister, aged 18, died four years ago after an illness of nine months; her symptoms were very similar to those of the patient studied by us. Another sister, aged 22, is now suffering in the same way—is passing urine of port-wine color, has gastro-intestinal disturbances and has had pain in the right iliac fossa. The patient's mother and her maternal grandmother suffered from recurring attacks of nausea and vomiting with constipation and epigastric pain. The urine is said to have changed color during the attacks in the grandmother's case but the mother had never noticed any peculiarity in her urine. The father has an enlarged thyroid, distinct exophthalmos and positive Stellwag, Dalrymple and von Graefe signs.

Examination.—The patient was admitted to Ward G of the Johns Hopkins Hospital in April, 1910, for thorough study. The findings, on admission, in brief, were: A fairly nourished girl, not especially anemic. Osseous system rather underdeveloped. Hands clammy, skin otherwise dry. Tonsils hypertrophic. Thickened thyroid isthmus. No exophthalmos. Eye-grounds hyperemic; otherwise negative. Slight general enlargement of lymph-nodes. Thymus dullness positive. Slight general bronchitis; lungs (otherwise) and heart negative. Blood-pressure 90 (later this rose to 150). Abdomen held rather tense; tenderness in cecal region. Spleen and liver of normal size. No tremor. Sensation and reflexes normal. Temperature and pulse-rate not elevated. Wassermann negative. Calmette's tuberculin test negative. Pelvic examina-

tion negative except for backward displacement of uterus. Stomach juice after test breakfast: 40 c.c.; much mucus; free hydrochloric acid, 16; total acidity, 40; no blood or lactic acid present. Examination of blood: red blood-cells, 4,188,000; white blood-cells, 6,400; hemoglobin, 80 per cent. Differential count practically normal. Coagulation time, six minutes. Feces normal. Bile present. Test for occult blood negative. No parasites. The urine was free from albumin and sugar, but was often of port-wine color and contained large quantities of hematoporphyrin (spectroscopic demonstration).

Course.—A few days after admission the patient began to have slight fever (temperature from 99.8 to 100 F.), marked tachycardia (pulse-rate 104 to 140), a leukocytosis of over 20,000, and slightly accelerated respiration. She became restless and irritable and complained of weakness, total lack of appetite, pain in the precordial region, and numbness and tingling in the extremities. The thyroid became larger and was tender; Dalrymple's sign and von Graefe's sign appeared. No bruit or thrill over thyroid. May 10 she had a convulsion, which lasted about two minutes, during which she became cyanosed and bit her tongue. She had altogether nine convulsive seizures on that day. At the beginning of each fit the eyes deviated to the right or to the left, after which the eyes were rolled up; there were nystagmus, cyanosis and general clonic twitchings throughout the body. The twitchings were usually bilateral, but occasionally only one-half of the body was involved. The patient was delirious, and urine was voided in the bed repeatedly during the day. The fingers were kept clenched with the thumbs turned in. Trousseau and Chvostek tests were negative. During these attacks there was no hematoporphyrin in the urine; acetone was present; test for diacetic acid was negative. Temperature ranged from 99 to 101.8 F.; pulse-rate from 120 to 156; respirations from twenty-two to thirty-eight. The symptoms suggested strongly an acute intoxication of some sort and acute thyreopathy and parathyreopathy were considered. The fits soon ceased, the patient again became rational, the pulse-rate fell (112 to 136), the eyes grew less prominent, the thyroid gland decreased in size, the leukocytes fell to 8,840. The patient complained bitterly of abdominal pain and of pains "all over" the body, including the arms and legs.

May 18 she had another series of fits, this time beginning with clonic spasms in the orbicularis oris muscle, soon succeeded by tonic spasm of the bodily musculature (opisthotonos); the fists were clenched, but neither hands nor feet assumed the typical position of tetany, and Chvostek's and Trousseau's signs could not be elicited. The patient was again irrational between the fits, and unconscious during them. Pulse-rate was 136. Deep reflexes were rather sluggish, though they could be elicited. Thyroid was again swollen. Leukocyte count was 8,800. There was fruity odor to breath, but neither acetone nor diacetic acid was demonstrable in the urine. A solution of calcium chlorid was given intravenously.

After this series of fits passed off, the patient again complained of general pains throughout the body; those about the ankles were especially severe. There was slight pitting on pressure about the malleoli, but no redness. Leukocyte count, 10,400.

Operation.—May 26 she had a few more fits. The pains persisted, and the skin of the lower extremities became hyperesthetic. During the next few days the pain increased in the right lower abdomen and, at times, a small mass was palpable there. Exploratory laparotomy was deemed advisable and she was operated on by Dr. Churchman, May 31, who found dilatation of the pylorus and of the duodenum as far as the position of the superior mesenteric vessels, marked enteroptosis and pale flabby intestines. The abdomen was otherwise negative.

Subsequent Course.—The patient made a good recovery from the operation. After it, the pains in the ankles, knees and abdomen persisted. The patient continued depressed and irritable. Heart's action and respiration continued acceler-

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Medical Clinic of the Johns Hopkins Hospital and University.

ated. Later the pains in the legs and arms grew more severe, the deep reflexes became exaggerated and the small muscles of the hands began to show signs of atrophy. Patches of cutaneous hypesthesia and of a hyperesthesia were demonstrable over the body. The hematoporphyrinuria continued.

By June 30 well-marked bilateral wrist-drop and foot-drop had developed, with extensive atrophy of the muscles in the upper and lower extremities. July 14, the patellar and triceps reflexes could no longer be elicited, and there was marked plantar hyperesthesia. Obviously, the puzzling pains of the earlier periods had been due to the onset of an acute polyneuritis. The patient returned to Frederick, Md., July 15. We were kept informed of the subsequent course by Dr. McCurdy. The patient grew weaker, the paralysis increased, and she died Oct. 10, 1910.

Necropsy.—Dr. Sladen and Dr. Sprunt kindly went to Frederick and performed an autopsy. The anatomic findings, excerpted from Dr. Sprunt's notes include: "Dilatation of the stomach and duodenum, hemorrhagic erosions of the stomach; pigmentation of the kidneys; slight chronic diffuse renal disease; anemia; fatty degeneration of liver, kidneys, heart-muscle and pancreas; hyperplasia of bone-marrow; acute bronchitis and bronchopneumonia; pleural and peritoneal adhesions; scar of laparotomy wound; retroflexed uterus; slight colloid goiter; extreme emaciation (neuritis?); calcified nodule in right lung."

The note on the condition of the stomach and duodenum is of special interest. It reads as follows:

"Just below the xiphoid cartilage, the upper portion of the abdominal cavity is taken up by the greatly distended stomach and duodenum. The lower border of the stomach reaches a point about two fingers' breadth above the umbilicus. The first inch of the duodenum is in close approximation with the wall of the gall-bladder. At this point it turns sharply backward toward the posterior abdominal wall, curving round underneath the pyloric portion of the stomach, appearing again below the stomach to the right of the midline, and curving round in its subperitoneal portion to end abruptly where it passes beneath the mesenteric artery. Just beyond the mesenteric attachment the jejunum appears normal in size. The contrast between the size of the dilated duodenum and of the normal jejunum is striking. There is no mechanical obstruction demonstrable. The space through which the duodenum passed beneath the mesenteric artery at the base of the mesentery seems as large and as roomy as normal. . . . The small intestine otherwise is contracted and seems empty. The large intestine, also, is small."

The whole autopsy report, including the description of the gastro-intestinal mucosa and the histologic findings in the viscera, will be published in our completed paper, later on. In our full paper, too, the literature of hematoporphyrinuria will be extensively discussed. It will suffice for the present occasion to state that since the condition was first observed by McMunn in 1880, it has been seen in various circumstances. Small quantities, insufficient to change the appearance of the urine, occur in a variety of conditions, apparently even in normal persons. Outspoken hematoporphyrinuria, with port-wine colored or reddish-brown urine, has been observed most often in poisoning by sulphonal or allied substances (e. g., trional and tetronal); it has occurred also in poisoning from lead, glycerin and saffron. It has been encountered occasionally in the course of certain chronic infections (especially tuberculosis and lues), in hemorrhagic complications of certain diseases (hematemesis of gastric ulcer; intramuscular hemorrhage in typhoid fever; cerebral hemorrhage in atherosclerosis), in certain skin diseases (hydroa estivalis, leprosy) and in exophthalmic goiter. There are on record, too, some instances of paroxysmal hematoporphyrinuria.

In connection with our cases, however, the most interesting reports in the literature are those commenting on the association of hematoporphyrinuria with gastro-intestinal disturbances (Ranke and Pardington, 1890; Schulte, 1895; Munro, 1908; Brown and Williams, 1909). There are seven such cases recorded; in at least three of them, a multiple neuritis developed, as in our case; in one of them, epileptiform seizures occurred. Two of the patients died, but no autopsies are reported. No one mentions gastroduodenal dilatation, but we feel sure, from the similarity of the symptoms to those presented by our patient, that it must have been present. We are inclined to regard the chronic gastroduodenal dilatation with (relative) chronic obstruction (functional stenosis) at the level of the mesenteric vessels as the primary condition; to view the hematoporphyrinuria and general toxemia with polyneuritis as in some way secondary to this, the symptoms probably coming out at times, owing to functional stenosis or relative obstruction leading to toxemia. The surgeons (Maury) and the pathologists (Whipple) have been calling our attention to the lethal toxemias which accompany obstruction high up in the gastro-intestinal tube. The whole subject of gastroduodenal dilatation and its relation to so-called chronic gastromesenteric ileus on the one hand and to acute postoperative dilatation of the stomach on the other is worthy of special study. The operation of duodenojejunosomy, first suggested by one of us and, subsequently, independently by Bloodgood, for the relief of the condition, has already been performed successfully by Staveley of Washington and should have an extended trial.

Though hematoporphyrinuria has been reported in connection with exophthalmic goiter, and though our patient showed signs of an acute thyreopathy superimposed on a slight colloid goiter during the course of her disease, we are inclined to regard the toxemia of gastroduodenal origin as the essential feature and the thyreopathy as an accompaniment.

We would emphasize, in our case, the family character of the disease. Besides the autopsy on our patient, Dr. Hinner has kindly given us the notes made by himself and Dr. W. G. MacCallum at the autopsy on her sister; in her, too, the stomach and duodenum were dilated. A third sister is now ill with the same syndrome. Perhaps some vice of development affecting all three accounts for the gastroduodenal dilatation which leads to the intoxication and the hematoporphyrinuria. The laboratory staff is now approaching the matter from the experimental side in the medical clinic.

We desire to thank Miss Nellie M. Casey, the district nurse at Frederick, for help, especially concerning the family history.

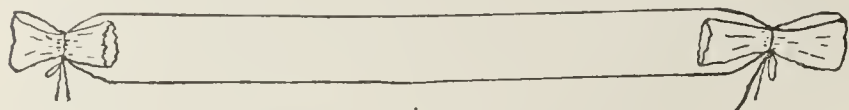
AUTO AND BICYCLE INNER TUBES USED AS ICE-BAGS AND HOT-WATER BOTTLES

J. H. SCHIRUP, M.D., DUBUQUE, IOWA

One often meets conditions indicating a hot-water bottle or ice-bag, only to find them lacking. If the patient be too poor or the source of supply too distant or the time inopportune, it most frequently occurs that some makeshift is resorted to. If either a hot-water bag or an ice-cap is finally secured the chances are that it is unsatisfactory in some respect; that is, it is either too cumbersome, too heavy, too difficult of proper application or most frequently, leaky. Thus, as we all experience, our most efficient local treatment is either carried out with great difficulty or inconvenience, or the measure does not accomplish its purpose.

These conditions suggest the need of some substitute for use under adverse circumstances.

Bicycles have been in use for a score or more of years and are now so numerous that one of them, or at least the remnants of one, and most often the very part required for this purpose is readily at hand. Automobiles also have



Emergency hot-water bag.

the worn-out or blown-out inner tubes, certain sections of which answer the purpose very nicely. One might also conceive conditions in which accidents due to the same conveyances would require either cold or heat, when the ready containers would be in immediate command.

The method employed is to cut out a good section of the tube, as long as required, and tie the doubled-over ends. If there is a choice in the size of the tubes available for the indicated purpose, so much the greater luxury. A small-caliber tube, however, can be made to cover a large surface by using it as a coil. The comparatively wide-caliber opening affords easy filling, which is advantageous for ice—a marked advantage over the hot-water bottle. An additional point of practicability is to have enough of the tubing so that it will be possible to cut off or tie out any subsequent leak. Any surplus length may also serve as anchorage or for the purpose of additional linear application.

1120 Main Street.

Therapeutics

THE CARE OF INFANTS

(Continued from page 624)

PROPRIETARY FOODS FOR CHILDREN

These may be divided into two classes; those which are designed to be used instead of milk, and those that are designed to be used in addition to milk. Those that are used alone, as substitutes for milk, are largely composed of dried cow's milk with more or less addition of protein, starch, or malt-sugars.

Whatever the food selected, it must be sufficient and represent all of the elements required by the child for his growth and health.

It has seemed to be a fact that children brought up on these artificially prepared foods were prone to the development of scurvy and perhaps rickets. Such a cause for rickets might be doubtful; such a cause for scurvy seems to be unquestionable, although it may be very mild in form and often is not recognized.

Many times a food seems to agree with the child as far as its apparent digestion, nutrition and increased weight are concerned, but in many cases the child, if attacked by disease, does not have the ability to withstand the disease as well as does the milk-fed child. It loses weight rapidly and its muscles are more flabby. Perhaps what the child has lost by the deprivation of milk may be the cause of insidious blood conditions and other nutritional disturbances which occur in later childhood and during adolescence. Certainly, if antibodies taken in with its mother's milk, and immunities taken in with its mother's milk are valuable factors in the child's welfare, as they seem to be, and if certain kinds of immunity are received from cow's milk, it would seem that if the mother cannot nurse the child, cow's milk is the food of choice. Still, in certain instances, for short periods, a good artificially prepared baby food may be of marked advantage.

Certain kinds of indigestion are cured by a change from cow's milk to an artificial food, but it seems unwise to keep a child long on an artificial food alone, although the class of foods that are added to cow's milk are often, unquestionably, of value. Most of these foods have a low fat percentage, and the child will be benefited temporarily by a change to such an artificial food, if fat was causing a disturbance.

Many of these foods contain large amounts of starch, and a young child digests starch poorly. After six months the addition of the extra starch to his food may be of advantage rather than a disadvantage, as before many months he will begin to take starch with more solid food. Those that contain maltose and dextrin have the advantages described under the use of dextrinized and malt foods in certain kinds of indigestion.

Some of these foods are of advantage, when used in small amount, when the child, during an intestinal inflammation, has been entirely deprived of milk for from twenty-four to forty-eight hours.

CHOCOLATE AND COCOA

The question is frequently asked by mothers and nurses as to the exact value of chocolate and cocoa, or the difference in their value. The answer cannot be better given than it was in answer to a correspondent in *THE JOURNAL*, Dec. 30, 1911, page 2158. The values of these foods are as follows:

The food value of chocolate and cocoa depends chiefly on their content of carbohydrates and fat. Cocoa contains about 15 per cent. of nitrogenous matter, but this is not all of a nutritious character. The amount of fat varies greatly, since a considerable portion of it is removed in the process of preparation for use as food. In the native cocoa it amounts to from 45 to 50 per cent. If we estimate the carbohydrates and nitrogenous material in prepared cocoa at 25 per cent. and the fat at 25 per cent., the nutritive value of 100 gm. of cocoa would be approximately 325 calories. As the amount commonly used for a cup of the beverage is about 5 gm., the nutritive value due to the amount of cocoa in the cup would be about 16 calories.

Chocolate contains 15 per cent. of fat, 5 per cent. of nitrogenous substance, and about 60 per cent. of sugar. The nutritive value of 100 gm. of chocolate would therefore be approximately 410 calories. If 5 gm. of chocolate is used to make a cup of the beverage, the nutritive value of the chocolate employed would be approximately 20 calories.

The basic substance contained in cocoa and chocolate is theobromin or dimethyl-xanthin, a substance related to uric acid. It is a slight stimulant to the nervous system and an active stimulant of the heart and muscles. It is also an active diuretic. It stimulates the nerves less than caffeine, and hence the beverages which contain it are less disturbing than coffee. The amount of theobromin ordinarily taken is so small that its physiologic action is insignificant. Long-continued use, however, is said to be likely to produce gastric disturbances.

MILK PURITY

While the proper care of milk is now thoroughly understood, it will perhaps do no harm to refresh our memories concerning milk facts. These facts are ably described in a dissertation by L. A. Rogers, and issued in *Farmers' Bulletin 348* of the United States Department of Agriculture. This bulletin is freely quoted.

A cubic centimeter of milk, approximately 25 drops, can contain thousands, millions and even hundreds of millions of bacteria. A single drop may contain 40,000,000 bacteria.

Freezing does not kill many bacteria, although 32 F. will stop growth. From 35 to 70 F. the growth of bacteria in milk is retarded; from 70 to 100 F. the

bacterial growth is most rapid; a little above 100 F. the growth ceases; at 212 F., the boiling point of water, all bacteria are killed. While a temperature of 125 F. may destroy a very few weak bacteria, a ten-minute exposure to 150 or 160 F. is fatal to nearly all bacteria which do not form spores. Spores are often destroyed only at boiling point, and some only by prolonged boiling. Much higher temperature is required when dry heat is used.

Milk, when secreted, is bacteria-free, unless the udder is injured or diseased. The real contamination occurs after the milk has left the udder and in spite of care is soon contaminated by dirt, dust, etc., especially manure dust, which contains large numbers of bacteria. Contamination of course also occurs from imperfectly cleansed pails, cans and jars, or from unboiled cloths used in straining milk. Even coolers may become contaminated, to say nothing of improperly washed bottles. The kinds of bacteria vary with the season of the year and the place in which the cow is milked.

As is well recognized, milk acquires flavors from all kinds of odors. They may come from the food the cow has eaten, or from disturbances of the cow. Odors may be acquired by uncovered milk from many kinds of food and fruits. Milk may acquire a flavor from bacteria.

Milk becomes soured by the action of some bacteria which break up the milk-sugar into lactic acid, consequently are often called lactic acid bacteria. These bacteria do not have spores, and are readily destroyed without boiling the milk. The acid formed by the action of these lactic acid bacteria causes the formation of casein, which precipitates in the form of fine particles suspended in the soured milk. When this acid has sufficiently increased in amount the casein becomes a firm mass, and the milk is then said to be curdled. This result is hastened by heating. Milk that has undergone a pure lactic acid fermentation has a firm curd free from gas bubbles, and with a small amount of whey on the surface. When shaken the curd breaks up into small particles which settle slowly, leaving the clear whey. The milk should have a pleasant acid taste. These bacteria and the consequent chemically changed substances are not poisonous.

By the time a milk has become sour to the taste, the growth of nearly all non-acid-forming bacteria is checked, and the activity of the lactic acid bacteria themselves is checked. Consequently, sour milk usually contains a nearly pure culture of one, or at most two or three closely related bacteria. On account of these facts it is necessary to cool milk as soon as possible after milking to below the temperature at which lactic acid bacteria are apt to grow rapidly. This temperature should be about 50 F.

When milk enters the baby's stomach, the casein is precipitated by an enzyme (rennet) of the gastric juice and forms a firm curd. This curd has no sour taste. These curds are then acted on by the pepsin, and the digested milk is then ready to pass to the intestines for absorption.

When milk has a distinctly bitter taste it may be caused "by weeds the cow has eaten, by an abnormal condition of the udder, by an advanced period of lactation, or by the action of certain bacteria." The bacteria which cause this bitterness in unheated milk are generally of the acid-forming class and hence are better able to survive the lactic acid bacteria. The acid formed by this group of bacteria is usually butyric and not lactic.

The disease-producing or pathologic bacteria that occur in milk are the germs of tuberculosis, diphtheria, scarlet fever, typhoid fever and probably those that cause

some forms of intestinal inflammation. The danger of milk becoming contaminated in spite of all dairy and handling care must never be forgotten. A drop of water, a speck of dust, or the legs of a fly may bring to an uncovered milk bacteria which will multiply enormously before the milk is taken as a food.

As above shown, pasteurization, or heating milk to an ordinary temperature without boiling, does not kill the spores of many pathologic bacteria. Sterilization, or boiling for ten to twenty minutes, does kill most spores.

It has lately been shown by Schorer and Rosenau¹ that many of the automatically working pasteurizing machines do not uniformly heat the milk, at least not until they have been in operation for several minutes. They therefore recommend that the milk passing through the instrument for the first ten minutes should be passed through the pasteurizer again. The efficiency of the apparatus showed on bacteriologic test that tubercle bacilli were not always killed. They found that if the milk reached 140 F. and was held there for twenty minutes the tubercle bacilli and typhoid bacilli were killed. They therefore believe the only pasteurization of safety to be that of a temperature of 145 F. maintained from thirty to forty-five minutes.

It has recently been shown in England² that boiling milk does not impair its nutritive value, and does not seem to be a cause of either constipation or rickets. The advantage of boiling milk as compared with the ordinary pasteurization in destroying bacteria and spores should be generally recognized; hence the above findings are of great sanitary interest.

The following rules should be observed by the mother or nurse:

1. The milk should be known to come from a dairy up to the sanitary standards, now well established; and the milk should be received cool.
2. The bottles should be kept cool both summer and winter, and best in a compartment separate from any other food. The milk should never be uncovered.
3. Utensils used for preparing the baby's milk should be washed thoroughly with hot water and soap as soon as they are empty, and then cleansed with boiling water.

(To be continued)

An Expression of Gratitude.—The lack of appreciation, not to say ingratitude, of patients, has come to be almost proverbial in the medical profession. Therefore it is refreshing to come across an exception to this general rule of conduct, even though it comes from distant China, where its occurrence is perhaps to be explained by the usually topsy-turvy method of doing things. However that may be, it gives us pleasure to copy from the *China Press* of Shanghai the following voluntary contribution to the benevolence and skill of a colleague:

"THANKS TO THE GOOD DOCTOR.—In November last my son, Anwen, was very sick here in Shanghai. The disease was something like consumption. All the doctors said that they could do nothing for the boy. Just then Dr. _____ of the United States came to Shanghai, when he looked at my boy, he said that the sickness was really serious. However there might be a little hope. Consequently he brought the child to his hospital in Soochow. The doctor and his son-in-law, Dr. _____, carefully studied the disease. The next day he opened the abdomen of the sick with a long pin, and from the hole flowed out twelve bottles of pus, in which there were multitudes of poisonous animalcules. All such animalcules must be destroyed. Therefore the back part of the abdomen was widely opened and a rib was sawed away. At last the poison was washed cleanly away and the opening sewed up. Afterward my sick boy gradually recovered and came back to life again. How wonderful is the doctor art! Even the love of parents is not so great as his. I relate this story in order that the goodness of the doctor may be known among the community. Lo So Tsing, Soochow."

1. Schorer and Rosenau: Jour. Med. Research, Boston, April, 1912.

2. Local Government Board on Public Health and Medical Subjects, New Series, No. 63.

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[For other information see second page following reading matter]

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THE NON-SURGICAL TREATMENT OF CANCER

As surgical skill and the ability to diagnose advance, there is a decrease in the mortality rate of many so-called surgical diseases. This is true in some measure of cancer when diagnosed in the earlier stages. The hopelessness of advanced cases from a surgical point of view continues to be the incentive to tireless efforts to discover an effective non-surgical cure for cancer.

The non-operative treatment of carcinoma may be classified under five general heads: ferment therapy, physiotherapy, chemotherapy, serotherapy and tumor tissue or vaccine therapy.

The first advocates of ferment therapy (Lussana, Macini, Bouchut and Péan), advised the injection of gastric juice or pepsin directly into the tumor. Shaw-Mackenzie, from a hypothetical standpoint, advocated the use of trypsin, and later it was shown (by Blumenthal and Wolf) that the proteins of cancer, in contradistinction to other tissue proteins, are far less resistant to trypsin than to pepsin. Beard reported success with subcutaneous injections of trypsin combined with amyl-opsin; others tried ferments obtained from the liver, etc., and Sticker and Falk stood sponsors for carbenzyme, a combination of vegetable charcoal and trypsin. Much was promised, but, with the possible exception of the originator of the particular treatment, those who tried them were disappointed.

Roentgen rays, while practically powerless in internal cancer, have a definite curative action on certain superficial cancers and are used at present with success in the treatment of rodent ulcer. Radium, which on its advent was hailed as the long-sought curative agent, quickly fell below expectations; of other physical agents, such as high-frequency currents, carbon dioxide snow and fulguration, none has proved effective in internal cancer.

Chemotherapy of cancer dates back to the very beginning of the history of medicine; almost every conceivable drug or chemical has at some time had its advocate. Arsenic in its various forms probably has been the most favored; atoxyl and salvarsan have been tried (by Czerny and Caen and Blumenthal). Undoubtedly the most startling event in chemotherapy of carcinoma is Wassermann's recent work with selen-eosin in carcinoma

of mice. Because of its extreme toxicity this substance so far has been used only in animal experiments. Malaria and streptococcus infections have long been reputed to have a beneficial action on cancer. Busch, after observing three cases which showed marked improvement following erysipelas, deliberately infected cancer patients with erysipelas and reported favorable results. Nocht was persuaded to transmit malaria to two cancer patients; both died, it is said, of the malaria. Coley elaborated a mixture of streptococcus and prodigious products; though failing to inhibit carcinoma, the mixture is credited with definite cures of sarcoma.

Various workers injected animals with emulsions of cancer in the hope that an active anticancer serum might be obtained, but the therapeutic results in no degree corresponded to the demands of the hypothesis on which the work was based. Serums of animals injected with organisms alleged to be the causal agents of cancer have all failed.

Finally, we come to the treatment of cancer with tumor material of various kinds, a sort of inoculation or vaccinotherapy. Such inoculations have been found to have a definite protective effect in animals against transplantable tumors and apparently also to cure growing transplanted tumors, but these facts do not seem to apply to spontaneous tumors.¹ The startling results obtained by Hodenpyl and Lewin from the injection of patients with ascitic fluid obtained from a patient with cancer of the liver are not yet forgotten, but unfortunately they seem destined soon to be, as nothing more is being said in regard to the matter.

Stimulated by the apparently successful results obtained by LeBertrand, and by Coca and Gilman, a trial of vaccine treatment of cancer was carried out by Coca, Derrance and Lebrede.² Under the most stringent aseptic precautions tumor tissue was ground up with an equal volume of normal saline solution and made into vaccines. Vaccine A consisted of the supernatant fluid after centrifuging a few minutes; Vaccine B of the entire material. Injections were made subcutaneously in seventy-nine selected cases. Coca and his co-workers could demonstrate no antibodies either with the method of complement deviation or with that of specific precipitation in serum from patients who were injected with such material. Among the patients treated were twenty-four in whom complete removal surgically of the tumor had been made; in seventeen patients there were either small primary tumors or small recurrences; thirty-eight patients had large tumors. After repeated injections four of the large tumors showed a marked diminution in size, and one of the smaller ones, a malignant ulcer, lost its malignant character and began to heal. Despite the precautions in the preparation of the vaccines (phenol and formaldehyde solution were added

1. For review of literature see Coca: Vaccination in Cancer, *Ztschr. f. Immunitätsforsch.*, 1912, xiii, 524.

2. Coca, Derrance and Lebrede: *Ztschr. f. Immunitätsforsch., u. exper. Therap.*, 1912, xiii, 543.

to some of them) local infection, which sometimes progressed to abscess formation, occasionally occurred at the site of the injections. It is interesting to note in the light of the results with the Coley treatment that the four patients who improved most were among those in whom local infection occurred. In only two cases in which the tumors apparently decreased in size was there no evident infection; nevertheless, Coea and his collaborators conclude that the reduction in size of these two tumors most probably was due to the absorption of inflammatory exudates. In no one of the seventy-nine cases could improvement be ascribed directly to a process of immunization produced by the injection of tumor cells. Neither were such injections capable of preventing recurrences even after apparently complete excision of the primary growth. In 52 per cent. of the cases there were recurrences later. The physical condition of most of the patients improved under the treatment, and in the opinion of the authors this constitutes the sole indication for this form of inoculation in carcinoma.

Despite the negative results so far as cure goes, this contribution to the literature on the non-surgical treatment of cancer is of great value. The decisive elimination of one possibility after another brings us nearer and nearer to the solution of this great problem.

SUICIDE STATISTICS

Dr. Hoffman, the actuary of the Prudential Life-Insurance Company, submits that in 1911 for the first time in the history of small cities in the United States their suicide rate exceeded the rate for cities of over 250,000 population, and has increased by nearly one-half the rate of 13.6 per hundred thousand which obtained during the decade ending with 1910. The rate in our small cities last year was 19.8 per hundred thousand, whereas the rate of suicide in twenty-one cities with 250,000 or over was 19.5 per hundred thousand population. The latter rate was 3.2 less than the average for large cities during the previous decade. In seventy-nine small cities out of 100 cities of all sizes, 1,395 persons killed themselves during 1911, as against 957 "expected" suicides; that is, had the suicide rate of small cities for 1911 been the same as during the previous decade there would have been only 957 suicides instead of 1,395.

In 100 American cities (seventy-nine under 250,000 and twenty-one over that population) the rate of suicide has grown steadily from 12.8 per hundred thousand twenty years ago, to 20.3 in the five-year period ending with 1911. In 1910 the rate throughout our registration area was sixteen per hundred thousand, so that there must have been 15,000 suicides in the United States last year.

Dr. Hoffman observes that it would require an extended analysis of individual suicides to establish, even with approximate accuracy, the true cause of this reversal of normal conditions, since the change is in marked contrast to the long-established experience that

the suicide rate in small cities is decidedly below the average for large communities.

With reference to his compilation of statistics of American cities he presents, however, Prussia's suicide record, from which some deductions are possible: The Prussian suicide rate during 1910 was twenty-one, about that of American cities. There were thirty-two male suicides as against ten female suicides. The suicide mortality under 15 years is 0.68, with a quick and marked rise to 16.61 between the fifteenth and nineteenth years, and to 26.84 between the ages of 20 and 24 (the late period of adolescence); during the latter period defective education, mental, moral and economic, seems responsible for the very high suicide frequency. But the highest rates are from 34.89 at 40 years to 58.71 at the seventy-ninth year—the period when those given to mental depression manifest decadence of mind and body. Suicides are considered to be relatively few among women because, though they experience the craving for death as frequently as do men, they lack courage or are more strongly influenced by religious and moral principles. It is probable that women have no less courage than men in committing suicide, but that they are better fortified against the temptation.

For all ages the principal cause of suicide in Prussia was unsoundness of mind (22.8 per cent. of the male and 40.6 per cent. of the female suicides); next came bodily disease (10 per cent. males and 9.3 per cent. females). Nervous diseases accounted for 4.3 and 7.4 per cent., respectively. Alcoholism was blamed for 10.1 per cent. male, and but 1.5 per cent. female suicides. Sorrow and distress accounted for 12.2 male and 7.7 per cent. female suicides.

These causes seem to operate in proportion to the progress and complexity of civilization, and to this era's moral and religious perplexities and social discontent.

THE INTERNAL SECRETION OF THE ADRENALS

The question as to what extent the ductless glands which produce a so-called internal secretion are under the dominance of the nervous system in the elaboration or output of their potent products has been difficult to solve. The precise chemical nature of the active principles involved has as yet been discovered in few instances only, so that their detection or the estimation of their content in blood or tissues has approached the impossible. The epinephrin of the adrenals has furnished a conspicuous exception in that its chemical structure is now known and its physiologic effects determined and measurable. Accordingly the adrenals appear to offer an unusual opportunity to test the possibility that such glands are regulated in their function by some innervating mechanism.

Years ago Dreyer¹ argued for a secretory innervation of the adrenals. He showed that an active principle is

1. Dreyer, G. P.: Secretory Nerves to the Suprarenal Capsules. *Am. Jour. Physiol.*, 1899, ii, 203.

present in blood collected from the adrenal vein and that its content, as measured by the extent of the physiologic effects it is capable of producing, is increased by electrical stimulation of the splanchnic nerve below the diaphragm. The idea of secretory nerves was, of course; not a new one; but there had been no proof for the existence of such nerves to ductless glands with an internal secretion.

Despite this evidence, the doctrine of secretory innervation of the adrenals has awakened little recognition until of late. Professor Leon Asher of Berne has subjected the matter to renewed investigation. He remarks, quite appropriately, that the occurrence of the potent epinephrin in a tissue is no conclusive evidence that it forms part of an internal secretion.² Are not the bile constituents specifically produced by the liver always missing even in the minutest amounts from the bloodstream, although the quantities in which they are present in the organ might seem to justify the assumption that they must be transmitted in part into the circulation?

By the ingenious method of stimulating the splanchnic nerves after all the abdominal viscera except the adrenals have been extirpated, Asher showed that a rise in blood-pressure can still be brought about. Proof is thus afforded that as the result of the nerve stimulation the adrenals have furnished the pressure-raising epinephrin to the rest of the body; in other words, that an internal secretion has actually been furnished. When the adrenal veins are obstructed no such result can be obtained. Furthermore, a suitable prolonged stimulation is attended by a continued maintenance of higher pressure. All of these facts speak for the secretory function of the splanchnics in relation to the adrenals put in evidence by the automatic response of the sensitive circulatory system. Pathologic as well as physiologic consequences at once suggest themselves in connection with such interrelations between the nervous and glandular systems. A continued overproduction of epinephrin depending on abnormal stimulation of the splanchnic system may bring with it undue blood-pressure, along with other symptoms, such as glycosuria, in association with this situation. Another possible interrelation between adrenals, nervous system and familiar disease is thereby brought into prominence.

THE TREATMENT OF MALIGNANT TUMORS BASED ON THE AFFINITY OF HEAVY METALS FOR TUMOR CELLS

The results obtained by Wassermann with selenium-eosin in the treatment of transplantable cancer are rather startling. Actual cures are reported to have been obtained by the injection into the blood of a combination of selenium and eosin. It has been shown that selenium-eosin has a definite affinity for cancer cells, the selenium

being deposited about the nuclei and causing a complete disintegration of the cells. After repeated injections the tumor becomes soft and fluctuating; ultimately it may be absorbed completely. The extreme toxicity of selenium, however, and the harmful effects of rapid absorption of large tumors make the treatment very hazardous and its death-rate high, so that its application to man is not warranted. Nevertheless, Wassermann's work opens a new avenue of research and encourages the hope that a cure for human cancer some day may be discovered.

Other efforts in the same direction are forthcoming. Thus Neuberg, Caspari and Löhe,¹ working on the hypothesis that the greater autolytic power of tumor tissue as compared with normal tissue must be due either to a direct increase of certain ferments or to a defect in protective elements, tried to produce an active autolysis *in vitro* by the addition of colloids of a number of the heavy metals; therefore the workers mentioned tried to obtain salts and other compounds of heavy metals in such form as to be non-toxic for the host and yet to exercise a direct action on the tumor. This, it is said, they have succeeded in doing, but it is regrettable that they have chosen to withhold accurate information in regard to the substance used, merely stating that they employ "definite, for the most part crystalline, organic chemical compounds of a rather complex nature" of many of the heavy metals such as lead, silver, arsenic, antimony, vanadium, mercury, copper, gold, etc. Cobalt and silver were found to yield the most marked effects. The dosage ranged from 0.005 to 0.066 mg. per gram weight of the host.

The reaction following intravenous injection is described as most striking and rapid. Frequently within a minute afterward the tumor, it is said, may become hyperemic. A condition of stasis so extreme may develop that at times a serous exudate oozes from the surface. Hemorrhages may occur within the tumor, which in twenty-four hours becomes soft and fluctuating. Aspiration gives the detritus of a typical autolysate, with various protein end-products—albumoses, peptones, amino-acids, etc. Microscopically no intact tumor cells are found. The injected metal can be isolated from the detritus by chemical means. Primary and transplanted carcinomas of mice, rat sarcomas, and an adenocarcinoma of a dog all yielded readily to the treatment and disappeared completely. As many as twelve injections were given in some cases. In the case of the dog, however, it was found that the toxic dose was smaller for unit of body weight than that for the rat, and still smaller than that for the mouse. The dog sickened during the operation and died some six days afterward. Its death is attributed by the authors to the distemper, but was probably hastened by the absorption of the toxic products of autolysis from the softened tumor.

Although they are not at present capable of application to human cancer, these experiments are valuable

2. Asher, L.: Die innere Sekretion der Nebenniere und deren Innervation, *Ztschr. f. Biol.*, 1912, lviii, 274.

1. Neuberg, C., Caspari, W., and Löhe, H.: *Berl. klin. Wchnschr.*, 1912, xlix, 1405.

because they show that malignant tumors are capable of a specific reaction to agents which do not injure the other tissues. It is hoped that trial of the metal compounds by other workers will give like results. Further developments will be awaited with great interest.

THE RESISTANCE OF PROTEINS TO BACTERIA

Only a few years ago it was current doctrine that proteins were available for the physiologic uses of the body without more than incipient and insignificant chemical change. Solubility was the essential property required. To-day we know that before the proteins are utilized by the animal organism they must experience that profound cleavage which attends the functions of digestion. Accordingly the immediate sources of nutriment are the digestion products of the proteins rather than the native albumins themselves.

It is consonant with current ideas regarding the action of microorganisms to think of all albuminous substances as being particularly prone to putrefaction. The readiness with which bacteria grow in mixtures or solutions containing proteins and produce the characteristic decompositions therein is a familiar phenomenon of daily life, so that it might almost appear superfluous to ask whether they can utilize proteins directly. It may seem somewhat surprising, therefore, to learn that preparations of pure proteins when left exposed to the germ-laden air do not appear to be broken down by bacteria, although molds are able to grow in them. The point here raised has been the subject of an experimental inquiry at the Lister Institute in London.¹ It must be borne in mind that our familiar nutrient mediums for bacteria invariably contain nitrogenous food-material other than proteins themselves. One need only recall the use of bouillon and the success of even purely synthetic mediums. Bainbridge has found that the organisms examined by him do not break down appreciable quantities of egg-albumin and serum-protein, even in the presence of sufficient non-protein nitrogenous food to ensure vigorous bacterial growth. When solutions of pure egg-albumin, serum-protein or alkali-albumin are inoculated, the bacteria used diminish in number when the seedings are large, but multiply to some extent when the seedings are small—in the latter case presumably owing to the use of traces of non-protein substances in the medium. There is no chemical evidence that the organisms studied are able to break down pure egg-albumin, and the presumption is that the bacteria do not use unaltered protein as food. Here, then, is an analogy with the situation in the case of the higher organisms.

The facts just recited may have a bearing on the antiseptic properties of egg-white lately investigated in Professor Rettger's laboratory at Yale University.² It

has been taken for granted that the only protection which an egg has against bacterial invasion and subsequent "spoiling" is the shell. As Rettger remarks, it cannot be disputed that the shell serves as a good protective covering. This may be explained largely by the fact that "a normal egg is coated with a delicate layer of gelatinous substance. This coating is easily injured or destroyed; hence the common belief that washing of eggs lessens their keeping qualities." In agreement with Lasechtschenko, another important agent in the prevention of bacterial invasion into the interior of the egg has been found in the antiseptic and bactericidal properties of the egg-white. It seems quite probable that these are due to a specific antistubstance. The bactericidal power is destroyed at a temperature of 65 C. and it is not present in the yolk.

The evidence is scarcely sufficient, as yet, to warrant one in hazarding an explanation of this useful property of egg-white. Can it be, in view of what has been said, that "pure, unchanged proteins may in a measure play the part of an antiseptic or disinfectant?"

THE CAUSES OF SOME RAPID CHANGES IN BODY WEIGHT

It has been a common assumption that very rapid losses of body weight are due to largely increased loss of water from the body. The marked weight changes which occur within a few minutes during a boat race by a college crew afford a case in point. Perspiration is excessive as the result of the attempt of the body to get rid of its surplus heat; and it has usually been believed that the greater part of decline in weight is directly attributable to the water output.

It is, of course, not unbelievable that material losses of stored tissue material may explain decided changes in body weight under certain conditions. As a matter of fact it has been difficult to make any sweeping statements as to the causes involved—as to whether such losses primarily involve water or metabolized tissue.—because of the paucity of data on the water balance of the body. Few experimental researches furnish the data which will enable one to deduce the daily intake of water aside from that entering the body in the form of fluids; yet in view of the fact that most of our common food materials, such as meats, fruits, vegetables, etc., contain a large abundance of water, amounting usually to more than half and sometimes as high as 90 per cent. of the products ingested, obviously water enters the organism in varied association with the true nutrients. This content of water needs to be known before one can learn the whole story of the income and outgo. In addition to all this, water is formed by the oxidative reaction of metabolism; but this particular contribution is not readily ascertainable.

The physician is frequently concerned with what may be termed acute losses of body weight. For him it is a matter of moment to know whether they represent

1. Bainbridge: The Action of Certain Bacteria on Proteins, *Jour. Hyg.*, 1911, xi, 34.

2. Rettger, L. F., and Sperry, J. A.: The Antiseptic and Bactericidal Properties of Egg-White, *Jour. Med. Research*, 1912, xxvi, 55.

losses of water or losses of more permanent tissue. Again, he is interested, in the case of reduction cures in obesity, to know whether the fall in weight accomplished by skilfully instituted dietary measures represents actual loss of tissue — a more permanent result — or merely a transitory loss of water which can be and frequently is recovered as readily as it was eliminated from the organism. It is of interest therefore to note the careful records which have been made by Galeotti and Signorelli¹ under conditions of rest and of mountaineering, the latter well known to be attended at times with marked changes in weight in the direction of loss. The investigators measured the intake of food and drink, and calculated the water content; the water losses by the various excretory paths (skin, lungs, intestine, kidney) were likewise ascertained. The immediate outcome of the study was the demonstration that under normal conditions the daily variations in body weight were almost always dependent on the water balance of the body. Retention of water coincided with gain of weight, and the reverse had a corresponding analogy. The largest water excretion occurred through the kidneys and bowel, the skin coming next, and the lungs last as a channel for loss of water. Under conditions of very vigorous exertion the skin may assume the first place.

No one would, of course, maintain that the questions of variation in body weight are all centered in the relative gains or losses of water. Undoubtedly, however, the changes in the balance of water intake and output play an important rôle in the speedy changes which make themselves familiar under a large variety of circumstances.

Current Comment

THE ACTIVE PRINCIPLE OF OPIUM SMOKE

Tobacco smoke and opium smoke are features of no mean significance in the routine of all too many individuals. In view of the effects of these products, it is surprising that so little is known of their composition. There is an impression current that the physiologic action of smoked opium is equivalent to that of the most potent constituent of the crude drug, namely, morphin; but since, in the particular mode of intoxication under discussion, the effective agent must of necessity pass into the smoke, it follows that the morphin must be sublimed if it is to pass as such into the products of combustion. The debate as to the real intoxicating agent therefore has centered about the possibility of subliming this alkaloid unchanged; and those who have denied this have sought the toxic factor in decomposition products such as pyrrol, pyridin and similar compounds. The question appears to have received a solution. Dr. Pott of the Pharmacologic Institute in Freiburg has actually demonstrated that morphin can be sublimed unchanged and therefore can actually be present in

opium smoke.¹ Furthermore, he has succeeded in demonstrating that the action of smoked opium is due to the presence of undecomposed morphin in the smoke. Indeed, some of the more subtle and characteristic toxicologic effects of morphin can be duplicated by inhalation of opium smoke or its condensation products. It is interesting to note as a bit of refined experimental technic that Pott succeeded in inducing specific morphin reactions in mice by injecting preparations from the blood of larger animals that had been caused to inhale opium smoke.

INTESTINAL STASIS IN CHILDREN

In searching for apparently complex and obscure causes for indefinite symptoms it not infrequently happens that simpler, more obvious conditions are overlooked. The results of intestinal stasis in adults are quite well known. In children, the picture is developed more fully, and if we accept the statements of Barrington Ward² the results are far-reaching. In tuberculous joint disease, rheumatoid arthritis, ulcerative colitis and appendicitis, intestinal stasis has been commonly found. Children suffering from such stagnation are either dull and lethargic or querulous; they are thin and weakly, and tend continuously to lose weight; their metabolism is feeble. The latter symptoms are so constant that increase in weight is absolute evidence that stasis has been overcome. Skin staining is always present, the neck, axillæ, flanks and flexures of the limbs being the sites usually chosen. There is also a tendency to evil-smelling perspiration. As diagnostic of the condition, frequency of motions is unreliable. The only reliable means of securing data on the stasis is by x-ray bismuth photographs. A standard has been established, the passage through the alimentary canal taking twenty-four hours in a normal child, while fifty to 100 hours are required in children suffering from stasis. In one case of tuberculous joint diseases the time required was 160 hours. Tuberculosis is a common end-result. It is believed that in this condition infection by the bowel in children is much more common than in adults. It is also believed that infections of the urinary tract with *Bacillus coli* may be traced to the same source. As evidence in this regard it is pointed out that as infection of the right side is more common and the highest degree of stasis is usually in the cecum, a relationship seems to exist. Nevertheless it is not clear how the bacillus reaches the right pelvis and ureter in such instances. Two cases are reported in which excellent results were achieved by overcoming the stasis. In one case in which there was a marked rheumatoid arthritis, a stasis of fifty-two hours was determined. Arbuthnot Lane, under whose direction the observations were made, divided the ileum and planted it low down in the pelvic colon. Rapid and uneventful recovery took place. There began a constant increase in weight at once; the symptoms disappeared entirely, and in three months the child appeared bright and healthy with the exception of two joints in which marked contractures had taken place previously. In a case of tuberculous joint disease, a similar rapid and

1. Galeotti and Signorelli: Wasserbilanz im Hochgebirge, Biochem. Ztschr., 1912, xli, 268.

1. Pott, P.: Die wirksame Substanz des Opiumrauches, Biochem. Ztschr., 1912, xlii, 67.

2. Barrington-Ward: Surg., Gynec. and Obst., 1912, xv, 46.

marked improvement occurred. In early stages general dietetic measures yield satisfactory results. Ward and Lane in such cases have given paraffin with advantage. In later conditions, when gross adhesions have formed, stronger measures are advised, and in such instances Lane has transplanted the ileum into the pelvic colon successfully, even in children as young as 2 years, but of course such radical treatment cannot be applied generally. It is highly necessary to recognize the importance of the condition, and to seek for better prophylactic and medical methods of controlling it.

PHYSICIANS AND THE NERVOUS LIFE

The last three United States census reports gave the death-rate for physicians as higher than that of any other professional class. Nervous diseases constitute the most important factor in this death-rate. Commenting on these figures, W. K. Newcomb¹ enumerates the probable causes for this unsatisfactory showing—the urgent call interrupting the moment of relaxation, the telephone bell breaking in on the hour devoted to quiet reading, the ever-present sense of responsibility and, most of all, what William James defines as “those absurd feelings of hurry and having no time . . . that breathlessness and tension, that solicitude of results, that lack of inner harmony and ease by which, with us, work is apt to be accompanied.” Americans are inclined to measure efficiency subjectively—to make “the strenuous life” a synonym for “the efficient life.” If a man reaches home at night a nervous wreck, he is apt to feel sure that he has spent his day effectively and well. Possibly even physicians, who from observation and theory know only too well the absurdity of this subconscious reasoning, are liable to be infected by it. The inexorable urgency of many of the physician’s duties will never permit his life to flow with serene and rhythmic placidity; but doubtless it would be well worth while for most of us to spend a little time in analyzing and attempting to eliminate some of the causes for that wearing and useless haste and worry which shorten our days.

LYING AGAIN ILLEGAL

When Congress, in 1906, passed the federal Food and Drugs Act, colloquially known as the “pure food law,” it declared in that act that any drug should be accounted misbranded

“the package or label of which shall bear any statement . . . which shall be false or misleading in any particular . . .”

For nearly half a decade after the passage of this law it was generally believed, and the courts held, that it was illegal to make any statement on the label of a food or drug that was “false or misleading in any particular.” When the point was raised before the Supreme Court, however, that august body declared—by a majority of five to three—that the phrase “false or misleading in any particular” meant false or mislead-

ing in *certain particulars*, to wit, as applied only to the composition or sources of origin of the products. This decision, naturally, gave general cause for rejoicing among that swindling brotherhood which robs the sick and defrauds the mortally ill by selling worthless “cures” for cancer, consumption, etc. It is more than a year since the Supreme Court’s decision so seriously crippled one of the most beneficent pieces of legislation of modern times. But Congress has again put up the bars and the President has signed Congressman Shirley’s bill which so amends the Food and Drugs Act as to restore the broader meaning originally attributed to that piece of legislation. Mr. Shirley’s amendment consists, essentially, in the addition of a third paragraph to Section 8 of the Food and Drugs Act. This paragraph reads:

“If its package or label shall bear or contain any statement, design, or device regarding the curative or therapeutic effect of such article, or any of the ingredients or substances contained therein, which is false and fraudulent.”

There can be no mistaking the intent of this amendment. It says to the “patent-medicine” faker in plain and unequivocal terms: “Thou shalt not lie.”

COAL-SMOKE AND THE ETIOLOGY OF CANCER

Theories as to the etiology of cancer are many; facts are few. An interesting, if not convincing, theory is that of Green of Edinburgh¹ which has to do with the irritation caused by smoke and other combustion products of coal. After considerable study and investigation of the incidence of cancer as shown by the vital statistics records in England and Scotland, as well as by reports from other countries, Green attempts to show that the highest percentage of cancer cases occurs in cities and districts of hilly or uneven topography or contour and that cities built on flat or level ground have the lowest incidence of cancer, the figures varying closely in accordance with the variations in these topographical features as taken from official records, particularly in Scotland. He goes even further and attempts to show that even in cities built on level ground but having great variation in the sky-line or height of buildings there is also an increased incidence of cancer. The significance of this lies in the fact, according to Green, that this unevenness interferes with ventilation and perfect combustion of coal, resulting in smoky houses and the inhalation by the inhabitants of irritating gases. He quotes the statement that in the city of London from half a million to one million tons of sulphuric acid from coal-smoke are annually diffused into the air. He cites the fact that in warm or tropical countries, where little or no coal is burned, cancer is rare or absent, but appears in higher percentage the greater the distance from the equator, which, of course, means greater consumption of coal for purposes of warmth. Greenland and Iceland seem to be exceptions, but in Iceland, where turf is largely burned, and in Greenland where oil is the only substance used for light and fuel, cancer is rare. The consumption of coal in Iceland, however, is increasing, as is the occur-

1. Newcomb, W. K.: The Physician Considered as an Economic Factor, Illinois Med. Jour., July, 1912, p. 1.

1. Green, Charles E.: The Local Incidence of Cancer. Wm. Green & Sons, Edinburgh, 1912.

rence of cancer. Other instances are cited to prove the theory. Green marshals statistics ingeniously to support his theory. The candid reader will feel, however, that statistics, like mercenary soldiers, are too readily marshaled in support of any and every theory to be really formidable except as auxiliaries—at all events, where such a complex subject as pathology is concerned.

Medical News

ARKANSAS

Personal.—Dr. J. C. Hughes, Walnut Ridge, was shot at from ambush while riding along a country road August 4, but fortunately was uninjured.—Dr. C. R. Doyne, Conway, has been appointed assistant physician in the State Hospital for Nervous Diseases.—Dr. H. L. Routh, Batavia, who was seriously injured in a runaway accident a few weeks ago, is reported to be convalescing.—Dr. William J. Manglesdorf has been appointed city chemist of Little Rock, vice Dr. C. H. Hoffman, resigned.

New Hospitals.—The new State Hospital for Nervous Diseases, Little Rock, is now completed and will accommodate 150 patients.—The Fayetteville City Hospital is almost completed and will soon be ready to receive patients. The site for the hospital was donated by the will of S. K. Stone. The building is a two-story brick structure, on the first floor of which there are four four-bed wards. On the second floor there are seven private rooms and one ward.—A Pastern institute has been established in Little Rock, which will be under the direction of Dr. Loyd O. Thompson, city bacteriologist.

COLORADO

Personal.—Dr. Robinson Bosworth, formerly a member of the staff of the Agnes Memorial Sanatorium, Denver, has been elected superintendent of the Arkansas Tuberculosis Sanatorium, Booneville, vice Dr. J. S. Shibley, resigned.

Education by Motion Pictures.—The State Board of Health is giving a series of motion picture shows in the various towns of the state on the "Fly Pest" and the "Man Who Learned." The latter is an illustrated lecture demonstrating the new methods of handling milk.

Leper in Denver.—C. W. Brownson, who admits that he escaped from the leper colony in San Francisco, is under surveillance in a tent at the Denver Isolation Hospital, Sand Creek, and the question of his return to California is at present puzzling the health authorities on account of the various states and counties lying between Denver and the coast, permission from all of which would have to be obtained before he could be returned to California.

ILLINOIS

State Board Wins Suit.—In the suit brought by the Illinois State Board of Health against L. G. Brown, Quincy, a so-called chiropractor, for practicing medicine without a license, the jury found the defendant guilty, August 15, and he was fined \$100 and costs.

Gold Fish to Kill Mosquitoes.—Dr. G. G. Dowdall, chief surgeon of the Illinois Central System, has originated a plan to exterminate the mosquitoes along the lines of the road, by stocking the stagnant pools with goldfish minnows, which live on the larvae of mosquitoes.

Medical Societies Entertained.—Dr. Carl E. Black, Jacksonville, entertained the medical societies of Morgan and Cass counties at his summer bungalow near Virginia, August 15. The affair was in honor of his father, Dr. Greene V. Black, Chicago, and addresses were made by Drs. Frank B. Norbury and George F. Kreider, Springfield, and James F. Percy, Galesburg.

Would Mandamus State Board.—A suit was commenced on August 16, in the Superior Court of Cook County, by Vito Dojno, a graduate of the University of Rome, Italy, who charges that the State Board of Health did not translate his examination papers properly. Dojno took the examination in Italian and failed to obtain the necessary mark. The state board holds that the translation was correct and that Dojno is not entitled to practice.

Physician in Trouble for Misconduct.—Dr. James A. Egan, secretary of the State Board of Health, has summoned Dr. Seth M. Wells, of Quincy, to a hearing October 15, at which Dr. Wells will be given opportunity to show why his license should not be revoked for unprofessional and dishonorable conduct, the particular charges being fraudulent representations in newspaper advertisements; and further, that his license in Illinois was fraudulently obtained, since he was a fugitive from justice of the State of Utah at the time the license was issued.

The Patten Fund Work.—The program for utilization of the \$250,000 given Northwestern University by James A. Patten two years ago as an antituberculosis fund has been announced. Dr. Arthur I. Kendall, formerly of Harvard, has been placed in charge of the work as professor of bacteriology and will be assisted by the holders of four fellowships to each of whom the fund gives \$600 a year. The gift made by Mr. Patten was for the purpose of advancing the scientific investigation of disease causes and the prevention of disease, the donor expressing the wish that particular attention be paid to the investigation of tuberculosis.

Chicago

Cuban Physicians Study Sanitation.—Drs. J. M. Penichet and R. Noguiera, health officers of Cuba, appointed by President Gomez to investigate sanitary methods, are studying health conditions in Chicago.

Pasteurization to Be Explained.—Arrangements have been made to operate a pasteurization plant in Chicago for ten days for the benefit of the public. All who are interested in the pure milk crusade will be invited to visit the plant and view the methods employed.

Personal.—Dr. Theodore B. Sachs, physician in chief to the Chicago-Winfield Sanatorium, has resigned.—Dr. and Mrs. E. N. Elliott have returned after a trip abroad.—Dr. Ernest S. Moore, physician in charge of the County Tuberculosis Hospital, Dunning, has resigned.

IOWA

Society Undertakes Hospital Management.—The lease of St. Elizabeth's Hospital, Fort Madison, to Dr. C. W. Wahrer expired August 15, and the management of the hospital reverted to the Fort Madison Medical Society.

Farewell to Dr. Rosenblatt.—The Audubon County Medical Society gave a dinner August 1 in honor of Dr. F. Rosenblatt, Audubon, who is about to make his home in Des Moines. Dr. Rosenblatt was presented with a gold ring bearing Masonic emblems.

Annual Clinic.—The annual alumni clinic of the State University College of Medicine, Iowa City, will be held October 22-23. Drs. William H. Welch and William S. Thayer, Johns Hopkins University, and Dr. P. D. Kerrison, New York City, are on the clinical program.

Personal.—Dr. E. T. Kegel, Iowa City, has been elected physician of Johnson County.—Dr. E. H. King has succeeded Dr. T. F. Beveridge as president of the board of directors of Hershey Hospital, Muscatine.—Dr. William F. Carver, Fort Dodge, was seriously injured by the overturning of his automobile near Ogden.—Dr. George F. Dolmage, Iowa City, has resigned as instructor in surgery in the University of Iowa School of Medicine and will practice in Buffalo Center.—Dr. Frank R. Senska, Germania, has been assigned as a medical missionary to western Africa.

KENTUCKY

Cooperation and Disease Prevention.—The State Board of Health is endeavoring to enlist cooperation between the schools, churches and social enterprises in the prevention of disease. To this end a conference of representatives from each organization has been called during the meeting of the State Medical Association in Louisville, October 28-30.

Personal.—Dr. Joseph A. Goodson, Dixon, has been appointed superintendent of the Eastern Kentucky Hospital for the Insane, Lexington.—Dr. J. M. Morris, Louisville, is ill at his home with septicemia due to an infected wound of the finger.—Dr. J. W. Fitch, Louisville, slipped and fell, August 6, breaking his leg.

Eminent Chemist Dies.—Prof. Melville A. Scovell, director of the Kentucky Experiment Station, Lexington, dean of the College of Agriculture of the Kentucky State University and member of the State Board of Agriculture; prominent in the pure food work of the Department of Agriculture and a special agent of that department; a chemist of unusual ability;

chairman of the Official Dairy Test Commission at the World's Columbian Exposition in 1893; died at his home in Lexington, August 15, from angina pectoris.

Hookworm Work in Kentucky.—Dr. Arthur T. McCormack, assistant secretary of the State Board of Health, has received a letter from the executive secretary of the Rockefeller Sanitary Commission containing a report of the work of the board regarding hookworm in Kentucky. At the summer school for county health officers held in Louisville, July 8-11, hookworm disease was given great prominence. Illustrated lectures were delivered and about a thousand specimens are already on hand for examination at the state bacteriological laboratory, Bowling Green. He especially commended the organization of the medical profession of the state, the cooperation of practitioners in the work against hookworm, and the aggressive energy of the State Department of Health and of all persons connected with it.

MARYLAND

Personal.—Dr. Arlington G. Horine has been elected mayor of Brunswick. —Drs. W. M. Sterling, White Hall, Wright S. Sudler, Baltimore, G. Carville McCormick, Sparrows Point, James H. Wilson, Fowblesburg, Benjamin R. Benson, Jr., Cockeysville, and F. K. Nichols, Baltimore, have been appointed deputy local registrars of vital statistics for Baltimore County. —Dr. Victor F. Cullen, superintendent of the Maryland Tuberculosis Sanatorium, Sabillasville, was given a dinner and reception by the Merchants' and Manufacturers' Association of Cumberland, August 14.

Typhoid in Maryland.—The epidemic of typhoid at Cambridge is believed to be well under control. All but two of the fifty-four cases were traced to milk supplied from one dairy. The water supply of the city was found uncontaminated. Dr. Marshall L. Price, who is in charge of the situation, believes that the epidemic is practically at an end. —Dr. C. W. G. Rohrer, Baltimore, after investigating the typhoid outbreak at Westminster, reports that the source of infection was at the reservoir polluted by an open drain. On August 24 there were eleven cases of typhoid in the city. —At Cumberland nineteen cases of typhoid have been reported this month.

Baltimore

Russian Professor in Baltimore.—Dr. Ivan Koblukov, of the University of Moscow, is making a stay in Baltimore to study the work at the Johns Hopkins Hospital.

Possession of Cocain Not Illegal.—Assistant States Attorney Marchant has given an official opinion to the Board of Pharmacy that the Swann cocain ordinance passed in 1908 has been repealed by the antinarcotic law passed in 1912, and that consequently the possession of cocain is no longer illegal.

New Ward at Johns Hopkins.—A new four-story brick, fire-proof structure is to be erected at Johns Hopkins Hospital to accommodate fifty-four patients. It will be connected with the main corridor. A new story will be added to ward "C," and a new dining-room for officers and reception-room will be provided.

MICHIGAN

College Becomes Extinct.—It is reported from reliable official sources that the Detroit Homeopathic College has voluntarily become extinct.

Tuberculosis Clinic for Kalamazoo.—Headquarters have been secured for a free clinic and dispensary for tuberculosis by the Kalamazoo Antituberculosis Society.

Personal.—Dr. N. S. MacDonald, Hancock, for fifteen years chief of the medical staff of the Quiney Mine, has resigned, to take effect October 1, when he will sail for Europe. He will be succeeded by Dr. A. F. Fischer, Hubbell. —Dr. R. A. Burke, Ishpeming, has resigned from the staff of the Ishpeming Hospital and as health officer of Ishpeming and will take charge of the work of the M. A. Hanna Company at its American mine, Diorite. —Dr. George S. Williams, Muskegon, has been appointed state medical inspector for the ninth congressional district. —Dr. J. J. Howard, Detroit, was attacked, August 9, by an unidentified assailant, who threw acid in Dr. Howard's face.

MISSISSIPPI

New Hospital.—The Clay County Medical Society has established a hospital in West Point.

Health Campaign.—Dr. W. L. Leathers, Director of Public Health of the state, announces that the boards of supervisors of Lauderdale, Jasper and Jefferson counties have appropriated the amount of money required for the conduct of the health campaign in these counties.

Personal.—Dr. M. J. L. Hove, Meridian, health officer of Landerdaie County, has been appointed registrar of vital statistics for Meridian. —Dr. S. L. Rowan, assistant physician at the State Insane Hospital, Vicksburg, was painfully injured by a falling timber, August 3. —Dr. Albert Wood, Jackson, has been appointed by the Minnesota State Board of Health, public health officer of Rochester, acting under Dr. Charles H. Mayo, local health officer. —Dr. J. C. French, health officer of Natchez, has resigned. —Dr. Thomas C. Newson, Independence, has been appointed assistant bacteriologist in the laboratory of the State Board of Health. —Dr. S. A. Gassaway, New Albany, was thrown from his buggy recently and seriously injured.

NEVADA

Date of State Meeting Changed.—The date of the meeting of the Nevada State Medical Association has been changed from September 10-12 to October 8-10.

NEW JERSEY

Medical Department of Library.—The new Carnegie Library at Elizabeth is to have a doctors' room in the basement, where periodical literature and reference books may be found and which may also be used as a smoking room.

Riverton's Fly Campaign.—Riverton is paying a bonus for dead flies, for the board of health, which is conducting a crusade to eliminate these pests, pays two cents a thousand for all caught in Riverton. So far 729,000 flies have been purchased.

NEW YORK

State Deporting Many Aliens.—The new State Bureau of Deportation reports to the State Hospital Commission that about 300 aliens are being deported weekly from New York.

Leper Released.—Sam Isen, the Bay City (Mich.) leper who has been under surveillance at the Ernest Wende Hospital, Buffalo, was released by the health commissioner the latter part of July.

D.P.H. for State Health Commissioner.—At the commencement exercises of Syracuse University, the degree of doctor of public health was conferred on Dr. Eugene H. Porter, New York City, as a mark of public recognition of the valuable work done by him and his department.

New Hospital Nearly Ready.—The new building of the German Deaconess Hospital, Buffalo, is practically completed and the equipment will permit of the opening of the hospital on or about September 1. About \$200,000 was raised by public subscription last year for this building.

New York City

Apartment Building for Professional Men.—The house at 19 West Fifty-Fourth Street, which John D. Rockefeller, Jr., bought several months ago, is to be altered into an apartment building for physicians and dentists.

Flies Blamed for Typhoid Epidemic.—The recent epidemic of typhoid in Brooklyn is attributed by the bacteriologist of the Water Supply Department, Daniel D. Jackson, to flies in the cellars of new buildings where the building inspectors have failed to enforce the sanitary code.

Hospital Tenements Sold.—A portion of the property bequeathed by the Michael Valentine estate to the Presbyterian and Hahnemann hospitals has been sold. The value of the entire bequest is estimated at about \$600,000.

Fewer Infant Deaths.—During the week ended August 17 there was only one death among the 17,000 babies under the care of the Baby Welfare Association. For this week there were only 353 deaths of infants under one year of age, compared with 408 for the corresponding week of 1911. Conditions in every borough were better than in the corresponding week of last year.

Hospital Appeals for Aid.—The Hospital for Deformities and Joint Diseases is making an appeal to the public for aid in completing and equipping its new building. This hospital has the largest clinic of its kind in the world, the attendance being between 150 and 200 daily. It is the only hospital in the city which takes adult patients with chronic joint diseases, congenital and acquired. Last year 29,322 cases came under the observation of the hospital physicians.

Need State Meat Inspection.—There has been a great deal of complaint recently because of the large quantities of meat unfit for human consumption which have been offered for sale in New York City, and relief has been sought from the State Commissioner of Agriculture who states that he can

give no relief from the grievance, as there is no state law providing for state inspection. It is said at the state commissioner's office that the local board of health in New York has full authority under the public health law to act in bad meat cases.

NORTH CAROLINA

Personal.—Dr. J. E. Brooks, formerly of Greensboro, but for several years superintendent of the State Sanatorium for Tuberculosis, Montrose, has resigned and Dr. M. Eugene Street, Glendon, has been placed in temporary charge of the institution.—Dr. John Hill Tucker, Charlotte, who was operated on for appendicitis in Norfolk, Va., several weeks ago, is convalescent.—Dr. R. A. Moore, Durham, who has been seriously ill, is reported to be improved.

PENNSYLVANIA

New Officers.—Wayne County Medical Society at Honesdale, July 18: president, Dr. Robert W. Brady, Honesdale; secretary and reporter, Dr. F. A. Lobb, Hawley.

Society Secures Home.—Berks County Medical Society has purchased, for \$10,000, a house at Walnut and Madison streets, Reading, which will be used as a permanent home for the society.

Emergency Hospital Contract Awarded.—The commissioners of Lehigh County have awarded the contract for the erection of the isolation hospital at the Lehigh County Home, Allentown, for \$7,875. The hospital will be owned jointly by the county and the city of Allentown.

New Indiana County Hospital.—The general committee of the Indiana Hospital Association has undertaken to raise \$10,000 for a site for the new \$60,000 county hospital to be erected south of Indiana. A coal operator has agreed to furnish the \$60,000 for the hospital if a site is obtained.

Personal.—Dr. John M. J. Raunick has succeeded Dr. John C. Hutton as health officer of Harrisburg and secretary of the Municipal Health Board.—Dr. Herbert Hays Bullard has been appointed instructor in anatomy and neurology in the University of Pittsburgh Medical School, vice Dr. Edward D. Congdon, resigned, and Dr. Harry Ryerson Decker, demonstrator in anatomy, has been promoted to instructor in anatomy in the same institution.—Dr. Carlisle E. McKee, Braddock, has returned from abroad.—Dr. W. A. H. Detweiler, Schuylkill Haven, was painfully injured in an automobile accident, August 17.

Discharged Patients Form Society.—In order to keep in touch with discharged patients from the Philadelphia Jewish Sanatorium at Eagleville, an organization, known as the Jewish Sanatorium Patients' Antituberculosis Alliance, has been formed. They hold regular meetings at which a doctor attends to instruct the ex-patients, when necessary, as to the precautions they must use in order to keep in good condition. The sanitarium hopes in this way to reduce the percentage of cases where there is a recurrence. Recently Dr. Myer Solis Cohen, of Philadelphia, who has been one of the visiting physicians since the hospital's inception, was elected children's physician and will have complete charge of the new children's shack.

Small-Pox Epidemics.—Director E. R. Walters of the Pittsburgh Department of Public Health, issued an order August 16 that all the residents, more than 30,000 persons, in the upper end of the old Lawrenceville district, a suburb of Pittsburgh, be vaccinated. This measure is taken to prevent the further spread of small-pox raging in that district, and arrangements have been made for the erection of a building on the old West Penn Hospital grounds for a detention house. The city has allowed Dr. Walters an appropriation for additional city physicians. Up to August 22, Carbondale had 22 cases of small-pox and a number of suspects, which are being watched. Assistant State Health Commissioner C. J. Hunt, Harrisburg, has gone to Carbondale and Mayor Murrin has issued an order for compulsory vaccination and has approved the order of the board of health closing all schools, churches, theaters and amusement places.

Outbreak of Typhoid in Chester Valley.—Investigation of the outbreak of typhoid fever in the Chester Valley shows the source of the epidemic to have been the contaminated milk of one dairy farm at William's Corner, a suburb of Phoenixville. There are about 25 cases scattered about the little settlements of the valley and nearly half of the patients are Italians residing at Devault, Cedar Hollow and Howelville. In the household of the milk dealer, there are three typhoid patients. Under the direction of Dr. Joseph Scattergood, county health physician, West Chester, the cows

on this farm have been removed to other quarters and the barn, house and milk-house thoroughly cleaned and disinfected. The sanitary engineer of the Springfield Water Company, whose pumping station near Phoenixville supplies the towns along the main line east of Glenloch, has been supervising carefully the work of protecting the water-supply of the many towns, and bacteriologic tests of the water-supply made daily show it free of all impurities when forced into the pipe lines.

Philadelphia

Measles on German Ship.—The North German Lloyd Steamship *Brandenburg*, which docked August 21, had an outbreak of measles in the steerage. Five children, their mothers and a man, who became ill after the ship left Bremen, were immediately isolated, so that the ship was not held in quarantine here.

Personal.—Dr. Harry Lowenberg has been elected assistant professor of infantile dietetics in the Medico-Chirurgical College.—Drs. Edna S. Valentine and Aaron Barlow have been appointed assistant bacteriologists in the bureau of health.—Dr. Ralph F. Sommerkamp, who has been ill at his home in Arlington since February, is reported still to be seriously ill.

New Hospital for University.—Plans are now being made for the hospital of the University of Pennsylvania, which include an entire set of new buildings, occupying the land bounded by Thirty-Fourth and Spruce Streets, Hamilton Walk and the dormitory group now occupied by the present hospital. These buildings when completed will represent an outlay for construction alone of \$1,000,000, and the first step will be the erection of a surgical building to cost about \$300,000, one-half of which has already been appropriated by the state. This building will occupy a plot 89x94 feet, will be in the Elizabethan style of architecture, a seven-story structure, having five floors above the street level in addition to a basement and ground floor. The foundation will permit three additional stories to be added later. On the ground floor will be the x-ray department, the first three floors will contain surgical wards, while the remaining wards will be devoted to operating amphitheatres, laboratories, etherizing rooms and recovery wards.

GENERAL

Railway Surgeons to Meet.—The twenty-second annual session of the New York and New England Association of Railway Surgeons will be held at the Hotel Astor, New York City, November 13.

Electrotherapeutists to Hold Meeting.—The twenty-second annual meeting of the American Electro-Therapeutic Association will be held in Richmond, Va., September 3-5, under the presidency of Dr. William D. McFee, Haverhill, Mass.

Appropriation Asked for McClintic's Widow.—In recognition of the heroism of the late Dr. T. B. McClintic, U. S. P. H. Service, Senator Myers, of Montana, has introduced a bill to pay \$5,760, the amount equivalent to two years' salary, to the widow of Dr. McClintic.

Military Surgeons Meet in Baltimore.—The annual meeting of the Association of Military Surgeons of the United States will be held in Baltimore, October 1-5, under the presidency of Surgeon Charles P. Wertenbaker, U. S. P. H. Service. Among the features of the entertainment provided are a trip to Annapolis, to the Naval Academy and a reception by the governor of the state.

Meeting of Fraternal Society Surgeons.—At the annual meeting of the medical section of the Associated Fraternities of America held in St. Paul, August 19, the following officers were elected: president, Dr. P. A. Quick, Muskegon, Mich.; vice-president, Dr. Charles P. Brown, Omaha, and secretary, Dr. M. M. Smith, Dallas, Tex. (reelected).

Correction of the Educational Number.—In THE JOURNAL, last week, page 650, second column, lines four and five, referring to students enrolled during 1911-12, read: "The eclectic colleges show a decrease of sixty-three below 1911 and forty-seven below 1910." As shown by the figures in Table 4, which are correct, the above lines should read: "The eclectic colleges show a decrease of 125 below 1911 and 147 below 1910."

Ruling Regarding Lepers.—The solicitor of the treasury department, at the request of Surgeon General Rupert Blue, U. S. P. H. Service, has rendered an opinion in the case of Sam Isen, the leper who escaped from Bay City, Mich., and was under surveillance in Buffalo for several weeks, that as he was a citizen neither of Bay City nor Buffalo it remains

for the authorities who have him in charge to care for him. As noted elsewhere in this issue, this leper was released by the health commission of Buffalo, and his present location is unknown.

Wish to Stop Sending Consumptives to Southwest.—In order to discourage the sending of individuals in the advanced stages of tuberculosis to the Southwest, physicians in the Eastern and Southern states are to be asked by the National Association for the Study and Prevention of Tuberculosis to stop this practice. The association admits that not less than 10 per cent. of the six million inhabitants of Colorado, New Mexico, Arizona, Southern California and Western Texas have tuberculosis or have come to the Southwest because of tuberculosis in the family.

Prevention of Malaria.—The Southern Medical Association has appointed a special commission consisting of Captain Charles F. Craig, M. C., U. S. Army, chairman, Dr. Graham E. Henson, Crescent City, Fla., secretary, and Drs. R. H. von Ekdorf, U. S. P. H. Service, Mobile, William Kraus, Memphis, Tenn., Creighton Wellman, New Orleans, William H. Deaderick, Marianna, Ark., W. S. Thayer, Baltimore, Seale Harris, Mobile, and C. C. Bass, New Orleans. The commission will tabulate information from the entire South on malaria and diseases simulating malaria and will decide on what means will be used for the elimination of this condition.

Railway Hospitals Turned Over to Employees.—The management of the entire hospital service of the Missouri Pacific-Iron Mountain System has been turned over to the employees of these companies. The management is vested in a board of nine hospital service managers of which the chief surgeon of the road is *ex-officio* chairman. The remaining members of the board are chosen, one each, from the following departments: train, engine and yard service, shops, roundhouse and repair yards; maintenance of way and structures; telegraphers, office and station employees; operating department; law department; accounting department; and one member as yet unassigned.

Railroad Rates for Hygiene Congress.—For the International Congress on Hygiene and Demography to be held in Washington, September 23 to 28, the railroads have announced a one and a half first class limited fare on the certificate plan, with a minimum of \$2 for the round trip, tickets good going September 21, 22 and 23; returning, to reach the starting point, October 1. This rate applies to the railroads composing the Trunk Line Association, which includes most of the Eastern roads, and the roads belonging to the New England Passenger Association. Special rates have been made by the Southwestern, the Southeastern and the Transcontinental Passenger Associations. No special concessions have been made by the Central Passenger Association. The Western Passenger Association suggests that delegates purchase summer tourists' tickets to Eastern points which are good returning October 31.

European Members of American Tour.—Last week THE JOURNAL gave the itinerary of the party which is to make a medical study trip to America in connection with the International Congress on Hygiene and Demography. Following is a list of the members of the party:

GERMANY

From Berlin: Geh. Medizinalrat Prof. Hiss, President of the Central Committee for Medical Study Trips; Sanitätsrat Dr. Oliven, General Secretary of the Central Committee, and Frau; Prof. Lennhoff, Division Chairman of the Central Committee; Dr. Bentscher; Sanitätsrat Dr. Braun; Geh. Medizinalrat Prof. Brieger and Frau; Dr. Konrad Cohn; Prof. Dieck; Dr. Ekstein; Prof. Flatau and Frau; Dr. Fleischer; Stabsarzt Dr. Fornet and Frau; Oberstabsarzt Dr. Hamann; Dr. Hermann; Generaloberarzt Dr. Hoffmann and Frau; Dr. Ad. Jacob; Dr. Jacobsohn; Sanitätsrat Dr. Kronthal; Mangold; Dr. Meissner; Sanitätsrat Dr. George Müller and Frau; Dr. Müllerheim; Müller-Vanden Plas; Sanitätsrat Dr. Oestereichler and Frau; Dr. Pfachler; Dr. Plonski and Frau; Dr. Pongs; Dr. Röhr and Frau; Sanitätsrat Dr. Sand; Dr. Sandecker; Dr. Schönwald; Dr. Schwarz and Frau; Herr Sembdner; Dr. Silberstein and Frau; Sanitätsrat Dr. Steinthal; Frau Dr. Stelzner; Prof. Strauss and Frau; Dr. Ullstein; Geh. Regierungsrat Dr. Weber; Oberstabsarzt Dr. Weber; Dr. Wegener; Dr. Weidemann, Frau and Fräulein.
From Charlottenburg-Berlin: Dr. Arth. Fränkel and Frau; Prof. Heller; Dr. E. M. Simons.
From Dahlem-Berlin: Dr. Baumgarten and Frau.
From Friedenau-Berlin: Dr. Engel; Herr Engel; Dr. Rosenberg.
From Grönewald-Berlin: Prof. Schreiber.
From Lichtenberg-Berlin: Dr. Seelig.
From Neukölln-Berlin: Fräulein Dr. Ethel Blum.
From Rummelsburg-Berlin: Dr. Heidenfeld.
From Schlachtensee-Berlin: Dr. Kalischer.
From Steglitz-Berlin: Dr. T. Mayer.
From Arnsherg: Regierungs- u. Medizinalrat Dr. Schneider.
From Bochum: Sanitätsrat Dr. Lindemann.

From Bonn: Dr. Brockhoff; Privatdozent Dr. Zurhelle; Dr. Zurhelle.
From Bamberg: Dr. Reichert; Dr. Seeber.
From Brandenburg: Dr. Kromer.
From Braunschweig: Geh. Medizinalrat Dr. Engelbrecht.
From Breslau: Herr Ehrlich and Frau; Dr. Loebinger; Medizinalrat Dr. Martini; Sanitätsrat Dr. Moeser; Dr. Oppler and Frau; Geh. Med. Prof. Partsch; Herr von Schoenfeldt; Dr. Veith and Frau; Dr. Winkler.
From Camberg-Nassau: Dr. Fluck.
From Coblenz: Dr. Bodenbach; Sanitätsrat Dr. Heigl.
From Cologne: Prof. Pröbsting; Herr Jos. P. Tonger.
From Danzig: Privatdozent Dr. Decker; Herr Fleischer; Dr. Sober; Herr Steinbrück.
From Dessau: Sanitätsrat Dr. Klander.
From Dortmund: Dr. Nenschmidt.
From Dresden: Dr. Dufeldt; Stadtrat Koeppen; Dr. Fritz Kruger; Dr. Weber; Dr. Wütkert; Hofrat Dr. Zucker.
From Düsseldorf: Prof. Hoffmann, Frau and Fräulein; Dr. Thon.
From Erlangen: Prof. Graser; Oberstabsarzt Dr. Hauenschield and Frau.
From Essen-Ruhr: Dr. Hauptmeyer; Dr. Hirschmeyer.
From Frankfurt: Dr. Auerbach and Dr. Cahen-Brach.
From Giessen: Geh. Med. Dr. Vossius.
From Götting: Sanitätsrat Dr. Menzel.
From Grimma: Dr. Kindt.
From Halle/S. Dr. Fielitz.
From Hamburg: Dr. Franke and Frau; Dr. Jaffé and Frau; Oberarzt Dr. Mond and Frau; Prof. Pfeiffer; Dr. Rauert; Dr. Thost and Frau.
From Hannover: Dr. Billeb and Frau; Dr. Plönies; Dr. Peters and Frau.
From Heidelberg: Dr. Caan.
From Jasterburg: Sanitätsrat Dr. Sinnecker and Frau.
From Jena: Geh. Hof. Prof. Gaertner.
From Kolberg: Geh. Med. Dr. Behrend and Oberstabsarzt Dr. Glatzel.
From Karlsruhe: Dr. Buchmüller; Dr. Levinger.
From Kiel: Prof. Müller, Reiner.
From Kiel-Wik: Generaloberarzt Dr. Richelot.
From Kl. Döben: Herr Hoehne.
From Königsberg: Dr. Bongers; Dr. Dobbelin; Sanitätsrat Dr. Ebel and Frau; Medizinalrat Dr. Fortstreuter; Prof. Hoeftman; Dr. Lehmann.
From Landsberg/W. Geh. Med. Dr. Friedrich.
From Lechhausen: Dr. Heldmann.
From Leipzig: Sanitätsrat Dr. Carstens; Dr. Kähne; Dr. Mechler and Frau; Frau Herbst-Mechler; Dr. Nauenburg; Hofrat Prof. Pfaff; Sanitätsrat Dr. Schwabe and Frau; Dr. Unger and Frau.
From Lemberg: Dr. Sandauer.
From Ludwigshafen/R. Hofrat Dr. Rembe.
From Magdeburg: Sanitätsrat Dr. Braune; Frau Ebering; Dr. Therig and Frau.
From Mannheim: Dr. Nerlinger.
From Munich: Hofrat Dr. Brunner; Ministerialrat Prof. Dieudonné; Dr. Fordan; Dr. Gaill; Prof. Gebele and Frau; Hofrat Dr. Werner; Ministerialrat Dr. Zahn and Frau.
From Neisse: Dr. Bernatzky; Dr. Jaeckel.
From Nürnberg: Dr. Merkel and Frau.
From Pforzheim: Dr. F. Müller.
From Ragnit: Dr. Rubinski.
From Schwetzingen: Medizinalrat Dr. Henrich.
From Senftenberg: Sanitätsrat Dr. Reinach.
From Stettin: Dr. Kirstein.
From Bollincken-Stettin: Sanitätsrat Dr. Steinbrück and Fräulein.
From Stuttgart: Dr. Brigel; Dr. Kiefe; Dr. Krauss; Dr. Reif; Dr. Stern.
From Swinemünde: Dr. Schiemann.
From Tichau: Dr. Weissenberg.
From Villingen-Baden: Dr. K. Mayer.
From Weimar: Geh. Hof. u. Geh. Med. Dr. Pfeiffer.
From Wismar: Dr. Allerhand; Medizinalrat Dr. Unruh.
From Wittenberge: Dr. Hülf.

AUSTRIA-HUNGARY

From Arad: Dr. Barra.
From Graslitz (Boh.): Dr. Lein.
From Graz: Dr. Pollak.
From Karlsbad: Dr. Samisch and Frau.
From Naggyarad (Hungary): Dr. Barkovits and Frau.
From Salzburg: Sanitätsrat Dr. Adler; Dr. Kraft.
From Spalato: Dr. Staloi Ivo.
From Vienna: Prof. Hirschl; Privatdozent Dr. I. Kohn; Prof. Schattenfroh; Dr. Winternitz; Privatdozent Dr. von Wunschheim.

HOLLAND

From Amsterdam: Privatdozent Dr. Boumann and Frau.
From Breda: Dr. Romeyn.

ITALY

From Bordighera: Prof. Galli.
From Rome: Dr. Bretschneider and Frau.

RUSSIA

From Lowicz: Herr Bursche.
From Moscow: Dr. Summet.
From Riga: Dr. Blechmann, Frau and Fräulein.
From Warsaw: Dr. Dobrzynski; Herr Grossecke and Frau; Dr. Bursche.
From Zgierz: Dr. Haessner.

SPAIN

From Lisbon: Prof. de Gama Pinto and Frau.

SWITZERLAND

From Bonfol: Dr. Gerber.

From Bern: Dr. Walthard.

From Solothurn: Dr. Pfachler.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, August 17, 1912.

Bathing Habits

At the Royal Sanitary Congress held at York, Dr. Quine of Manchester read a paper on the degree of personal cleanliness among different classes of people, the result of elaborate inquiry. Among 40,000,000 of our people, he said, the basin was the only washing vessel. "We English people are not nearly so clean as we are supposed to be." The bath was not nearly so popular as was supposed. In some hotels not more than 1 per cent. of the guests use the bath on any day; in others the percentage was stated to be as high as ten. Cold baths were used almost exclusively by men. The order of frequency in which the different classes of persons took baths was also very interesting. Those who had the daily bath habit seemed to belong principally to the type of public school men, and were mostly the young and early middle aged. As years increased the daily bath habit seemed to decline. Military men came first, with racing men a good second. No evidence was discovered which would lead one to conclude that bathing accommodations were unduly taxed whenever a congress of medical men or sanitarians was held in any town. Nor was there sufficient evidence forthcoming to form any general opinion as to the bathing habits of the clergy; their average did not seem to be high. But no doubt the cost would, in their case, be an important factor. Other professional men were difficult to distinguish. Commercial men did not appear to have acquired the habit of the daily bath. In nationalities the following appeared to be the order of frequency of bathing: Scotchmen, Englishmen, Irishmen, American women, English women, American men, Frenchmen, Germans. It seemed to be agreed that American women were less bashful than English women, and were not afraid to pass along corridors to the bathroom, while English women had very strong objections to doing so, and that this accounted for the fact that American women made greater use of the bathroom. The latter were also apparently better provided with elaborate dressing-gowns than were the English women. He found no evidence that the comparative infrequency of bathing by American men was due to bashfulness. The sanitary reform which was most urgently required in this country was increased facilities for personal and domestic cleanliness in the homes of the people by improved appliances.

The Healthiest Country in the World

According to Mr. G. H. Knibbs, commonwealth statistician, Australia is the healthiest country in the world, with the exception of New Zealand, which is a trifle healthier. In Australia, the death-rate has fallen from 15.75 per 1,000 in 1884 continually to the present rate of 10.5. Only one other country in the world can show a better rate, New Zealand, where it is 9.75. Infant mortality has shown a still more striking fall. In 1880 there were 130 deaths per 1,000 births, now the number is only seventy-one.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, August 9, 1912.

Overcrowding of the Medical Profession and the Number of Medical Students

Official statistics this year show a diminution of the total number of medical students in France. There are now 8,688 instead of 8,779 as last year. The number of foreign students, however, continues to increase; there are now 1,301, while in 1911 there were 1,289. The diminution of French medical students should be considered as a blessing for the overcrowded medical profession. Unfortunately, it seems improbable that this diminution will continue, since the number of students enrolled for the P. C. N. (certificate of physics, chemistry and natural sciences) was 1,776 this year against 1,583 in 1911. Some physicians complain of the increasing number of foreign students, in whom they see future competitors, but, as the *Semaine Médicale* remarks, statistics prove that the great majority of foreign students come to France only to obtain medical instruction without the intention of obtaining the

government doctorate, which gives the right to practice. Few are enrolled even for the university doctorate.

Of the 1,301 foreign medical students in France there are 849 from Russia, eighty-seven from Turkey, sixty-four from Bulgaria, fifty-seven from Roumania, twenty-six from Greece, twenty-five from South America, ten from Central America and four from the United States.

Honor to Dr. Magnan

Dr. Valentin Magnan, physician-in-chief at the Sainte-Anne Asylum, has just retired. In honor of the great alienist the city of Paris has decided to name after him the pavilion—Pavillon Magnan—of which he has been director since 1867.

Dr. Pozzi's Mission in South America

Professor Pozzi, who for two years was in charge of scientific expeditions in Argentine and Brazil, has returned to South America. Under the direction of the minister of public instruction, he will make a study of medical instruction and the instalment of the hospitals in Rio de Janeiro, Buenos Aires and Santiago, Chile.

The Third International Congress of Deaf-Mutes

This congress, held in Paris, August 1 to 3, brought together more than 600 deaf-mutes from all parts of the world. Its sessions coincided with the festivities held at Paris and Versailles in honor of the bicentenary of the birth of the Abbé de l'Épée, the founder of the Institution nationale des sourds-muets, who taught deaf-mutes to make themselves understood by means of a language of conventional signs. The members of the congress, whose speeches were translated alternately by signs and by words, took up the subjects of professional instruction, instruction in arts and higher instruction of the social situation of deaf-mutes, their admission into liberal and artistic careers, questions of insurance, etc. The question which occupied the greater part of the session and aroused the most interest related to the kind of instruction that should be given to deaf-mutes. Most teachers of deaf-mutes in France and foreign countries are in favor of the vocal method. Curiously, most of the deaf-mutes are hostile to this form of instruction, although it renders their relations with those who speak and hear easier. They are in favor of a mixed system consisting of words for communicating with normal persons, and conventional signs for conversation among deaf-mutes.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Aug. 10, 1912.

Personal

Wundt, the distinguished professor of psychology at Leipzig, celebrated his eightieth birthday, August 16. The noted scientist was educated as a physician and at the beginning of his career was privat docent in physiology at Heidelberg. On account of his studies in the application of physiologic methods to psychologic problems Wundt was called to Zurich as professor of philosophy in 1874. He did pioneer work in psychiatry in the development of experimental psychology. His work in the principles of psychology, logic, ethics, popular psychology, etc., is well known.

Professor Everbusch, director of the Munich university eye clinic, died, August 7, at the age of 59, a short time after an attack of apoplexy. He was a pupil of his predecessor, Professor Rothmund. In 1882 he joined the faculty of Munich, was called to Erlangen in 1886 as regular professor, and returned to Munich in 1900 as director of the eye clinic. Among his numerous literary efforts may be mentioned especially his monograph dealing with the relations of the diseases of the nose and of the ear to those of the eye, which was published in the large "Handbuch der gesamten Augenheilkunde" by Graefe-Saemisch, and the treatment of the eye in the well-known "Handbook of Therapy" by Penzoldt and Stinzing. His last work would have been a revision of his contribution to the "Handbuch der Therapeutischen Technik," edited by J. Schwalbe. Everbusch was highly esteemed both as a physician and as a teacher.

Prof. A. Rosenberg, who was for many years the assistant of Prof. Bernard Fraenkel, died, July 31, at the age of 56, only six months after his teacher. He received general recognition as secretary to the International Congress of Laryngology held last year in Berlin. His literary services were chiefly in the field of therapeutics.

August 3, Professor Bernstein, formerly director of the Institute of Physiology at Halle, celebrated the fiftieth anniversary of his doctorate.

August 9, Honorary Professor Dr. Gustav Fritsch of Berlin celebrated the golden anniversary of his doctorate. Fritsch has rendered great service in the fields of histology and anthropology. In 1887 he was appointed director of the department of microscopic biology in the newly erected institute of physiology under DuBois Reymond. Of especial importance were his investigations early in the seventies in conjunction with Hitzig on the localization of the motor centers in the cerebral cortex. His studies of the brain of the fish, by which further evidence was afforded of the analogous structure of the central nervous system of all vertebrates, are well known, as are his studies on electrical fishes. His work on the form of man for artists and anthropologists is of general interest. A short time ago he delivered an address in the anthropologic society on the racial characters of human hair, illustrated by numerous microscopic preparations, in which he is a master.

Professor Matthes, who had received an appointment as successor of Lichtheim, has unexpectedly decided to remain in Marburg. So far nothing definite is known as to the reasons for this surprising declination.

Foundation of German Hospital in Hongkong

According to the newspapers an American woman has left in her will to two German physicians practicing in Hongkong the sum of \$62,500 (250,000 marks) for the erection of a German hospital.

Vision Tests for Chauffeurs

At the request of the Bavarian Automobile Club, the Munich Ophthalmologic Society has given an expert opinion as to the power of vision to be required of an automobile driver, of which the following are the principal points: 1. For the central acuity of vision in the better seeing eye a power equal to two-thirds the normal, and in the weaker eye a power equal to one-third the normal should be required, and this should hold good for all drivers whether the visual power is attained with or without glasses. Glasses for correction may be worn but must not be stronger than eight diopters. Reserve glasses are necessary and also the driver who wears glasses should be provided with a wind shield when rain or snow is falling and this should have a window that can be opened. 2. At the time of application for license as chauffeur an examination of the field of vision with the perimeter should be made and a plainly recognizable contraction of the field of vision in one eye should exclude the applicant from securing a license. 3. In the same way a noticeable diminution of sensibility to light should prevent him from obtaining a license. 4. Congenital color blindness is of no moment for guiding an automobile. 5. The following diseases of the eye shall exclude the applicant from license: ptosis, paralysis of the eye muscles, notable disturbance of the mobility of the pupil, aphakia and, exceptionally, external inflammations. 6. The wearing of protective spectacles, preferably of glass, is to be recommended.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Aug. 10, 1912.

Death of Professor von Neusser

By the death of Professor von Neusser, which took place a few days ago, the Vienna Medical School and University sustains a severe loss. This physician was one of those few men whose genius at once attracts the attention of his contemporaries. He was born in Poland. After his graduation, when assistant in one of the medical wards in the old General Hospital in Vienna, he used to make incredibly correct diagnoses which amazed his confrères as well as the pathologists. When he was appointed as Kahler's successor, the majority of the faculty were rather opposed to him, for he had not belonged to the clique which was even then omnipotent in the University of Vienna; but the students were and always remained in sympathy with the new professor. He was a most remarkable teacher, demanding from his pupils much knowledge, and giving them wonderful insight into the actual conditions of illness and the diseased human body. He was a special worker and investigator in the problems of hematology, pellagra and disturbances of circulation and of the respiratory and alimentary organs, while lately his clinic paid special attention to diseases of metabolism and of the "internal secretion" of glands. His lectures were generally thronged by students, and numerous American physicians were regular listeners to his talks on differential diagnosis. About a year ago he had to undergo an operation for what was thought to be hydronephrosis but which was an inoperable cancer of the kidney, the diagnosis of which he had made

on himself before the surgeon could verify it *in vivo*. His friends tried to hide the truth from him, and in this they succeeded; at least he never asked after the operation what was the true nature of his sufferings. He reached only the age of 60 years, at which time he had been clinical professor in Vienna for twenty years. At present his former assistant, Professor Türk, has been asked to take charge of the clinic temporarily until its fate is decided. It is not impossible that the three other medical clinics (Noorden, Ortner and Chvostek) will divide up among themselves the wards of Neusser's clinic, while space will be gained thus for a third (new) surgical clinic, intended to serve as a propedentic clinic for students of surgery.

A Case of Small-Pox in Vienna

As the result of compulsory vaccination in this country, small-pox has become so rare in Vienna that a single case attracts general attention. The majority of our younger physicians have never seen a case; when five years ago a small epidemic occurred in Vienna—altogether sixty-two cases—this formed the only opportunity they have had since 1866 to study the disease in our city. Now another case has been reported, and it could be proved that the patient had brought the disease from Constantinople, where he had been on business within the last week before his illness. All the necessary precautions have been taken to prevent further spreading of the disease. The course of illness was very mild; the patient had been vaccinated when a boy of 7 years, to which fact the slight degree of the attack is to be attributed.

Cholera Appears Again in Austria-Hungary

A fresh case of cholera has been reported in Hungary, in the same district (near the Austrian frontier and in close business relations with Vienna) where it had raged last winter and where it had been pronounced extinct. Last year our board of health was successful in warding off the dreaded disease from our own country. The cool summer of this year—the coolest on record since 1775, and showing the highest amount of rainfall for July and half of August—is very favorable for an eventual explosive appearance; therefore the population has been warned to be on the lookout.

Marriages

FREDERICK VAILE OVERMAN, M.D., Indianapolis, Ind., to Miss Elizabeth Lee, of Lafayette, Ind., August 9.

EUGENE T. HANCOCK, M.D., Philadelphia, to Miss Lelia J. Hornsby, of Harborton, Va., August 9.

ALFRED S. MASCHKE, M.D., Cleveland, O., to Miss Selma Klein, of Lorain, Ohio, August 11.

ISAAC JOHN KING GOLDEN, M.D., to Miss Annette Elizabeth Green, both of Chicago, July 25.

WILLIAM M. CAMPBELL, M.D., to Miss Natalie Clark, both of St. Joseph, Mo., August 10.

RICHARD BEASON SHORT, M.D., Bedford, Ind., to Miss Edna Comley of Indianapolis, July.

JAMES MINES GODFREY, M.D., to Miss Kate Weaver, both of Philadelphia, August 15.

JOHN M. BECK, M.D., to Miss Laura B. Best, both of Louisville, Ky., August 15.

Deaths

Frederick F. Hoyer, M.D., University of Buffalo, N. Y., 1849; said to have been the oldest practitioner in New York City; a member of the Medical Society of the State of New York; president of the Erie County Medical Society in 1880 and made an honorary member in 1908; physician to the Erie County Insane Asylum and Alms House from 1861 to 1863; died at his home in Tonawanda, August 16, from heart disease, aged 90. The honorary pallbearers at his funeral were physicians of Erie County.

Frances Augusta Scranton Tenny, M.D., University of Michigan, Ann Arbor, 1877; a nurse during the Civil War; a member of the Kalamazoo Academy of Medicine; died in the Bronson Hospital, Kalamazoo, August 11, from senile debility, aged 82.

Andrew J. Brockett, M.D. University of Michigan, Ann Arbor, 1862; formerly a member of the American Medical Association; assistant surgeon of the First and Forty-Fourth Ohio Volunteer Infantry throughout the Civil War; for thirty years a practitioner of Bristol, Ohio, but later a resident of Cleveland; died at his home, August 12, from cerebral hemorrhage, aged 76.

Irving Ellis Kimball, M.D. Medical School of Maine, Brunswick, 1876; a member of the American Medical Association and American Laryngological, Rhinological and Otological Society; consulting surgeon on diseases of the nose and throat to the Maine General Hospital and Maine Eye and Ear Infirmary, Portland; died recently at his home in that city, aged 60.

George Washington Simpson, M.D. College of Physicians and Surgeons, Baltimore, 1873; a member of the American Medical Association; for twenty years a chaplain in the U. S. Army, and for the last fifteen years in charge of the religious and medical work at the Johns Hopkins Colored Asylum; died at his home in Baltimore, August 18, from heart disease, aged 71.

McCandlish Monroe Moran, M.D. University College of Medicine, Richmond, 1901; formerly a member of the American Medical Association; member of the Medical Society of Virginia; of Pinners Point; formerly surgeon for the Atlantic Coast Line System; was found dead in his room in the Neddo Hotel, August 12, it is supposed, from heart disease, aged 38.

Thaddeus Lindley Robertson, M.D. Jefferson Medical College, 1861; a surgeon with Hill's brigade of cavalry in the Confederate service throughout the Civil War; for thirty years a member of the Medical Association of the State of Alabama; one of the first members of the State Board of Medical Examiners; died at his home in Birmingham, August 16, aged 76.

Edward G. Stemmetz, M.D. Long Island College Hospital, Brooklyn, N. Y., 1867; formerly a member of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; for several years a member of the Board of Education of Hokendauqua, Pa.; died at his home, August 12, from phlebitis, aged 68.

William I. Cowie, M.D. McGill University, Montreal, Que., 1895; a member of the Piscataquis County (Me.) Medical Society; for several years a surgeon on transatlantic steamers, but later a practitioner of Guilford; died in a hospital, Bangor, August 4, six weeks after an operation for appendicitis, aged 43.

Daniel Gardener Mason, M.D. New York University, New York City, 1879; formerly president of the Monroe County (N. Y.) Medical Society and a charter member of the Rochester Academy of Medicine; died at his home in East Henrietta, N. Y., August 12, from septicemia, aged 57.

Edward B. Root, M.D. Albany (N. Y.) Medical College, 1856; surgeon of the One-Hundred and Sixty-Eighth New York Volunteer Infantry during the Civil War; for nearly fifty years a practitioner of Painesville, Ohio; died in the Painesville Hospital, August 9, aged 80.

L. Alonzo Glaze, M.D. Vanderbilt University, Nashville, Tenn., 1881; University of Nashville, 1882; local surgeon of the Illinois Central and Big Four systems at Grayville, Ill.; died in an infirmary in St. Louis, August 11, from carcinoma of the liver, aged 54.

Isaac Hull Platt, M.D. Long Island College Hospital, Brooklyn, N. Y., 1882; for several years a practitioner of Brooklyn and later of Lakewood, N. J.; a grandson of Commodore Hull; eminent as a Baconian; died at his home in Wallingford, Pa., August 14, aged 59.

August Rauscher, M.D. University of Vienna, Austria, 1855; a member of the American Medical Association; an expert mineralogist, but since 1882 an active practitioner of Murray, Utah; died at his home in South Cottonwood, August 15, aged 79.

Abram B. Williams, M.D. Jefferson Medical College, 1863; a member of the Missouri State Medical Association; a specialist on diseases of the eye and ear, in St. Louis for many years; died at his home in Bedford, Ind., August 6, aged 77.

William Gray Miller, M.D. Western Pennsylvania Medical College, Pittsburgh, 1898; surgeon of volunteers during the Spanish-American War, with the rank of major; died at his home in New Castle, Pa., August 16, from uremia, aged 38.

George H. Vaupell, M.D. Rush Medical College, 1896; Chicago Homeopathic Medical College, 1897; of Chicago; died suddenly at Antioch, Ill., August 19, from cerebral hemorrhage, aged 53.

William Douglas Thomason, M.D. University of Alabama, Mobile, 1898; a practitioner since 1890; died at his home in Toulminville, Ala., August 13.

John Lark Stockdale, M.D. Medical College of the State of South Carolina, Charleston, 1855; a member of the Medical Association of the State of Alabama; a Confederate veteran; died in Talladega, August 11, as the result of a fall, aged 81.

C. Annette Buckel, M.D. Women's Medical College of Pennsylvania, Philadelphia, 1858; known as "The Little Major" on account of her service in hospitals during the Civil War; died at her home in Piedmont, Cal., August 17, aged 73.

James Thomas Eason, M.D. Tulane University, New Orleans, 1897; a member of the board of health of Grand Lake, Ark., and a member of the Chicot County Medical Society; died at his home August 9, from malaria, aged 47.

William Clarke, M.D. Detroit Medical College, 1871; College of Physicians and Surgeons, New York City, 1877; for many years a practitioner of Lamont and Grand Rapids, Mich.; died in Lincoln, Neb., August 12, aged 68.

Franklin Richard Garlock, M.D. University of Pennsylvania, Philadelphia, 1870; a member of the State Medical Society of Wisconsin, and a veteran of the Civil War; died at his home in Racine, August 13, aged 71.

Pardon Leland Kimball, M.D. University of Buffalo, N. Y., 1880; a veteran of the Civil War; formerly a practitioner of Illinois and Iowa; died at his home in Long Beach, Cal., recently, aged 71.

William Giddings Peterson, M.D. Vanderbilt University, Nashville, Tenn., 1894; president of the school board of Port Lavaca, Tex.; died at his home, August 10, from typhoid fever, aged 39.

Alvin T. Heavenrich, M.D. Miami Medical College, Cincinnati, 1904; a member of the American Medical Association and a practitioner of Seattle, Wash.; died in Cincinnati, July 31, aged 29.

Frank T. Cochran, M.D. Jefferson Medical College, 1872; formerly coroner of Columbia County, and health officer of Hudson, N. Y.; died at his home in Hudson, July 18, aged 50.

J. Howard Beck, M.D. University of Pennsylvania, Philadelphia, 1882; a member of the American Medical Association; died at his home in Philadelphia, August 15, aged 59.

John Keck, M.D. Homeopathic Medical College of Missouri, St. Louis, 1869; died at his home in Camp Meeker, Cal., recently, aged 71.

Charles Richards, M.D. University of Buffalo, N. Y., 1904; died suddenly at his home in Sturgis, S. Dak., August 4, from nephritis, aged 40.

Daniel Meagher, M.D. Queens University, Kingston, Ont., 1867; of Montreal; died in Kingston, August 10, from heart disease, aged 68.

John Frederick Hilton, M.D. University of Vermont, Burlington, 1892; died at his home in Phillips, Me., August 1, aged about 45.

Luigi S. Jadarola, (license, California, 1894); a practitioner for twenty-eight years; died recently at his home in San Francisco.

Henry Jackson, (license, Board of Examiners Eclectic Medical Society of California, 1846); died recently at his home in Likely.

David Smith Humphreys, M.D. Tulane University, New Orleans, 1885; died at his home in Greenwood, Miss., July 20, aged 51.

Thomas Adams, M.D. Trinity Medical College, Toronto, Ont., 1901; of Columbus, Ohio; died in Denver, August 7, aged 35.

Richard M. Fulkerson, M.D. Eclectic Medical Institute, Cincinnati, 1870; died at his home in Mounds, Ill., August 11, aged 73.

Frederick C. Boyd, M.D. Queens University, Kingston, Ont., 1911; died at his home in Kingston, July 5, from tuberculosis, aged 23.

James Peterson McInerney, M.D. McGill University, Montreal, Que., 1884; died at his home in St. John, N. B., August 8.

Rawley E. Ice, (license, West Virginia, 1881); of Logansport, died August 12, a few hours after a surgical operation.

Ezbon Churchill, M.D. University of Vermont, Burlington, 1872; died at his home in Woodstock, N. B., August 8.

Hugh Walker, M.D. Queens University, Kingston, Ont., 1897; died recently at his home in Elsinore, Cal., aged 39.

Luis Fatjo, M.D. University of Barcelona, Spain, 1888; died recently at his home in Volta, Cal.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

VIBURNUM COMPOUND—AND OTHER NOSTRUMS

A number of drugs have some reputation for therapeutic value without there being any particular evidence to substantiate the claims. Viburnum, concerning which we recently received the following letter, is one of these drugs:

To the Editor:—Have you made an analysis of Viburnum Compound? Extravagant claims are being made for it and I cannot put my hand on any data. A patient has asked me concerning it and I wish to advise her honestly. I do not know but that there may be several "viburnum compounds." I rarely use any of these "put-up" preparations, and hence know but little about them.

A. J. HESSER, M.D.,
Pittsburgh, Pa.

No analysis of Hayden's Viburnum Compound, to which our correspondent refers, has been made in the Association laboratory. According to advertising circulars, the preparation contains American skullecup (*Scutellaria lateriflora*), cramp-bark (*Viburnum opulus*) and wild yam (*Dioscorea villosa*). Since these drugs contain no well-defined therapeutically active ingredients, an analysis of the preparation would necessarily be unsatisfactory.

There are a number of drugs which have in some way obtained a reputation as being valuable in the treatment of diseases of women, without their therapeutic claims ever having been proved. It is said that some were used by the aborigines for such affections and we find a considerable number of them combined in various nostrums (sometimes with therapeutically active drugs) and exploited for the cure of female disorders, under most extravagant and usually absurd claims. Thus "Pierce's Favorite Prescription" is advertised as containing black cohosh, blue cohosh, goldenseal, lady's-slipper and false unicorn-root; "Dioiviburnia" (Dios Chemical Co.) as containing American skullecup, cramp-bark, wild yam, blue cohosh, black haw, star-grass, trailing arbutus and false unicorn-root; "Viburnumal" (Louisville Pharmacal Works) as containing American skullecup, cramp-bark, wild yam, star-grass and motherwort.

Most pharmaceutical houses, following the lead of nostrum-makers, put similar mixtures on the market; for example: "Elixir of Viburnum Compound" (Nelson, Baker & Co.) is said to contain cramp-bark, American skullecup and wild yam; "Elixir of Hydrastis and Viburnum Compound" (Smith, Kline

& French Co.), cramp-bark, goldenseal, Jamaica dogwood and pulsatilla; "Elixir of Hydrastis and Cramp Bark Compound" (Parke, Davis & Co.), cramp-bark, hydrastis, Jamaica dogwood and pulsatilla; "Fluid Extract of Cramp Bark Compound" (H. K. Mulford Co.), American skullecup, cramp-bark and wild yam; "Mother's Cordial" (Eli Lilly & Co.), cramp-bark, blue cohosh, false unicorn and squaw vine; "Uterine Sedative Elixir" (Eli Lilly & Co.), cramp-bark, goldenseal, Jamaica dogwood and pulsatilla; "Vibutero" (Fred. Stearns & Co.), cramp-bark, wild yam, black haw, squaw vine, Jamaica dogwood, saw palmetto and pulsatilla. Practically all of these drugs (except goldenseal) are ignored in the standard works on pharmacology. Further, the results of a careful examination by the Council on Pharmacy and Chemistry of the therapeutic claims made for most of them shows that these claims

are not sustained by reliable clinical experience.

The fact is that the popularity of preparations of this kind is purely an artificially created one. A nostrum containing, let us say, extractives of some little-used or worthless drugs is put on the market and heavily advertised. Should it be advertised in a manner to make it sell, a host of imitations appear and the large pharmaceutical houses put out substitutes for it. The mercurial physician does the rest. He prescribes it indiscriminately in the class of cases for which it is advertised. Naturally, a certain proportion of the patients who take it recover, and the recoveries are credited to the nostrum. A vicious circle is thus established and the demand for the stuff increases. Its sale, and the sale of similar products, continues until the overwhelming experience of those who have prescribed it proves its uselessness. In the meantime the manufacturers have reaped a harvest at the expense

both of the public and of the medical profession. And the manufacturers' excuse for putting such absurd "specialties" on the market is that physicians prescribe them!

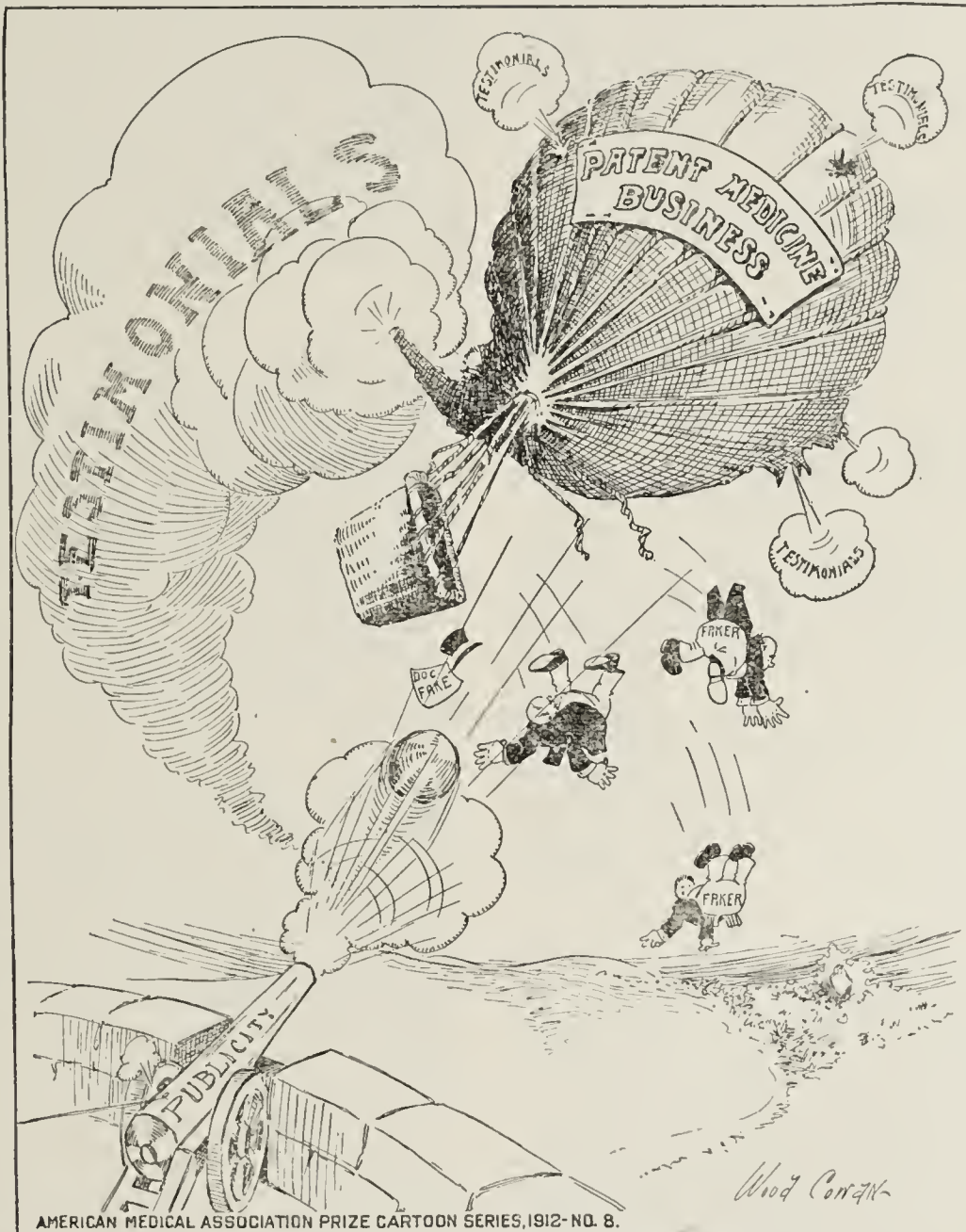
MISSOURI PROGRESSIVE

We quote from the July, 1912, *Journal of the Missouri State Medical Association* a part of the minutes of the last annual session of that body.

Dr. A. W. McAlester, Jr., Kansas City, introduced the following resolution:

WHEREAS, The American Medical Association has been doing effective work to counteract the influence of certain medical journals whose advertising pages carry many fraudulent advertisements; therefore, be it

Resolved, That it is derogatory to the best interests of the Missouri State Medical Association for members to publish articles



YOU CAN'T FLOAT A BALLOON WITHOUT GAS

or papers in medical journals which are not in sympathy with the purposes of this organization; and further,

Resolved, That members are hereby requested to cease publishing original articles or other matter in journals whose advertising pages contain fraudulent and questionable advertisements and to give loyal and constant support to the *Journal of the Missouri State Medical Association*.

DR. F. J. LUTZ, St. Louis: "In moving support of this resolution, I want to say that this association has grown large and powerful and is so necessary to every physician in this state that we can declare our opinions openly and fearlessly, even though it will be some time before all our members can be persuaded to live up to them. Those who have followed the literature of this country as represented by medical journals have long been familiar with the fact that there are two groups, one in sympathy with us, practicing what they preach, the other doing as their pocket-books are served. THE JOURNAL of the American Medical Association has waged a war against certain interests opposed to us. This war was started by Dr. Moore of this association, who gave impetus many years ago to our warfare against proprietary medicines. THE JOURNAL of the American Medical Association has carried this war to a logical conclusion. We see our members enjoying the benefits of our own association and assisting month after month by publication in the opposition journals scientific contributions which make it possible for those same journals to go to proprietary medicine men and others and tell them 'our journal is supported by the main men in the medical profession, and you should advertise with us.' In the meantime the organized profession of the country is fighting these immense pocket-book concerns. I believe that we should set the seal of our disapproval on our members who furnish articles for these opposition journals. There are plenty of journals in this country who believe as we believe, who are ethical and in which all the contributions can be published with benefit. This association should follow up the good work started with the resolution of Dr. Moore in St. Louis several years ago. We should not only condemn the medicine, but fight the man who lets his articles go to these journals in opposition to our principles."

Moved and seconded that the resolution be referred to the Council. Carried. . . . Report of the Judicial Council: . . . "In the matter of the resolution submitted by Dr. McAlester . . . we express our approval of this resolution and recommend its adoption . . ." It was moved that the report be received and adopted. . . . The motion carried.

A QUEEN AND A PROPRIETARY

A Hamburg manufacturing chemist, named Wasmuth, sent to the obstetrician of the queen of Holland a sample of a remedy which he claimed would facilitate delivery. As the queen soon afterward passed through a normal childbirth, Wasmuth advertised extensively that the favorable course of the delivery was due to the action of his remedy, Rad-Jo. The obstetrician, Professor Kouwer of Utrecht, brought suit in Germany against Wasmuth for unwarranted statements, as of course Kouwer had taken no notice of the proprietary sent him. He won his suit and a fine was imposed on Wasmuth, as was mentioned in THE JOURNAL at the time. Wasmuth recently republished the same statements in a German magazine. Kouwer brought suit again and again he was awarded damages, this time \$200 (1,000 marks).

Correspondence

The Mystery of Miasma as Darwin Saw It

To the Editor:—In his comprehensive notes on organic life, during the voyage of the *Beagle*, Darwin just missed disclosing the rôle of the *Anopheles* mosquito. At Callao, July 19, 1835, he wrote:

"The attacks of illness which arise from miasma never fail to appear most mysterious. So difficult is it to judge from the aspect of a country whether or not it is healthy that if a per-

son had been told to choose within the tropics a situation appearing favorable for health very probably he would have named this coast. The plain round the outskirts of Callao is sparingly covered with a coarse grass, and in some parts there are a few stagnant, though very small, pools of water. The miasma in all probability arises from these: for the town of Arica was similarly circumstanced, and its healthiness was much improved by the drainage of some little pools. . . . The island of St. Jago, at the Cape de Verde, offers another strongly marked instance of a country which any one would have expected to find most healthy being very much the contrary. I have described the bare and open plains as supporting, during a few weeks after the rainy season, a thin vegetation which directly withers away and dries up. At this period the air appears to become quite poisonous, both natives and foreigners often being affected with violent fevers. On the other hand the Galapagos Archipelago in the Pacific, with a similar soil and periodically subject to the same process of vegetation, is perfectly healthy. . . . In all unhealthy countries the greatest risk is run by sleeping on shore. Is this owing to the state of the body during sleep, or to a greater abundance of miasma at such times? It appears certain that those who stay on board a vessel, though anchored at only a short distance from the coast, generally suffer less than those actually on shore."

C. H. PRESTON, Davenport, Iowa.

Some Cautions Concerning Sex Instruction for Children

To the Editor:—In the matter of sex instruction the results of experience ought to be carefully gathered. If what is called "experimental pedagogy" is essential in any field of education, it is most emphatically so in this. The mentality of the child is so very complicated that it is quite impossible to foresee what will result from change in methods of bringing up relative to sex.

Information came to me the other day from a reliable source, relative to the effect of a change of policy from the old explanation of "the doctor and the stork" to the scientific statement that the baby grows in the body of the mother, and is born, after fully grown, from its mother. A group of intelligent parents decided that they would tell no lies about the new babies, but would explain human generation somewhat fully in reply to questions by their wondering offspring. The children of this somewhat segregated group of parents were themselves playmates in a group, and all went well until a boy from the outside, a little older in body and in knowledge, entered into relations with these children brought up on scientific knowledge. He had information to give that completed the answer to the mystery of birth. Interest on the part of the children had become very keen, and one of the girls had fully made up her mind that she would like to have a baby just as her mother had. A baby would be better than a doll.

The stranger from outside gladly supplied the information as to what to do to have a baby, and the little girl who wanted a baby chose the boy she wanted for its father, and they performed the act of copulation, the fact and purpose being well understood by all the children in the group. Then came a time of great expectations on the part of all. This consequence of scientific information and of the abnormally definite interest which it had created was quite intelligently secreted from the parents by instinct, and the knowledge of this sexually abnormal state of mind on the part of the children and of the extent to which imitation of parents had gone did not reach the parents until the expectations of the children seemed to them very long in fulfillment. Finally, one of the smallest of the girls told her mother all about what was happening. Her instinct for keeping secret the great affairs of her child world was not so keen as that of others. The parents had a meeting for consultation, and decided, during vacation from school, to separate the children and to think the situation over.

This incident seems to me to teach three points of great importance to those who are interested in sex instruction:

1. Moral instruction, not physiologic, relative to sex should begin early in the lives of children. Modesty should be awakened in the girls and boys, and they should be led to see that standards for them are different from those which animals fulfil. Its chief idea should be that it is wrong to allow the thoughts and conversation to dwell on these sex matters. Purity of mind should especially be emphasized, so as to turn the children away from talking and observation relative to sex. Children need to appreciate early the fact that it is foul-minded for human beings to be thinking "smut" for their own amusement. Sex has its place in human life, but it is unladylike and unmanly to be looking and thinking at and about sex matters for amusement. Human beings control their interest in this phase of life.

2. The questions about sex come to children's minds before their capacity to utilize scientific information is developed. The old policy of holding back the interest of young children in sex by giving them the simple fiction of the "doctor and the stork" is wise in theory, as well as in experience. It satisfies their minds and deadens their interest. It does not turn their thoughts to their own bodies, and set them going through the string of questions which follow naturally and which for the child has an accumulating interest.

3. When the child becomes seriously dissatisfied with the fiction of the "doctor and the stork," then it is old enough to be instructed in sex physiology, but the foundation of modesty should have been laid beforehand, and should be very carefully built on at this time, so as to furnish a guiding morality to the child while it ponders the new facts, and interprets the actions of animals therefrom. Mere ignorance of sex physiology is not accountable for much wrong in younger child-life; ignorance of the moral standards of true men and women in sex matters is a menace to the child world. The mind of the child should be nurtured in modesty from its earliest years, and the sacredness of the person sexually should be inculcated progressively in both boys and girls and maintained as part of the discipline of the home.

MILTON FAIRCHILD, Baltimore.

Director of Instruction, National Institution for Moral Instruction.

The Picture Show and the Propaganda for Reform

To the Editor:—I dropped into a picture show out here in the desert and saw an intensely dramatic reel that interested me. The story told is as follows: A mother and two small children are left, by the death of the father, the little his labor had saved. The widow reads the "ad" of the "Vampire Investment Company" which promises 30 per cent., and invests all; then promptly loses all. She then endeavors to support herself and the two little ones by the sewing-machine, but it is a losing fight. Lack of food, squalid quarters and tuberculosis soon place the mother in a pauper's grave. The last of the reel shows the two ragged, starved waifs, the boy with a few papers, standing by the mother's grave.

The reel made a deep impression; one could scarcely hear the clicking of the machine for the sniffing of the audience. I did not sniffle but I became possessed with the idea that such a device would be of great value in "The Propaganda for Reform."

I will borrow ten to start the fund to stage the show; when you want it let me know.

RICHARD C. McCLOSKEY, Ogden, Utah.

A Chinese Hermaphrodite

To the Editor:—Chinese speak of the *yin-yang ren* or female-male individual as if they were well acquainted with the fact that such cases exist, but after twenty-two years of experience in one of the largest cities in West China, with a daily clinic of seventy-five to 100 and 150 or 200 in-patients each month, I have now seen my first case. In some respects it is similar to the case reported by Dr. E. M. Prince, of Birmingham, Ala., in *THE JOURNAL*, April 27 (p. 1278).

The patient, a rather mannish looking individual with a mannish voice, aged 26, presented herself at our clinic, com-

plaining of a tumor (tender) in the left labium majus. She had been married at 16, but her husband had deserted her a short time afterward. She had never menstruated.

Examination revealed a left inguinal hernia pouching into a large labium majus but in addition to the hernia could be made out a small tender body lower in the labium, which felt like a testis or ovary. Examination of the right labium revealed a second tender body on that side. In their position over the pubic bones they caused the patient discomfort. The labia minora were small, the clitoris about 1 inch long and proportionately large; the hymen was present; the vagina, a small pouch, extended about 1½ inches beyond the hymen. The urethral orifice was normally placed, but continuing to the base of the clitoris, one could see the shiny surface of the anterior wall of the male urethra.

At the operation the funicular processes on both sides were found to be patent with a fully formed testis on each side, with omental hernia on the left side. Smears from the cut surfaces of the epididymi, which were a trifle smaller than ordinary, showed numerous spermatozoa.

J. H. McCARTNEY, Chungking, China.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE HARMLESSNESS OF DISTILLED WATER

To the Editor:—You speak of distilled water as though it were injurious (July 27, p. 294). Can water be too pure? What is the matter with distilled water? G. H.

ANSWER.—On theoretic grounds, to say the least, the use of distilled water for drinking is unphysiologic. This is, of course, due not to the fact that the processes of distillation have been resorted to, but rather to the complete absence from the water of dissolved substances. Many animal cells speedily disintegrate when they are immersed in distilled or other "pure" water. The osmotic relations between water and solutions of salts, etc., such as are represented by the protoplasmic juices, lead to a rapid diffusion current and the entrance of water into the cells, causing them to swell and disintegrate, precisely as red blood-corpuscles will hemolyze in distilled water.

It should be noted, however, that ordinary drinking-water is far from isotonic with animal fluids and tissues, so that the differences between it and distilled water are merely those of degree. Whether or not drinking-water of any sort is irritating to the gastric cells with which it early comes into contact depends on local conditions. If the stomach is completely empty an unpleasant response may be initiated. It is not a rarity to find individuals who are unable to drink water, on an empty stomach, with comfort. Near one of the German university cities there is a very pure spring known popularly as the *Giftquelle* [poison spring]. The designation is said to have arisen from the fact that nausea occasionally is evoked in those who drink from it. The water is exceptionally deficient in dissolved substances.

In every-day experience, however, water is not regularly taken into an empty stomach, so that the presence of contents helps to avert the objections raised above; isotonicity is, further, speedily established by secretion into the hypotonic fluid; and, lastly, the gastric membrane is usually covered with a protective layer of secreted mucus. The combination of factors relieves us from the likelihood of distress or detriment under ordinary circumstances.

CHOICE OF PHYSICIAN IN STREET-CAR ACCIDENT

To the Editor:—At a certain point on its line a traction company retains three physicians without fixed salary, as company surgeons, and pays for whatever service they render. A car on this road struck a wagon and injured the driver of the wagon, who was not an employee of the trolley company. It was not determined who was responsible for the accident. None of the company surgeons being accessible, another physician was called by an employee of the company. This physician cared for the immediate need of the injured man and had him taken to a hospital. Here one of the company surgeons assisted the first physician in performing an operation made necessary by the injury. The authorized agent of the trolley company reached the hospital after the operation had been completed and notified the first physician that his services were no longer required. The patient's wishes were not consulted,

as to which physician should be retained and he expressed no preference, possibly because he was dazed as a result of the accident. Which physician should be continued in charge of the case—the one who first responded to the call or the regularly retained company surgeon? Which physician should state the question of choice of physicians to the patient when he can choose? L. R.

ANSWER.—In the case in question, the trolley company, when one of its employees called a physician, made itself responsible for the care of the injured man, and the company was within its rights in choosing the physician. So long as the injured party was passive, the corporation had a right to employ and to dismiss the physician. Up to this point the trolley company assumed responsibility for the patient and was debtor to the physician employed for the service rendered.

When the patient becomes conscious and is in mental condition to make a choice or when his responsible caretaker arrives and assumes responsibility, another condition arises. Now the patient or his next friend has the right to choose the attendant. The physician the railroad company has placed in charge may be continued and an agreement made between the company and the patient as to which shall pay the physician; or the patient may, without conference with the company, choose the physician at the time caring for him or another, and himself assume the responsibility for the payment for the service of this chosen physician. If either physician solicits the patronage of the patient, he degrades the profession. Especially is this true if he asks to be retained or to be employed on the plea that he has a technical right to serve the patient. Both physicians interested in this case may be sure that the patient and his family as well as those interested in the management of the trolley road will be well informed concerning the incidents. For either physician to continue in charge except through the choice of the party responsible, whether because of relationship or the responsibility of caring for the injured which public sentiment fixes on public carriers, will reflect on the professional dignity of that physician. Under such conditions, to use an Irish bull, "a good loser wins"—the commendation of the public.

TECHNIC OF THE SULPHUR REACTION OF SALOMON AND SAXL

To the Editor:—Please describe the technic of the sulphur reaction of Salomon and Saxl, referred to in the abstract from the *Hospitalstidende*, July 3, 1912, p. 761.

O. C. BREITENBACH, Frazee, Minn.

ANSWER.—The technic of the reaction was described in *THE JOURNAL*, Oct. 28, 1911, p. 1496. The following are directions given by Salomon and Saxl in the *Deutsche Medizinische Wochenschrift*, Jan. 11, 1912, p. 53: 150 c.c. of albumin-free urine are diluted with 100 c.c. of water and mixed with 150 c.c. of Salkowsky's mixture of barium salts, which consists of two volumes of a saturated solution of barium hydroxid and one volume of a saturated solution of barium chlorid. The mixture is filtered and to 300 c.c. of the filtrate are added 30 c.c. of hydrochloric acid, specific gravity 1.12, and the mixture boiled on an asbestos mat for fifteen minutes and then left on the water-bath until the precipitate settles clear, being kept always covered with a small funnel. It is then very carefully filtered and 200 c.c. of the filtrate are heated on the asbestos mat for fifteen minutes with 3 c.c. of perhydrol (See N. N. R., p. 172, 1912 edition) and poured into a conical glass. After from four to seven hours a positive result of the reaction will be indicated by the precipitate of barium sulphate contaminated with coloring-matter which settles to the bottom. Precipitates which appear later are not regarded as characteristic.

TYPHOID INOCULATION IN CHILDREN—SCOPOLAMIN IN OBSTETRICS

To the Editor:—1. Please refer me to literature on the results of typhoid inoculation in children.

2. What is the present-day teaching with regard to the value of scopolamin (hyoscin) in obstetric practice? G. S. M., Georgia.

ANSWER.—1. After searching through our indexes for the past two years, we are unable to find any article on the subject.

2. Scopolamin, or hyoscin, used in combination with morphin to alleviate the pains of labor was at first heralded as a most valuable adjunct to obstetric practice. It has been extensively tested in several European clinics and the results of these tests have been largely unfavorable. It has received no extensive application by American obstetricians. The general opinion of the Germans is that the great danger is to the child, not to the mother. On the part of the mother, the general opinion is that there is a diminution in strength and vigor of the contractions, lengthening the duration of the

labor, causing more frequent operative interference and leading to an atonic condition of the uterus, post-partum, with hemorrhage. It also interferes with bowel peristalsis and bladder function after labor. Occasionally women show an idiosyncrasy against it, and for this reason it is important that the patient be under constant and careful supervision when it is administered.

On the part of the child, scopolamin-morphin shows toxic effects frequently, a large percentage of infants being born severely asphyxiated, many requiring constant attention for some hours to keep up respiration, while others are born dead because of an overdose of the drugs.

The morphin is probably the dangerous ingredient in the mixture and the results obtained should serve as a warning against any method of anesthesia in labor which involves a continuous benumbing of the sensibilities of the mother with opium or its derivatives. It is well known that infants are more susceptible to opium than adults, so that a dose which proves only stupefying to the mother is likely to be fatal to the infant. If an anesthetic must be used it should be temporarily and for such use ether is best adapted.

INFORMATION ABOUT THE PULMOTOR

To the Editor:—Please give information concerning the "pulmotor," indications for using it, and the method, cost, etc. I particularly wish to ascertain if it would be of service in mine work. E. J. R.

ANSWER.—The "pulmotor" is an apparatus, originating in Germany, for the purpose of supplanting the usual methods of artificial respiration in persons asphyxiated from any cause, using oxygen as the respiratory medium. The apparatus is contained in a case about the size of an ordinary suit-case which may be carried about. It consists of a tank containing pure oxygen under high pressure, a reservoir in which the pressure is reduced to the required degree, a flexible tube and face-mask for delivering the gas, connected with a valve or motor operated by the gas pressure, which alternately sends the gas into the lungs and creates a vacuum or negative pressure which causes an outflow from the lungs, thus imitating the normal respiration. Roth (*Mechanical Artificial Respiration, Berl. klin. Wochenschr.*, Sept. 18, 1911, p. 1729) states, on the basis of experiments conducted on animals and bodies with this apparatus, that it produces a true artificial respiration; he says that it is rather startling to see the chest of a dead body rise and fall in apparently natural respiratory movements. Experience is necessary to get the best results, or, as Roth says, the development of a technic. He has found that the danger of injury to the lungs is negligible, perhaps, but that as some of the gas goes through the esophagus into the stomach, undesirable or dangerous pressure may be caused on the heart, as he found in one instance in an experiment on a large dog. One of the instruments available for public service in Chicago has been used in instances of gas and narcotic poisoning, asphyxiation from drowning, etc., and, according to newspaper reports, in many instances with success. It would no doubt be applicable to cases of asphyxiation from mine-gas poisoning or in anesthetic accidents. Its cost is about \$125.

THERAPEUTIC LITERATURE FOR PATIENTS

To the Editor:—Some time ago there was published in *THE JOURNAL* a list of helpful books for patients on the general subject of suggestion and encouragement. I have vainly sought to find this list through the index and otherwise, but have been unsuccessful. Please refer me to the list.

JAMES A. O'REILLY, M.D., Brooklyn.

ANSWER.—Our correspondent probably refers to a list of books given in an article by Everett J. Brown, which was published in *THE JOURNAL*, June 29, 1912, p. 2030. There was also a list of books on mental healing given July 29, 1911, p. 408.

DATA WANTED ON TRANSFUSION OF BLOOD

To the Editor:—Surgeons who have performed direct transfusion of blood are requested kindly to send me a report of their cases, as I am completing a work on the clinical value of transfusion. Full credit will be given to each surgeon for his cases. I especially desire the report of unsuccessful cases. A. L. SORESI, M.D., 75 West Fifty-Fifth Street, New York.

A MEMORIAL TO DR. MCCLINTIC SUGGESTED

To the Editor:—Cannot some steps be taken toward securing a memorial to perpetuate the name and fame of that martyr to scientific medicine, Dr. Thomas B. McClintic—a hero no less worthy than any who have sacrificed their lives in the Army or Navy?

F. S. SUDDARTH, M.D., Grafton, W. Va.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

GENERAL FEDERATION OF WOMEN'S CLUBS ON PUBLIC HEALTH

One of the most important topics discussed at the eleventh biennial convention of the General Federation of Women's Clubs, held in San Francisco in July, was the improvement of public health conditions. This great body of cultured, intelligent and enthusiastic women wields an enormous influence, and is capable of securing far-reaching reforms. It has always stood squarely for sanitary progress. At the tenth biennial meeting, held in Cincinnati in 1910, resolutions endorsing the Owen bill were adopted, since which time the General Federation of Women's Clubs has been one of the strongest and most influential advocates of this measure. At the San Francisco meeting the endorsement of a national department of health was reaffirmed. Several other important resolutions on health matters were also adopted. The following resolutions were adopted at the San Francisco meeting:

WHEREAS, The General Federation of Women's Clubs, through the health department, has done an excellent work in educating the women of America to the great need concerning human life; be it therefore

Resolved, That we reaffirm our previous declaration advocating the union and strengthening of the various governmental agencies relating to pure food, quarantine, vital statistics and human health. Thus united and administered without partiality to or discrimination against any school of medicine or system of healing, they would constitute a single health service not subordinated to any commercial or financial interests, but devoted exclusively to the conservation of human life and efficiency; and be it further

Resolved, That this health service should cooperate with the health agencies of our various states and cities, without interference with their prerogatives or with the freedom of individuals to employ such medical or hygienic aid as they may see fit.

WHEREAS, Accurate registration of births and deaths is the essential basis for intelligent efforts to conserve infant life, to secure the education of all children and to protect their working life and legal rights; therefore be it

Resolved, That the General Federation of Women's Clubs requests the Children's Bureau to prepare in brief form for popular distribution such material as may be available concerning the present degree of registration of births and deaths in this country and the best methods of securing complete returns.

WHEREAS, England, Germany, France, Sweden and nearly all the enlightened nations of the world have proved that medical inspection of schools for the avoidance of contagion and the correction of physical defects; that outdoor schools for the physically weak, and that the employment of competent school nurses have proved useful in lessening truancy, decreasing absence from sickness and alleviating suffering; therefore be it

Resolved, That we recommend to the Federated Clubs the necessity for carrying forward such plans as shall relieve physical defects and educate the young for stronger bodies and more wholesome living.

WHEREAS, Innocent women and children of our land are the greatest sufferers from venereal diseases in the marriage relation; be it therefore

Resolved, That the General Federation of Women's Clubs puts itself on record as believing in properly endorsed certificates of health or of freedom from venereal disease, for all applicants for marriage licenses; and be it further

Resolved, That this same body urge the respective states to pass a law similar to that of Indiana, which requires such a certificate.

Adopted.

The Constitution of Protoplasm.—That living protoplasm is a colloidal solution of the nature of an emulsion is the idea put forward a short time ago by Lepeschkin in a preliminary paper on the structure of protoplasm. Under certain conditions this emulsion may become transformed into gelatinous foam with fluid honeycomb-like walls. Further, the colloidal parts, in which Brownian movement is exhibited, probably consist of a great variety of heterogeneous compounds. Owing to the slow movement of the colloid material, chemical change in any part is not distributed immediately but tends to cause changes in the protoplasm at that particular part. These changes are evidenced by movements such as contraction of the cell or by the separation of special substances. These movements, etc., accelerate the motion of the plasma, and in this way the effect of the stimulus is eventually distributed to all parts.—*British Medical Journal*.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ILLINOIS: Coliseum Annex, Chicago, September 24-26. Sec., Dr. James A. Egan, Springfield.

IOWA: Capitol Bldg., Des Moines, September 11-13. Sec., Dr. Guilford H. Sumner, State House.

MASSACHUSETTS: State House, Boston, September 10-12. Sec., Dr. Edwin B. Harvey, Room 159, State House.

NEW YORK: September 17-20. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

Georgia May Report

Dr. C. T. Nolan, secretary of the Regular Board of Medical Examiners of Georgia, reports the written examinations held at Atlanta, May 1, 2, 3 and 4, and at Augusta May 16-18, 1912. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 80. The total number of candidates examined was 184, of whom 172 passed and 12 failed. Six candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Birmingham Medical College.....	(1911)		82
George Washington University.....	(1910)		87
Howard University, Washington, D. C. (1910)	84.5; (1911) 80		
University of Georgia (1911)	86.5; (1912) 80, 80, 82.5, 83, 83, 84, 84.5, 85, 85, 85.5, 85.5, 85.5, 86, 86.5, 87.5, 87.5, 88.5, 89, 89, 89, 89, 89.5, 90, 90, 90.5, 91.5, 91.5, 94.5, 95.		
Atlanta College of Physicians and Surgeons (1910)	84.5; (1912) 80, 80, 80.5, 81, 81, 81.2, 81.5, 81.5, 81.5, 81.5, 82.5, 83, 83, 83, 83, 83, 83, 83.5, 84, 84, 84.5, 85, 85, 85.5, 85.5, 85.5, 85.5, 86, 86, 86, 86.5, 86.5, 87, 87, 87.5, 88, 88, 88.5, 88.5, 88.5, 88.5, 88.5, 88.5, 89, 89, 91.5, 92.5, 93.5, 94, 95.		
Atlanta School of Medicine (1912)	80, 80, 80.5, 81, 81.5, 81.5, 81.5, 82, 82, 82.5, 82.5, 82.5, 83, 83, 83.5, 83.5, 83.5, 83.5, 83.5, 84, 84, 84, 84.5, 84.5, 85, 85, 85.5, 85.5, 86, 86, 86, 87, 87.5, 88, 88, 88, 88.5, 88.5, 88.5, 89.5, 90.		
University of Louisville.....	(1909)		85
Tulane University of Louisiana.....	(1901) 75; (1910)		83.5
Johns Hopkins University (1903)	96; (1904) 90; (1911)		85
Woman's Medical College of Baltimore.....	(1897)		83
Baltimore Medical College.....	(1898) 82.7; (1904)		90.5
University of Maryland.....	(1908) 83; (1910)		83
College of Physicians and Surgeons, Baltimore.....	(1911)		85
College of Physicians and Surgeons, Boston.....	(1905)		84
Leonard Medical School.....	(1908)		87.5
St. Louis College of Physicians and Surgeons.....	(1898)*		
University of Pennsylvania.....	(1911)		85.5
Jefferson Medical College.....	(1901) 85; (1909)		85.5
Medical College of the State of South Carolina (1903)	92; (1904) 92; (1911) 83.5, 86.		
Meharry Medical College (1908)	86; (1912) 80, 81.5, 81.5, 82, 83, 85, 86.		
Vanderbilt University.....	(1909) 93.1; (1911)		87.5
Memphis Hospital Medical College....	(1903) 84; (1911)		90
Chattanooga Medical College.....	(1910)		84
University College of Medicine, Richmond.....	(1911)		86
University of Virginia (1902)	80; (1905) 85; (1908) 87; (1909) 85; (1910) 79.5.		

FAILED

College	PASSED	Year Grad.	Per Cent.
Howard University, Washington, D. C.....	(1912)		72
Atlanta College of Physicians and Surgeons.....	(1912)		74.5
Atlanta School of Medicine.....	(1912)		77.5
College of Physicians and Surgeons, Boston.....	(1911)		74.5
University of the South.....	(1905)		65
Chattanooga Medical College.....	(1907)		73
Meharry Medical College.....	(1912) 74, 76.5, 76.5, 76.5, 77		
University of Tennessee.....	(1910)		74

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Rush Medical College.....	(1895)	Indiana
College of Physicians and Surgeons, Chicago....	(1894)	Michigan
University of Louisville.....	(1884)	Michigan
University of Maryland.....	(1904)	Maryland
Michigan College of Medicine and Surgery.....	(1900)	Michigan
University of Minnesota.....	(1906)	Tennessee

* Licensed on diploma.

Nebraska May Report

Dr. C. P. Fall, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, May 22-23, 1912. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 59 of whom 56 passed and 3 failed. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Hahnemann Medical College and Hospital, Chicago.....	(1911)		79.1
Chicago College of Medicine and Surgery.....	(1906)*		

Rush Medical College	(1912)	82.9
Bennett Medical College	(1912)	80.1, 81.9, 83.7
College of Physicians and Surgeons, Keokuk	(1876)*	
University of Michigan, Dept. of Med. and Surg.	(1911)	75.6
University Medical College, Kansas City	(1912)	83.9, 86.2
Cotner Medical College	(1893) 81.6; (1899) 80.1; (1911) 75; (1912) 76.7, 80.4, 82.1, 84.1.	
University of Nebraska	(1902)*; (1911) 85.1; (1912) 78.9, 81, 82.9, 84.9, 86.4, 88.7.	
Creighton Medical College	(1911) 79.9; (1912) 76.1, 76.7, 76.9, 78.4, 78.4, 78.5, 79.1, 79.6, 79.7, 80, 80.2, 80.6, 80.7, 80.7, 81.1, 81.4, 81.5, 81.9, 82, 82.1, 82.6, 83.5, 83.7, 84.5, 85.9, 86.2, 86.6, 86.9, 88.	
Cotner Medical College	(1912)	74.2
Creighton Medical College	(1912)	74.2, 74.2

LICENSED THROUGH RECIPROCITY		
College	Year Grad.	Reciprocity with
Georgia College of Eclectic Medicine and Surgery	(1912)	Georgia
National Medical University, Chicago	(1909)	Illinois
Northwestern University Medical School	(1910)	Illinois
Rush Medical College	(1897) Minnesota; (1903)	Iowa
Chicago College of Medicine and Surgery	(1908)	Illinois
College of Physicians and Surgs., Chicago	(1901) (1910)	Illinois
State University of Iowa, College of Medicine	(1905)	Iowa
Western Eclectic College of Medicine and Surgery	(1908)	Kansas
Medical School of Maine	(1882)	Maine
Ensforth Medical College	(1909)	Kansas
University Medical College, Kansas City	(1908)	Kansas
Eclectic Medical College, Cincinnati	(1910)	Ohio
Cleveland Homeopathic Medical College	(1879)	Michigan

* No grade given.

Michigan May Report

Dr. B. D. Harison, secretary of the Michigan Board of Registration in Medicine, reports the written examination held at Detroit, May 16-18, 1912. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75, and not less than 50 in any one subject. The total number of candidates examined was 44, all of whom passed. Two of these candidates were previously registered on the basis of their diplomas. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University	(1910)		85.7
Detroit Homeopathic College	(1912)	81.4, 82.5, 82.8, 84.3	
Detroit College of Medicine	(1912)	75, 75.2, 75.6, 77.2, 78.8, 78.9, 79.2, 79.6, 80.2, 80.3, 80.9, 81.6, 81.7, 81.8, 82, 82.1, 82.2, 82.5, 82.5, 83.4, 83.7, 83.8, 83.8, 83.9, 84.1, 84.2, 84.5, 84.8, 84.9, 85.1, 85.6, 86.1, 86.3, 86.9, 87, 87.2, 89.2.	

Kansas June Report

Dr. H. A. Dykes, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, June 11-14, 1912. The total number of subjects examined in was 10; total number of questions asked, 100; precentage required to pass, 75. The total number of candidates examined was 41, of whom 36 passed and 5 failed. Twenty candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College	(1904) 82; (1911)		80
Chicago College of Medicine and Surgery	(1912)		76
University of Kansas	(1912)	77, 78, 81, 81, 81, 82, 83, 84, 87, 88.	
Kansas Medical College	(1912)	76, 76, 78, 79, 79, 80, 81, 81, 83.	
Tulane University of Louisiana	(1912)		86
Tufts College Medical School	(1907)		78
Kansas City Medical College	(1903)		84
University Medical College, Kansas City	(1912)	76, 77, 79, 80.	
Kansas City Hahnemann Medical College	(1912)	76, 78, 83, 85.	
Ohio-Miami Medical College	(1912)		87
University of Pennsylvania	(1908)		83

FAILED		
University Medical College, Kansas City	(1912)	65, 69
Kansas City Hahnemann Medical College	(1912)	55, 68
Memphis Hospital Medical College	(1912)	58

LICENSED THROUGH RECIPROCITY		
College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago	(1910)	Illinois
Chicago College of Medicine and Surgery	(1910)	Illinois
Hahnemann Medical College and Hospital, Chicago	(1891)	Indiana
College Homeopathic College	(1897)	Illinois
Keokuk Med. College, College of Phys. and Snrgs.	(1906)	Iowa
Drake University	(1886)	Iowa
Hospital College of Medicine, Louisville	(1905)	Tennessee
Baltimore University	(1897)	Ohio
University of Michigan, Dept. of Med. and Snrg.	(1903) (1908)	Michigan
Hamline University	(1901)	Minnesota
American Medical College, St. Louis	(1906)	Nebraska
St. Louis University	(1911)	Missouri
Barnes Medical College	(1897) (1901)	Missouri
Missouri Medical College	(1899)	Illinois

University Medical College, Kansas City	(1907)	Missouri
St. Louis College of Physicians and Snrgeons	(1898)	Illinois
University of Pennsylvania	(1893)	Missouri
University of Edinburgh, Scotland	(1908)*	

* Licensed on endorsement of foreign credentials.

Maryland Homeopathic June Report

Dr. O. N. Duvall, secretary of the Homeopathic Board of Maryland, reports the written examination held at Baltimore, June 13-14, 1912. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of eandidates examined was 3, all of whom passed. The following college was represented:

College	PASSED	Year Grad.	Per Cent.
Hahnemann Medical College and Hospital, Philadclphia	(1902) 84.6; (1912) 89.2; 89.3.		

Maryland June Report

Dr. J. McPherson Scott, secretary of the Maryland Board of Medical examiners, reports the written examination held at Baltimore, June 18-21, 1912. The number of subjects examined in was 9; percentage required to pass, 75. The total number of candidates examined was 146, of whom 112 passed and 34 failed. Ten candidates have been licensed through reciprocity since Jan. 1, 1912. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University	(1912)		81
Georgetown University	(1908)*		
Baltimore University	(1907)		76
Johns Hopkins University	(1906) 85; (1910) 83; (1911) 83; (1912) 76, 80, 80, 81, 82, 82, 83, 83, 83, 83, 83, 84, 85, 85, 86, 86, 86, 86, 87, 87, 87, 88, 88, 88, 89, 89, 89, 89, 90, 90, 90, 90, 91, 91, 91, 91, 93, 94.		
University of Maryland	(1905) 79; (1910) 76; (1911) 82, 86; (1912) 75, 77, 78, 78, 78, 79, 80, 80, 81, 82, 82, 83, 83, 84, 84, 85, 85, 85, 86, 87, 88, 89, 91.		
Baltimore Medical College	(1908) 79; (1911) 78; (1912) 77, 81, 81, 82, 84, 85, 87, 87, 88, 88, 88.		
Maryland Medical College	(1912) 75, 79, 81, 84, 87		
College of Physicians and Surgeons, Baltimore	(1912) 75, 76, 77, 80, 82, 84.		
University of Pennsylvania	(1912)		81
Jefferson Medical College	(1911)		82, 82
Medico-Chirurgical College, Philadelphia	(1912) 80, 84, 84, 85, 85		
Woman's Medical College of Pennsylvania	(1910) 82.2; (1911) 79		
Temple University	(1912)		76, 81

FAILED		
Georgetown University	.....(1911)	74
Howard University, Washington, D. C.	.....(1911)	63, 68
Maryland Medical College (1907)	63; (1910) 58, 65; (1911) 64; (1912) 44, 44, 51, 59, 61, 64, 65, 67, 67, 69, 71, 71, 71, 72, 72, 73.	
University of Maryland	.....(1911) 70; (1912) 62, 70, 73, 74	
Baltimore Medical College	.....(1911) 74; (1912)	72
College of Physicians and Surgeons, Baltimore	.....(1912)	67, 70
Johns Hopkins University	.....(1912)	64
Woman's Medical College of Pennsylvania	.....(1910)	67

LICENSED THROUGH RECIPROCITY SINCE JAN. 1, 1912

College	Year Grad.	Reciprocity with
University of Maryland (1898)	(1904)	S. Carolina
Baltimore Medical College	(1907)	Louisiana
Maryland Medical College	(1902)	Delaware
College of Physicians and Surgeons, Boston	(1902)	Maine
University of Pennsylvania	(1910)	Virginia
Jefferson Medical College	(1904)	Delaware
Medical College of the State of South Carolina	(1906)	S. Carolina
University of the South	(1908)	W. Virginia
Medical College of Virginia	(1910)	Virginia

* Licensed by special examination.

The following questions were asked:

ANATOMY

1. What are the characteristics of the cervical vertebrae? 2. Describe the knee-joint. 3. Origin, course and distribution of phrenic nerve. 4. Describe the prostate gland. 5. Give origin, course and termination of saphenous veins. 6. Of what does the sympathetic nervous system consist? 7. (a) What are the divisions of the brain? (b) Name the principal fissures; (c) What fissures divide each hemisphere into lobes? (d) Name the lobes of the brain; (e) Of what does the corpus callosum consist? 8. Gross anatomy of lungs. 9. Give origin, insertion and nerve-supply of the following muscles: brachialis antiens, infraspinatus, pectoralis minor, serratus magnus, piriformis. 10. Name visceral branches of abdominal aorta; or, what arteries supply the thyroid body and from what larger vessels are they derived.

CHEMISTRY

1. Explain the following terms: (a) reaction, (b) nascent state, (c) molecular weight, (d) colloid, (e) valence, and give an example of each. 2. Describe in detail the chemical examination of a specimen of urine, giving the tests used, and the results you would expect if urine was pathological. 3. Give one chemical antidote for each of the following: (a) argenti nitras, (b) phenol, (c) zinci

sulphas, (d) arseni trioxidum, (e) acidum sulphuricum. 4. Define: (a) amphoteric reaction, (b) ptomaines, (c) halogens, (d) specific gravity, (e) calory. 5. Give the chemical formula of each of the following: (a) ethyl alcohol, (b) methyl alcohol, (c) iodoform, (d) glycerin, (e) benzine. 6. (a) What are precipitins? (b) Lysins? (c) Agglutinins? (d) What is a toxin? (e) What is antitoxin? 7. What are normal and decinormal volumetric solutions? How are they made? 8. (a) How would you show the presence of organic matter in water? (b) Name the chief constituents of milk? (c) Give the properties, chemical formula and uses of permanganate of potash. 9. Describe Marsh's test for arsenic. 10. Give a chemical classification of foodstuffs with an example of each.

PHYSIOLOGY

1. Describe the physiologic changes in the uterine muscles during pregnancy and puerperium. 2. Define systolic, diastolic and mean arterial pressure. 3. Leukocytes: (a) number normally, (b) some of the conditions affecting the number, (c) classification of the varieties. 4. (a) Describe blood-plates, (b) Give three tests for blood. 5. Define eupnea, dyspnea, hyperpnea and apnea. 6. Urine, specific gravity, reaction and average quantity in twenty-four hours. Quantity of urea in twenty-four hours. 7. Aphasia. Define the difference between sensory and motor. 8. State what is known of the thymus gland. 9. Name four glands having internal secretions and the effect of these secretions. 10. (a) Name the bile-salts, (b) The bile pigments. (c) Give Pettenkofer's test for bile-acid, and Gmelin's test for bile-pigment.

PATHOLOGY

1. Hookworm. Give scientific name, life history and method by which infection occurs. 2. Obstructive jaundice. How caused? Mention four lesions causing this symptom. What surgical significance has jaundice, and why? 3. Define atrophy, hyperplasia, complement, thrombus and infarction. 4. Mention three conditions, not obstructive, that cause dyspnea. Discuss one of the three named and explain fully why it causes dyspnea. 5. Describe the general method used to isolate and recognize bacteria. 6. Describe the appearance and condition of the bladder late in a case of prostatic hypertrophy of long standing. 7. Give the morbid anatomy of acute poliomyelitis. 8. What is the vaccine which is used to immunize against small-pox? How is it prepared? How does it act? 9. What are the distinguishing features of a malignant growth? 10. Give the morbid anatomy of emphysema.

PRACTICE OF MEDICINE

1. Define: (a) Landry's paralysis; (b) pellagra; (c) nephrolithiasis; (d) dysphagia, and name some diseases in which it occurs; (e) cretinism. 2. Define: (a) percussion; (b) menstruation; (c) auscultation; (d) succussion; (e) palpation. 3. Give differential diagnosis between membranous and spasmodic croup. 4. Renal and hepatic colic. 5. Peritonitis and enteritis. 6. Hysteria and epilepsy. 7. Give treatment of pertussis. 8. Give treatment of interstitial nephritis. 9. Give diagnosis and treatment of serofibrinous pleurisy. 10. Give cause, diagnosis and treatment of tetanus.

SURGERY

1. Define proctoclysis. Describe its uses and mode of administration. 2. Describe Fowler's position and conditions adapted to its use. 3. Define gastro-enterostomy. Describe the operation and a case of a character requiring such a procedure. 4. Hemorrhoids. Describe and give an operation for their radical cure. 5. Mastoiditis. Causes and treatment. 6. Ophthalmia neonatorum. Causes and treatment. 7. Define hyperthyroidism; its diagnosis. Describe a case in your judgment requiring surgical treatment. 8. Colles' fracture. Describe and give its treatment. 9. Describe pes planus. Give its cause and treatment. 10. Define orchitis, osteitis, osteomyelitis.

MATERIA MEDICA

1. Mention six methods of administering drugs and give one example of each method. 2. Name some circumstances which may modify the effect of drugs. 3. Name three drugs which act as circulatory stimulants and dose of each. Name three circulatory depressants. 4. Write a prescription for a 3-ounce mixture containing syrup of ipecac, potassium citrate and syrup of wild cherry for a child 2 years old. One for an adult containing arsenic, strychnin, iron and quinin in pill form, using official names and endings. 5. Give official name and adult dose of calomel, Epsom salts, Hoffman's anodyne, Brown's mixture, paregoric, Fowler's solution and Donovan's solution. 6. Give official preparations of digitalis with adult dose of each. 7. What is an anthelmintic? Name three drugs used as such. 8. What is the source of ichthyol, iodin, opium, ergot and camphor. 9. Give the average adult dose of potassium iodid, compound jalap powder, extract cannabis indica, fluid extract of ergot and morphia sulphate. 10. What is salicylic acid? How prepared and its salts.

THERAPEUTICS

1. Write a prescription in Latin, without abbreviation, containing four ingredients which you would use for chronic bronchitis with abundant secretion, with direction for use. 2. Write a prescription in Latin, without abbreviation, containing four ingredients which you would use for an acute bronchitis, with directions for use. 3. Give the indications for and therapeutics of a venesection. 4. Define chemical incompatibility and physiologic antagonism and write two prescriptions in Latin, without abbreviation, illustrative, and explain the incompatibility and antagonism. 5. What are the therapeutic uses of opium? Describe symptoms of poisoning and treatment. 6. What are the therapeutic uses of strychnin. Describe symptoms of poisoning and treatment. 7. Describe means and method of inducing local and general anesthesia, dangers and prevention. 8. Give the therapy of digitalis and contra-indications for its use. 9. Give the physiologic action and therapeutics of santonin. 10. Give the physiologic action and therapeutics of oleum ricini.

OBSTETRICS

1. Describe the ovaries and their structure. 2. What is puberty? 3. Describe the fetal heart sounds, their rate, when and where best heard? 4. Describe external pelvimetry. 5. What is ballotement? 6. How would you do a pubiotomy? 7. What treatment would you use in the pernicious vomiting of pregnancy? 8. How would you treat inertia uteri during labor? 9. Describe the operation for ventrifixation and suspension. 10. Give treatment of acute infectious diarrhea in infancy.

Book Notices

MODERN THEORIES OF DIET AND THEIR BEARING ON PRACTICAL DIETETICS. By Alexander Bryce, M.D., D.P.H. (Camb.). Cloth. Price, \$2.10 net. Pp. 368. New York: Longmans, Green & Co., 1912.

The general scope of this book is best shown in an enumeration of the titles of the chapters: "Theories of Metabolism" (two chapters; seventy-six pages); "Vegetarianism in Theory and Practice;" "Low Protein Theory and Practice;" "Purin-Free or Uric Acid-Free Diet in Theory and Practice;" "Hyperpyremia in Theory and Practice;" "Dietetic Theories Associated with the Mineral Salts;" "Dietetic Theories Associated with Water;" "The Theory and Practice of Efficient Mastication;" "The Curdled Milk Theory and Practice;" "The No-Breakfast Plan in Theory and Practice;" "Raw Food in Theory and Practice;" "Yeast-Free Bread in Theory and Practice;" "Forced Feeding in Theory and Practice;" "Fasting in Theory and Practice;" "Conclusion—the Practice of Moderation." Except for the first two chapters the book can readily be understood by the intelligent lay reader, although it is intended primarily for medical men. The author discusses in a sane and moderate manner the various theories, practices and fads in dietetics with which one comes in daily contact. We know of no book that can be read more profitably and with such sustained interest by the physician or the intelligent layman who wishes to orient himself in this wilderness of dietetic theories and practices.

MANUAL OF CLINICAL CHEMISTRY, MICROSCOPY AND BACTERIOLOGY. By Dr. M. Klopstock and Dr. A. Kowarsky. Cloth. Price, \$3. Pp. 371, with 59 illustrations. New York: Rebman Company, 1912.

In these days in which the advances in clinical diagnosis are assuming such proportions, a manual such as the above is of special importance. In its preparation "the needs of daily practice have been especially considered in the choice of methods of examination." The authors have been successful in presenting clearly and concisely methods which are both simple and reliable. All of the details essential for general work have been given, so that one may be certain of the points involved in any test he may make.

The subject-matter is arranged in eleven chapters dealing with the examination of the various secretions and excretions of the body. A special chapter treating of the usual bacteriologic methods will be found very serviceable. The mechanical part of the book is excellent. While the illustrations are entirely adequate, many of them might be much improved. The book is commended especially to the general worker as a reliable outline of the more important phases of this extensive subject.

DIFFERENTIAL DIAGNOSIS. Presented Through an Analysis of 385 Cases. By Richard C. Cabot, M.D., Assistant Professor of Clinical Medicine, Harvard University Medical School. Second Edition. Cloth. Price, \$5.50. Pp. 764, with illustrations. Philadelphia: W. B. Saunders Company, 1912.

The frequent reprintings of the first edition of this book testify to its popularity among physicians and students. In the second edition certain minor changes have been made, including the introduction of two new cases, and the correction of typographical errors. The diagnosis of disease is discussed from the standpoint of the presenting symptom, such as pain, headache, vomiting, etc., and cases are cited illustrating the various conditions which may give rise to the symptoms complained of. This method of discussion offers a favorable opportunity for the teaching of rational therapeutics based on a knowledge of the underlying pathologic conditions.

TEXT-BOOK OF MEDICAL JURISPRUDENCE AND TOXICOLOGY. By John J. Reese, M.D. Eighth Edition. Revised by D. J. McCarthy, A.B., M.D. Cloth. Price, \$3. Pp. 660. Philadelphia: P. Blakiston's Son & Co., 1911.

The eighth edition follows the same general lines as the seventh, with some slight alterations and the addition of new matter. The principal changes concern the subject of insanity, which has been revised and a more modern classification adopted. Anaphylaxis has been considered in connection with toxicology.

Medicolegal

Chauffeurs Without Authority to Employ Physicians

(*Habegger et al. vs. King (Wis.)*, 135 N. W. R. 166)

The Supreme Court of Wisconsin reverses a judgment rendered in favor of the plaintiffs, physicians, remanding the cause with directions to render judgment for the defendant. A boy had been run over and injured in the public street by a minor son of the defendant, while using the latter's automobile for his own pleasure or convenience, although it was stipulated on the trial that this was purely accidental, and without fault on the part of the defendant's son, who took one of the plaintiff's in the automobile to the hospital where the injured boy had been taken, informed the physician of what had occurred, and while at the hospital requested the physician to give the injured boy every attention to save his life. The son did not attempt to contract on behalf of his father; nor did the plaintiffs communicate with the defendant at any time before the completion of the services. When the injured boy was about to be discharged from the hospital, the hospital superintendent, in an interview with the defendant, told him that the boy's mother was poor and would probably never be able to pay for the hospital charges, and requested the defendant to do something toward paying the bill, whereupon the defendant paid the hospital bill, informing the superintendent that he was not responsible. The second day after that he received a bill from the plaintiffs for their services. He had heard that they were attending the injured boy at the hospital, but did not know they were making a claim against him until he received their bill, which he refused to pay. The plaintiffs had a verdict finding that the son had general permission from his father to run and operate his father's automobile, and that the services in question were performed at the request of the son.

The law relating to the agency of servants to bind the employer to pay for physicians or nurses in attendance on persons injured by the negligence of such servants will be found, the court says, in *Adams vs. Southern Railway Co.*, 16 Am. & Eng. Ry. Cas. (N. S.) pp. 369 to 379, where the cases are collected. Also in *Hanscom vs. Railway Co.*, 53 Minn. 119; 54 N. W. R. 944; 20 L. R. A. 695. The employment must have been of such a nature that this act of the servant is reasonably within its scope, as in the case of a general superintendent of a railway company, general manager or agent, and by some authorities a railroad conductor. These cases go largely on the corporate character of the employer, the usual practice pursued, and the great exigency which arises in railroad disasters and the dangerous character of the business. A mere chauffeur or automobile-driver in a town where the employer is known and can be readily reached by telephone, or by other speedy and certain means of communication, would not ordinarily possess such authority. Neither would an infant son using his father's automobile under like circumstances. Besides, the stipulation that the injuries here were the result of mere accident, for which the boy in charge of the automobile was not to blame, cut away the groundwork of such implied agency, even if otherwise within the reasonable scope of employment, by reason of an implied authority to save the employer from damages caused by negligence of the employee. The conclusion of the trial court that the boy had in law implied authority to employ physicians at the expense of his father was incorrect.

Admissibility of Testimony as to Statements of Patient as to Past Condition

(*Acme Cement Plaster Co. vs. Westman (Wyo.)*, 122 Pac. R. 89)

The Supreme Court of Wyoming says that in this personal injury case against the company one of the physicians who attended and treated the plaintiff for his injury was called as a witness on behalf of the plaintiff and gave his opinion as to the extent and permanency of the injury, and also as to the necessity for the performance of a surgical operation which had been performed on the plaintiff's head as a part of such treatment. He was permitted to testify, over the

objection of the defendant, to statements made to him by the plaintiff in relation to his condition, sensations and feelings in the past, which ruling was assigned as error. The rule seems to be quite well settled that such statements of the party injured, narrative of past conditions or suffering, made by the ordinary witness are inadmissible in evidence; but a physician may testify to a statement or narrative given by a patient in relation to his condition, symptoms, sensations and feelings, both past and present, when such statements were received during and were necessary to an examination with a view to treatment, or when they are necessary to enable him to give his opinion as an expert witness. This evidence was admissible for the purpose of affording the jury the means of determining the weight to be given to the opinion of the physician, but not as evidence tending to prove the actual condition of the plaintiff at the time of which he spoke, and the jury should have been so cautioned. For the purpose indicated, there was no error in admitting the testimony.

Society Proceedings

COMING MEETINGS

Amer. Assn. for the S. and Prev. of Inf. Mort., Cleveland, Oct. 2-5.
Amer. Assn. of Obstetricians and Gynecologists, Toledo, Sept. 17-19.
American Association of Railway Surgeons, Chicago, Oct. 16-18.
American Electro-Therapeutic Association, Richmond, Va., Sept. 3-5.
American Public Health Association, Washington, D. C., Sept. 18-20.
American Roentgen Ray Society, Niagara Falls, Sept. 11-14.
Assn. of Military Surgeons of the United States, Baltimore, Oct. 1-4.
Colorado State Medical Society, Pueblo, Sept. 24-26.
Conf. State Bds. of Health of N. Am., Washington, D. C., Sept. 20-21.
Delaware State Medical Society, Wilmington, Oct. 8.
Indiana State Medical Association, Indianapolis, Sept. 26-27.
Internat. Congress on Hygiene, etc., Washington, D. C., Sept. 23-28.
Kentucky State Medical Association, Louisville, Oct. 29-31.
Medical Association of the Southwest, Hot Springs, Ark., Oct. 8-10.
Medical Society of the Missouri Valley, Council Bluffs, Ia., Sept. 5-6.
Medical Society of Virginia, Norfolk, Oct. 22-25.
Mississippi Valley Medical Association, Chicago, Oct. 22-24.
Nevada State Medical Association, Reno, Oct. 8-10.
New Mexico Medical Society, Roswell, Sept. 12-14.
Pennsylvania State Medical Society, Scranton, Sept. 23-26.
Utah State Medical Association, Ogden, Oct. 1-2.
Vermont State Medical Society, Montpelier, Oct. 10-11.
Wyoming State Medical Society, Sheridan, Sept. 17.

MINNESOTA STATE MEDICAL ASSOCIATION

Forty-Fourth Annual Meeting held at Duluth, Aug. 14 and 15, 1912

The President, DR. HALDOR SNEVE, St. Paul, in the Chair

Officers Elected

The following officers were elected: president, Dr. Richard J. Hill, Minneapolis; vice-presidents, Drs. Henry C. Cooney, Princeton and Samuel H. Boyer, Duluth; secretary, Dr. Thomas McDavitt, St. Paul (reelected); treasurer, Dr. Earle R. Hare, Minneapolis, and delegates to the American Medical Association, Drs. Thomas McDavitt, St. Paul, Leo M. Crafts, Minneapolis and John W. Andrews, Mankato.

Post-Rheumatic Ankylosis

DR. RALPH ST. J. PERRY, Parker's Prairie: Ankylosis may follow any form of articular rheumatism, simple, gonorrheal or gouty, in any person of any age or sex, and the diagnosis, after excluding other diseases, involves chiefly the kind of ankylosis, its degree and duration. The treatment of post-rheumatic ankylosis is prophylactic and curative. The corrective treatment can be divided into the manipulative, medicinal, operative and psychic. Manipulation may be either manual or mechanical. The manual may be gentle and prolonged in character, but more satisfactory results in cases involving the extremities can be immediately and effectually secured by using forcible flexion and extension, breaking up all fibrous adhesions and giving the joint the fullest possible motion at one treatment.

In aggravated cases of post-rheumatic ankylosis, in which there is osseous union, it becomes necessary to resort to arthroplastic operations. When an arthroplastic operation is correctly performed in a suitable case, and the proper after-

treatment carried out, there is a reasonable assurance that the patient will have a freely movable joint, free from pain and which will support weight and withstand traction.

DISCUSSION

DR. R. E. FARR, Minneapolis: These cases are instances of metastatic arthritis and if treated early, along the lines indicated by Murphy, ankylosis would be prevented. They are not cases of rheumatism at all, but are cases of septic metastatic arthritis.

DR. HOMER C. COLLINS, Duluth: We give this class of cases about as much attention, as a rule, as we do the ordinary neurasthenic.

DR. EMIL S. GEIST, Minneapolis: One feature in the paper which impressed me was the value of massage in the after-treatment of these cases.

DR. D. O. THOMAS, Minneapolis: In a case of ankylosis of the shoulder-joint, there being no movement, except that of the scapula, I anesthetized the patient, and broke the ankylosis, then kept up motion for two or three weeks, gave salicylates and the patient got entirely well.

The Phthalein Test in a Group of Medical Cases

DR. HENRY L. ULRICH, Minneapolis: My group of cases, fifty-eight in number, as well as the number of readings, sixty-two, are not large enough to draw definite conclusions. That there is a reduction in the total amount and in the first hour when there is an acute condition of the kidney, my series gives satisfactory evidence. In the mild chronic kidneys, the slowly progressive diffuse nephritis, the findings are rather variable. The readings gave evidence in the three cardiorenal cases which were consistent with the clinical improvements. Finding two out of three obstetric cases at term below normal function raises the point whether most gravid women are low at this period. From others of larger experience and from my own, I feel that the test will distinctly add to our knowledge of renal values both in kidney lesions as well as cardiorenal conditions. That in chronic renal lesions repeated reading at short intervals will disclose some of the reasons for the variance which single readings so far have elicited. Such a series may also throw light on the possible compensatory functions of other organs in cases of very low function and the patient may yet be in apparent general fair economy.

DISCUSSION

DR. J. M. LEWIS, Minneapolis: I have found this method of great assistance. In cases of chronic nephritis, without albumin or casts, it affords the best method of diagnosis. In cases of albuminuria of adolescence, it enables us to establish the best course of treatment and is the best guide to the diet and exercise. In cases in which the urine is loaded with albumin and casts, it enables us to make a satisfactory prognosis. If in cases of this type we find the elimination normal, we may hope the disease (parenchymatous) is of a favorable character or confined to one kidney, or that the kidneys may be suffering from disturbance in some other part of the body, and the patient may have good elimination indefinitely. In surgical kidney, by segregating the urine, it will show which kidney is capable of sustaining life and whether operation can be undertaken safely. In my judgment, this is the only sure method that shows the degree of disturbance of renal elimination.

Suprapubic Prostatectomy

DR. E. S. JENN, Rochester: Until within the past few years the perineal operation for removal of the hypertrophied prostate was the operation of choice in this country. As advocates of this method we have argued, first, that the mortality was less and, second, that the time of convalescence was shorter since the perineal wound healed much more quickly than the suprapubic. Studying the cases more carefully we have found that the mortality is not directly a result of the operation, but that it depends on the functional capacity of the kidneys and the condition of the heart and general circulation, and that it is the same with either operation. We have been able to reduce greatly the mortality by proper preparation of the patient before operating.

In the sixty-nine cases operated on by the suprapubic route, two were quite extensively infected. Rather a small percentage of them healed without having had some urinary leakage through the wound, though most of the wounds have entirely healed and the patients were able to go home within three weeks. The patients have been much more comfortable during the period of convalescence, have not had to contend with the urine-soaked dressing, nor have they had the run of temperature and the sick appearance, due to absorption from infection in this space, that accompanied the old method. While the patients have required considerable care during the first twenty-four hours after the operation, after that time they are much easier to care for, requiring very little dressing.

While we have had some mortality in this series of cases, it could not in any way be attributed to the technic of the operation and would have occurred no matter what operation was done. If the patient be a bad risk, especially if he has a cardiac complication, it will be best to introduce the suprapubic tube into the bladder for the first twenty-four hours. If the bladder has been completely sutured, any clotting in the urethral catheter may cause considerable suffering. In this series of sixty-nine cases we have completely closed the bladder in fifty-nine and used the suprapubic drain in ten.

DISCUSSION

DR. JOHN BUTLER, Minneapolis: Recently there has been considerable difference of opinion as to what has been removed and what is left behind after so-called prostatectomy. Freyer and others are of the opinion that the gland is removed *in toto*, whereas Zuckerkandl and others seem to agree that only the median lobe is hypertrophied; that all tissue anterior to the ductus deferens makes up what is known as the median lobe; that it is the only part of the prostate which is hypertrophied. All tissue posterior to the ductus deferens shares in part in the hypertrophy, but the anterior and posterior lobes through pressure of the hypertrophied median lobe forms the so-called capsule of the prostate. The muscular fibers in the hypertrophied portion are left after prostatectomy. Thus so-called prostatectomy is simply an interglandular enucleation of the median lobe of the prostate.

DR. F. J. PLONKE, St. Paul: The mortality rate is not due to the operation *per se*. The time element is a thing we must consider, whether we do the suprapubic or perineal operation. We must give as little of the anesthetic as possible. These patients are bad subjects for anesthesia, and that of itself is an argument in favor of the perineal operation. In an experience comprising twenty-five cases I have found the perineal operation satisfactory. I have had but one experience with the suprapubic operation.

DR. FRANK WRIGHT, Minneapolis: The mortality of prostatectomy is only a relative term. The surgeon who operates on patients greatly advanced in years will have a much higher mortality than the man who operates on patients who are much younger. I saw Zuckerkandl do seventy-two perineal prostatectomies with spinal anesthesia without a death. He said that if there is any mortality from perineal prostatectomy, it is due to the anesthetic. It is dangerous to give a man over seventy years of age an anesthetic for any length of time on account of lack of elimination or kidney insufficiency.

DR. J. W. ANDREWS, Mankato: I favor the suprapubic operation. For a number of years I resorted to the perineal operation, but 33½ per cent. of the patients would come back complaining of having to get up too often at night to pass urine, and they complained of frequent urination during the day. I finally undertook the suprapubic operation, and not a single patient operated on by this method has had urinary trouble following the operation.

DR. ARTHUR C. STRACKAUER, Minneapolis: The mortality following prostatectomy is largely due to shock, pneumonia and kidney insufficiency. I would emphasize the great importance of ascertaining the condition of the kidneys before operation and more so cystoscopic examination. Some of these cases should be given suprapubic drainage and irrigated for a long time.

Intestinal Stasis With Special Reference to Lane's Short Circuiting Operation

DR. ROBERT O. EARL, St. Paul: From my experience with five cases of ileosigmoidostomy I am of the opinion that the colon should be removed at least to the splenic flexure in all cases in which ileosigmoidostomy is indicated, provided the patient's condition permits the extra operative procedure. All of the patients were relieved of their obstinate constipation. No patient was operated because of constipation but for the relief of definite symptoms of severe auto-intoxication which refused to yield to other treatment. The stools were diarrheal in character and rather frequent the first two to four weeks only, after which the stools have been soft and satisfactory except in the two cases in which the colon contains the fecal masses. In these cases the stools are soft with hard lumps. None complained of an excessive thirst. Considering the fact that most patients who are subjected to short circuiting operations are physical wrecks enduring a miserable existence, the results are good. I advise ileosigmoidostomy with colectomy only after non-surgical treatment has failed and when a less formidable operation does not promise relief.

DISCUSSION

DR. T. W. STUMM, St. Paul: I think we are prone to attach too much importance to auto-intoxication from the intestinal tract. There are doubtless cases in which we do have auto-intoxication from the intestine where there is some definite pathologic process back of it, in which there was true organic obstruction. For instance, around the splenic flexure of the colon there may be some trouble in those cases in which the mucous membrane has been injured in some way, so that absorption can go on much more readily than it could otherwise; but in ordinary cases of constipation, unless there is some pathologic condition existing in the way of adhesions or some inflammatory condition that exists back of it, I do not see the necessity of performing the operation described.

Work of the Public Health Education Committee of the American Medical Association and Its Relation to the State and County Societies

DR. LAURA A. LANE, Northfield: We are trying, first, to establish a committee for public health education in every county in the state where a regular standing committee on this work does not exist; second, to arrange for a series of public lectures in the larger cities and towns of the state; third, to urge the larger hospitals in the state to become centers of education in the prevention of disease; fourth, to establish a Health Day in the public schools; to urge on teachers and parents the importance of medical inspection in the schools; to secure the cooperation of the parents and schools in obtaining proper instruction of the young in practical hygiene and in sex hygiene; to secure regular courses in practical hygiene in our colleges and higher institutions of learning; fifth, to secure traveling libraries on hygiene and sanitation for rural communities; sixth, to provide health talks on the programs of teachers' institutes, farmers' institutes, and to foster the extension of rest rooms in rural towns for the farmers' wives.

DISCUSSION

DR. J. P. SEDGWICK, Minneapolis: We are not doing justice to the women members of our association if we do not heartily support this very excellent movement.

DR. S. M. WHITE, Minneapolis: The work of this committee is very much more important than we realize, for the reason that the American Medical Association, and through it the American medical profession is definitely committed to the propaganda of health education among the public.

DR. MARY S. WHETSTONE, Minneapolis: I want to emphasize one suggestion Dr. Lane made, and that is, for the county physicians who have hospitals in the various towns to cooperate with this committee and have lectures emanate from the hospitals, thus reaching patients in the hospitals, who come from the various rural districts, giving them the needed instruction, as well as extending an invitation to the

laity in the towns in which the hospitals are located to come and listen to the lectures. In this way we can improve the opportunity to disseminate the knowledge which it has been suggested should come from the physician, and maintain the hold which we have on the confidence of the people.

Surgery of the Gall-Bladder and Ducts

DR. ROLLO C. DUGAN, Eyota: That gall-stones are the end-result of an infection of the gall-tract is now well recognized, but how to prevent this infection is not so clear. In the cases of gall-bladder disease in which I have operated, in persons who have been under my personal observation for fifteen or twenty years, the story has been about the same as in those who have come to me from other sources. I have not been able, except in one or two cases that have had typhoid, to decide when the infection took place that resulted in the gall-stones unless possibly influenza was the first offender, creating a condition of lessened resistance to the colon bacillus, the probable immediate cause. That a large number of so-called dyspepsias are cases of latent gall-stones has been emphasized by Murphy and Mayo. Murphy has called attention to the increased mortality in cases of stone in the common duct with fever in comparison to the same condition with the stone confined to the gall-bladder, and explains it by the fact that the duct is very much richer in lymphatics than the gall-bladder, thus increasing the constitutional poisoning. In the past we have not sufficiently emphasize the danger of delay. Murphy's dictum as to appendicitis is practically as applicable here, that the time to operate is "now," just as soon as the diagnosis is made.

DISCUSSION

DR. E. S. JUDD, Rochester: There is very little place for the medical treatment of gall-stones. It is purely a surgical condition when the diagnosis is made. Going beyond the condition of gall-stones, there is a condition of cholecystitis or inflammation in the gall-bladder without stone. It is a history which differs from gall-stone disease, in that the trouble does not come on in the form of a colic, but is more apt to be in the nature of a constant pain in the region of the gall-bladder. When the abdomen is opened this condition of cholecystitis is first found. The gall-bladder is tense and cannot be collapsed by ordinary pressure. Sometimes it requires two or three minutes pressure before the gall-bladder can be made to collapse, and figuring that the cystic duct has a movement of one-eighth of an inch and the common duct a movement of one-sixth of an inch, it takes minutes to press the bile out. If you cannot press out the bile, there is cholecystitis or inflammation of the gall-bladder.

DR. A. W. IDE, Brainerd: I desire to mention a case of gall-stones in a child, four years and one month old. The child had typhoid, which ran a mild course, about a year and a half previous to the onset of the gall-stone trouble. The child had quite a severe attack of abdominal colic. At first we made a diagnosis of appendicitis and operated. On opening the abdomen the appendix was found not seriously diseased, but the gall-bladder was distended and could not be emptied by pressure. On opening the gall-bladder quite a large quantity of bile was removed.

Abdominal Incisions

DR. R. E. FARR, Minneapolis: The transverse division of the rectus will give the operator the best chance to handle every conceivable form of pathology within the abdomen, with the possible exception of large solid tumors, with more convenience and speed and less retraction and handling of tissues with resulting trauma and shock, than will the classic method. It is perfectly safe to divide the muscle transversely. In the procedure of Pfannenstiel we have a rational, safe and convenient method of opening the lower abdomen which appears to have certain advantages over the vertical method and is worthy of more general use.

DISCUSSION

DR. A. W. ABBOTT, Minneapolis: There is one condition in which I dislike to use the Pfannenstiel incision, and that is in cases in which infection of the wound is inevitable. In

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

August, IV, No. 2, pp. 65-127

1. History of Classification of Gastro-Intestinal Diseases in Ancient and Modern Times. I. A. Abt, Chicago.
- 2 *Studies in Bacteriology of Acute Intestinal Diseases of Infancy. B. S. Veeder, St. Louis, and R. Kilduffe and O. T. Denny, Philadelphia.
- 3 *Polycarbohydrates in Diet of Young Infant. J. M. Brady, St. Louis.
- 4 Appendicitis in Childhood. R. S. Fowler, Brooklyn.

2. Bacteriology of Acute Intestinal Diseases of Infancy.—

The authors hold that the mere presence of a few dysentery organisms in a case of acute intestinal disturbance in an infant does not in itself prove that the organisms have any etiologic relation to the condition. It is only in the severe cases of ileocolitis that the dysentery organisms are present in the stools as one of the predominating types of organisms and it is these cases which show distinctive lesions of dysentery at autopsy. In only about 20 per cent. of the cases of ileocolitis occurring in infancy are dysentery organisms found. While in some of these cases the infection with dysentery organisms is primary, in others it is probably secondary. The cases of ileocolitis in which dysentery organisms are present cannot be separated clinically from those in which they are absent. Streptococci are present in the stools of about 80 per cent. of the cases of ileocolitis. While in the majority of these cases the relation is unimportant, it is probable that in some instances the organisms have a distinct relationship in the etiology of the condition.

Out of nearly 100 cases examined during the summer they found but one with the *B. aerogenes capsulatus* and developing a growth in milk heated to 80 C. This child was placed on raw buttermilk, but died three days later. The gas formation, growth and sediments in the dextrose and lactose fermentation tubes varied to such a marked degree in different cases showing the same types of predominating organisms and in individual cases without apparent relation to the clinical condition or changes, that in reality this part of the study gave very little useful information. The same was the case with the growth on and liquefaction of gelatin plates.

3. Polycarbohydrates in Diet of Infant.—For over a period of eighteen months the authors have used the following mixture as the routine formula for new-born infants: One and one-half ounces by measure of barley flour is cooked with 16 ounces of water at least twenty minutes down to 10 ounces, and added to 20 ounces of skim sweet or acidified milk. The latter we believe for many reasons is preferable in an institution. One-half ounce by measure of cane sugar and 1 ounce by measure of malted food containing dextrin and maltose are added. The carbohydrate content of the mixture would be represented by lactose 2.66, cane sugar 1.30, maltose and dextrin, 1.70, plus barley, 2.25, which is partly dextrinized. This gives a total carbohydrate percentage of 7.91. One liter has a calorie value of 415.

One hundred and seventy babies were cared for; ninety babies received breast milk for the first two weeks of life, and then received this mixture. Forty-five received this mixture from birth; eighteen were between 2 and 3 months of age and seventeen, owing to nutritional disturbances, were on Eiweissmilk; these received this mixture after completion of the Eiweissmilk cure. During this period there was a remarkable absence of babies with nutritional disturbances; the stools were uniformly of good color and consistency. No infant on this mixture in this series developed the symptom-complex described by Finkelstein under the caption alimentary intoxication, nor did symptoms arise which could be interpreted as Mehlährschaden (starch injury) in the sense of Czerny and Keller. Twelve babies did not show a satisfactory gain, so they were transferred to Eiweissmilk. All the other babies thrived satisfactorily, the fat percentage alone requiring alteration. Eighteen babies died, a mortality of 10.5 per cent. The

those cases in which the flap has been raised up so much, there is likely to be infection extending up the whole length of the part that is turned up with the development of an abscess there. I had one experience of that kind and since then have avoided this incision. It is true, in those cases you can make the incision clear through the muscle, go directly through everything, and you get a good chance for drainage in case any part of the wound should become involved.

DR. F. J. PLONKE, St. Paul: In gall-bladder cases, where we find it necessary to do a cystectomy, it is necessary, in addition to a vertical incision, to make a transverse incision. In those cases I think the incision that has been described is applicable, and it is a good thing to know we can do that without any great harm.

DR. E. R. HARE, Minneapolis: The character of the incision should depend largely on the nerve supply in the abdominal wall, for if we destroy the nerve supply we may have apparent or perfect healing for the time being, but later on there will be degeneration of the muscle involved in the incision, which will permit of a hernia following operative interference. The abdominal muscles are supplied by the intercostal, and in the upper third of the abdomen the intercostals pass inward and upward; in the middle third they pass transversely toward the center, and in the lower third they pass inward and downward, and we can adapt the transverse incision very nicely to the direction of these nerves and not involve the nerve supply of the muscles.

Vaginal Cesarean Section in Cases of Eclampsia, Placenta Prævia, Pernicious Vomiting and in Hemorrhage Due to Premature Separation of the Placenta

DR. H. C. COONEY, Princeton: Of the three women on whom I operated for eclampsia, one was advanced seven months in gestation and in labor; the other two were without pains; all were in coma, one so profound that no anesthetic was given. Ether and morphin were used in two cases. All of the mothers survived, and two of the infants. The seven months' fetus was asphyxiated at delivery; there were two patients with marginal placenta prævia advanced to the eighth and eighth and one-half month respectively; both had suffered repeated hemorrhages, and were operated on by this route, one during the interval between bleedings, and one during a rather severe hemorrhage; she was almost exsanguinated when seen, and made a tedious convalescence, which was complicated by a left femoral phlebitis. Both mothers and both infants survived. The remaining patient of this group operated on by this method was a much exhausted woman, the operations being done for the relief of toxemia of pregnancy with long continued and persistent emesis. She recovered from the operation without incident. Previous experience in similar cases with Bossi's dilator, which, even in expert hands I regard as a dangerous instrument, has induced me to discard it, together with the Champetier de Ribes bag, when the condition of the pregnant woman is such as in the cases whose clinical histories I have briefly outlined.

DISCUSSION

DR. A. W. ABBOTT, Minneapolis: There are certain cases in which I believe this operation is applicable, and those are the patients that have been mauled around by midwives and have been neglected until they have become septic. As to its value in the vomiting of pregnancy, it is not frequently demanded. There is only one suggestion I would make in reference to the technique of the operation, and that is one need not be afraid to cut the uterus, but let it tear, either that, or go through the perineum.

DR. B. W. KELLEY, Aitken: As to the necessity for rapid delivery, I will say that in a series of several hundred cases in which statistics were obtained, it was found, contrary to the general belief, that the mortality in these cases where forced delivery was resorted to was practically the same as that in which forced delivery had not been performed. The principal benefit to be obtained from rapid delivery or from forced delivery is the blood-flow from the mother, and we obtain in that way practically the same results that we would from venesection.

(To be continued)

causes of death were as follows: two sudden deaths, nutrition good; autopsy showed enlarged thymus; one, premature birth; one, congenital syphilis; seven, acute bronchopneumonia, nutrition good; one phlegmon of the scalp; and six, decomposition (Finkelstein). Brady concludes that mixtures of milk, water and lactose with fat, protein and carbohydrate in the percentage corresponding to the widely accepted principles of infant-feeding do not give satisfactory results in an infant asylum. The asylum infant, even in the early weeks, is greatly assisted in making gains and weathering the unfavorable surroundings by a liberal use of barley, maltose, dextrin and cane-sugar in the diet. The exhibition of polycarbohydrates in the diet is an excellent therapeutic agent for the infant in private practice who refuses to gain on the usual milk mixtures or has already run down on the same. For this diet to be successful the protein must be liberal in amount and special attention must be paid to the fat, which should only be raised with the increase of the weight of the baby. The fear of rickets need not be considered; the first requirement is that the infant be kept alive.

Buffalo Medical Journal

July, LXVII, No. 12, pp. 663-728

- 5 Acute Pyelitis in Infancy. E. R. Hatch, Buffalo.
- 6 Facts Concerning Physical Condition of Women During College Life. E. E. Parker, Ithaca, N. Y.
- 7 Suppurative Labyrinthitis. C. C. Cott, Buffalo.
- 8 Three Years with the Army of the Potomac. A Personal Military History. W. W. Potter, Buffalo.

American Journal of Medical Sciences, Philadelphia

August, CXLIV, No. 2, pp. 157-312

- 9 *Clinical Study of a Thousand Cases of Ulcer of Stomach and Duodenum. J. Friedenwald, Baltimore.
- 10 *Diarrhea of Gastric Origin: Diagnosis and Treatment. D. Vanderhoof, Richmond, Va.
- 11 Multiple Subcutaneous Hemangiomas, Together with Multiple Lipomas, in Enormous Numbers in Otherwise Healthy, Muscular Subject. J. T. Bowen, Boston.
- 12 Malignant Disease of Lung with Special Reference to Sarcoma: Report of Three Cases. A. A. Stevens, Philadelphia.
- 13 *Paroxysmal Hemoglobinuria. R. A. Cooke, New York.
- 14 Case of Delayed Development in Boy Treated with Thymus. C. G. Kerley and S. P. Beebe, New York.
- 15 Acute Pancreatitis. J. M. King, Los Angeles, Cal.
- 16 Effect of Cold Air on Circulation in Healthy and Sick Individuals. T. B. Barringer, New York.
- 17 *Leukocyte and Differential Counts in Ward and Open Air Treatment. T. G. Orr, New York.
- 18 Fatal Pneumothorax Following Exploratory Puncture. H. Dayton, New York.
- 19 Tuberculin Therapy in Surgical Tuberculosis. T. W. Hastings, New York.

9. Abstracted in THE JOURNAL, June 22, p. 1945.

10. **Diarrhea of Gastric Origin.**—For purpose of analysis, Vanderhoof made a statistical study of 500 patients in whom one or more gastric examinations were made. Of these 500 patients, eighty-one, or 16.2 per cent., showed the condition of gastric anacidity, twenty had cancer of the stomach, twenty-two were classified under the term neurosis, five were evident cases of chronic alcoholic gastritis, while the stomach findings in the remainder were associated with or regarded as reflex disturbances from the following conditions: chronic appendicitis, seven cases; cardiovascular disease and lesions of the female pelvic organs, each four cases; cholelithiasis, three cases; pernicious anemia, migraine, pellagra, pulmonary tuberculosis and eyestrain, each two cases; and one case each of hysteria, peritoneal adhesions, benign tumor of stomach, myxedema, chronic influenza and aural vertigo. One of the cases of chronic appendicitis was associated with definite hypothyroidism, and one of the pellagra cases was complicated with intestinal amebiasis. One patient, included above, had a ruptured ectopic pregnancy and pelvic hematocele, and this was accompanied by severe attacks of gastric tetany, with pronounced dilatation of the stomach, ending in recovery.

Diarrhea was a prominent symptom in thirteen of these eighty-one cases, including the two pellagra patients. Excluding these two cases, and the patients with malignant disease of the stomach, there were in the remaining fifty-nine cases of gastric anacidity eleven patients with diarrhea, or approximately 18.5 per cent. These eleven cases form the basis of this article, and most of them occurred in the group of patients in whom no organic cause could be ascertained as being responsible for the anacidity.

The essential point in the treatment of patients with the condition of gastric anacidity, Vanderhoof says, is the administration of large amounts of hydrochloric acid. The usual dose of 10 or 15 drops of the official dilute hydrochloric acid is inefficient. In these cases hydrochloric acid is not to be regarded as a drug. Its administration is for the sole purpose of supplying artificially a substance which the normal stomach secretes regularly and in good quantity. Not only is this acid indispensable for the activation of pepsinogen into pepsin, but on reaching the duodenum it serves as a hormone, or chemical messenger, to initiate the flow of pancreatic secretions. Furthermore, hydrochloric acid may be regarded in a certain sense, as the most effective intestinal antiseptic. The only obstacle presented in the use of this acid is the difficulty of giving it to patients in sufficient amounts. The mucous membranes of the throat will tolerate only weak solutions, hence the necessity of much fluid as a diluent. Vanderhoof, however, prescribes 30 drops of official dilute hydrochloric acid in a full glass of water one-half hour after meals, to be repeated in one-half hour—a total of 180 drops per day.

To stimulate the glands of the stomach to resume their function the most efficient means is the administration of strong meat broths as the first course of the meal, preceded by full doses of tincture of nux vomica. This drug should be pushed to its physiologic limits. In addition to the drinking of broths, consomme, bouillon, beef tea, etc., these patients are encouraged to have their foods well salted, in order that the chlorin supply of the body be ample for the production of hydrochloric acid. If any restriction of the dietary is indicated, undoubtedly the proteins should be the class of foodstuffs to limit in amount. Buttermilk is a specially valuable article of diet in cases of gastric anacidity, and most patients can be induced to consume three pints a day. If the general nutrition is much impaired, associated, as is usually the case, with visceroptosis and possibly motor insufficiency of the stomach, the patient will be much benefited by assuming the recumbent position for an hour after each meal, or may be instructed to lie on the right side. Further treatment may include the wearing of an abdominal supporter, and the employment of the usual measures to combat anemia, nervous states and other conditions which may be not only the result, but as well the contributing cause of a gastric anacidity.

13. **Paroxysmal Hemoglobinuria.**—The following observations by Cooke are based on experiments with the blood of a typical case of paroxysmal hemoglobinuria. The serum contains a complex hemolysin capable of dissolving the red blood-corpuscles of the individual himself or other individuals by means of the cold-warm experiment. Positive results were obtained in all of the twelve examinations made at different times. Auto-antibody is absorbed from serum in the absence of complement, and on elevation of temperature is more or less completely but slowly dissociated. Complement is absorbed from active serum on exposure to corpuscle in the cold. It will join with antibody after the latter has united with corpuscle, but this union takes place solely under the influence of cold. Corpuscles sensitized with inactive serum show but slight hemolysis on the addition of complement as a result of complementoid inhibition. As a result of clinical observation, the Wassermann reaction, the luetin test, and the serologic studies in metasymphilitic disease, it seems safe to say that syphilis is the most important, possibly the only, etiologic factor in paroxysmal hemoglobinuria, but there are as yet no observations on the presence or absence of hemolysin after the disappearance of the Wassermann reaction as a result of syphilitic treatment.

17. **Leukocytes in Ward and Open Air Treatment.**—Orr observed that there is no constant change in the total leukocyte or polymorphonuclear counts in afebrile patients when treated in the open air with only the face exposed as compared with counts in the ward. In the majority of patients with fever and leukocytosis there is a small percentage decrease in the total leukocytes when treated in the open air with only the face exposed as compared with the count when treated in the ward. Under like conditions there is no constant change in the polymorphonuclear counts.

Kentucky Medical Journal, Bowling Green

July 15, X, No. 14, pp. 601-634

- 20 Psychogenesis of Hysteria. C. Pope, Louisville.
- 21 Pruritis from Medical and Surgical Standpoint. M. L. Ravitch, Louisville.
- 22 Scarlet Fever. W. Sanders, Louisville.
- August 1, X, No. 15, pp. 635-688
- 23 Antitoxin in Diphtheria and Membranous Croup. I. H. Browne, Winchester.
- 24 What Must We Do to Be Saved from Temporal Death? D. H. Howerton, Columbia.
- 25 What Have Health Boards Done for the Country? U. L. Taylor, Columbia.
- 26 Sanitation and Preventive Medicine. L. F. Hammonds, Dunnville.
- 27 Pellagra. M. Pennington, Bertha.
- 28 Dysentery. C. L. Heath, Lindsay.
- 29 New Therapy of Syphilis. D. H. McKinley, Winchester.
- 30 Placenta Praevia: Diagnosis and Treatment. T. W. Stone, Bowling Green.
- 31 Early Diagnosis and Treatment of Arteriosclerosis. M. M. Moss, Bowling Green.
- 32 Ascites: Diagnosis and Treatment. F. E. McCann, Gold City.
- 33 Clinical Aspects of Anaphylaxis. N. C. Witt, Franklin.
- 34 Acute Intestinal Obstruction. W. A. Guthrie, Franklin.
- 35 Dietetics in Typhoid. D. G. Simmons, Adairville.
- 36 Important Etiologic Factors in Gastro-Intestinal Diseases of Children. C. L. Venable, Franklin.
- 37 Bronchopneumonia, Capillary Bronchitis, Catarrhal Pneumonia. R. T. Hocker, Arlington.
- 38 Jaundice. A. P. Dowden, Eminence.

Surgery, Gynecology and Obstetrics, Chicago

August, XV, No. 2, pp. 135-242

- 39 *Primary and End Results of Fifty-One Radical Abdominal Operations for Cancer of Uterus. R. Peterson, Ann Arbor, Mich.
- 40 *Radical Abdominal Operation for Carcinoma of Cervix Uteri, with Report of Twenty-Eight Cases. H. C. Taylor, New York.
- 41 *Prognosis in Radical Abdominal Operation for Uterine Cancer. F. J. Taussig, St. Louis.
- 42 *Gymnastics and Other Mechanical Means in Treatment of Visceral Prolapse and Its Complications. F. H. Martin, Chicago.
- 43 Chronic Cystitis of Trigone and Vesical Neck. E. Garceau, Boston.
- 44* Indications for and Type of Operation to Select in Toxemia of Pregnancy. J. O. Polak, Brooklyn.
- 45* Treatment of Acute and Fulminant Toxemia. E. P. Davis, Philadelphia.
- 46 *Treatment of Eclampsia. F. S. Newell, Boston.
- 47 Prolapse of Uterus. J. M. Baldy, Philadelphia.
- 48 *Relation of Thyroidism to Toxemia of Pregnancy. G. G. Ward, New York.
- 49 *Topography of Hypophysis Cerebri. W. S. Gibson, Chicago.
- 50 Usefulness of Extension Apparatus in Treatment of Fractures of Lower Extremity. W. Hessert, Chicago.
- 51 Surgical Needles; Plenum Aspirator; Rib Cutting Forceps. J. G. R. Manwaring, Flint, Mich.
- 52 Method of Securing Catgut on a Needle. F. H. Jett, Terre Haute, Ind.
- 53 Pubiotomy. S. D. Jacobson, New York.
- 54 Electric Desiccation as Adjunct to Surgery, with Special Reference to Treatment of Cancer. W. L. Clark, Philadelphia.
- 55 Selection of an Anesthetic. I. C. Herb, Chicago.
- 56 Unusual Indications for Cesarean Operation. J. T. Schell, Philadelphia.

39. Abstracted in THE JOURNAL, July 20, p. 220.

40. Operation for Carcinoma of Cervix Uteri.—The conclusions which Taylor has drawn as a result of a study of his own cases and replies to a circular letter which he sent out are as follows: 1. The primary mortality of the radical abdominal operation is not such that it should deter us from doing the operation. 2. The percentage of operability of the cases which come under observation of an operator, by the use of his operation, will be greatly increased over that of those where the simple hysterectomy is done, as was formerly the case. 3. The end results will never compare favorably with the end results reported from abroad, until we are able to get our cases at an earlier stage of the disease, and that our justification for doing such a radical operation is in its moderate mortality and in the relief of symptoms, in a disease otherwise hopeless. 4. Our most promising field of endeavor in the subject of carcinoma of the uterus should be, (a) more reliable and more complete statistics, including, the percentage of operability, the community operability, primary mortality, and also end results; (b) a well regulated organized plan of campaign, in order to get our cases earlier than we do at the present time. This, Taylor believes to be along the three well-known paths, the further and more exact education of the medical profession, a more detailed education of the public at large, and the routine examination of all women after a certain age. It is his belief that until we do these things, our statistics will never compare with those that

are reported from abroad, where they have been working along these lines for some years past.

41. Operation for Uterine Cancer.—The fact that our percentage of absolute cures is small as compared with German or Austrian statistics, Taussig says, is not due to greater operative mortality or to narrowing the limits of operability. It is not due to lack of boldness or skill on the part of the surgeons but to the character of the material that comes to him for operation. The women are negligent of early symptoms and the average practitioner is careless of diagnosis or inclined to try palliative measures until the disease is too far advanced. The percentage of operability is less than one-half that of the average German clinic. Only by improving the medical training of the men who go into general practice, by the extermination of quacks, and most of all, by the persistent, systematic education of the laity can we ever hope for better results.

42. Abstracted in THE JOURNAL, July 6, p. 58.

44. Toxemia of Pregnancy.—Toxic vomiting which resists rest, lavage, dextrose enemata, enteroclysis, and presents a high ammonia ratio or persistent acetoneuria and a maternal pulse of 100 or more should, in Polak's opinion, have the pregnancy interrupted. Before the placental formation, the enuret is the method of choice; after this period anterior hysterotomy offers decided advantages. The pre-eclamptic state, characterized by its high blood-pressure, diminished urinary output, persistent albuminuria, etc., not yielding to dietetic, eliminative and medicinal measures, justifies evacuation, and surgical methods in skilled hands do less injury, have a lower mortality, and have less morbidity than the less radical procedures. When the convulsions and coma have occurred, the termination of pregnancy improves the chance of the patient's recovery, and the method of delivery depends on the condition of the cervix, which determines whether it be by incision, bag or Nature, supplemented by version or forceps. Anterior hysterotomy should always be the choice over manual dilatation where no effacement of cervix has taken place.

45, 46 and 48. Abstracted in THE JOURNAL, July 13, p. 140.

49. Topography of Hypophysis Cerebri.—The following averages were obtained by Gibson from measurements on 107 skulls:

Nasion to sella turcica	62 mm.
Nasion to posterior surface of dorsum sellae ..	75 mm.
Anterior nasal spine to sella turcica	78 mm.
Anterior nasal spine to clivus	88 mm.

With a very few exceptions, variations from the averages given above do not exceed 1 cm. Hence the measurements are sufficiently constant to be of practical value. The important variations in the region of the sella turcica with frequency of occurrence are as follows:

Complete or practical absence of sphenoidal sinuses	3 per cent.
Small sphenoidal sinuses	9 per cent.
Thick anterior wall of sella turcica	9 per cent.
No projection of sinuses beneath sella turcica	22 per cent.

In any one of the above variations the fact that the sella turcica does not bulge into the sphenoidal sinuses would make it extremely difficult for the surgeon to determine its exact position.

Thin posterior wall of sphenoidal sinuses, 35 per cent. With only the merest shell of bone protecting the pons, its liability to injury is easily seen. Transverse sphenoidal septum, 2 per cent. Should this septum be mistaken for the floor or roof of the sphenoidal sinuses, the true position of the sella would be obscured. Downward curvature of cribriform plate, 4 per cent. Shallow sella turcica, 8 per cent. The presence of either of the above conditions might cause the surgeon to pass completely beneath the sella. Downward direction of superior surface of sphenoid between optic groove and anterior superior margin of sella turcica, in which optic chiasm would be endangered, 6 per cent. Thirty-four skulls do not present any of the variations cited above, hence offer favorable conditions for approach to the hypophysis.

Illinois Medical Journal, Springfield

August, XXII, No. 2, pp. 139-276

- 57 Public Care of Insane and Mentally Defective. F. P. Norbury, Springfield.
- 58 *Clinical Significance of Reflexes. T. B. Throckmorton, Cherokee, Ia.
- 59 Weil Cobra Venom Reaction in Paresis and Other Psychoses. C. R. Bell, Elgin.
- 60 Amentia. M. E. Pogue, Lake Geneva, Wis.
- 61 Binet-Simon Intelligence Tests in Their Application to Defectives. C. H. Town, Lincoln.
- 62 Prevention of Insanity. W. A. Evans, Chicago.
- 63 Freud's Psychotherapy. J. Grinker, Chicago.
- 64 Musculospiral Paralysis; Spindle-Celled Sarcoma of Arm. E. Friend, Chicago.
- 65 *Orthostatic Albuminuria. E. J. Brown, Decatur.
- 66 Steel Splint in Treatment of Fractures. O. L. Pelton, Elgin.
- 67 Profuse Hemorrhages from Urinary Tract. H. L. Kretschmer, Chicago.
- 68 Problems of Pelvic Surgery. G. deTarnowsky, Chicago.
- 69 Dangers Connected with Pregnancy. M. J. Kearsley, Chicago.
- 70 Undergraduate Life and Early Medical Work of Alexander Hugh Ferguson. A. McDermid, Chicago.

58. **Clinical Significance of Reflexes.**—Aside from extensor toe phenomena, Throckmorton says, the absence or presence of a single reflex phenomenon does not necessarily warrant the making of a positive diagnosis of a nervous disorder, but rather in arriving at a definite conclusion, the entire clinical picture as manifested by the association of symptoms, physical and clinical findings, supplemented by a complete history should always be the determining factors. For instance, the diagnosis of tabes dorsalis should never be made on the absence of the knee-jerk, unless it is also accompanied by other cardinal symptoms as visceral crises, lightning pains, ataxia, Argyll Robertson pupil, vesical disturbances, etc. Indeed, it has been contended that it is unwise to make a positive diagnosis of either tabes or paresis unless the pupillary findings are positive of these disorders. Unfortunately from a diagnostic standpoint, there are no constant changes in the reflexes accompanying mental disorders. General paralysis of the insane perhaps affords the most constant changes in reflex activity of any of the forms of insanity, but it must be remembered that in this disorder we are dealing with an organic affection since pathologic changes in nervous tissue can be demonstrated. The tendon-reflexes are variable; they may be normal, plus or minus. The pupillary findings are more constant and characteristic. Early there may be disturbance of the consensual reflex; inequality and irregularity in outline of the irides is often present, and, as previously mentioned, the change from time to time in the position of the irregularity denotes the oncoming loss of light reaction. However, the loss to light reaction is also found in tabes and in old syphilis of the central nervous system, which goes to show the necessity of having other clinical evidence besides a single reflex, no matter how pronounced that reflex may be, before making a positive diagnosis of a nervous disorder.

As a general statement, Throckmorton thinks it may be said that the deep reflexes are usually diminished in those mental disorders which are depressive in character, and increased in excitive and exalted mental states. Finally, as a means of making a differential diagnosis between organic and the so-called functional disorders, the presence of an extensor toe-reflex, of which type the Babinski phenomenon is classical, is conclusive evidence in that such a finding always denotes an organic disease of the nervous system. Persistent ankle-clonus in association with a plus knee-jerk is also a good indication of an organic motor lesion.

65. Abstracted in THE JOURNAL, June 8, p. 1777.

Journal of Oklahoma State Medical Association, Muskogee

August, V, No. 3, pp. 81-124

- 71 Gastric Indigestion. F. J. Wilkiemyer, Muskogee.
- 72 Intestinal Indigestion. F. W. Ewing, Terral.
- 73 Enteroptosis as Factor in Indigestion. H. P. Wilson, Wynnewood.
- 74 Digestive Disturbances of Gastric and Duodenal Ulcer. A. L. Blesh, Oklahoma City.
- 75 Diseases of Gall-Bladder and Pancreas As Factors in Indigestion. L. Long, McAlester.
- 76 Digestion as Affected by Chronic Appendicitis or Why Does Chronic Appendicitis Affect Digestion? M. Smith, Oklahoma City.
- 77 Pellagra. C. R. Hume, Anadarko.
- 78 Ecclectic Lightning Bug Convention. J. M. Alford, Oklahoma City.
- 79 Advantages of Combined Local and General Anesthesia in Abdominal Operations. L. F. Watson, Oklahoma City.

Archives of Pediatrics, New York

July, XXIX, No. 7, pp. 481-560

- 80 Unusual Cases of Narrowing Esophagus in Childhood. J. L. Morse, Boston.
- 81 Treatment of Scarlet Fever. L. Fischer, New York.
- 82 *Administration of Bichlorid of Mercury to Mother, for Its Effect on Digestive Function of Nursling. S. V. Haas, New York.
- 83 Common Errors in Diet After First Year. R. H. Dennett, New York.
- 84 Administration of Anesthetics in Infants and Children. T. W. Kilmer, New York.
- 85 Urethral Calculi. J. Speese, Philadelphia.
- 86 Vitiligo, with Report of Case Appearing Two Weeks After Attack of Scarlet Fever. H. K. Hill, Philadelphia.

82. **Administration of Bichlorid of Mercury.**—Eight years ago Haas began to test the value of the administration of bichlorid of mercury in the treatment of congenital syphilis among the cases occurring in the pediatric service of Holt at the Vanderbilt Clinic. It was found that the effect on the specific process, though positive, was slight, whereas, gastro-intestinal and nutritional disturbances when present, cleared up in a most remarkable manner. By way of illustration: An infant 6 weeks of age, anemic, with marked desquamation, rugæ, snuffles, large liver and spleen, birth weight 6½ pounds, present weight 7 pounds, has had numerous green mucous stools since birth, although breast fed. The mother was given bichlorid of mercury, 1/32 of a grain, three times a day; when seen forty-eight hours later, the stools were yellow, no mucus, the syphilitic process unchanged. After a week, however, this too showed slight improvement. A gain in weight of a half pound was registered. No other changes had been made in regimen of mother or infant.

After noting the regularity with which this occurred in patients suffering from congenital syphilis, it was decided to test its value in gastro-intestinal disturbances among non-specific nurslings. The result was most encouraging. Between 35 and 40 per cent. of the patients were benefited; no harm resulted even in those patients who had not improved. The drug was administered in more than 200 cases. The dose, excepting in the earlier cases, was tablet triturate of bichlorid of mercury, 1/32 of a grain, administered to the mother three times a day after meals. The cases were not selected. Any nursling not prospering was considered a good subject. The effect on the mother of a syphilitic child was positive, rapid and striking, the general tone and color improving visibly. On the non-specific mother the effect was sometimes that of a general tonic, but in most cases no effect was observed. In a few cases the mother lost weight. The effect on the quantity of milk supplied, according to the statements made by the mothers, varied within wide limits. Usually there was an increased secretion; in some cases no change, and in a few cases a distinct diminution in the supply. The quality of the milk would appear to have been improved. In a number of instances, in which, under poor advice, nursing had been discontinued, and the milk had practically disappeared, it was possible to reestablish the function, in one case, after twelve weeks. It seemed that the mercury was of some assistance in these cases, although this is not at all certain, since we know that the function can be reestablished by simply permitting nursing to be resumed.

Maryland Medical Journal, Baltimore

August, LV, No. 8, pp. 183-208

- 87 Triumphs of Preventive Medicine. T. L. Rhoads, U. S. A.
- 88 Typhoid and Way to Prevent It. C. W. G. Rohrer, Baltimore

Texas State Journal of Medicine, Fort Worth

August, VIII, No. 4, pp. 107-132

- 89 Hygiene and Preventive Medicine in the South. I. Dyer, New Orleans, La.
- 90 Newer Methods of Diagnosis of Pathologic Conditions of Liver. I. C. Chase, Fort Worth.
- 91 *Improved Operation for Prolapsus Uteri, with Report and Results. C. S. Venable, San Antonio.
- 92 Narcolepsy. S. C. Parsons, San Angelo.
- 93 Comparative Study of Practice of Medicine and Surgery in Mexico and in United States. L. H. Hoffman, Hobart, Okla.

91. **Operation for Prolapsus Uteri.**—Venable's operation consists in a looping of the broad ligaments in their perpendicular axis behind the body of the uterus, where they are made fast. The result of this procedure is to lift the uterus and adnexa from the deep pelvis; to tighten the sacro-uterine ligaments;

to shorten the round ligaments thereby tilting the fundus of the uterus forward, and last, but not by any means least, to reestablish intra-abdominal pressure in the normal plane.

Journal-Lancet, Minneapolis

August 1, XXXII, No. 15, pp. 395-422

- 94 Sporotrichosis: Report of Case. G. S. Adams, Yankton, S. D.
- 95 General Practitioner: Present Status and Future Prospect. C. Johnson, Willmar, Minn.
- 96 Abortive Treatment of Acute Gonorrheal Epididymitis. O. Owre, Minneapolis.
- 97 Health Supervision of Schools. J. G. Parsons, Sioux Falls, S. D.
- 98 Role Played by Sexual Organs of Women in Production of Backache. J. L. Rothrock, St. Paul.
- 99 Foreign Body Removed from Bifurcation of Trachea by Lower Bronchoscopy. E. W. Benham, Minkato, Minn.

Journal of Biological Chemistry, Baltimore

August, XII, No. 2, pp. 163-312

- 100 Non-Enzymatic Character of Oöcytin (Oöcytase). T. B. Robertson, Los Angeles.
- 101 Hydantoins: Synthesis of Thietyrosin. T. B. Johnson and C. A. Brautlecht, New Haven, Conn.
- 102 Modification of Ritter's Method for Quantitative Estimation of Cholesterol. H. J. Corper, Chicago.
- 103 Hydantoins: New Method for Synthesis of Phenylalanin. T. B. Johnson and W. B. O'Brien, New Haven, Conn.
- 104 Studies in Bacterial Metabolism. A. I. Kendall, C. J. Farmer, E. P. Bagg and A. A. Day, Boston.
- 105 Idem. A. I. Kendall and C. J. Farmer, Boston.
- 106 Influence of Glutaric Acid on Phlorhizin Glycosuria. A. I. Ringer, Philadelphia.
- 107 Autolysis of Mold Cultures. A. W. Dox and L. Maynard.
- 108 Comparison of Paranuclein Split from Casein with Synthetic Paranuclein, Based on Immunity Reactions. F. P. Gay and T. B. Robertson, Los Angeles.
- 109 Phosphotungstic-Phosphomolybdic Compounds as Color Reagents. O. Folin and W. Denis, Boston.
- 110 Tyrosin in Proteins as Determined by New Colorimetric Method. O. Folin and W. Denis, Boston.
- 111 *Protein Metabolism from Standpoint of Blood and Tissue Analysis. Absorption from Large Intestine. O. Folin and W. Denis, Boston.
- 112 *Idem. Absorption from Stomach. O. Folin and W. Denis, Boston.
- 113 Action of Leukocytes on Glucose. P. A. Levene and G. M. Meyer, New York.
- 114 Quantitative Determination of Aliphatic Amino Groups. D. D. Van Slyke, New York.
- 115 Composition and Properties of Glycocoll Picrate and Separation of Glycocoll from Alanin. P. A. Levene and D. D. Van Slyke, New York.
- 116 *Conditions for Complete Hydrolysis of Proteins. D. D. Van Slyke, New York.
- 117 Gasometric Determination of Free and Conjugated Amino-Acids in Urine. P. A. Levene and D. D. Van Slyke, New York.

111. **Absorption from Large Intestine.**—The author's experiments show that while the absorption from the large intestine is not nearly so rapid as from the small intestine, it is rapid enough to cause an appreciable accumulation of the absorbed products in the blood.

112. **Absorption from Stomach.**—The results in these experiments prove that nitrogenous digestion products are absorbed from the stomach.

116. **Complete Hydrolysis of Proteins.**—Van Slyke found that the percentage of amino nitrogen reaches a definite maximum when acid hydrolysis of a protein is complete, and this maximum is the same whether the hydrolysis occurs at 100 or at 150 C. Approximately the same results are obtained by heating at 100 C. with 20 per cent. hydrochloric acid for forty-eight hours as by heating in an autoclave with 3N acid for one and one-half hours. At 100 C. the amino nitrogen reached its maximum within ten hours in no case, but within twenty-four hours in every case, except that of gluten, which showed a small but definite increase (2.4 per cent.) during the second twenty-four-hour period. The ammonia, does not reach an absolutely definite maximum, but increases the longer hydrolysis is continued. At 150 C., prolonging the hydrolysis beyond one and one-half hours, caused, in the cases of three of the six proteins, an increase of 2.5 to 4.5 per cent. in the ammonia nitrogen. At 160 C. the increase of ammonia is still more marked and occurs at the expense of the amino nitrogen. There is much less tendency towards deaminization at 100 C.; the second twenty-four-hour period caused an increase of over 0.8 per cent. in the ammonia only in the case of egg albumin (1.7 per cent.). That any of the other natural amino-acids are deaminized to an appreciable extent, unless heated under pressure, appears doubtful to Van Slyke. That the ammonia, or "amide nitrogen," arises chiefly from the acid amid groups

of the asparagin and glutamin in the protein molecule, he says, is consistent with all present results.

Annals of Ophthalmology, St. Louis

July, XXI, No. 3, pp. 447-667

- 118 Simple Senile Cataract Extraction with Incision of Root of Iris. A. Elschnig, Prague.
- 119 Another Case of Chloroma. A. J. Bedell, Albany.
- 120 Early Symptoms and Ocular Findings in Cerebral Tumor. O. Wilkinson, Washington.
- 121 Secondary Glaucoma in Interstitial Keratitis, with Report of Case. E. A. Shumway, Philadelphia.
- 122 Sympathetic Ophthalmia. F. Dentschmann, Hamburg.
- 123 Congenital Absence of Both Lower Puncta, Lifelong (Double) Dacryocystitis, Apparent Cure from Dacryocystorhinostomy. W. H. Luedde, St. Louis.
- 124 Submucons Dacryocystorhinostomy for Persistent Dacryocystitis. W. M. C. Bryau, St. Louis.

Journal of Nervous and Mental Disease, Lancaster, Pa.

August, XXXIX, No. 8, pp. 505-576

- 125 *Pseudo-Bulbar Palsy. Clinically and Pathologically Considered, with Clinical Report of Five Cases. F. Tilney and J. E. Morrison, New York.
- 126 Alzheimer's Disease (Senium Praecox): Report of a Case and Review of Published Cases. S. C. Fuller, Westborough, Mass.

125. **Pseudobulbar Palsy.**—This paper is based on an analysis of 178 cases: In 88 per cent. of cases the onset is sudden; in 67 per cent. consciousness is lost during the onset. The cranial innervations are involved as one of the initial symptoms in 80 per cent. of cases. Hemiplegia occurs, among the first disturbances, in 62 per cent. A defect in speech is the most common of the initial bulbar symptoms. This occurs in 68 per cent. of cases. Twenty-four per cent. of cases present no bulbar involvement among the first symptoms. The patients who are stricken suddenly usually have subsequent attacks of a similar character. Seventy-three per cent. of patients have more than one attack. The length of the interval between attacks varies within wide limits from a few days to twelve years. The average length of interval between the first and second attacks is eighteen months; between the second and third attacks twelve months; between the third and fourth, thirteen months; between the fourth and fifth, six months.

Another characteristic feature in the course of the disease is the tendency of the paralysis to change its distribution at each successive attack. In 8 per cent. of the cases the paralysis did not shift at all. Of the cases having three attacks only 9 per cent. showed no shifting of the paralysis. In the remaining 91 per cent. the combinations were so varied as to make tabulation impracticable. The paralysis of the cases having but one attack is bulbar alone in 25 per cent.; bulbar and hemiplegia in 68 per cent.; bulbar and paraplegia in 7 per cent.

The most prominent of the bulbar symptoms is the speech defect. It occurs in every case. Paralysis of the facial musculature is a conspicuous bulbar symptom. It is usually a bilateral prosopoplegia with one side slightly more involved than the other. It occurs in 81 per cent. of cases. Paralysis of the palatine and pharyngeal muscles occurs in 97 per cent. of cases. In 2 per cent. no statement was made in this particular and in 1 per cent. the muscles were not involved. Dysphagia is present in 69 per cent. of cases. In some instances patients are able to swallow only semi-solid foods. Deglutition is always slow and often interrupted by attacks of coughing or regurgitation of fluid through the nose. This disturbance is more marked in the severer cases and in all cases immediately after the acute attack. The laryngeal muscles are less frequently involved. Paralysis in this group occurs in 16 per cent. of cases. The muscles of mastication are affected in 17 per cent. of cases. As a rule, the disturbance is a voluntary paralysis; there is no atrophy in the muscles, and the jaw-jerk is always active. Both sides are usually involved with the loss of power somewhat more marked on one side than the other. Paralysis of the muscles of the eyeball occurs in 16 per cent. of cases and is generally unilateral.

The emotional tone of the individual undergoes a marked change in 50 per cent. of cases. Crying spells occur in a large number of cases. In their general character they resemble the laughing fits. The mental status is disturbed in something

more than one-quarter of the cases. Twenty-four per cent. of these cases are demented, 2 per cent. are maniacal and 3 per cent. imbecilic. The general body sensation and special senses are rarely affected. In all, only fourteen cases showed any involvement of the sensorium: six of these presented a typical hemianesthesia. Salivation is mentioned in connection with 37 per cent. of cases. The reflexes, in only one case, were described as being reduced. Four cases presented athetosis and two had marked chorea. A few cases are reported in which the muscles of some part of the body have atrophied. No record of the reaction of degeneration was found in any of the cases considered in this analysis.

In 79 per cent. of cases the lesions were bilateral. Of these, 84 per cent., in addition to bulbar symptoms, presented an involvement of both sides of the body at some period during the course of the disease. In the remaining 16 per cent. only one side of the body was affected. Twenty-one per cent. of cases showed unilateral lesions, yet in about one-tenth of these the extremities of either side were paralyzed at some time. The lesions are usually multiple, but the topographic combinations in which they occur are so variable as to make tabulation impossible. In 52 per cent. of cases some part of the cerebral cortex was involved. The corpus striatum, in some portion or all parts, was affected in 60 per cent. of cases; the basal ganglia, including the lenticular nucleus, caudate nucleus, and optic thalamus, presented one or more lesions in 73 per cent. of cases. The fact that 27 per cent. of cases had no lesion in any part of the basal ganglia makes it incorrect to state that the essential lesion of the disease is in this region. A strikingly large number of cases have records of lesions in the medulla or pons or both together (36 per cent.). About one-half of such cases had pathologic foci involving one or more of the cranial nerve nuclei.

The deductions based on the analysis of the post-mortem reports seem to absolve the optic thalamus and corpus striatum of any responsibility for the characteristic laughing and crying spells or the changes in mimetic expression so frequently seen in pseudobulbar palsy. Over one-half of the cases, which, according to report, present no lesions in the lenticular nucleus, caudate nucleus or thalamus, have clinical records of typical laughing or crying attacks, while one-half of those cases with lesions in the lenticular nucleus, caudate nucleus or thalamus have no clinical records of such attacks.

Ophthalmic Record, Chicago

July, XXI, No. 7, pp. 331-390

- 127 Removal of Spindle-Cell Sarcoma from Right Orbit. Recovery with Intact Ocular Apparatus. F. Allport, Chicago.
- 128 Keratotomy for Removal of Corneal Scars and Opacities. G. B. Jobson, Franklin, Pa.
- 129 Anomalies of Refraction and Their Relation to Abnormalities of Ocular Balance. S. D. Risley, Philadelphia.
- 130 Thyroid with Arsenic and Its Associated Internal Secretions in Diseases of Eyes. S. B. Muncaster, Washington, D. C.
- 131 Treatment of Detachment of Retina. G. C. Savage, Nashville, Tenn.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

August, LXVI, No. 416, pp. 169-340

- 132 Extended Abdominal Operation for Carcinoma Uteri. E. Wertheim, Vienna.
- 133 *Management of Occiput Posterior Positions. F. W. Rice, New York.
- 134 Some Reflections After Twenty-Five Years of Private Practice in Obstetrics. H. J. Kreutzmann, San Francisco.
- 135 Menstruation, Normal and Abnormal. J. R. B. Branch, Macon, Ga.
- 136 Pregnancy in a Bicornate Uterus. W. J. Frick and G. C. Mosher, Kansas City, Kan.
- 137* Treatment of Summer Diarrheas. H. Heiman, New York.
- 138 Treatment of Acute Stages of Poliomyelitis Before Appearance of Paralysis. J. V. Manning, Brooklyn.

133. Occiput Posterior Positions.—The prolonged labor in occiput posterior positions, Rice says, is due to early rupture of membranes and maldirection of force. Prolonged labor is more common in primiparas. In primiparas with vertex presentation, early rupture of membranes is a very suggestive sign of occiput posterior positions. In occiput posterior with poor flexion spontaneous delivery can only occur after a long labor with strong pains. In multiparas relaxed pelvic floor is often a frequent cause of delayed rotation. In primiparas

early rupture of membranes is the principal cause of delayed rotation. In primiparas early rupture of membranes is the principal cause of prolonged labor. Double application of forceps offers the best methods of delivery where the head is high in the pelvis. With floating head, if not contra-indicated, version offers the best solution in a flat pelvis. With head low in pelvis, partial rotation by the blades is the best method.

137. Treatment of Summer Diarrheas.—The milder cases of diarrhea which belong to the non-inflammatory type of the stage of dyspepsia (Finkelstein), Heiman says, require little else but initial catharsis consisting of castor-oil or milk of magnesia and abstention from milk for a period of twenty-four or forty-eight hours. After cessation of the diarrhea diluted skim milk, barley water and sugar may be given in gradually increasing quantities. In most of the cases astringents are unnecessary. If, however, the diarrhea persists after the thorough removal of the decomposed food product from the intestinal tract, 5 to 10 grains of bismuth in mucilage of acacia at intervals of one to two hours is indicated. If abdominal pain, cramps, restlessness or watery diarrhea is present, five or ten drops of paregoric may be added. While these mild cases of dyspepsia (Finkelstein) in the early stages offer a grateful field for therapeutic activity, it is far otherwise with the severer forms of decomposition and intoxication. These not infrequently present difficult problems to the clinician, as with the rather prolonged starvation which is indicated the general condition becomes so enfeebled that the danger of collapse is imminent.

The urgent need of a mode of treatment which, while it ameliorates the gastro-intestinal symptoms, at the same time conserves the strength of the patient, led Finkelstein and Meyer to prepare a mixture which they call "Eiweiss Milch," consisting of casein and buttermilk. Heiman reports very favorable results from its use.

Archives of Ophthalmology, New York

July, XLI, No. 4, pp. 323-433

- 139 Treatment of the Early Stages of Senile Cataract. H. Smith, Amelitsar.
- 140 Two Cases of Epibulbar Sarcoma. C. Koller, New York.
- 141 Trachoma Question. K. Lindner.
- 142 Simple Flap Extraction of Senile Cataract with Peripheric Incision of the Iris. A. Elschsig, Prague.
- 143 Remarks on Elschsig's Article on Cataract Extraction. C. Hess.
- 144 Size of the Blind Spot and Its Distance from the Point of Fixation in the Emmetropic Eye. J. Van der Hoeve, Utrecht, Holland.
- 145 Retinal Lipemia in Severe Diabetes. C. R. Darling, Chicago.
- 146 Metastatic Inflammations of the Eye in Gonorrhea. E. Sidler-Hugonin, Zurich.

Medical Record, New York

August 17, LXXXII, No. 7, pp. 277-322

- 147 *Diagnostic Significance of Abnormally Quick Fatigue (Apocammosis) of Orbicularis Oris Muscle. J. L. Corning, New York.
- 148 Case of Dental Developmental Anomalies, with Cyst Formation. C. K. Austin, Paris, France.
- 149 Surgery of Hypophysis with Special Reference to Endo-Nasal Method of Hirsch. L. W. Voorhees, New York.
- 150 *Additional Note on So-called Parasite of Yellow Fever (Seidelin). A. Agramonte, Havana, Cuba.
- 151 Bullous Dermatitis Following Vaccination, with Report of Case. J. L. Kirby-Smith, Jacksonville, Fla.
- 152 Marked Case of Facial Asymmetry Occurring in Case of Scleroderma. M. Zigler, New York.
- 153 Case of Sarcoma of Orbit. D. Webster, New York.
- 154 Cellulitis of Orbit. F. P. Hoover, Jacksonville, Fla.

147. Abnormally Quick Fatigue of Orbicularis Oris Muscle.—In a number of individuals examined by Corning the endurance of the orbicularis oris was found to be decidedly below normal; at least this was true of those instances of depression (melancholia) in which the somatic symptoms were at all prominent. The same phenomenon was observed to follow the exhibition of large doses of alcohol and the bromids, the amount of the latter being sufficient to cause pronounced mental hebetude. A like effect also occurs some time after the inhalation of ether, and this despite the fact that the subject has sufficiently recovered from the anesthetic to stand and even walk. Incidentally, it is remarked that the vacuous expression of the face so frequently met with in typhoid, due, as it is, to relaxation (hypotonicity) of the facial muscles, coincides with pronounced loss of endurance of the ring muscle.

of the month. Finally, in the diffuse meningoencephalitis of paresis, loss of endurance of the ring muscle of the mouth is met with rather early.

Corning believes that general conditions that tend to lessen the energy of the cerebrum as a whole and of its cortical (motor) neurons in particular will express themselves rather more promptly in the muscles of the face than in other parts of the motor system. The kinetic condition of the orbicularis oris, he regards as indicative of that of the other facial muscles. The voluntary and involuntary mechanisms of expression, while structurally independent, are both amenable to the general influences, so that the degree of endurance disclosed by the orbicularis oris, when voluntarily contracted in the manner previously set forth, may serve as an index of the efficiency of innervation of that muscle, and hence of the other muscles of expression, when, under emotional incitement, the latter are involuntarily (reflexly) contracted. In emotional depression, especially when somatic symptoms are a marked feature, loss of endurance of the ring muscle of the mouth is a sign of some importance.

150. Parasite of Yellow Fever.—Agramonte believes that he has demonstrated that the "parasites" of yellow fever said to have been contained in the stained slides shown by Seidelin cannot be accepted as such, from the fact that evidently blood-platelets, chromatin residues, desintegrating cell remnants, nuclear and protoplasmic fragments often present the same hue and outline when treated by the selective stains and principally by the Giemsa reagent.

Mississippi Medical Monthly, Vicksburg

August, XVII, No. 4, pp. 67-88

155 Infant Feeding. M. Caraway, Gulfport.

156 Medical Ethics. G. W. Wallace, Arbj.

Journal of Medical Society of New Jersey, Orange

August, IX, No. 3, pp. 109-166

157 Vaccine Therapy. G. K. Dickinson, Jersey City.

158 Physician and Eugenics. T. W. Harvey, Orange.

159 Prolapsus Uteri and Its Operative Treatment. V. Parsonett, Newark.

160 Acute Anterior Poliomyelitis. C. M. Williams, Washington.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

August 3, II, No. 4640, pp. 283-350

1 Integration of the "Social Organism." Sir T. C. Allbutt.

2 *Cases Illustrating Value of Examination of Blood. E. H. Shaw.

3 Municipal Dispensary and Tuberculin Treatment. A. M. Fraser and H. Clark.

4 *Treatment of Habitual Dislocation of Shoulder-Joint. E. D. Telford.

5 Syphilitic Sera. C. Russ.

6 Case of Merycism. J. D'Ewart.

7 Cerebral Tumor Presenting Unusual "Crossed Reflex." E. B. Gunson.

2. Value of Examination of Blood.—In cases of puerperal sepsis blood-cultures, Shaw says, will give definite evidence of the presence of septicemia. He has examined a large number of cases of puerperal fever and found actual septicemia present in quite a small proportion. Cases which have presented all the appearances of a blood-infection have given varying results, some positive and the great majority negative. Very alarming symptoms may be present without the presence of organisms in the blood. It is a source of great relief to find septicemia absent in such patients, and a good prognosis can be given. In septicemic cases the organism found is nearly always the *Streptococcus brevis*. Shaw usually also makes cultivations from the cervix and finds that this organism is a common one in this region. Failing to find organisms in the blood, he always uses those obtained from the cervix for the preparation of a vaccine and has had good results from this form of treatment.

4. Treatment of Habitual Dislocation of Shoulder-Joint.—Two cases are cited by Telford in which he operated as follows: With the arm abducted to a right angle, a curved

incision some 7 to 8 inches in length is made in the line of the anterior fold of the axilla. The incision follows the lower border of the greater pectoral, and is continued for some distance down the arm along the inner border of the coracobrachialis muscle. The lower edge of the pectoral is defined and retracted upward and inward. The interval between the packet of axillary vessels and nerves and the coracobrachialis is at once apparent. The vessels and nerves are gently retracted inward, and the coracobrachialis is drawn outward. In this maneuver the anterior circumflex artery will probably need division, and the separation, in a downward direction, of the fibers of the coracobrachialis muscle will obviate harmful traction on the musculocutaneous nerve. If the arm be now rotated outward and the head of the humerus thrust forward, the subscapularis tendon is seen in the floor of the interspace between the neurovascular packet and the coracobrachialis. If the subscapularis be now in part divided and in part retracted the underlying capsule is exposed. A large oval piece, measuring $1\frac{1}{4}$ inch by $\frac{1}{2}$ inch, is easily removed, and through the opening thus formed the interior of the joint is readily inspected and explored for any loose body or other abnormality. The long axis of the ellipse lies across the capsule at right angles to its fibers. The opening is closed by sutures of formaldehyde catgut, and the incision in the subscapularis tendon is repaired by a second layer of sutures. The insertion of sutures is much facilitated by inward rotation of the arm. The wound is then closed without drain. The operation by this route is almost bloodless, and in the second of Telford's cases it was not necessary to leave any ligature in the wound. The after-treatment consists in fixing the arm to the side for eight days, after which the sutures are removed, and both active and passive movements are begun in all directions excepting abduction. At the end of the third week movements of abduction are made, and within six weeks free movements of the shoulder should be possible in all directions.

British Medical Journal, London

August 3, II, No. 2692, pp. 213-284

8 Administrative Provisions for Prevention of Malingering. A. G. Gullan, M. Dewar and E. A. Browne.

9 Capitalism Payment vs. Payment Per Attendance Under National Insurance Act. H. Harvey, P. R. Cooper, A. Steward and C. E. S. Flemming.

Practitioner, London

August, LXXXIX, No. 2, pp. 157-300

10 *Bone Grafting. A. E. Barker.

11 Adherent Pericardium. G. N. Pitt.

12 Two Clinical Lectures on More Serious Forms of Cardiac Valvular Disease. S. Taylor.

13 General Observations on Heart Disease. F. J. Poynton.

14 Sudden Strains and Injuries of Heart. H. Barber.

15 Treatment of Cardiac Cases by Nauheim Baths in Their Own Homes. R. T. Thorne.

16 Clinical Aspects of Abnormal Arterial Tension. T. B. Scott.

17 Tropical Diseases. R. T. Hewlett.

18 Recent Literature on Typhoid. C. B. Ker.

19 Relationship of Thyroid to Other Internal Secretions of Sexual Origin. H. E. Waller.

20 Importance of Early Diagnosis and Treatment of Pulmonary Tuberculosis. G. A. Wolfendale.

10. Bone Grafting.—Two cases of bone grafting are reported by Barker. The first case was a bad, compound, comminuted fracture of the tibia. Under antiseptic fomentations the conditions improved, and the wound decreased in size. To cleanse it further, and at the same time to improve the prospects of repair, it was congested with Bier's bandage daily for some hours. This produced a large outpouring of serum and a further cleansing of the wound, but no repair. The ends of the bones, which were pointed toward one another, were, therefore, exposed by a long incision, and the granulating material between them was scraped away. A long strip sawn from the front of the opposite tibia was now pressed into the medullary cavity of both ends. But in doing this some vein was torn and yielded a good deal of blood. To arrest this it was necessary to remove the graft, and in doing so its periosteum was stripped off. It was reinserted and all the wound healed, except the original small fistula, without reaction or any rise of temperature.

After a time, it was clear that the graft had died, and it was removed by enlarging the fistula. Some weeks later, Barker obtained $3\frac{1}{2}$ inches of the tibia from a freshly

amputated limb to fill the same-sized gap, which had been left when the pointed fragments had been sawn off transversely. The hollow of the graft was filled by a portion of the fibula from the same amputated limb, and the projecting ends were inserted into the medullary cavities of the upper and lower fragments embedded in iodoform paste, which was also squeezed into the hollow of the graft. As the ends of all the fragments were now in line and well coapted, no stitches were necessary between them. The wound in the soft parts was closed without drainage and healed without reaction. Later, the small sinus opened again and continued to yield a little turbid serum. In this condition he remained for some months and then began to be desperately homesick. He began to plead for an amputation. And, as his wretched mental state seemed to demand it, Barker very reluctantly amputated the limb. But from the skiagrams taken just before, and from an examination of the seat of operation after amputation, it seems more than probable that with patience the bones would have ultimately been united by good bone. The graft was dead and eroded by the tissues around it. But there is also a large quantity of new bone around it, left by its removal, like a sleeve, which fuses above and below with new bone thrown out by the two ends of the patient's tibia.

The second case was one of ununited fractured tibia. Barker grafted the second metatarsal bone into the ununited ends as follows: A long vertical incision was made over the front of the tibia having the line of fracture in its middle. The ends were found in good position, and the wire of the previous operation was removed. The periosteum of both ends was divided in the direction of the skin incision and turned aside. Then, with a narrow gouge, he cut a groove in the end of each fragment in one line, deep enough to open the medullary cavity; this was packed with dry gauze for the moment. Barker then exarticulated the second metatarsal bone with its periosteum from the patient's own foot on the same side, trimmed off the articular cartilage at both ends with bone forceps, and placed it in a bowl of warm normal saline solution. The gauze packing was then removed from the slot cut in the ununited ends of the fractured bone, and the metatarsal bone was laid into it, half in the upper fragment and half in the lower, crossing, of course, the line of fracture which it bridged. The periosteum was drawn as far as possible over this central plug and stitched, and the soft parts closed over all without drainage. Primary union took place without a flaw. From time to time radiograms have been taken, and at first showed, of course, but little change. The metatarsal bone could be seen distinctly in the center of the fractured tibia bridging across the interval between the fragments. Then by degrees bone was seen growing from the edges.

Clinical Journal, London

July 17, XL, No. 15, pp. 225-240

- 21 Cardiac Failure. W. P. Herringham.
 - 22 Treatment of Some Aural Affections. H. J. Davis.
- July 24, XL, No. 16, pp. 241-256
- 23 Operative Treatment of Fractures of Long Bones. W. M. Eccles.
 - 24 Diagnosis of Phthisis and Other Tuberculous Diseases. H. W. Gardner.
 - 25 Clinical Demonstration of Disease in Children. J. H. Thursfield.
- July 31, XL, No. 17, pp. 257-272
- 26 Hysteria and Its Relation to Mental Diseases. W. H. B. Stoddart.
 - 27 Late Results of Suprapubic Prostatectomy for Simple Enlargement of Prostate. J. W. T. Walker.
 - 28 Meningitis. A. M. Gossage.

Edinburgh Medical Journal

August, LX, No. 2, pp. 97-192

- 29 Some Memories of Old Harveians, with Notes on Their Orations. C. W. MacGillivray.
- 30 *Complete Absence of Vagina: Regurgitation of Menstrual Blood Through Fallopian Tube into Peritoneal Cavity: Unusual Case. W. Fordyce.
- 31 Care of Teeth in Relation to Health of Children at School Ages, Provision of Special School Dental Clinics. L. S. Sherran.
- 32 *Diagnosis of Disease of Stomach by Roentgen Rays. G. A. Pirie.

30. Complete Absence of Vagina.—Fordyce cites the case of a young lady who previously had been quite strong and whose

menstruation had always been normal. One day toward the end of a period, she was seized with acute abdominal pain, with great abdominal tenderness suggesting appendicitis, for which she underwent an immediate operation. The appendix was found to be normal, but there was a considerable quantity of blood in the lower abdomen, which was found to be oozing from the right fallopian tube. The diagnosis of a patent fallopian tube was made. The two succeeding periods were attended by pretty severe pain, but since then there has been no more than the ordinary discomfort. The fallopian tube was not removed. Fordyce suggests the possibility that some of the very severe cases of dysmenorrhea one occasionally comes across, where on examination everything seems to be normal, are due to a similar cause, or, if not to regurgitation of blood through the tube, then to an abnormal amount of blood getting into the peritoneum from the rupture of an unusually vascular Graafian follicle. He has repeatedly in abdominal work been surprised to find a considerable amount of blood in the pouch of Douglas. In these cases it has been noted that menstruation had just terminated. Blood effused into the peritoneal cavity seems to undergo a very rapid and complete absorption, leaving no trace of adhesions.

32. Stomach Disease.—According to Pirie a stomach that allows food to pass at once to its lowest point and gather there is atonic. Its greater curvature requires elevation by mechanical or surgical means. A stomach that is not empty in six hours has some obstruction at the pylorus. Gastro-enterostomy is indicated. But if that stomach is also atonic, gastro-enterostomy alone will do no good. If a functional hour-glass appearance is observed, the stomach has a small ulcer somewhere. If a true hour-glass appearance is seen, gastro-enterostomy must be done above the level of the constriction. If the gastric juice contains no acid (as shown by the bismuth cachet remaining undissolved), and there is the slightest irregularity of the stomach outline, carcinoma is present. Lastly, if indigestion resists medical and dietetic treatment for more than a month, a Roentgen-ray examination after a bismuth meal should be made. It is painless, not unpleasant, and capable of supplying important information about the stomach, its shape, position and functional activity.

Journal of Laryngology, Rhinology and Otology, London

August, XXVII, No. 8, pp. 409-464

- 33 *Favorable Influence of Rhinologic or Pharyngorhinologic Operations on Exophthalmos and Hypertrophy of the Thyroid. Contribution to Treatment of Exophthalmic Goiter. J. Sendziak.
- 34 Teaching of Otorhinolaryngology in France. G. Gelle.

33. Treatment of Exophthalmic Goiter.—Sendziak has personally observed six cases of undoubtedly favorable influence of the nasal or nasopharyngeal operations on the symptoms of exophthalmic goiter. He says that the favorable influence of the nasal therapeutic methods and operations in the course of this disease is shown in three principal ways: (1) The most striking is the influence of these operations on the ocular symptoms, especially on the exophthalmos with von Graefe's and Stellwag's symptoms. In these cases there is a striking improvement (diminution of the exophthalmos to 4 mm. Hoffmann), or even, as in three of his cases, a complete return to the normal. In two cases there was an immediate and striking difference in the appearance of the eye after the excision of adenoid vegetations or tonsillotomy (in only one case this difference took place on third day). (2) The favorable influence of nasal respiratory nasopharyngeal operation on the hypertrophy of thyroid (goiter). There has also been noted complete recovery from the goiter after nasal operations. (3) Finally, the favorable effect of these operations on the other symptoms of the disease (tachycardia, tremor, etc.). From the cases which he has collected from the literature, as well as from his own personal experience Sendziak maintains that in every case of exophthalmic goiter (with the characteristic "triad" of the symptoms, i. e., exophthalmos, goiter and tachycardia), or in the so-called *forme fruste*, i. e., without the ocular symptoms, finally, in simple vascular swelling (hypertrophy) of the thyroid (goiter), we must minutely examine the upper respiratory tract, especially the

nose and nasopharynx, and in the event of any pathologic changes being discovered, immediately submit them to the local treatment, namely operation.

Journal of Tropical Medicine and Hygiene, London

July 15, XV, No. 14, pp. 209-224

35 *Etiology of Vaccinia and Cultivation of Microbe of Variola. W. J. Simpson.

35. **Etiology of Vaccinia.**—From a buffalo suffering from a fatal attack of small-pox Simpson isolated a diplobacillus; from subsequent subcultures of this organism two calves were inoculated. From one calf thus inoculated, lymph was taken from a secondary vesicle, inserted into a third calf, and from the vesicle in the third calf children were successfully vaccinated and rendered immune to ordinary vaccine lymph. A similar success attended the inoculation of the second calf. This is a noteworthy and most important observation, being none other than a successful vaccination of children from the products of a culture of the contents of a small-pox-like disease in cattle. This experiment was further elaborated by retransferring the lymph from children to calves, then from calves to children again, as well as from children to children. Three months later a second series of experiments was carried out. With cultures from the lung, spleen and liver, three calves were inoculated with one of the cultures from each, respectively. The calf inoculated by cultures made from the lung died; the second (cultures from spleen) calf lived to develop secondary vesicles, lymph from which was transferred to another calf and from the vesicles on this calf lymph was taken on the seventh day and inserted into children; the result was a successful vaccination of the children who resisted attempts to vaccinate them by ordinary vaccine lymph. Many other experiments were made by Simpson, all showing the capability of successful vaccination by cultures made from cattle suffering from cattle diseases, passing under several names, such as rinderpest, gotee (small-pox), etc. Simpson has also shown that it is possible to produce vaccine by the passage of human small-pox virus through the cow, and that children could be successfully vaccinated from this source.

Medical Press and Circular, London

July 17, XCIV, No. 3819, pp. 49-72

- 36 *Treatment of Dyspepsia. W. H. Willcox.
37 Arthritis Deformans and Purin-Free Diet. J. S. K. Smith.
38 Clinical Significance of Acidosis in Pregnancy. W. C. Swayne.
39 Submucons Resection of Nasal Septum: Analysis of 130 Cases. D. McKenzie.

July 24, XCIV, No. 3820, pp. 73-98

- 40 Tracheotomy. M. Wicart.
41 Appendicitis. J. J. Clarke.
42 Case of Heroin Habit. J. O. Symes.
43 Psychogenesis and Internal Secretions: Experimental Data and Pathogenesis. T. A. Williams.
44 Acute Shedding of Hair in Certain Circulatory Disorders. D. Walsh.

July 31, XCIV, No. 3821, pp. 99-124

- 45 Treatment of Decubitus. A. Zweig.
46 Medical Aspects of Eugenics. A. F. Tredgold.

36. **Treatment of Dyspepsia.**—In treating patients with chronic gastritis, Willcox says careful attention should be paid to the condition of the mouth and teeth. If the symptoms are severe, rest in bed for about a fortnight is advisable and during this period gastric lavage can be carried out daily. Citrated milk or peptonized milk may be given, 5 oz., every two hours for the first three days. Then junket, lightly boiled, or poached eggs, clear soups, or jellies may be given in addition. When the patient gets up, his diet should be carefully regulated, and only plain, easily digestible food allowed at first, such as fish, boiled chicken, tripe, sweet-breads, toast, rusks, thin milk pudding, etc. Alcohol should be avoided, and smoking must be prohibited. As regards medical treatment, a mixture such as the following may be given:

R	gm. or c.c.	
Liquoris strychninae	2	3 m
Acidi hydrochlorici dil.....	92	14 m
Tincturae aurantii	2	1 5
Glycerita pepsinae	4	1 5
Spiritus chloroformi	66	10 m
Aquam ad	30	1 5

Sig.: t. d. s., p. c. 1

In hyperacidity, rest, either in bed or on a couch, is advisable. The diet should be easily digestible, and citrated milk, or milk containing 1 dr. of bicarbonate of soda to the pint, should be freely given. A mixture.

R	gm. or c.c.	
Bismuthi carbonatis	66	10 gr.
Magnesii carbonatis	66	or 10 gr.
Sodii bicarbonatis	2	6
Aqua chloroformi ad.....	30	1 5

should be given one hour after meals. In some cases the taking of olive oil, a tablespoonful before meals, is of value. The patient should avoid spiced foods, condiments of all kinds, also soups and meat extracts.

Chronic atonic dilatation of the stomach is best treated by rest in bed for a few days; the stomach may be thoroughly washed out and emptied at the commencement, and then the patient fed with citrated milk to which beaten-up eggs are added. An ounce of liquid may be given every hour for the first twenty-four hours, and the quantity of liquid only gradually increased. When the stomach has contracted down, light, easily digestible solids may be given; but big meals must always be avoided. It is well to avoid taking liquids with the meals; these may be taken either an hour before meals or between meals. Abdominal massage is of value, and a nerve tonic may be given.

R	gm. or c.c.	
Liquoris strychninae	26	4 m
Tinctura cardamoni comp....	2	1 5
Acidi hydrochlorici dil.....	66	or 10 m
Aqua chloroformi ad.....	30	1 5

Sig.: t. d. s., p. c.

Annales de Gynécologie et d'Obstétrique, Paris

June, XXVIX, No. 7, pp. 321-384

- 47 Therapeutic Abortion in Tuberculosis. (De l'avortement sollicitant thérapeutique chez les femmes tuberculeuses.) A. Pinard.
48 Fixation of Uterus Interfering with Delivery. (Dystocie suite d'hystéropexie; opération césarienne et hystérectomie.) Frühsholz and G. Michel.
49 Toxemia or Bacteremia. Active Versus Expectant Treatment. R. Labusquiere.

Pressé Médicale, Paris

July 10, XX, No. 56, pp. 585-592

- 50 *Successful Operative Treatment of Gastric Crises in Tabes. L. Maire and G. Parturier.
51 Soap Not Antiseptic. (Le pouvoir antiseptique du Savon.) M. Pilod.

50. **Operative Treatment of Gastric Crises in Tabes.**—Maire and Parturier report most excellent results from application of Franke's method of operative treatment in two cases of gastric crises. The relief from pain was immediate and has been permanent over four months to date. They discuss the comparative advantages of the Franke and Foerster operations, stating that the former is much simpler and seems to accomplish the purpose equally well. No one need hesitate, they say, to propose it to any tabetic whose gastric crises prove rebellious to medical measures. (The method was described in THE JOURNAL, Feb. 10, 1912, p. 446.)

Revue Médicale de la Suisse Romande, Geneva

May, XXVII, No. 5, pp. 337-420

- 52 Chorio-Epithelioma of Fallopian Tube: Eleventh Case on Record. (Etude du chorionépithéliome malin de la trompe.) L. Jeanneret.
53 *Lumbar Puncture. (La ponction lombaire.) A. Cramer.
54 *Early Diagnosis of Intestinal Tuberculous Processes in Course of Chronic Pulmonary Tuberculosis. Jaquered.

53. **Lumbar Puncture.**—Cramer discusses whether this measure is really so harmless as generally accepted. He has found thirty-eight published cases of death in which a preceding lumbar puncture is incriminated. In all but ten cases there had been a tumor in the brain or cerebellum; in three others an aneurysm; in two others echinococcus disease or hydrocephalus; in two others uremia or tuberculous meningitis; and in one case epidemic meningitis. In his own experience the lumbar puncture was borne without reaction even when the patients had a tumor in brain or cerebellum verified at necropsy. Death did not occur until long after the lumbar

puncture. In two cases in his practice the needle broke in the spinal canal but this did not entail any serious consequences. Vertigo and swooning are rarely observed and only in very nervous frightened patients. Nausea is more common and headache is comparatively frequent. Pitres and Abadie regard headache as inevitable with lumbar puncture, but Cramer did not find it so constant, especially when only a moderate amount of fluid was withdrawn. Sicard advises keeping the patient in bed for forty-eight hours, the head scarcely raised, before lumbar puncture, particularly on suspicion of a brain tumor. The puncture should be made with the patient lying on his side, the head slightly lowered by raising the foot of the bed. This position should be maintained for from twelve to twenty-four hours, and then the foot of the bed should be lowered and the patient lie horizontal for another two days. Even with all these precautions, the puncture may prove fatal in case of a brain tumor, so it should not be ventured unless the symptoms actually compel it. Cramer reviews the technic, and interpretation of the findings. Widal says that the prognosis is inevitably fatal when the fluid contains over 2 per thousand albumin of urea.

54. **Intestinal Tuberculosis.**—Jaquered witnessed the development of intestinal tuberculous processes in the course of chronic pulmonary tuberculosis in twenty cases, twice during the first stage of the lung process and fourteen times during the second stage. The first symptoms of the secondary intestinal affection were digestive disturbances. From eating with a good appetite, the patients began to be fitful in their appetite and complain of pain in the epigastrium; sometimes they vomited. The persistence of these digestive disturbances suggests serious trouble. He is inclined to regard these stomach symptoms as due to reflex action as they subsided entirely in the three cases in which the tuberculous intestinal lesion was excised. The latter, strange to say, does not at first induce any symptoms on the part of the bowels. Diarrhea as an early symptom is rare; constipation is more common. The stools are irregular, on some days very abundant. If large numbers of tubercle bacilli are found in the stools of a patient who is careful not to swallow his sputum, an intestinal lesion is almost certain. Spontaneous pain in the intestine is a comparatively late symptom but tenderness on palpation may be noted early although local tenderness may occur from other causes in intestines free from tuberculous involvement. The appendix is rarely the first site of this secondary intestinal tuberculosis, although it usually shares in an adjoining process. The peritoneum is seldom involved in this secondary intestinal tuberculosis, but the latter generally causes a characteristic and persistent fever with possibly a transient rise after meals, with normal temperature between 4 and 7 p. m. The course of a primary intestinal tuberculous process is slow and torpid; in two of his cases it healed spontaneously. Excision of the lesion often cures completely. The secondary intestinal process is entirely different; its course is acute and rapidly progressive. Jacquered knows of no instance of a spontaneous cure, nor of a cure by medical means, but prompt operative treatment may and often does cure. The process generally begins in the ileocecal region and does not spread for some time.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXIII, No. 2, pp. 201-315. Last indexed July 13, p. 151

- 55 Finkler's Methylene-Blue and Copper-Salt Treatment of Tuberculosis. (Ergebnisse des Finklerschen Heilverfahrens bei der Impftuberkulose des Meerschweines.) Gräfin v. Linden. (Meine Erfahrungen bei Lungentuberkulose mit Jod-Methylenblau und Kupferpräparaten.) E. Meissen. (Ditto bei äusserer Tuberkulose, speziell bei Lupus.) A. Strauss.
- 56 The Blood-Pressure in Pulmonary Tuberculosis. (Klinische Beobachtungen über das Verhalten des Blutdrucks während der Lungentuberkulose.) Schnitter.
- 57 "Iron Tuberculin" in Treatment of Pulmonary Tuberculosis. (Zur Behandlung der Lungentuberkulose mit Eisentuberculin.) O. Anreih.
- 58 *Tubercle Bacilli in the Blood in Children. (Ueber das Vorkommen von Tuberkelbazillen im strömenden Blut bei Kindern.) K. Kennerknecht.
- 59 "Nerve Tabes." (Tabes nervosa; eine Krankengeschichte von 1819.) A. Pagenstecher.
- 60 *Percussion of the Apices in Early Diagnosis of Tuberculosis. (Die Ausmessung der Krönigschen Schallfelder und ihre klinische Bedeutung.) E. Ebstein.

- 61 *Pseudoleukemia. (Zur Aetiologie der Hodgkinschen Krankheit.) K. Beumelburg.
- 62 *Experiences With the Cutaneous Tuberculin Reaction. (Die Kutane Tuberkulinimpfung nach v. Pirquet; 800 Fälle.) H. Berberich.

No. 3, pp. 317-453

- 63 *The Suction-Mask in Treatment of Pulmonary Tuberculosis. (Klinische Erfahrungen mit der Lungen-Saugmaske bei 52 Fällen von Lungentuberkulose.) H. Berlin.

58. **Tubercle Bacilli in the Blood in Children.**—Kennerknecht examined the blood of 120 children at the Hamburg seaside sanatorium and found tubercle bacilli in 91 per cent. of the children. The proportion was 100 per cent. in sixty-eight cases of certain tuberculosis; 90 per cent. in twenty suspects, and 74 per cent. of thirty-one children who were being cared for on account of some other affection such as otitis, scoliosis adenoids, anemia, hysteria, asthma, eczema, etc., and were not suspected of tuberculosis. The direct determination of the bacilli in the blood is of the greatest diagnostic importance, being far more reliable and of earlier occurrence than the skin reactions. (Pirquet and Moro). The bacilli may be found in the blood at the very onset of infection, before any clinical symptoms have developed. The identity of the bacilli found was confirmed by inoculation of animals in certain cases. When tubercle bacilli circulate permanently in the blood, the possibility of transmission through the placenta is confirmed. In one of the animals tubercle bacilli were found in the placenta, liver and spleen of a previously dead fetus. Kennerknecht followed the Schnitter technic as modified by Kurashige; the latter found the bacilli in all of 155 persons examined, including forty-one in the incipient stage of tuberculosis.

60. **Clinical Estimation of the Percussion Findings.**—Ebstein has the handle of his percussion hammer marked off in fractioned centimeters, and with this he measures the areas of the physical findings. By this means he obtains an instructive oversight of the comparative findings in each apex.

61. **Pseudoleukemia.**—Beumelburg was able to detect Mueh's granula on post-mortem examination in five cases of Hodgkin's disease, in none of which had there been anything during life to suggest tuberculosis. The same findings are also reported from a case of Sternberg's tuberculosis of the lymphatic apparatus.

62. **The Cutaneous Tuberculin Reaction.**—Berberich reports the findings in 800 children tested with tuberculin by the Pirquet technic, as also other members of their families in many instances. The outcome confirms the great value of the test under the age of 3. After this age, the reaction is not so easy to interpret on account of possibly inactive tuberculosis. At any age a negative reaction with certain tuberculosis seems to be an unfavorable sign.

63. **Kuhn's Suction Mask in Treatment of Tuberculosis.**—Over 137 pages are devoted to the account of the application of the mask in fifty-two cases of pulmonary tuberculosis in various stages at the Cologne tuberculosis clinic. The mask was used over three months in the majority of the cases, the shortest period being three weeks and the longest over ten months. The sittings were fifteen minutes twice a day at first, increasing by the end of the week to an hour sitting twice a day and finally three times a day. The results were disappointing.

Berliner klinische Wochenschrift

July 15, XLIX, No. 29, pp. 1357-1404

- 64 *Effectual Modification of Leukemic Blood-Picture by Benzol. (Beeinflussung der Leukämie durch Benzol.) A. v. Koranyi.
- 65 *Palmin Test of Pancreas Functioning. R. Ehrmann.
- 66 Nodose Rheumatism. (Ueber den Rheumatismus nodosus mit bes. Berücksichtigung des pathologisch-anatomischen Befundes.) P. Frank.
- 67 Pregnancy After Artificial Fecundation; Six Cases. (Schwangerschaft nach künstlicher Befruchtung.) J. Hirsch.
- 68 *Summer Infant Mortality in Berlin, 1911. (Die Säuglingssterblichkeit in Berlin im Sommer 1911.) H. Liefmann and A. Lindemann.
- 69 *Pericranial Sinus. (Ueber Sinus pericranii.) A. Müller.
- 70 *Keeping Patients Under Influence of Scopolamin in Treatment of Morphin Addiction. (Die protrahierte Scopolaminnarkose bei der Morphinentziehung.) A. Fromme.
- 71 Training Cripples to Be Self-Supporting. (Schule und Handwerksstuben des Krüppelheims in Verbindung mit der ärztlichen Tätigkeit.) W. Schasse.
- 72 Vaccine Therapy of Gonorrhea in Women. (Ueber die spezifische Behandlung der weiblichen Gonorrhöe.) A. Schmitt.

64. Efficacy of Benzol in Leukemia.—Koranyi has applied to practical use Barker's casual discovery that benzol (benzene, not benzin) has a destructive action on the blood; Barker encountered three cases of hemorrhagic purpura with aplastic anemia in three girls who worked with benzol in a factory. Two of the cases terminated fatally. Selling's experimental research has further established that benzol first increases the production of leukocytes and then has a destructive action on them, while the number of reds is not modified. At the same time the bone marrow, spleen and lymphatic apparatus show marked aplasia. This action of benzol is just what is needed in leukemia, and Koranyi reports a typical case to show the marked benefit which followed its systematic administration. This patient was a woman of 32 who noticed seven months ago that her spleen was enlarging; she became very weak and complained of pains in the sternum. The blood-count showed 3,100,000 reds and 220,000 whites, including 70 per cent. polymorphs and 16 per cent. myelocytes. An exposure to the Roentgen rays was made Feb. 1, 1912; two weeks later the benzol was commenced, giving from 3 to 4 gm. a day. By April the whites had dropped to 65,000 and by the middle of May to 8,000 and the general health showed marked improvement. The patient is now attending as usual to her household duties. There were no failures under the benzol treatment of chronic leukemia. The spleen subsides to normal size in time; the lymph-nodes seem to feel the influence less. The benefit is more gradual than from roentgenotherapy, but the benzol may succeed in cases in which the other has failed. Patients who have already had Roentgen treatment seem to respond more readily to the action of the benzol. No serious by-effects were observed from the benzol, not even in one case in which he gave up to 5 gm. a day, but some disagreeable effect was noted in some cases, a burning in the stomach, eructation, transient tracheobronchitis and dizziness. The stomach disturbances can be avoided by giving an equal amount of oil in a capsule along with the benzol. Koranyi has also applied the benzol in a case of polycythemia with enlarged spleen, and the benefit was encouraging. During the first week the reds increased from nine to ten millions but then dropped in the course of the next three weeks to 6,700,000. The patient then considered himself cured and has not been seen since.

65. Copper Test for Pancreas Functioning.—Ehrmann extols the simplicity, rapidity and convenience of the test described. It is based on the fact that a neutral fat, free from fat acids, is not split by anything but the fat-splitting ferment from the pancreas. Consequently, by addition of a stain which acts only on the fat acids, as they are split by the ferment, the presence of the latter is rendered evident. Commercial palmin has proved the most suitable neutral fat for the test. The patient takes a test-breakfast of 30 gm. of ordinary rice starch dissolved and warmed in a glass of water; a trace of salt is added and then 75 gm. of palmin, liquefied by heat, is stirred into it and the whole drunk from a glass. After two or two and a half hours the contents of the stomach are siphoned out and some is mixed in a test-tube with equal parts of a mixture of 90 parts petroleum benzin and benzol to 100 parts (Solution I). After the test-tube has been well shaken, the supernatant ether layer is decanted into a second test-tube and there mixed with an equal part of a 3 per cent. solution of copper acetate in distilled water (Solution II). The ethereal layer then assumes a bright green tint in proportion to the content in fat acids. If none has been split off from the palmin, owing to the absence of pancreas ferment, there is no color change in the fluid. The intensity of the change in tint is the index of the pancreatic ferment.

68. Infant Mortality in Berlin During the Heat of 1911.—This study of the mortality among infants last year is along the lines of that mentioned editorially in THE JOURNAL, July 27, 1912, p. 281. The influence of the heat, of the food and of infection is discussed in detail, a preponderating rôle being ascribed to the heat either in its severest form as heat stroke or in its effect in reducing the child's tolerance for

food and resisting powers against infection, so that bacteriemia and suppurative cutaneous affections are liable to develop.

69. Pericranial Sinus.—Müller reports the case of a girl of 13, otherwise normal, who had a small tumor in the region of the left parietal eminence. It had been noticed since childhood but had only lately begun to cause severe headaches. A cavity containing circulating blood communicated with the blood spaces of the inside of the skull; the tumor was easily removed. In this as in the various cases on record, which he reviews, the trouble seems to be some anomaly in the course of the vessels, possibly with a traumatic origin.

70. Keeping the Patient Constantly Under the Influence of Scopolamin in Treating Morphin Addiction.—Fromme injects the scopolamin systematically to keep the patient under its influence until all the symptoms caused by withdrawal of the morphin have subsided. Three or four days are generally enough, but seven or eight may be required in severe cases. No untoward by-effects are liable with proper management of the scopolamin; the dosage has to be calculated for each individual case. The morphin addict bears doses of scopolamin which would prove unconditionally fatal for any one else, Fromme asserts. The ordinary dose of scopolamin is under 0.002 gm., but he has given his morphin patients up to 0.015 gm. a day, without injury, and he has applied this prolonged scopolamin anesthesia in about 150 cases during the last year, and always with the best results and not the slightest untoward by-effects. The patients retain their wits sufficiently to attend to the calls of nature, but they must be kept continuously in bed. If the dose of scopolamin is too large, the patient is restless instead of drowsy. He warns that the nursing and care of the patient are of paramount importance in these cases.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 10, ALII, No. 20, pp. 729-776

- 73 Conservative Treatment of Tuberculous Lymphadenitis. (Konservative Behandlung der Drüsentuberkulose.) H. Iselin.
74 Case of Hematomyelia and Syringomyelia After Trauma. P. Wolfer.

Wiener klinische Wochenschrift, Vienna

July 11, XXV, No. 28, pp. 1071-1110

- 75 *Direct Sunlight in Treatment of Tuberculosis. (Die Sonnenbehandlung der Tuberkulose.) Rollier.
76 Physostigmin in Treatment of Tachycardia. R. Kaufmann.
77 Tuberculous Serositis With Clinical Picture of Banti's Disease. (Unter dem Bilde der Bantischen Krankheit verlaufene Tuberculosis serosarum.) A. Skutetzky.
78 Tolerance of the Eye for Foreign Bodies. (Zur Toleranz des Auges gegen Fremdkörper.) L. Szarvazy.

75. Direct Sunlight in Treatment of Surgical Tuberculosis.—Rollier here reviews his entire experience with 650 patients with surgical tuberculosis, who have been in his charge at Leysin since 1903. Of the total 450 cases of closed tuberculosis, 393 were cured and forty-one improved; only eleven can be regarded as stationary. Five of the patients in this group have died while under his care or since. Of the 200 patients with open tuberculous lesion, 137 are cured, twenty-nine improved; fourteen are stationary and twenty have died. This material is classified under various headings. Recurrence after supposed cure is known in only six cases, and three of these patients had concomitant pulmonary tuberculous lesions. The special details of the method as he has worked them out are related and various features of climate and exposures emphasized. (Compare with Hüsey's article summarized above.)

Zeitschrift für klinische Medizin, Berlin

LXXV, Nos. 5-6, pp. 367-518. Last indexed July 20, p. 235

- 79 Types of Regeneration and Degeneration of the Blood in Anemias. H. Pollitzer.
80 Measurements of the Intensity of the Heart-Sound. (Messung der Intensität des Herzschalles.) H. Goldschmidt.
81 Experimental Research on the Interrelations of the Glands With an Internal Secretion. I. (Experimentelle Beiträge zur Frage der Beziehungen der Drüsen mit innerer Sekretion zueinander.) M. Georgopoulos.
82 Elimination of Glucuronic Acid. (Zur Glykuronsäureausscheidung beim Menschen.) F. Conzen.
83 *Roentgenotherapy of Leukemia. (Zur Behandlung der Leukämie mit Röntgenstrahlen.) M. Nemenow.

- 84 Mushroom Poisoning With Lactic Acid and Increased Amino-Acids in the Urine. (2 tödlich verlaufene Fälle von Pilzvergiftung.) W. Frey.
 85 Physiologic Arrhythmia. E. Mosler.
 86 Roentgenoscopic Diagnosis of Ulcerative Colitis. E. Stierlin.
 87 *Permeability of the Meninges. (Untersuchungen über die Durchlässigkeit der Meningen für chemische Stoffe.) H. Rotky.
 88 Transmissible Fowl Leukemia and Its Independence of Fowl Tuberculosis. (Übertragbare Hühnerleukämie und ihre Unabhängigkeit von der Hühnertuberkulose.) H. Hirschfeld and M. Jacoby.
 89 *Aortitis and Fever. P. M. Popoff.

83. **Roentgenotherapy of Leukemia.**—Nemenow reports eight cases and tabulates the metabolic and other findings in great detail in the four older cases. He explains the remarkable benefit from the exposures as due first to the action of the rays on the leukocytes and then on the lymphoid tissue of the blood-producing apparatus as the radiation is continued. But this does not explain the changes which become evident in the organs remote from the exposed area, the subsidence of the enlarged lymph-nodes and the changes at distant regions in the bone marrow—all this points to another factor, the action of some leukotoxin or leukolytic ferment or possibly cholin, which exerts an inhibiting influence on the excessive proliferation of the tissue in the blood-producing apparatus. His one patient with acute lymphatic leukemia was not benefited by the exposures and soon died. In three chronic cases the treatment has been applied too recently for definite conclusions. In the three older cases of chronic myelogenous leukemia marked improvement was obtained and what amounts to an actual cure in one very severe case.

87. **Permeability of the Meninges for Drugs.**—Rotky writes from the medical clinic at Prague in charge of von Jaksch to report extensive experiments in this line with eight different drugs. They were all reformed in the urine, but only hexamethylenamin once, and one other drug a bromid were reformed in the cerebrospinal fluid. Mercury, iodids and salicylates were never detected in the cerebrospinal fluid. The permeability of the meninges is thus more a property of the drug than of the meninges. The fluid was constantly free from bile pigments; even in this case of long-continued severe jaundice the cerebrospinal fluid was persistently limpid and colorless. Hexamethylenamin passed into the fluid with remarkable rapidity; in a case of tuberculous meningitis the drug was present in the urine an hour and a half after taking 2 gm., and in two hours after taking 3 gm., in a case of hypophysis tumor. As bromids seem to be able to substitute the chlorids in the tissues, the bromids occupy a place apart from other drugs, displaying at times an apparently special affinity for the tissues. When the meninges are injured by the toxic action of mercury, the salicylates and iodids, they are liable to permit their passage into the fluid, but not in therapeutic dosage.

89. **Aortitis and Fever.**—Popoff reports three cases of febrile aortitis and states that at the clinic in his charge at Moscow there were forty-eight cases of aorta disease in the last two years. Excluding the sixteen cases in which the trouble was the consequence of acute rheumatism, he found a history of syphilis in all but three of the thirty-two others.

Zeitschrift für Urologie, Berlin

July, VI, No. 7, pp. 541-620

- 90 *Fungus-Like Growth in the Bladder. (Ueber Malakoplakia vesicae urinariae.) M. Waldschmidt.
 91 *Diagnosis of Ureter Fistulas. (Zur Diagnose der Harnleiterfisteln.) C. Adrian.
 92 Combined Cystoscope, Lithotripter and Evacuator. H. Young (Baltimore).
 93 *Preneurotic Urine. Orłowski.

90. **Malakoplakia of the Bladder.**—Waldschmidt gives a colored plate to show the findings in the two cases previously reported by E. Fraenkel. A third case has come under his observation since and he has found records of necropsies in twenty others. Only one patient was a child, the others were all over 40. The protruding patches are generally scattered over the walls of the bladder and often have a depression in the center suggesting ulceration. They do not seem to cause symptoms until they become secondarily infected,

generally with colon bacilli. Tuberculous processes in the bladder have never presented such a picture in Waldschmidt's experience, although in several of the above cases the patients were tuberculous. In eight of the total twenty-three not a trace of tuberculosis could be detected anywhere. After the excrescences become infected, the resulting cystitis runs a sluggish, torpid course.

91. **Diagnosis of Ureter Fistulas.**—Adrian's article is based on thirteen cases in most of which the minute fistula escaped detection by the routine methods. In two cases the fistula was congenital; in ten cases the fistula resulted from an abdominal operation and in two from a vaginal. An interval of six weeks to nearly three years had elapsed before he saw the patients after the first discovery of the drizzling urine. Cystoscopy with or without ingestion of a stain, failed him in several cases, and the findings with catheterization of the ureters were misleading in others. He consequently devised a new method which has proved reliable and instructive while the technique is comparatively simple. It is based on the fact that neutral red and phenolsulphone-thalein in the test-tube and in the body vary in tint according to the reaction of the medium. By subcutaneous or intramuscular injection of one of these stains and filling the bladder with some medium which decolors the stain (a weak alkaline solution for the neutral red and an acid solution for the other), the difference in the tint of the urine from each ureter mouth will show which ureter is voiding all the urine into the bladder, and which is losing some on the way. The findings are rendered more prominent by receiving the urine from the suspected ureter into a tampon impregnated with some substance which shows up more vividly the color of the stain, an acid for neutral red and an alkali for the other stain.

93. **The Urine Just Before Outbreak of a Neurosis.**—Orłowski calls attention to the changes in the urine he has observed in patients on the verge of a nervous breakdown. The curve of acidity of the urine shows a different rise and fall, being lowest morning and night, contrary to the normal decline in the middle of the day. The phosphates also behave differently, and the indican content increases. Orłowski has been studying for years the behavior of indican in the blood in various conditions, and is convinced that the proportion of indican in the urine is an index of low vitality, relaxation of the body, especially of the nervous system. It is thus a practical index of impending nervous breakdown. Even healthy persons, when they feel languid and without much vitality, have indican in their urine transiently. Persons with the paradoxical acidity curve mentioned above often have abnormal proportions of indican in the urine.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 9, XXXIII, No. 82, pp. 849-856

- 94 Factors in Uremia. (Su alcuni fattori dell'uremia.) G. A. Pari.
 95 Exophthalmic Goiter. (I gozzi esoftalmici.) Debove.

Policlinico, Rome

July, XIX, Medical Section No. 7, pp. 288-336

- 96 Case of Edema From Ascending Neuritis. F. Giannuli.
 97 Syphilitic Nature of Various Syndromes of Diverse Localizations. (Su la natura sifilitica di sindromi morbose con varie localizzazioni.) L. Massini.
 98 Metabolism in Pellagra. (Ricambio materielle nella pellagra.) L. Preti.
 99 Improved Culture Medium for the Tubercle Bacillus. (Su di un terreno di cultura per lo sviluppo rapidissimo del bacillo tuberculare.) G. Vallerti.

Riforma Medica, Naples

July 6, XXVIII, No. 27, pp. 731-756

- 100 Urine-Serodiagnosis of Tuberculosis. (Sulla diagnosi della tubercolosi col metodo di Marmorek.) V. de Bonis and G. Renga.
 101 Total Destruction of Lenticular Nucleus Without Motor Aphasia. (Sopra un caso di lesione totale del nucleo lenticolare di sinistra senza afasia motoria.) U. Raggi.

Semana Medica, Buenos Aires

June 13, XIX, No. 24, pp. 1089-1136

- 102 Case of Polyserositis. (Cirrosis cardio-tuberculosa.) J. S. Picado.
 103 Hygiene of Childbirth. A. Chucco.

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A PLEA FOR THE MORE FREQUENT SCIENTIFIC EMPLOYMENT OF PHYS- ICAL THERAPEUTICS *

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The methods and practices of physical therapeutics have suffered so much discredit through extravagant and unscientific theories and from exaggerated statements of misguided enthusiasts that one hesitates to offer further contributions on the subject, knowing how critically any claim will be received, regardless of whether or not it bears evidence of modest observation or practical merit. In discussing this subject, my apology is for the attempt, rather than the topic.

Physical therapeutics, as comprehended in this discussion, applies to our knowledge of the best care for the sick. I admit the technical vagueness of this definition and, in explanation, state merely that its purpose is to bring into the discussion the practical, as well as the scientific, side of the question. Viewed from this standpoint, a little thought will make it easily comprehensible.

In the time allotted I can do no more than very briefly refer to some of the well-known means employed in the restoration and preservation of health and the discussion will deal more particularly with reference to toxic and metabolic perversions occurring from untoward physical, chemical and psychic influences, which are more amenable, in part at least, to physical than to chemical therapeutics. I take it for granted that those to whom this paper is addressed are already generally familiar with the usual forms of physical therapeutics, though not necessarily conversant with the detailed application; such, at least, has been my impression concerning the busy practitioner.

Systematic functional activity may be stimulated, and otherwise energized, by various mechanical, manual and natural forces; but, if improperly used, these forces are as potent in producing harmful results as they are in producing wholesome benefits when scientifically employed. It has also been strongly contended that function should be the guide for the exercise of the parts, as environment contributed only to promoting general development; but, in this contention, the relation of impaired physiologic to pathologic function must be a matter of personal investigation and judgment. It is regrettable that, outside of sanatoriums, comparatively little attention is paid by the profession in this country to the scientific direction of any of the well-known physical therapeutic methods. For instance, when a physician desires to employ massage as a therapeutic

agent he does little more than call a masseur, direct that he visit Mr. A. and give him a general massage-treatment, thinking, thereafter, very little of the responsibility attached to explicit directions in the case. While this statement is admittedly somewhat overdrawn, nevertheless it emphasizes my point that too little attention is given to definite directions, in definite conditions, for definite purposes.

It therefore is a common occurrence for both physician and patient to be disappointed at the result of massage-treatment, when too often the fault is due chiefly to routine application; in no other therapeutic system is definite instruction, with reference to principle and detail, more necessary than in physical therapy, and the strictest attention to both will probably avail little, unless the diagnosis also be complete.

It is these facts, which have been so forcibly presented to me during the past twenty years of my practice in this city, that have made me venture this plea to our profession and urge a more careful and scientific study of the application of these forces as therapeutic agents.

The ever-changing and complicated conditions, physical and social, which are the outgrowth of a complex civilization, occasion various disturbed functional and metabolic changes in the human economy. These manifest conditions have no pathologic or microbic cause to which a definite responsibility may be attached, and are too often the results of mere accidental and indeterminate disturbances over which one has little control, and to which the administration of pharmacotherapeutic agents can give little assistance.

Therefore, I particularly direct attention to this class of physical, emotional and functional derangements, for which physical therapeutics are most happily helpful in the reestablishment of the normal functional and systemic balance. They are applicable and particularly useful in the convalescent period of various infections and other debilitated conditions, from whatever cause, in which muscular activity, physiologic forces and nervous energy have suffered from the processes of disease. They are also most helpful in stimulating the fagged and exhausted forces resulting from chronic diseases, and offer our best contribution in salutary therapeutics, so much needed in the incurable and malignant maladies.

It is little wonder that the people, in this day of general public education along scientific lines, speak complainingly of the failure of medical science, or of its chief representatives, the physicians, to recognize and direct properly the different systems and various methods of physical therapy, which are, in too many instances, still administered by the irresponsible irregulars and pathists.

Since physicians know so well the efficiency of massage, electricity, calisthenic exercises and hydrotherapy, when scientifically applied, in correcting the undeveloped

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muscular system, functional deficiencies, and tardy mental development not infrequently seen in childhood, it seems astonishing that so many so greatly neglect the intelligent employment of these therapeutic agents. But perhaps the physician himself is no more to blame than his *alma mater*, which has been particularly conspicuous for the absence of any thorough course in physical therapeutics in its curriculum. During my college career, apart from the orthopedic courses given, very little direct or scientific instruction was given in physical therapeutics, and I regret that in several of our leading colleges much the same situation, with minor additions, still prevails.

Whence comes the most of our knowledge of physical therapeutics? Not from medical colleges, not from schools of science, in which it should be taught, but from sanatoriums, physical-culture schools, hydrotherapy spas, mechanotherapy and osteopathic colleges, irregulars, etc. Little wonder, then, that there is to-day a rapid growth in the patronage of these various cults and pathies, and in the public sympathy with legislative efforts toward their legal standardization and professional recognition. Neither can we wonder at the attitude of our own patients toward these remedial forces and those who are administering them, for many of us refuse or neglect to employ them.

Contrast the scientific knowledge and provision for this class of therapeutics in continental Europe with that of our own country, and you need no further reason for the annual exodus of thousands who take their multiple ills to some foreign therapeutic shrine for relief. This need not, and should not, be the case; then, how may it be prevented? Not by your efforts, singly exerted; if you would change it, it will be through your alumni, acting collectively, demanding that medical colleges establish suitable courses in which thorough scientific instruction will be given to the future students in medicine.

Fundamentally speaking, in my judgment there are three cardinal conditions that are directly concerned, as both contributive and causative agents in the various diseases that are accompanied by toxemia. They are intemperate food indulgence, indifferent muscular activity and inefficient elimination. Indeed, whether fundamental or incidental, wherever and for whatever reason a toxic state maintains, the therapeutic agents that are most powerful in affecting normal balance, through physiologic means, are, without question, the most ideal remedies.

Referring particularly to the infections under the head of cardiovascular diseases, both hypertension and incidental circulatory tension are present, and both vary necessarily, according to the nature and extent of the pathologic changes present: In both, the patient may be afforded great relief, and the physician's anxiety lessened by the use of eliminating-packs, associated with prescribed rest and diet. To be effective, the treatments should be applied with regularity and with as near a definite knowledge as possible of the pathologic and physiologic processes operating at the time. The hot "drip blanket pack" and the hot sea water tub (covered) may be employed, separately or alternately, with splendid results in most ambulatory cases, due consideration being given to the time, temperature and after-care of the patient.

Knowledge and judgment are as essential in the employment of this, as of any other system of therapeutics. Tension may be either compensatory or non-compensatory, and it is with the former that most care and judgment need to be exercised.

It is for these compensatory disturbances that some physicians are using the high-frequency current by means of the auto-induction coil with apparently good results. While this has not as yet received general approval, whether because of the expense attached to procuring the outfit or the natural slowness with which many physicians resort to mechanical measures as a therapeutic means of relief awaits future judgment. There is good reason, however, for believing that the experienced operator will find in electricity many aids for disturbances incidental to both functional and organic causes, that hitherto have not been closely studied or to which the current has not been most advantageously applied.

In closing this very limited discussion of so vast and important a subject, I would emphasize the fact that in this as in other sciences, "knowledge is power," and that the situation will not and cannot change until the subject of physical therapeutics becomes a part of our medical curricula and is authoritatively and more fully taught, in our medical colleges, and our physicians are more thoroughly trained in the science, as well as in the administration of this division of therapy.

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ABSTRACT OF DISCUSSION

DR. WILLIAM GRAY SCHAUFFLER, Lakewood, N. J.: What has been stated by Dr. Marvel I believe to be entirely true. The great trouble in the use of physical therapeutics lies in two facts. First, most of the medical men do not sufficiently understand either the principles or the means of application. Secondly, they are careless in their work and, therefore, they are apt to be disappointed in their results and physical methods are discredited. There is enough good resulting from the employment of physical therapeutics to justify the use of such methods by all practitioners. Many men say that they have no time to be bothered with these methods of treatment and are opposed to taking the time required to learn their use. The employment of physical therapeutics in many cases pays in more ways than one. First we can give a certain number of patients relief from their symptoms which they can get in no other way. In the second place, we can ease their minds. I do not want to be understood as emphasizing too much the effect of this treatment on their mental condition. But the state of the mind of the patient needs attention, as well as the body, and I do wish to emphasize the fact that the patient's mind can be made easy by the employment of this method of treatment. I urge on the medical men of this Section that they take more pains in informing your college graduates regarding the subject under discussion, the more scientific employment of physical therapeutics. Many mistakes are made by using apparatus that is not fitted for the needs of the individual and especially in giving too long treatments with the high-frequency current, hydrotherapy, and other modalities. I do not believe in placing a patient under treatment for half an hour, when five minutes will answer the purpose. I also believe that we should treat these patients ourselves and not leave them entirely to our assistants.

DR. SOLOMON SOLIS COHEN, Philadelphia: Dr. Marvel is too sweeping when he states that physical—or as I prefer to say, using a broader term, physiologic—therapeutics is not taught in medical colleges. My own first systematic course of lectures, given some twenty-five years ago at the Jefferson Medical College, was on this subject, and although I have switched over into clinical medicine, my colleague, Prof. H. A. Hare, has embodied a like course in his teaching from the chair of therapeutics. Even before the time mentioned Professor Bartholow gave a few lectures annually on these topics, and before Bartholow, my brother J. Solis Cohen, gave courses on electrotherapeutics, hydrotherapy and aërotherapy. Here then, is one college, at least, which has taught physical thera-

penties systematically for more than a generation, and I do not think it is the only one, though it may have been the pioneer. The fault is not with the colleges, but largely with the medical societies. Let a man report to the ordinary medical society—not excluding this Section of the American Medical Association—the results that follow scientific electrotherapy, hydrotherapy, aerotherapy, pneumotherapy, thermotherapy, psychotherapy, phototherapy—anything except *x-rays*, which are getting to be semirespectable—and at best he is listened to with polite indifference. Commonly he is not listened to at all. It takes the heart out of one to be treated in that way! No wonder that these methods fall into the hands of quacks, charlatans, Ishmaelites—or into those of a few exceptionally brave men who, knowing the power for good that is in their hands, are not deterred from using it by the fear of evil names or professional ostracism. But let me not be unfair; the fault is not entirely with the societies. Some advocates of physiologic therapeutics and of its physical, as well as its psychical methods, are at least a trifle over-enthusiastic; they indulge in vague hyperbole; they fail to observe exactly or to report accurately. Thus they arouse a prejudice from which more critical observers and more sedate reporters suffer.

Dr. Schauffler's recommendation that every physician equip himself for employing these methods of treatment personally is impracticable. Not every physician can spare the time. Of course, one may prefer to do certain things oneself, but in the majority of cases we must depend on some one who has devoted himself to the perfection of the necessary technique. This cannot be acquired without long experience—which means specialization. We must therefore either specialize or consult one who has done so after a sufficiently long training in general practice.

DR. A. BERN HIRSH, Philadelphia: It is a curious fact that American physicians have until now viewed the subject of non-drug treatment of disease askance. They looked on the reports of improvement without drugs as something irregular. On the other hand, we are all aware of the fact that many patients go abroad year after year, visiting foreign spas, consulting with specialists, and we know that they receive help from the use of the various non-drug treatment methods. Something must be radically wrong here at home. Some of the medical schools have been teaching this branch of therapeutics in a haphazard way but I am convinced that it is not the attitude of the entire profession to carry on physical therapeutics with the thoroughness, or the directness, or the persistence they should.

It is impossible to entrust physical therapeutics to any nurse, or even practitioner, who has only a theoretic knowledge of the principles of electricity as it should be applied to any disease. And what is as important as a thorough knowledge of electricity is a willingness to apply modern technique and diagnostic methods; the practitioner should also have the training to apply every technical method possible in differential diagnosis before he resorts to non-drug treatment methods.

DR. HOBART A. HARE, Philadelphia: The employment of remedial agents other than drugs is very important from a number of standpoints. In the first place, they possess, in many instances, great power for cure and they are of value from the standpoint of psychotherapeutics, the influence of mind over disease. They enable us to impress on the patient the fact that we have a knowledge of many methods of treating disease. Again, these various treatments interest the patient. This meets competition by quacks, or those who are not considered quacks but irregular practitioners, who know little medicine but understand human nature. When you order for your patient medicine in a glass of water and tell him to take a teaspoonful every few minutes, the patient is then made to do something for himself. A regular practitioner too often orders for his patient a certain drug and tells him to take it three times a day, which is all that is required by science, but something has been left out which would be for his betterment, namely, keeping him busy. Another point is

that unless the physician is very careless in the employment of these measures he rarely can do great harm with them, whereas we know that any drug capable of doing good, if it is abused, can do harm. A third point is that these measures bring to the physician's mind the importance of studying more carefully the physiology of the patient. When I say "physiology" I use the expression in a broad sense and include a study not only of what is normal but what is abnormal in the way of body functions. The use of the cold bath and its various modifications, or the hot pack with its modifications, the use of exercise, and the action of these agents on the vascular and nervous systems is something that is at times little less than miraculous. A complete readjustment occurs by means of remedial agents other than drugs.

I am heartily in favor of such papers, or even in the formation of a Section which will serve to benefit us by increasing our knowledge and which will enable us to educate the whole profession in the need of recognizing the importance of these remedial measures other than drugs. The time is past when we tell our patients only to take so many drops of this and so many drops of that. We now make a very careful and critical study of every case, and prescribe not only drugs if needed but other remedial agents.

While I believe in increasing the popularity of the use of remedial agents other than drugs, we should at the same time guard the laity against certain dangers. There are a large number of remedial agents other than drugs which are put before the public not for their best interests, but purely for commercial purposes. The laity is inclined to try many of them and to resort to them in a way not profitable except to the irregular practitioner who advocates their use.

DR. JOHN MUMFORD SWAN, Rochester, N. Y.: For the last two years I have been engaged in the direction of the administration of various forms of physiologic therapeutics, and I have been much astonished at the amount of benefit that it is possible to produce without the use of drugs in patients suffering from chronic diseases. In all probability the principal reason why these methods are not more frequently used is that the majority of the members of the profession are unfamiliar with them and with the results to be obtained by them. In many places there is no opportunity for physiologic methods to be employed because no properly equipped institution is at hand. We must, however, bear in mind that until comparatively recently the majority of men engaged in prescribing these forms of treatment have been, to say the least, not highly ethical in their methods. Too much good has been claimed for the methods and the publications of case reports have been vague and unscientific. This phase of the matter can easily be remedied by the publication of careful scientific studies of series of cases which include failures as well as successes. It is also necessary for an institution equipped for the administration of the various forms of hydrotherapy, thermotherapy, phototherapy, mechanotherapy, etc., to divorce absolutely the business and the medical departments.

DR. PHILIP MARVEL, Atlantic City, N. J.: I purposely avoided comparing colleges and detailing their courses in physical therapeutics believing this was a matter more for the discussion than for the paper and wishing to be fair to all. I am willing now to leave the question as it has been discussed by Drs. Schauffler, Cohen, Hirsh and Hare.

Treatment of Bites of Dogs.—The dog should not be killed, but chained up and kept under close observation for a period of sixteen days at the least. If he is infected with rabies he will show symptoms in that time and in all probability will die within ten days. It is a fatal disease in animals. Pasteur treatment, to be effective, must be instituted within five days after the infliction of the bite, or its usefulness is very much impaired. In doubtful cases, or where the animal has disappeared, it is better to give the treatment than to take chances, because the virus is harmless if given under aseptic precautions, and if the animal happens to have been rabid we have probably saved the patient from a dreadful death.—Tarbell in *Jour. Med. Soc. New Jersey*.

PHYSIOLOGIC BASIS OF THORACIC SURGERY *

JOSEPH MARSHALL FLINT, M.D.

NEW HAVEN, CONN.

In the development of abdominal surgery, physiologic methods of investigation followed and explained, in many cases, conditions which had been learned empirically at the operating-table. With this experience before us, we should, if possible, utilize these methods to throw any possible light on the harmlessness or seriousness of the details of operative procedures in order to facilitate our work on human beings. Accordingly, a series of typical thoracic operations was planned on animals connected with a kymograph, simultaneously recording the

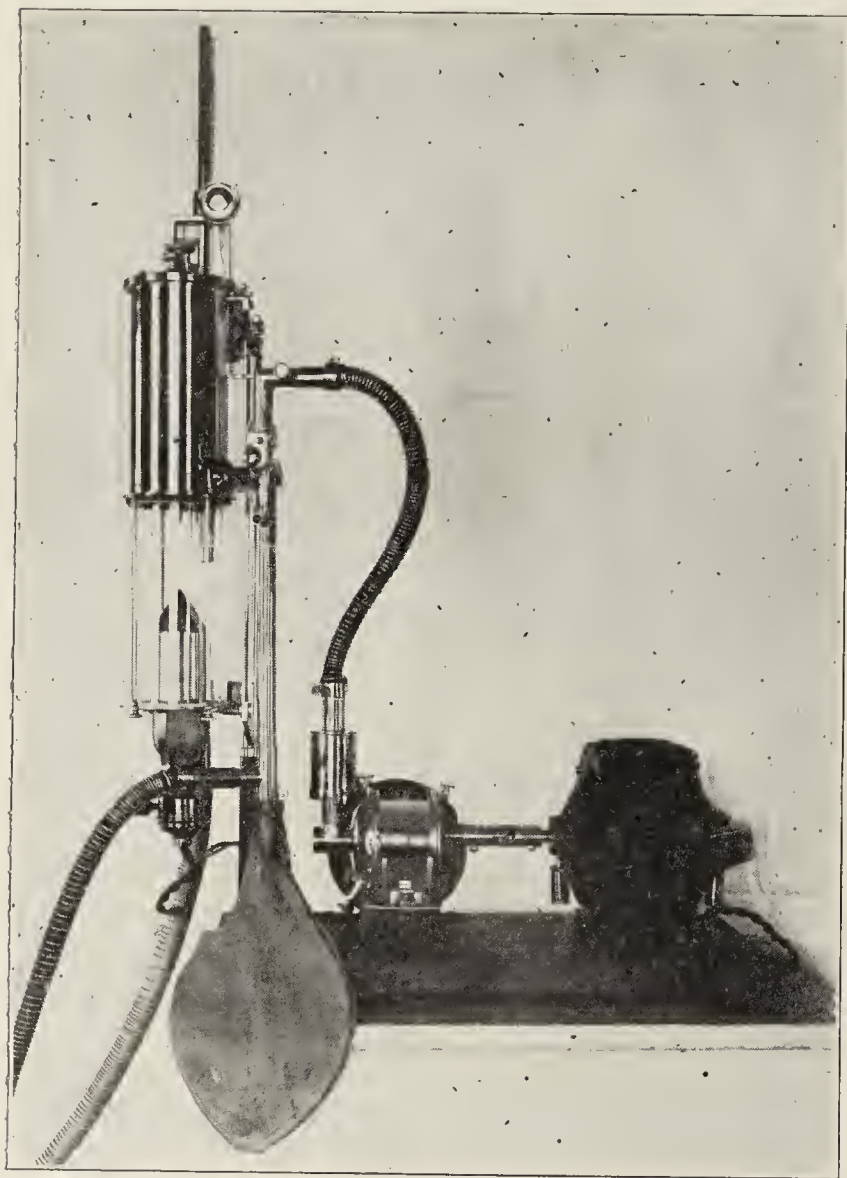


Fig. 1.—The apparatus viewed from the side, showing the arrangement of the motor, blower and rheostat, and their relation to the etherizing and warming chambers.

respiration and blood-pressure, in order to determine what reactions the medullary centers would yield to various operative procedures. It is, of course, understood that these are not reactions to accurate stimuli, but, in a physiologic sense, to the gross and crude trauma of an ordinary operation.

The apparatus used for anesthesia in these experiments was an improved form of the instrument I described two years ago,¹ the first appliance that could be used for

insufflation, pharyngeal anesthesia, or positive pressure-differential at will by simply varying its terminal connections. The apparatus consists of two parts, a motor and pressure blower, and the etherizing chamber with a water-valve. A small $\frac{1}{8}$ horse-power compound wound motor furnishes the power to drive the blower, which is specially built for the apparatus and which is connected to the motor by means of a universal joint. The speed of the motor is controlled by a small rheostat. The blower is small and compact and furnishes an ample volume of air for both insufflation and pressure-differential when driven at relatively low speeds. Attached to the blower is a small accessible filter allowing the filtration of the air through a layer of cotton 4 cm. in thickness. The motor, blower and stand fit in a case measuring 10 by 10 by 20 inches. In case of failure of the electric current a simple connection to an oxygen tank is provided allowing the operation to proceed without interruption. Such a contingency is, however, extremely unlikely to arise.

The air passes from the blower to the etherizing chamber through rubber tubing bound with aluminum wire to prevent kinking. The anesthetizing chamber is divided into two parts, the ether reservoir and the evaporating chamber below where the anesthetic is volatilized and mixed with air and warmed. The reservoir is of 900 c.c. capacity and is provided with a funnel to permit refilling. On the top, a thumb-screw controls the supply of ether to the evaporating chamber below, which can be varied from any number of drops a minute to a steady stream. A small tube passes from the volatilizing chamber opening near the top of the reservoir to equalize the pressure above the surface of the ether with that in the chamber below. This can be closed by a screw valve should it become necessary to refill the reservoir during the progress of an anesthesia. The compressed air is conducted to the volatilizing chamber by a tube which delivers it at one side of the warming cone, on the apex of which ether is dropped from the valve above. This cone contains a 36-candle-power carbon filament lamp which is used as a source of heat. The latter is quite sufficient, not only to volatilize the ether instantly, but to warm the mixture of ether and air which passes from the outlet tube to the mask. That this may be a matter of considerable importance will be shown in a later communication. The intake and outlet tubes from the volatilizing chambers are further controlled by a piston valve which yields a secondary and instantaneous control of the air circulation within the evaporating chamber by simply turning a small screw-head which is provided with an indicator. The ether chamber can be cut entirely out of the circuit by placing the indicator at *A*, when either pure air or oxygen is sent to the mask or intratracheal catheter; with the indicator at *M*, one-half of the air is sent through the etherizing chamber, and the remainder short-circuited to the catheter or mask. While with the indicator at *E*, the entire air-current is directed through the volatilizing chamber. Obviously any desired proportions of air and ether in mixture can be obtained by fractional movements of the valve. During the use of this valve, the air-current is not interrupted by its movements, but flows continuously either through the volatilizing chamber or directly to the mask. As a matter of fact, the anesthetics are all regulated with the dropping valve as this secondary control is used only in case of emergency.

From the volatilizing and warming chamber, the mixture is carried to the intratracheal catheter or mask

* From the Surgical Laboratory of Yale University.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Flint: Yale Med. Jour., February, 1910.

by an aluminum wire-bound tube. For insufflation, the pressure is read from a manometer at the side of the outlet tube. Temporary reduction of the pressure to allow occasional collapse of the lungs in preventing the accumulation of carbon dioxide is accomplished by turning a blow-off valve between the blower and the evaporating chamber. For pressure-differential, we have used either the Brat or a special modification of the Mayer-Denis mask. In this method, it is well to have an equalizing bag inserted in the circuit, which we usually place either at the mask or on the outlet tube of the vaporizing chamber to care for sudden changes in the respiratory

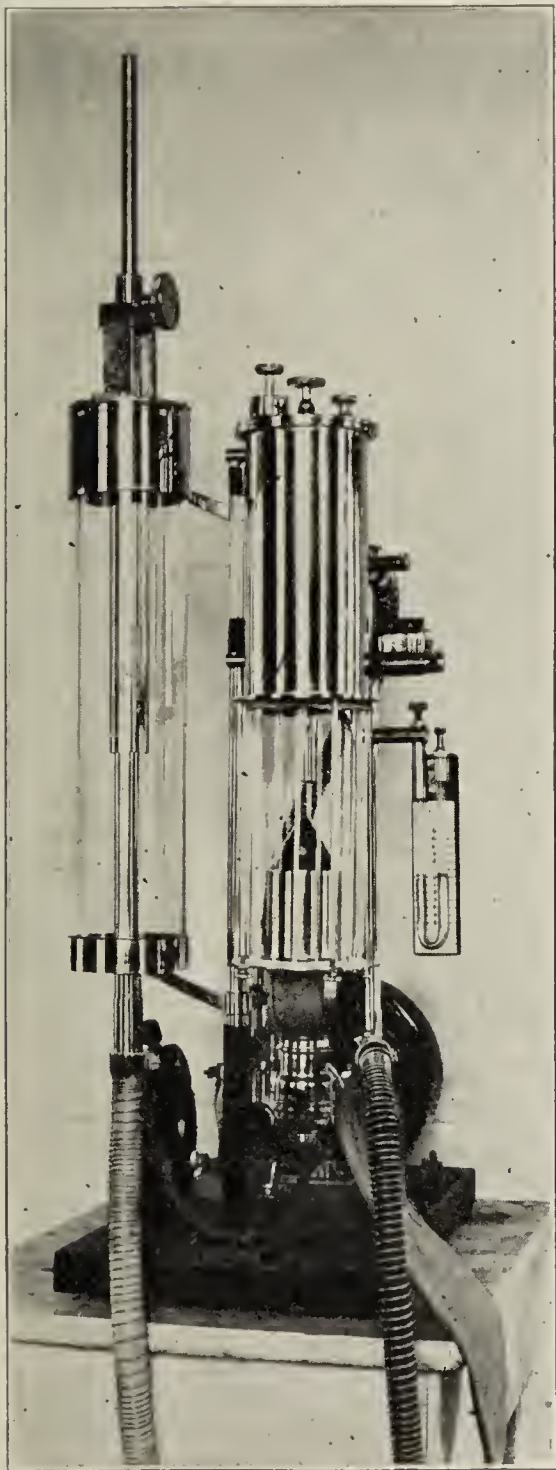


Fig. 2.—The apparatus viewed from the front, showing the ether reservoir, warming and vaporizing chamber and water-valve. The tubes lead to the mask for overpressure anesthesia.

rate. This avoids the necessity of running the blower at a speed commensurate with the maximum rate of respiration and, consequently, saves a considerable amount of ether. From the mask another tube passes to the water valve, the outlet of which is controlled by a tube which can be raised and lowered beneath the surface of the water, so that the pressure in the system can be regulated at will from 0 to 20 cm. by means of a rack and pinion on which the pressure is automatically read. For insufflation, the motor is run at the second speed while the first speed provides an abundance of air for the mask

method. The entire apparatus is demountable and can be carried in two small boxes. It needs no care, save for the occasional oiling of the pressure blower and the motor. The apparatus complete costs about \$160.

EFFECT OF POSITIVE PRESSURE AND INTRATRACHEAL INSUFFLATION WITH CLOSED AND OPEN THORAX

My observations coincide, so far as the positive-pressure method is concerned, almost entirely with those of Seidel. With a closed thorax and the production and subsequent reduction of pressure-differences from 0 to 8 cm. of water, the blood-pressure and heart-rate are scarcely affected, the influence of the changing pressures manifesting itself chiefly in a slowing of the respiration. With a closed thorax and ether anesthesia, an increase

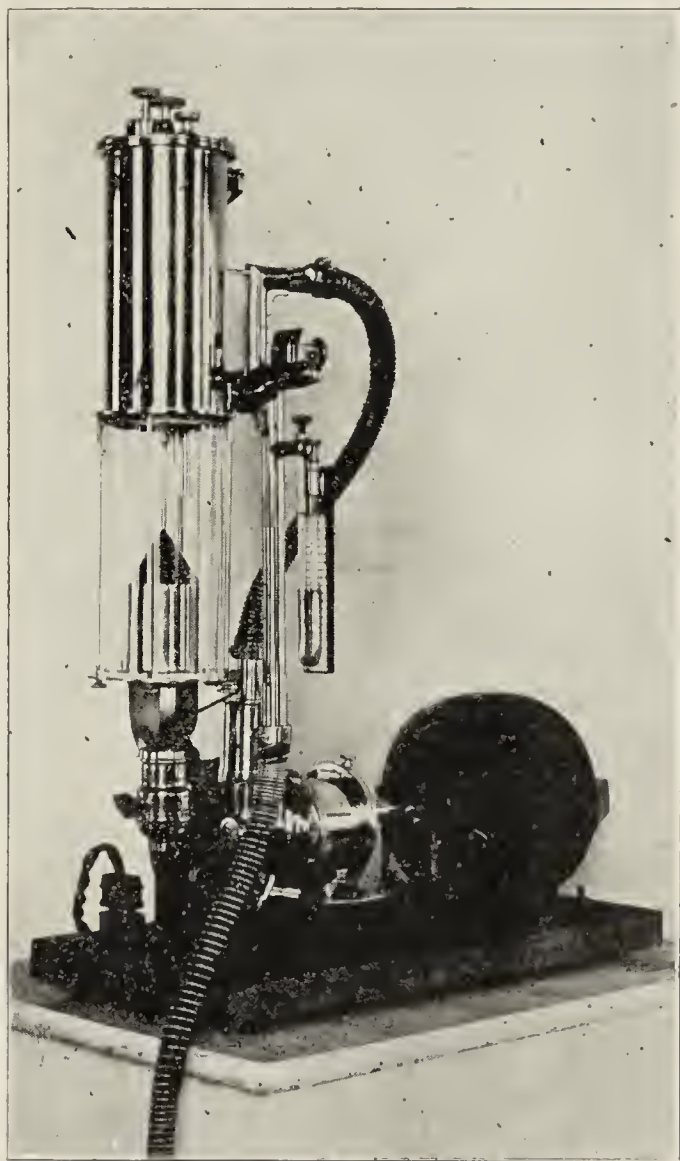


Fig. 3.—The apparatus arranged for intratracheal insufflation. The pressures are read from the manometer. The water-valve is removed. In this form the apparatus may also be used for pharyngeal anesthesia.

in pressure results in a slight slowing of the rate due to a prolongation of the expiratory phase. Subsequent reduction of the pressure restores the rate and type of respiration to normal. Seidel reports this effect without anesthesia, but asserts that it is neutralized by the anesthetic, a finding which I have not been able to confirm. When the pressure is raised to a degree sufficient to prevent lung collapse, just before the incision of the pleura, an open pneumothorax is without effect on the heart-rate, blood-pressure or respiration. When the pleura is opened without a pressure-difference, there is a period of three or four respiratory cycles during which the visceral and parietal pleurae seem to cohere. With the subsequent collapse of the lungs from atmospheric pressure, the respirations become increasingly rapid and

dyspnoëic in type. The heart-rate is slowed; the pulse takes on a vagus character, and there is a slight asphyxial rise in blood-pressure. These symptoms promptly disappear when the pressure is raised to a point sufficient to reinflate the lungs. Without reinflation, death from asphyxiation occurs in the average dog in from two to five minutes. During the period of an open pneumothorax, these phenomena may be elicited at will or obliterated after their appearance by allowing lung collapse or reinflation of the collapsed lungs through a decrease or increase in the pressure-difference as occasion demands.

In intratracheal insufflation, with a perfectly adjusted catheter, there is little or no change in the blood-pressure curve. The heart-rate remains unaffected and only transitory changes are observed in the pressure. The respiratory rhythm is usually altered, but soon becomes regular for the given current of air flowing. The effect on the respiratory curve depends on the volume of air delivered through the tube. Under conditions of an increasing current, the rate may vary from normal to complete apnoea. Unless the relationship between the catheter and the trachea is optimum, there may be a considerable change in the character of the blood-pressure curve following the inauguration of the insufflation which manifests itself in a fall of blood-pressure and a definite vagus character to the pulse. This is slower than normal with a much greater amplitude to the pulse-curve. Even under such circumstances, a satisfactory anesthesia may be obtained. When the air-current has been increased to a degree sufficient to produce pressure apnoea, there is a fall in blood-pressure. The pressure soon rises, however. Likewise, a subsequent reduction of the air-current, reinducing respiratory movements, results in a transitory rise in pressure followed by a fall to normal. These phenomena result from the inflation and deflation of the lungs, and their effect on the pulmonary circulation under the changing pressure within the tracheal catheter. In consequence, the ordinary effect of inspiration and expiration on the respiratory curve is inverted as the pressure rises during deflation and falls during inflation, the obverse of the ordinary respiratory wave. During these changes, there is no variation in the heart-rate. I have never been able to produce apnoea after the removal of one lung. With the insufflation method, the opening of the pleura exerts no influence on the blood-pressure, nor is there any change in the character of the pulse-curve. The respiratory curve may be altered somewhat by the partial collapse of the lungs.

APPLICATION OF THE RIB-SPREADER

Careful application of the rib-spreader in both methods of anesthesia yields similar results, which consist ordinarily in a transitory change in the character of the respiration, probably due to a readjustment of the respiratory musculature or to a change in the pressure on the recording tambour. The heart-rate and blood-pressure remain unaffected. In certain experiments, the adjustment of the spreader is followed by a marked increase in the respiratory rate and accompanied by a fall in blood-pressure. I have explained this depressor effect as possibly due to the tearing of the parietal pleura at the angles of the wound, when the incision is not long enough to permit the spreader to give the desired exposure, although the reaction is not typical of a reflex owing to an absence of the slowing of the pulse. This occasional reaction appears somewhat like the so-called "pleural reflex" although I have never been able to pro-

duce the latter under anesthesia by scraping or traumatizing the parietal layer. The same thing is true of the "periosteal reflex," to which attention has been called. Under anesthesia, crushing, fracturing the ribs or otherwise mechanically stimulating the periosteum is entirely without effect on the character of the respiratory or blood-pressure curves.

MANIPULATION OF AND TRACTION ON THE LUNGS

Manipulation of or traction on the lungs is followed by a fall in blood-pressure and slowing of the pulse and respiration, the extent of which varies with the degree of traction and manipulation. An analysis of the causes of this depressor reaction seems to show that it is due, as will be shown later, to tension transmitted through the bronchi or great vessels directly to the heart.

LIGATION OF THE LOBES

The effect of passing the ligatures around the root of the lobes with subsequent ligation varies in several experiments from a fall of blood-pressure and slowing of the heart-rate to instances where no effect is observed at all. A study of the factors involved here makes it appear as though the result is due to transmitted traction at the root of the lung. A ligature which is very carefully applied and drawn tight without tension on the root gives no reaction on pulse, respiration or blood-pressure. In view of the stormy symptoms that supervene in pulmonary embolism, the fact that one-half of the lesser circulation may be eliminated in a complete pneumectomy with no effect whatever on the systemic blood-pressure, heart-rate or respiration is astonishing and shows that the symptoms following pulmonary embolism are probably due to the ensuing thrombosis. The tightening of the ligatures when applied around the entire root of the lobe apparently does not stimulate the vagus filaments which run along the bronchi, nor is there any indication that the ligature, if carefully applied, elicits the so-called pleural reflex described by Brodie and Capps. In insufflation, the same absence of symptoms following this procedure is observed as in the positive-pressure method.

REMOVAL OF THE LOBES

The effect of the removal of the lobe is the same as that elicited by traction on the stumps and the reaction is due to the same cause. When the excision can be accomplished without pulling on the lung, no effect whatever is observed on the tracings.

TRACTION ON THE STUMPS

Whenever a traction is exerted on the ligatures attached to the lobe stumps, there is a fall in the blood-pressure, accompanied by a temporary inhibition of the respiration and a slight slowing of the heart-rate. The fall may equal 20 mm. of mercury, although the degree varies directly with the amount of traction. Traction on the upper lobe stump, or on the lower lobe stump, or on both, simultaneously, produces exactly the same effect. On the release of tension, the recovery of the blood-pressure is prompt and characteristic. The fact that the ligature can be tied around the stumps without irritating the terminal vagus filaments would seem to indicate that this phenomenon is not produced by vagus irritation, but possibly follows an alteration in the efficiency of the heart action by a transmission of the traction through the great vessels directly to the heart itself or else is a reaction similar to that elicited by traction on the carotid. The reaction during intratracheal insufflation is precisely similar.

CRUSHING OF THE PHRENIC NERVE

In order to embarrass the respiration still further, the phrenic nerve was crushed by the application of artery forceps. The amplitude of the respiratory wave was reduced about one-half, although the character and rate remained unchanged. The slight pressor effect resulting in an increase of blood-pressure, averaging about 16 mm. was obtained in most experiments. This phenomenon was observed in both plus pressure-differential and insufflation methods of anesthesia.

INCISION OF PERICARDIUM

The manipulation necessary for the incision of the pericardium manifests itself with perfectly typical cardiac inhibition which lasts as long as the irritation of the pericardium continues. In all probability, this effect is due to direct mechanical cardiac stimulation through the pericardium, inasmuch as it differs in no way from the effect produced by touching or manipulating the heart itself. Supporting this view is the absence of any reaction when the edges of the incised pericardium are picked up with forceps, provided the heart itself is not touched.

Hurtel has recommended recently the preliminary cocaineization of the pericardium in order to prevent the effects of local stimulation of the pericardium on the blood-pressure and respiration. In my experiments, the respiration remained unaffected. The phenomena observed were confined entirely to the blood-pressure and heart-rate. The experiments carried out by the insufflation method yielded precisely similar results to those obtained by a plus pressure-differential.

TEMPORARY CARDIAC HEMOSTASIS

Sauerbruch has recommended the method of clamping the great vessels of the root of the heart between the fingers for temporary hemostasis during heart suture. The physiologic effects of this procedure is shown by a sharp fall in the blood-pressure from 90 to 12 mm. from which there is a prompt recovery on release of the constriction, but the experiment is followed for a short time by a vagus type of pulse. This characteristic of the pulse-wave is only transitory, however, although the recovery of the blood-pressure to its former height is not so prompt.

THE EFFECT OF TRACTION SUTURES IN THE CARDIAC MUSCLE FOR TEMPORARY HEMOSTASIS

The application of traction sutures for the purpose of hemostasis during suture of the heart muscle is exactly the same as that observed in direct mechanical stimulation of the heart, which is followed by a temporary cardiac inhibition and fall in blood-pressure, from both of which, there is, however, a prompt recovery.

STABBING OF THE HEART AND HEART SUTURE

The stab wound of the heart shows precisely the same physiologic effect as direct mechanical stimulation of the myocardium, except that the reaction is somewhat more violent and the vagus type of the pulse persists. This is, in all probability, exaggerated by the tension of the two traction sutures during temporary hemostasis, while the application of the stitches to the heart muscle itself is in progress. During these manipulations there are frequent periods of cardiac inhibition and the vagus type of pulse increases; respiration becomes slower and somewhat shallower. The vagus character of the pulse persists for a considerable period, when the improvement in both the respiratory rate and blood-pressure is observed and both return to an approximately normal

state. It may be well to add that the wounds were large, made sometimes near the auriculoventricular septum and at others near the apex, and required from six to eight sutures to close them. They represent a severer traumatism than could often be survived in actual clinical experience. The reaction following stabbing of the heart may result in a marked fall of the blood-pressure, which depends partly on the degree of traumatism and partly on the amount of blood lost before the hemostasis is obtained. In general, the type of reaction obtained in these experiments must vary somewhat with the conditions, and depend partially on the degree of traumatism inflicted during the completion of the heart suture.

These factors may delay, too, the time when the cardiac musculature shows a symptomatic recovery from the injury which it has received. Inasmuch as the number and nature of the stimuli applied to the heart during the suture of the wound vary more or less in each experiment, so the reaction, in one instance, may be much more marked than in another. In general, however, the conditions observed in the above experiment may be taken as typical, although it should be noted that in each instance, the wound of the heart and the subsequent suture were performed after the complete pneumectomy and crushing of one phrenic. Under these circumstances, the response is probably somewhat more profound and the recovery somewhat less rapid than would be the case where the experiments are carried on without the preliminary pneumectomy.

PACKING OFF LUNGS WITH GAUZE

In order to secure a good exposure of the heart and esophagus, it is often necessary to pack off the lungs with gauze or Mikuliez pads. This procedure is followed by a temporary drop in the blood-pressure from which there is usually prompt recovery, although it takes some time before the adjustment is complete and the blood-pressure reaches its previous height. During this period, there is also a slowing of the respiration, but the rate returns to normal with the restoration of the pressure.

DISSECTION OF THE VAGI

In one experiment, both vagi were dissected from the esophagus, preliminary to partial esophagectomy. In this instance, no effect was observed on the blood-pressure, heart-rate or respiration. The dissection was carried out in the lower segment in the esophagus below the point where the pulmonary and cardiac plexuses were given off. Similarly, separation of the diaphragm from the stomach and esophagus, when carefully carried out, is without effect on respiration, heart-rate or blood-pressure.

ACUTE PNEUMATIC DILATION OF THE STOMACH

One of the untoward effects of the pressure-differential methods observed on a few animal cases and in one or two instances on human beings, either by the plus-pressure method or the Sauerbruch cabinet, has been a sudden dilatation of the stomach, due to the relaxation of the pharyngeal musculature and a discrepancy in the pressure between the stomach and pharynx. The accident has not infrequently occurred with the inauguration of insufflation when the catheter has been passed by mistake into the esophagus instead of the trachea. In order to determine the effect of this condition on animals, the stomach was inflated by plunging a trochar through the abdominal wall and distending the stomach with air. In one instance there was a sharp rise in the blood-pressure,

accompanied by respirations that were shallow and irregular in both force and rhythm. As soon as the animal had adjusted itself to the new condition, the respirations were slowed and were followed by a period of rapid inspiration and prolonged expiration, probably due to the pressure of the stomach on the diaphragm. The blood-pressure remained high throughout the experiment. In another instance with the insufflation method, the reaction was by no means so marked so far as the blood-pressure was concerned, but there was a definite temporary embarrassment of the respiration from which the animal relieved itself by belching.

The reactions of the medullary centers to operative traumatism as shown in these experiments suggest that we should be cautious in the treatment of the parietal pleura, particularly in tearing it at the angles of the intercostal wound by injudicious application of the rib-spreader. The lungs may be handled freely, but manipulations that tend to transmit traction to the great vessels and bronchi at the root of the lung should be reduced to a minimum. In heart suture, the Sauerbruch method of temporary hemostasis leads to too serious a fall in blood-pressure to be safe except where other means of hemostasis fail. Any mechanical stimulation of the heart, either directly or through the pericardium, during suture should be avoided so far as possible. Furthermore, in packing off the lungs to obtain an exposure of other thoracic viscera, it would be wise to avoid any unnecessary trauma which might tend to reduce the blood-pressure excessively. These are the stimuli which, in the present set of experiments, have produced the most serious reactions

310 Temple Street.

ACUTE POLIOMYELITIS, TRANSVERSE MYELITIS TYPE *

A. L. SKOOG, M.D.

KANSAS CITY

We have given names to diseases according to the clinical phenomena exhibited, according to etiologic factors and according to anatomic localization or changes. The title of this paper might be altered, have additional descriptive terms appended, or even shortened.

The object of preparing this paper is to place on record a case studied clinically and anatomically, a case of which I can find no counterpart after having searched diligently through the European and American literature.

This report covers one of the most interesting of the many cases which I, in the capacity of special investigator for the Kansas State Board of Health during the past three seasons, have had the opportunity of studying. The patient was taken by the family physician, Dr. Beach, of Clyde, Kan., on the sixth day of the illness to the University of Kansas Hospital at Rosedale where she was under my observation continuously until death, a period of three months.

History.—Patient, F. G., schoolgirl, white, aged 13. Father and mother are in good health. One sister, aged 15, well. No brothers or sisters dead. Patient's birth, infancy and early childhood normal. Measles at 5. No serious illness at any

time. Somewhat emotional and considered an affectionate child.

Patient was in excellent health prior to date of onset. On Nov. 2, 1909, she complained of pain in left lumbar and pleural region. On the following day the pain was general in the back, especially along the spine, and in the abdomen. Both legs ached. Headache was present. These symptoms continued during the first four days. The attending physician recorded a temperature of 100 F. on first day of illness and 103.2 F. on the third day. The pulse ranged from 96 to 120. Respiratory rate was 24. There was no vomiting. Constipation preceded and continued during the illness. Retention of urine commenced on the third day of illness and required several catheterizations daily. Motor and sensory paralysis was first noticed on third day after onset when the patient was awakened by a sensation of numbness in both feet which crept rapidly upward to lower chest. The right and left side were equally involved. A mild delirium was observed on the third, fourth and fifth days.

Findings.—My first examination was made on the sixth day of the patient's illness, at the time of admittance to the hospital. Patient was well developed; pubescent. Respiratory organs were normal; circulatory organs normal except increased rate of heart action. Some abdominal tympany was present. There was mild rigidity of recti abdominalis. Urinary bladder was filled. Liver and spleen were apparently not enlarged. Tongue was coated. Skin had several blebs on lower extremities and over pubis, accidents from local application of heat. The mental state showed a little depression, but accurate, coherent replies were made to all questions. Close examinations of all cranial nerves showed normal functions. Motor power in the neck group and upper extremities was normal.

There was an absolute flaccid paralysis of all muscles in the lower extremities, not a trace of movement being detected at hip, knee, ankle or toe joints. The abdominal muscles showed much weakness. There was complete retention of urine and feces. All reflexes of head and upper extremities were normal. No epigastric, abdominal, gluteal, patellar or ankle reflexes could be elicited. Plantar stimulation produced no response. There was a complete sensory paralysis of the area supplied by the eighth dorsal cord segment and below, there being absolutely no response to touch, cotton, pin-pricks, thermal, deep pressure or vibration stimuli in the lower extremities. There was no true hyperalgesia or hyperesthesia from the seventh dorsal area upward, but movements of the thorax involving all the upper dorsal vertebrae caused intense pain and patient preferred to be turned to right side. Sense of position was entirely absent at toe-, ankle- and knee-joints, but feebly present at hips, the right equal to the left.

Course.—The subsequent course of the case was one so frequently observed in severe paraplegic myelitis cases from any of the various causes, in which the patient clings to life for weeks or months and finally succumbs to exhaustion with slowly increasing bed-sores, cystitis and other complications. Emaciation and exhaustion reached an extreme degree and death occurred Feb. 22, 1910, almost four months after the onset of the paralysis.

Full mental faculties were retained until forty-eight hours before the exitus when they became dulled with a rapidly oncoming coma. The palsied state never showed any substantial improvement. The muscles of the lower extremities remained functionless, flaccid and became markedly atrophic. A feeble right and left toe-extension sign could be demonstrated in the third week but not two weeks later. No change appeared in the findings as to deep reflexes. A partial sense of position in toes, ankles and hips but not at knees could be demonstrated in the second week but never after the fourth week. The superficial sensations remained unchanged. Trophic disturbances in the lower extremities developed early, and finally numerous large bed-sores appeared, the sacral eroding into the neural canal. Edema of the lower extremities was present during the last month. There was continuous pyrexia, and temperature ranging between 100 and 104 F. During the last few weeks of the illness there was recorded an irregular

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

subnormal temperature. It dropped to normal after each of the two venesections and returned on the following day. A consultant diagnosed a cholecystitis in the fourth week, but an exploratory operation revealed no pathologic changes in the gall-bladder, tracts or neighboring viscera. Although no anesthetic was administered, the patient was entirely unconscious of the operative manipulations excepting some visceral pain when traction was made on the liver.

Laboratory Analyses.—Rachicentesis at the third lumbar space was performed on the sixth day of the illness with no pain or consciousness of the operation. Only about 1 c.c. of cerebrospinal fluid could be obtained on account of the difficulty in obtaining a flow. It coagulated more rapidly than normal blood, the drops finally hanging at the external opening of the needle in the form of congealed globules. The fluid was perfectly clear. A microscopic examination showed a mild pleocytosis, about 90 per cent. lymphocytes. Much coagulation fibrin was present. No microorganisms were found. Rachicentesis at the second, third, fourth and fifth lumbar spaces on the ninth day gave no fluid each puncture. I felt sure that the needle entered the lumbosacral cistern each time.



Fig. 1.—Section of cord and meninges at the ninth dorsal segment, showing epidural fat, adherent and thickened dura, arachnoid and pia.

A venesection was performed on the seventh day of the illness and 60 c.c. of blood withdrawn. One guinea-pig, one rabbit and one rhesus monkey were inoculated with a few cubic centimeters of the blood by the intraperitoneal route. All yielded negative results. Seventy-five c.c. of blood were removed on the eleventh day of the illness. Bouillon cultures with blood gave negative results in each instance.

A blood-count on the seventh day gave a leukocytosis of 32,100 with 88.5 per cent. polymorphonuclears and 5.5 per cent. lymphocytes. Ten days later the leukocyte count was normal. A Widal test on the tenth day gave a negative result.

Urinalysis on the sixth day gave acid reaction, specific gravity 1.017, no albumin, sugar or indican, few hyaline and granular casts, red corpuscles, some leukocytes and long motile bacilli. Later analyses showed continued cystitis.

Autopsy.—The post-mortem was performed two hours after death. There was no rigidity. Great emaciation and enormous sacral and trochanteric bed-sores were present; also lesser sores over bony prominences of feet, knees and scapulae. There was some edema in the lower extremities and lumbar muscles; no serious changes in organs of chest or abdomen except evidence of wasting. The gall-bladder oper-

ative wound had healed nicely. On opening the skull the dura appeared normal. There was a little excess of fluid in the subdural and arachnoidean spaces. Some retraction of brain was seen. The convolutions appeared normal. All the ventricles were normal. The spinal cord dura appeared normal above the seventh dorsal segment. The dura, arachnoid, pia and cord were closely adherent, obliterating all spaces from the seventh dorsal segment to the first lumbar. (Fig. 1.) No fluid was present. The meninges were three or four times thicker than in the normal. The cord, to the naked eye, showed nothing abnormal above the seventh dorsal segment. It was diminished in size from constriction at the seventh and eighth dorsal segments. The lower five dorsal and lumbar segments had several cylindrical microscopic cavities extending up and down in the white and gray tissue. Especially do they appear in the posterior columns. (Fig. 2.) In the last two sacral and coccygeal segments appeared a softening which

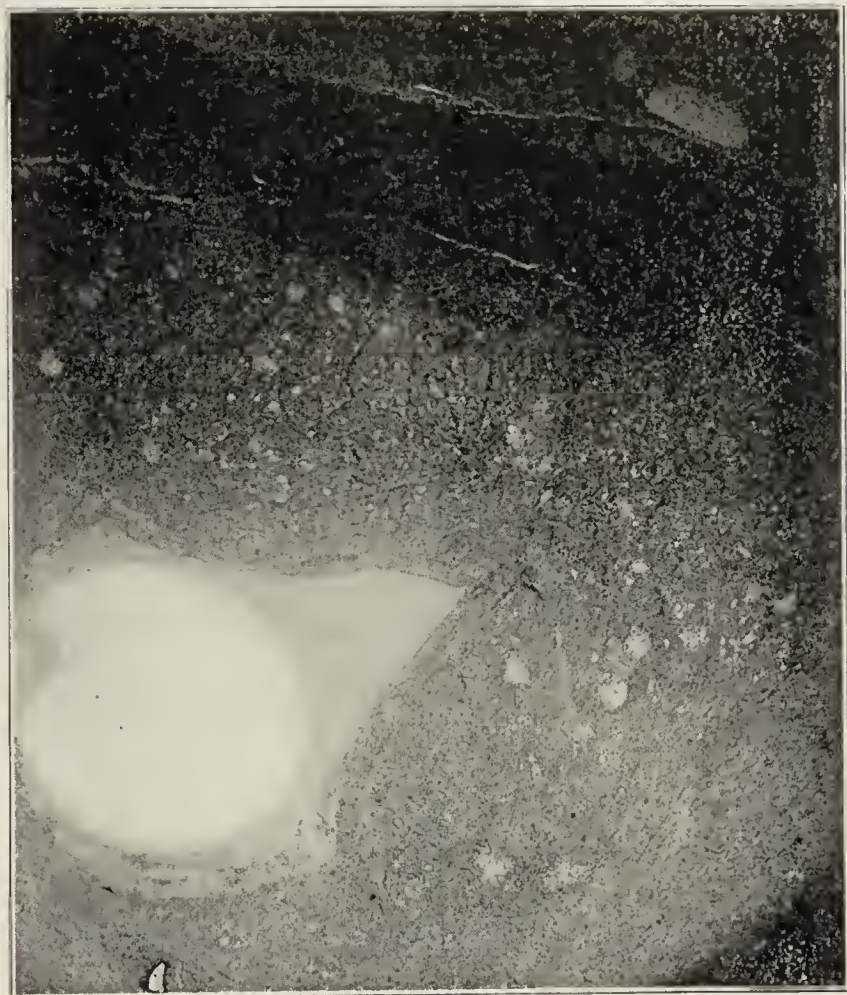


Fig. 2.—Section at ninth dorsal segment, showing a large cavity in region of posterior column, canalis centralis and thickened meninges.

gave a *Staphylococcus aureus* culture. No bacteria were found in the cord above this area.

The cord was hardened and fixed in alcohol and sections from each segment stained by the Nissl, picrofuchsin and hematoxylin methods for microscopic studies. The meninges of the lower dorsal segments presented the same sclerosed or hypertrophic appearance under the microscope as seen macroscopically. There was no infiltration of the pia and arachnoid. Above the seventh dorsal segment no marked minute changes were observed outside of ascending secondary tract degenerations. Some of the anterior horn cells in the cervical enlargement showed mild degenerative changes. From the eighth dorsal segment to the third sacral were seen all kinds of degenerative changes in the anterior horn cells. In a few of the segments all cells were present, but only a few were normal. Studying cells from various segments revealed axonal degeneration, tigrolysis in various stages, loss of nucleus, various forms of nuclear displacement and vacuole formations. (Figs. 3 and 4.) Often a fragment or a mere trace of a motor cell could be seen. There were some degenerations of the smaller cells of the posterior horn. Clark's column group of cells was much degenerated. The anterior, posterior and lateral white columns presented diffuse degen-

erations in all the tracts from the seventh dorsal segment downward. Diffusely scattered through the columns were observed microscopic cavities. Surrounding these cavities as well as the macroscopic ones, there was no indication of inflammatory reaction to be seen. As in the gray substance there were seen no leukocytic infiltrations or connective-tissue overgrowth. All the blood-vessels present in both the gray and white substance appeared to have normal walls and had no infiltrations.

Diagnostic Remarks.—During the early period of the illness, with considerable caution, a diagnosis of acute epidemic poliomyelitis with a transverse myelitis was made. The subsequent course of the case and the autopsy only added support to this diagnosis. The findings from the two lumbar punctures indicated the adhesions of the meninges in the dorsal cord. The coagulation of the cerebrospinal fluid has been observed in a few exceptional cases of undoubted acute poliomyelitis. Otherwise the cytology of the spinal fluid was

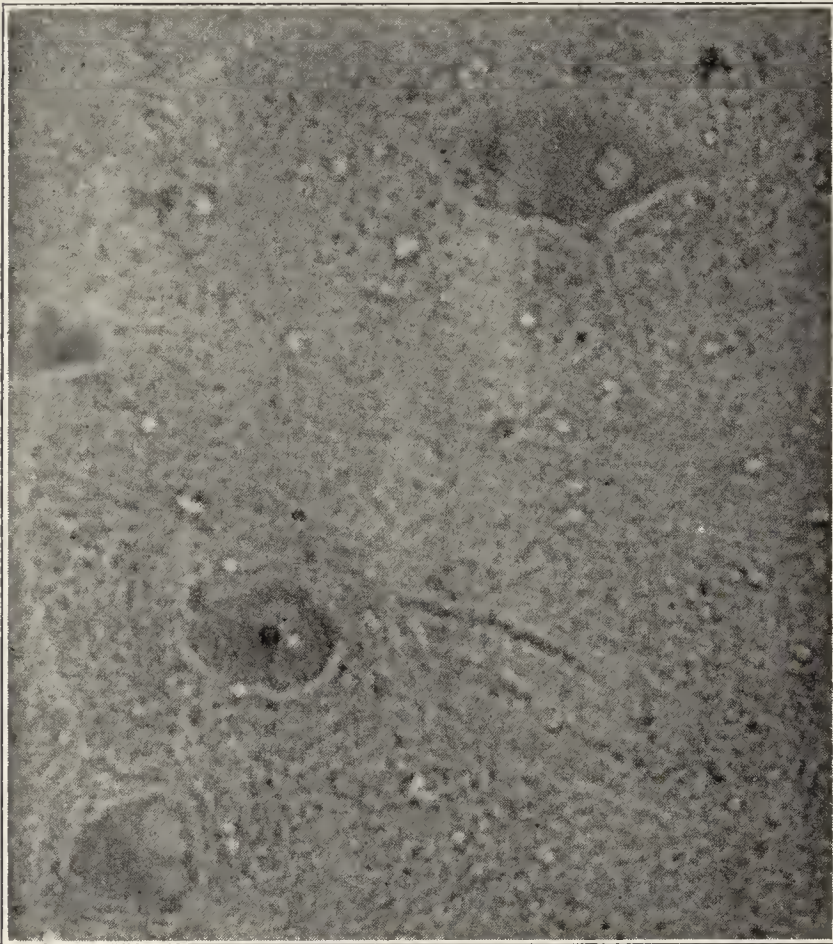


Fig. 3.—Three anterior horn cells from lumbar cord with complete tigrolysis. The upper and lower cells contain vacuoles.

quite characteristic. It was certainly not characteristic of any purulent infection. The laboratory work with the blood indicated no bacteremia. The continued fever was probably a result of trophic disturbance and a cystitis. Urinary retention or incontinence is very infrequent in acute poliomyelitis, but would be expected in any case of complete transverse myelitis from any of the numerous causes. There are some undoubted cases of acute poliomyelitis reported with paralysis of the sphincters. Likewise severe sensory disturbances are rare in acute poliomyelitis. Hyperesthesias and paresthesias are not infrequent. I have reported¹ one case of spinal poliomyelitis in which there was diminished sensation in the paralyzed member and a return of normal sensation within a few weeks. In support of the often observed fact that patients rarely die of their original disease, this case is an illustration in which the patient probably succumbed to several sequelæ which also were the cause of the most striking clinical phenomena. The mode of development of the thickened meninges cannot be stated. There are a number of causes given for hypertrophic meninges, but some remain

unexplained. I am inclined to believe that the overgrowth followed a severe edema and inflammatory process of the lower dorsal meninges. The thickened meninges were probably responsible for much of the myelomalacia.

It is very evident that we have a transverse myelitis to deal with, but transverse myelitis type of acute epidemic poliomyelitis (with apologies to our rather inaccurate nomenclature) is exceptional, and particularly so severe and definite a case. Reviewing the history of acute poliomyelitis from the time of our earliest definite knowledge of the pathology by Cornil and Charcot, in 1864, and Vulpian and Prevost, in 1866,² we have had added from time to time different types of acute poliomyelitis until we now have quite a number. Most of these types are named by their localization as encephalic, bulbar, spinal, polyneuritic, meningitic, ascending, etc.

I have reviewed extensively the literature of acute poliomyelitis and transverse myelitis for cases that might be akin to the one which I am reporting. Harbitz and Scheel³ report a case of transverse myelitis with autopsy, but indicate some uncertainty about diagnosing acute epidemic poliomyelitis of the transverse myelitis type. Strauss⁵ reports an illustration of edema and marked softening of the central nervous tissue



Fig. 4.—Four anterior horn cells from lumbar cord, showing marked chromatolysis, axonal degeneration and nuclear displacement.

in a fatal case of acute poliomyelitis. The cases of transverse myelitis with flaccid paralysis are infrequent. Cases in which a transverse myelitis has appeared with a more or less sudden onset, with a flaccid paralysis, and in which acute poliomyelitis has been considered in a differential diagnosis, or in which the etiologic factors have been uncertain or hazy or in which no conclusions were made regarding the true cause are reported by Nageotte,⁶ Evans,⁷ Pilger,⁸ Thompson,⁹ Spear,¹⁰

2. Medin: Nord. med. Ark., 1896, No. 1.

3. Harbitz and Scheel: Pathologisch-anatomische Untersuchungen über akute Poliomyelitis und verwandte Krankheiten, Christiania, 1907, p. 162.

4. Harbitz and Scheel: THE JOURNAL A. M. A., Oct. 26, 1907, p. 1420.

5. Strauss: Epidemic Poliomyelitis, Rep. of Col. Inv. Com. on N. Y. Epid. of 1907, N. Y., 1910, p. 78.

6. Nageotte: Deux cas de myélite transverse aigue, Nonv. iconog. de la Salpêtrière, 1895, viii, 325.

7. Evans: Case of Acute Transverse Myelitis; Post Mortem Examination, Lancet, London, 1894, ii, 683.

8. Pilger: Ueber einen Fall von genuiner Myelitis transversalis, Inaug. Thesis, Berlin, July 26, 1898.

9. Thompson: Transverse Myelitis, Railway Surg., 1901-1902, viii, 130.

10. Spear: Report of a Case of Transverse Myelitis in Woman Five Months Pregnant Followed by Very Easy Labor, Hosp. Bull. Univ. Maryland, 1908, iv, 365.

1. Skoog: Three Cases of Acute Poliomyelitis in Same Family at Same Time, Med. Herald, St. Joseph, October, 1911.

Frohmann.¹¹ Nogues and Sirol,¹² Ferreri¹³ and Burr.¹⁴ Brissaud¹⁵ has reported a case of transverse myelitis with syphilis as a cause in which the paraplegia was spastic at first and became flaccid in three or four months. Primangeli¹⁶ reports a clinical case of acute transverse myelitis appearing on the seventh day of illness in a case of measles in which there was a severe flaccid paraplegia. Williams¹⁷ has reported a case of transverse myelitis at the first lumbar level with acute poliomyelitis as a stated cause. Evans⁷ ascribes the cause in his case as due to influenza. Having reviewed the clinical and autopsy report, I favor very much the diagnosis of acute poliomyelitis. Pilger⁸ considers poliomyelitis in the differential diagnosis of his reported case but finally concludes that the cause was "spontaneous." He mentions among the causes for myelitis: syphilis, tuberculosis, acute infections as small-pox, typhoid, etc., chilling, wetting, excesses, trauma and concussion.

CONCLUSIONS

It is not within the province of this article to enter into a lengthy discussion of the nomenclature, but I wish briefly to emphasize my choice, which is based on pathologic findings. Among the various terms applied to the disease during the past seventy years, none is more applicable than acute poliomyelitis, or possibly acute epidemic poliomyelitis might be used. The former can be employed at least until the organism has been discovered and probably even then continued. We have learned much about the nature of the virus during the past two years through the work of Landsteiner and Popper,¹⁸ Flexner and Lewis,¹⁹ and a number of other investigators. It remains a fact that in a high percentage of cases of acute poliomyelitis the greatest pathologic alterations occur in the anterior horns of the lumbosacral and cervical swellings of the spinal cord and from this the most striking clinical manifestations appear, namely, the sudden, flaccid motor paralyses. In cases in which we wish to designate some particular type, additional descriptive terms used in this paper and elsewhere may be employed in our titles.

. Rialto Building.

THE SPINAL CORD IN PERNICIOUS ANEMIA

WITH THE REPORT OF AN INTERESTING CASE OF FAMILY INVOLVEMENT *

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The clinical picture of pernicious anemia and the microscopic findings in the blood are so thoroughly understood at present that they may be passed over without comment, even in a discussion of the changes found in the spinal cord in this symptom-complex rather than disease. It is well, however, to remember that there do

exist spinal cord and perhaps brain changes in every case of true pernicious anemia, and that many cases that fail of prompt recognition, owing to nervous symptoms, would at once become clear if this fact were kept in mind. The likelihood that both the clinical picture and the cord degeneration are secondary to and the direct result of a definite toxemia has also occurred to and been hinted at by many investigators. Yet, up to to-day, the nature and source of this toxin and its method of action are still matters of speculation, and even its avenue of approach and of attack are still to be determined.

Liechtm.¹ in 1887, Putnam² and Dana,³ in 1891 and in 1899, and later Pickett,⁴ Burr,⁵ Spiller, Camac,⁶ and in the last months, Camp⁷ have all described the combined sclerosis and degeneration of the cord which have come to be well recognized features in not a few instances of pernicious anemia. Spiller has shown that, at least, occasionally, the degenerative process extends into the brain axis; Pickett,⁴ and much later, Marcus⁸ (1903), and in the current year, Camp⁷ have described cases of pernicious anemia in which there became prominent the mental picture and the signs of paresis. There has not yet been reported, however, a case which has suggested so definitely as does that which forms the basis of this brief study the likelihood of a direct causal relation between the intestinal tract and both the peculiar anemic state and the degenerative process in the spinal cord.

The spinal cord lesions of pernicious anemia, as already repeatedly demonstrated, consist of a combined sclerosis of the posterior and lateral columns. Occasionally the posterior columns are alone affected, and there attends a definite clinical picture of tabes dorsalis. The lateral columns never constitute the only field of involvement. There is little tendency to implication of the gray matter or of the nerve-roots, or to contraction and shrinking of the cord, such as are seen in true tabes. Hemorrhages are frequently in evidence and also processes that can perhaps best be explained on the basis of thrombosis of the spinal vessels. Usually the degeneration appears to start in the upper dorsal or in the lower cervical cord, the posterior columns sustaining the earliest and most severe attack. In my case the lumbar cord showed the most marked evidence of disease (Fig. 1). The lateral columns in most cases are also sooner or later involved, and later in the course of the intoxication the anterior horns show both clinical and microscopic signs of disease. There is more or less proliferation of the neuroglia with rarefaction of the nerve fibers and often a complete dropping out of the latter. The cells in the gray matter may show degenerative changes and may be pigmented. Camac and others have described cavity formation in the cord, probably due to edematous softening and consequent degeneration. In Camac's case the cavity corresponded accurately to the distribution of a branch of the anterior spinal artery, and apparently a thrombosis in one of the small veins was the original cause of the excavation. In a word, it may be said that the pathologic process consists of a degenerative vacuolization of the nerve-cells, accom-

11. Frohmann: Ueber einen Fall von Myelitis Transversa mit Muskelwogen und eigentümlichen Veränderungen der elektrischen Reaktion, Deutsch. Arch. f. klin. Med., 1905-6, lxxxvi, 339.

12. Nogues and Sirol: Myélite transverse avec paraplégie flasque d'embolée, Gaz. hebdom. de méd., 1899, lv, 601.

13. Ferreri: Di una mielite transversa acuta dorsale inferiore e dei suoi postumi, Riv. Veneta di sc. med., 1896, xxv, 221.

14. Burr: Acute Transverse Myelitis, Med. Bull., Philadelphia, 1896, xviii, 401.

15. Brissaud: Myélite transverse et paraplégie flasque, Rev. neurol., 1898, vi, 582.

16. Primangeli: Un caso di mielite lombare transversa consecutiva a morillo, Policlinico, Rome, 1906, xiii, 1161.

17. Williams: Transverse Myelitis at the First Lumbar Level, Louisville Month. Jour. Med. and Surg., Oct. 18, 1911.

18. Landsteiner and Popper: Ztschr. f. Immunitätsforsch., 1909, ii, 377.

19. Flexner and Lewis: THE JOURNAL A. M. A., Nov. 13, 1909, p. 1639.

* Read before the American Association of Pathologists and Bacteriologists, April 5, 1912.

1. Liechtm.: Zur Kenntniss der perniziösen Anaemie, Cong. f. inn. Med., München, med. Wehnschr., 1887, xxxiv, 301.

2. Putnam: Jour. Nerv. and Ment. Dis., 1891, xiii, 69.

3. Dana: New York Med. Jour., 1891, lili, 279; Jour. Ment. and Nerv. Dis., 1899, xxvi, 1.

4. Pickett: Am. Jour. Med. Sc., 1904, cxxviii, 1032.

5. Burr: Univ. Penn. Med. Mag., April, 1895.

6. Camac and Milne: Am. Jour. Med. Sc., 1910, cxxxix, 563.

7. Camp: Med. Rec., New York, Jan. 27, 1912.

8. Marcus: Neurol. Centralbl., May 16, 1903, p. 453.

panied or rather succeeded by a replacement gliosis.

A considerable number of cases have been reported in which the anterior horns were involved to such an extent that the clinical amyotrophic result was confused with emaciation and obscured the diagnosis. This is an occurrence of the late stages of the intoxication, however, and in view of our present information it would seem as though this confusion should no longer be necessary, even though the blood-picture may not yet have assumed the definite character of pernicious anemia and of pseudocombined sclerosis (Fig. 2).

The case which forms the subject of this paper is of interest from more than one direction.

Family History.—The patient, A. C. W., was a single woman, 43 years of age. Her family history was very striking, and was in brief, as follows: Her father died at 60 years. He had suffered from "asthma," dropsy and "had a stroke." The picture is at least suggestive of a uremia. He had also had hemor-



Fig. 1.—Author's case of pernicious anemia. Cross-section of lumbar cord showing marked evidence of disease of the posterior columns.

Fig. 2.—Cross-section of lumbar cord showing involvement of the anterior horns.

Fig. 3.—Cross-section of upper thoracic cord showing degenerative changes in the white matter.

Fig. 4.—Cross-section of upper thoracic cord showing degenerated cells in anterior horns.

rhages from the bowel, though not recently before his death. The patient's mother is alive at 79, and has aortic insufficiency with cirrhosis of the liver. One of the patient's aunts on the mother's side had hepatic trouble, and suffered from angina pectoris and Bright's disease. Another aunt on the same side died of pernicious anemia. Jan. 17, 1907, her blood record was as follows: red corpuscles, 955,000; leukocytes, 3,000 per c.mm.; hemoglobin, 32 per cent.; color index, 1.77. A number of megaloblasts and a few normoblasts were noted. A brother of the mother died at 68 from mental trouble. One sister died a year ago from tabes in a grave anemia (seen by me). Two of the patient's brothers are living, but are invalids. One of these shows a marked atrophy of the muscles of the right side consequent on early anterior poliomyelitis, also some renal and bladder involvement. This brother has had glaucoma of one eye, and was operated on for this condition ten years ago. Another brother has kidney disease with "puffing under the eyes."

Previous History.—The earliest record obtainable of the patient indicated normal health up to the sixteenth year, after

which she showed a marked tendency to severe colds. She had two attacks of congestion of the kidneys between the nineteenth and twenty-ninth years, and suffered a pleurisy also during this period. The severe colds in the head and throat have continued up to the present time, and have always been accompanied by indigestion, which has gradually developed into the severe mucous enteritis that preceded the patient's death. Her menstruation was always irregular in time and quantity. In 1911 the patient was taken to the West Philadelphia Hospital for Women for an intestinal attack with eructations of gas, and with considerable abdominal tenderness. In October, 1911, she experienced severe pain under the right breast increased by pressure over the gall-bladder. This attack began with eructations of gas, lasting for hours.

Through the courtesy of the institution and of Dr. Williams I am able to present the notes of her illness at that time. In January, 1911, she had menstruated very profusely; then again in March, in June, July and August, but not after that time. In February she had considerable bleeding from the bowel, with intense soreness over the abdomen. She also suffered much from cardiac arrhythmia and palpitation, both evident to herself. While in the hospital she had much nausea and gastric distress, which were relieved at times for a day or two, but returned in sudden and acute attacks. During these attacks the face was flushed and the pupils unequal. Most of the time the pupils were markedly contracted. Following the excitement of such an attack the temperature rose, but was usually normal. Pelvic examination was negative. Abdominal examination showed ptosis of the stomach and intestines, with areas of tenderness on palpation about the umbilicus and over the gall-bladder. The heart and lungs were normal. The red corpuscles numbered 6,500,000, and the leukocytes, 15,900. The feces showed much mucus, but no occult blood.

An examination of her eyes by Dr. Stratton in 1901 showed: right eye, media clear, bright reflex from vessels, deep central physiologic cup, and the edges of the nerve hazy; left eye, media clear, nerve-head hyperemic, otherwise same as the right eye. In 1909, muscular insufficiency, both vertical and lateral, refraction findings and vision practically the same as in 1901.

Current History.—The patient was first seen by me in consultation with Dr. R. R. Williams on Dec. 21, 1911. She had for a year been suffering from gradually increasing disability and discomfort in the form of weakness and lightning pains in the extremities, in addition to her long-standing gastro-intestinal trouble. She had also been experiencing, with increasing frequency, severe gastric crises, comprising pain, nausea and vomiting. A constricting girdle pain was described by the patient herself as severe about the level of the ensiform cartilage. There was a frequent and copious eructation of gas and considerable blood was passed at times from the bowel. During the last weeks an increasing and finally a very marked pigmentation of the skin was noticed until the entire body was dark brown, while over the abdomen especially around the umbilicus there was an area almost black in color. Over the buttocks and the posterior surfaces of the upper arms and of the elbows there was a similar intense pigmentation. There was no emaciation. The patient could stand, but would fall at once when the eyes were closed. She complained bitterly of intense tingling and pain in the extremities, especially in the hands and fingers, and described an aura of this type preceding the gastric crises. During the last ten days of her life large hemorrhagic blotches appeared on the elbows and over the knuckles of both hands. These rapidly changed to hemorrhagic blebs, which soon ruptured leaving extensive ulcerations in their place.

Examination.—The mucous membranes were blanched and extremely anemic, and here and there over the buccal mucous membrane were patches of brown pigmentation. There was no jaundice. Pressure over the sternum and long bones elicited marked tenderness. Both pupils were very small and completely fixed. There was no reaction to light, and a very slight response to distance accommodation. Both patellar reflexes were completely absent as were also the Achilles tendon and the plantar reflexes. Babinski's reflex was not present on either side. The finer acts of accommodation and coordination were all embarrassed and imperfect. While being examined the

patient had several attacks of severe pain, mainly in the lower limbs, undoubtedly lightning pains. There were areas of moderate hyperesthesia, as well as less extensive areas of complete anesthesia scattered over the body. The heart and lungs appeared normal, except for indicating a general debility. The abdominal organs including the liver, spleen, appendix, uterus and adnexa showed no abnormality on palpation. The abdomen was generally sensitive, but presented no localized area of involvement. The urine contained a small quantity of albumin and a few hyaline and hyalogramular casts. The feces contained much blood, mucus and undigested food but no parasites or ova. The blood examination gave hemoglobin, 50 per cent.; red blood-cells, 3,060,000; leukocytes, 8,000. There were considerable poikilocytosis and polychromatophilia and occasional nucleated red cells, mainly normoblasts, were found.

Autopsy.—The body was examined Jan. 8, 1912, the day following the death of the patient. The skin and mucous membranes were found pigmented, as already described; also the large sloughing areas over the elbows and knuckles which had taken the place of the hemorrhagic bullae were still present. In the thorax, the only organ that presented any special abnormality was the heart, which was small, very flabby, with an evident insufficiency of all its valves. Just outside the aortic ring, also around the opening of the right coronary artery and over the surface of the left auricle, were patches of atheromatous deposit. In the wall of the left auricle and in the posterior cusp of the mitral valve were two atheromatous and calcified nodules. The abdominal organs were all intensely anemic and showed the changes characteristic of pernicious anemia. In the kidneys were evident many distended and injected vessels. The adrenals appeared merely anemic. The intestines showed an extensive inflammatory process with considerable erosion of the duodenum. The colon was eroded from the cecum to the anus and in places there were found areas of shallow ulceration. The stomach was dilated, its mucous membrane considerably injected, its muscular wall very thin, but there was no ulceration present. The brain showed no abnormality. The dorsal, lumbar and sacral portions of the spinal cord were removed.

Microscopic Examination.—Dr. William G. Spiller, who very kindly examined the sections for and with me, coincides in the following report on the spinal cord involvement. Sections were examined from various portions below the cervical region, including the dorsal, lumbar and sacral segments. Degenerative changes were found throughout the white columns. These resulted in a dropping out of nerve-fibers leaving numerous holes in place of the fibers which had disappeared. This resulted in the characteristic lace-work appearance which is so beautifully shown in Figure 3. There was very little proliferation of neuroglial tissue. There was approximately a similar and equal involvement of the posterior and lateral columns. The nerve-cells of the anterior horns of the lumbar region were considerably affected. Many were swollen and in many others pronounced chromatolysis had occurred. The degenerative changes were those which are usually seen in the tissues of the spinal cord in pernicious anemia.

The foregoing history and autopsy protocol present especial interest from the standpoint of the possibility of establishing a definite etiology for the clinical symptoms and for the pathologic lesions as found during life and later under the microscope. Unfortunately, the patient was not suspected of developing either pernicious anemia or pseudocombined sclerosis at a stage of the disease at which there may have been present spastic symptoms (at least exaggerated reflexes), and at which she might have suggested the presence of involvement of the lateral columns. The spinal picture from the time it came under my notice was definitely one of posterior column involvement plus, during the last days of life, involvement of the anterior horns with suggestive trophic changes.

Very striking, however, is the clinical indication of a pathologic intestinal process dating back to childhood

and terminating only in the gastric crises which indicated perhaps the final influence of the auto-intoxication on the spinal cord. In a previous clinical communication I called attention to the symptoms of intestinal decomposition and auto-intoxication comprising just such a series of "colds" as that which the patient under consideration presented during her entire lifetime. In view of her entire freedom from involvement of the respiratory apparatus, as evidenced both by the physical examination and by the autopsy findings, there would seem to be little room for doubt that this patient had suffered for many years from a toxemia, metabolic in origin, and that the gastro-intestinal tract had been its manufactory. It seems evident that this toxemia led up to, even if not finally demonstrated as being the direct cause of the pernicious anemia, of the spinal cord degeneration and sclerosis, and of the fatal termination of the case.

Of no slight interest, moreover, is the series of instances in the patient's near and immediate family connection of pathologic clinical pictures which suggested not only a definite relation between the pernicious anemia and combined sclerosis of this case and the father's arteriosclerosis and uremic "stroke," the mother's aortic insufficiency and hepatic cirrhosis, with the renal sclerosis and angina pectoris of one aunt, and the pernicious anemia of another, to say nothing of the death of a third aunt (all three sisters of the mother) in an advanced stage of locomotor ataxia. A brother of the mother died of "mental trouble," the exact nature of which could not be determined. It does not seem at all unfair to consider the possibility, if not the probability, of a hereditary luetic influence running throughout this long series of circulatory and nervous involvements (Fig. 4).

Especially in that type of case in which the picture of locomotor ataxia has been prominent, or in which the mental phase of paresis has been definite and prominent there have been many recent attempts to demonstrate the syphilitic origin of pernicious anemia. As in the case reported by Camp, however, both the negative Wassermann test, the negative findings in the cerebrospinal fluid, and the absence of the Argyll Robertson pupil, in many instances argue against a positive statement in this direction. C. W. Field has recently informed me of four cases of pernicious anemia studied by him of which one furnished a positive Wassermann reaction, and three reacted negatively. He also writes of "seven cases of grave secondary anemia which from their blood-picture resembled pernicious anemia very closely. Two of these gave positive reactions and both patients admitted having contracted the disease some years before. In the five negative cases the patients denied a syphilitic history and showed no signs of syphilis."

A history such as that submitted to-day, together with microscopic findings of the character noted in the sections of the cord now submitted, cannot fail to indicate the strong possibility, and perhaps the probability, of the intestinal origin of not only pernicious anemia, but of the pseudocombined spinal sclerosis. Berger and Tsuchiga⁹ have apparently shown that in pernicious anemia there is in the intestinal mucosa a lipoid ten times more powerful as a hemolysin than the lipoid from the normal mucosa. This has not been shown, however, to have any influence on the spinal cord. The relation

9. Berger and Tsuchiga: Deutsch. Arch. f. klin. Med., 1909, p. 252.

of true tabes dorsalis to syphilis is too well understood to require any comment here. The working of syphilis through the gastro-intestinal tract and its influence on the blood and on the spinal cord through a gastro-intestinal autotoxemia, have not been so thoroughly considered, and this theory is offered not without a certain measure of plausibility in the case under study. It is satisfactory, at least, in meeting the requirements of this individual case, in which from childhood there were present signs of gastro-intestinal disability. The deep pigmentation is interesting from one standpoint only, that of its severe degree. Pigmentation is so common in pernicious anemia that ordinarily it calls for no comment especially in cases that have been treated with arsenic. The hemorrhagic bullæ on the knuckles and elbows and the subsequent open ulcers were unusual, and apparently combined the customary tendency to hemorrhage with distinct trophic change. It would seem as though the case were almost certainly one of pernicious anemia, perhaps due to hereditary lues, and that the somewhat similar cases in two of the patient's maternal aunts were in close relation and to be attributed to the same etiology.

1708 Locust Street

DIFFICULT AND DANGEROUS LABORS

SELECTING THE METHOD OF DELIVERY *

HAROLD A. MILLER, M.D.

PITTSBURGH

We have but recently entered a new era in obstetrics, disregarding the traditions and prejudices of the past according to which the infant was in every case sacrificed whenever in its unaided efforts to be born it in any way conflicted with the maternal well-being.

In the present era we maintain that those who practice obstetrics must keep in mind that the primary purpose of conception is reproduction, and that obstetrics is successful only when we deliver a live, healthy child from an unimpaired mother. The progress has been along surgical lines and the technic of the different procedures has been fairly well outlined, but as yet we have been unable to define distinctly the fields belonging to craniotomy, axis traction, forceps on the floating head, pubiotomy, vaginal cesarean section and abdominal cesarean section.

Regardless of the surgical progress which obstetrics has made, we cannot forget that the most important indication in obstetrics is to interfere only when the mother or child is in danger.

Speaking of craniotomy, I will pass it possibly too briefly and perhaps in a dogmatic way, by stating that it has no place in obstetrics except when the fetus is dead or when the traumatism prior to having been seen by the obstetrician has been so severe that a living child cannot be secured. Under these circumstances the child's welfare is ignored and we consider only the fact that it offers, in the infected cases, a lower maternal mortality. If we add to this the few cases in which deformities exist (hydrocephalic heads, monsters, etc.) it would seem that we have fully covered the field for this procedure.

In defining the fields for high forceps on the floating head, or when the head engages in the superior straight, pubiotomy, vaginal cesarean section and cesarean section,

we must at the beginning consider the personal equation of the operator, his familiarity with the different methods of procedure, and the following factors which at present can only be partially estimated: (1) an absolutely accurate pelvic measurement; (2) an absolutely accurate measurement of the fetal head; (3) an accurate idea of the degree of molding of which the particular head is capable; (4) an accurate estimate of force required; (5) an accurate estimate of the expulsive powers of the mother; (6) an accurate estimate of the possible duration of the expulsive forces.

All of the above factors enter into the progress of a normal labor, and as they vary from normal in degree, so will the progress of labor become complicated by vicious mechanism, extension of the head, prolapse of the cord, injuries of the soft part by tears on account of rapid extraction or sloughing of the parts from prolonged pressure and injuries to the bony pelvis such as separation of the symphysis or traumatic injuries to the sacroiliac joint.

The diagnosis of contracted pelvis is not difficult and the greater the deformity the easier the diagnosis, but in a moderate degree of pelvic contraction it is difficult to recognize or appreciate the degree of malformation and the influence it will have on labor. Even though much progress has been made in estimating the pelvic capacity in the living subject, we must still acknowledge that our present means are defective, as by neither the hand nor the pelvimeter can we accurately measure the pelvis, and the more frequently we are put to the test the more ready we are to acknowledge our shortcomings in this respect, and to admit that at best we get but a general impression of the pelvic capacity. Perhaps I am even safe in saying that without regard to the skill of the obstetrician or the opportunity afforded, we can rarely rely on the accuracy of the measurements within a half centimeter. It is folly to pretend that it is always possible to tell just how the fetal head will fit the maternal bony pelvis, and again we must admit that difficult as it is to measure the pelvis, it is much more difficult to measure the head *in utero* and it is only after considerable experience that we can even tell if the head is large or small, and prior to the test of labor, the amount of molding possible is a matter of pure speculation.

It is a matter of great importance to separate those patients on whom cesarean section should be done from those patients on whom we can expect a safe delivery through the birth canal. This distinction is readily made in the absolute indication or cases in which the true conjugate is 7.5 cm. or below, but in cases in which the conjugate is between 8 and 10 cm., our knowledge of the subject is not developed to such an extent that doubtful or transitional cases will not remain. Probably our best method of getting this information is the bimanual method of grasping the fetal head in the paw-like grip while the other hand is introduced into the vagina to feel all around the head and see how it is engaging, noting whether or not it overrides the symphysis pubis and, if so, to what degree. After examination, if all of these factors have proved satisfactory, we have reason to believe that with normal expulsive power on the part of the mother and an average duration of labor, we can ultimately expect a successful outcome. It is, however, this estimate of the relative size that should form the basis of treatment.

It is important that we lay stress on the normal expulsive powers and remember that labor is a test of the muscular power of the patient in combination with her ability to endure pain without severe exhaustion.

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

Reynolds has so clearly pointed out that pregnancy precedes labor and that pregnancy itself has applied the primary test to all the organs concerned in labor, that is, muscles, heart, nervous system and organs of elimination, that a careful observation of our patient beforehand should largely separate the two principal classes, the first class being a woman who is physically unfit for the strain of pregnancy and labor. This class is usually, but not necessarily, among the well-to-do—those who are carefully guarded from infancy against all suffering or even muscular exertion and are intolerant of delay, irritable and possibly present a history of previous nervous exhaustion. On the other hand, we encounter individuals who in a general way look very much as these patients may look, but they are thin, strong, wiry individuals and capable of a surprising endurance.

In the two types of cases the relatively different condition will necessitate diametrically opposite procedures for delivery. The patient of the first type becomes readily exhausted, intolerant of pain; labor pains soon become more or less continuous, the patient refusing to use them to the best advantage, ultimately necessitating a cesarean section to produce a satisfactory result, even in slight degrees of pelvic contraction. The patient of the second type tolerates the pains well, using them judiciously, and conserves her energy in every possible way, with that endurance and determination which will force through the pelvis many a head that would otherwise stay above the superior strait. These types of women offer a very marked contrast. The latter uses judiciously every possible ounce of force in her body, while the former, becoming intolerant of her pain, irritable and restless, soon develops a marked lack of muscular tone and a power quite insufficient to expel an average-sized child through a normal pelvis. After labor lasting sufficiently long to terminate the first stage, the pains become inefficient and labor makes no progress at all. It is in this position that we frequently find ourselves and we must then determine which procedure will give us the best result; we must select between high-forceps operation, if the os is dilated, on either the floating head or a head that is engaged in the superior strait, version, cesarean section or pubiotomy.

I am firmly convinced that the infantile mortality of high-forceps operation will improve but slightly, as it necessarily ignores either the maternal pelvis or the child's head in the method of application. That is, we must select between a cephalic application or a pelvic application of the forceps, accepting the usual maternal morbidity and mortality with its appalling infantile mortality, while as an alternative we may do a cesarean section, pubiotomy or version.

Considering the expulsive power of the mother, you must take into consideration the general muscular tone of the patient and the ability of the heart and the vital organs to stand the test of strength applied during her pregnancy. This probably is best done by having the patient regularly and systematically take exercise, increasing this up to a reasonable degree, remembering, however, that muscular tone is not brought about in a day or even in the length of time which our patients are ordinarily under observation, and that a uterus that has not functionated until well along in the child-bearing period of the mother cannot and will not develop the strength that we would expect in a younger patient. In other words, in an elderly primipara we have to deal with a senile uterus, the energy of which is greatly reduced by the age of the patient, and in this class the uterus soon shows signs of exhaustion; and even in cases in

which we have to deal with a child of average size and a pelvis of normal measurements, we may find ourselves with an exhausted patient, an undilated os and an unengaged head, necessitating the election of some surgical method of delivery.

Kerr has shown by an analysis of fifty-three cases in the Glasgow Maternity Hospital, in which the conjugate was between 8.1 cm. and 9.1 cm., that all were capable of spontaneous delivery with two fetal deaths, one due to prolapse of the cord and one death the second day, the cause of which is not given. This corresponds with my own experience in having two patients who spontaneously delivered themselves with a conjugate vera of 7.5 cm. with a flat type of pelvis. The weight of the children was 2,600 gm. and 3,080 gm. Both patients were young, in the working class, tolerant of pain, and stood the second stage of labor lasting about nine hours with but little complaint. In these cases but two vaginal examinations were made, as we aimed to give them the test of labor without also testing the number of virulent bacteria which could be introduced into the birth canal and the patient live. We had anticipated a cesarean section, but remembering the words of Barbour, "The fetal head is the best pelvimeter," our hesitation to interfere until the maternal or fetal conditions demanded it saved the patient what would have been an unnecessary operation. If, however, either of these two patients had presented in the superior strait in the occipital posterior position, flexion either more or less than was required for engagement, the size of the head greater than was anticipated, or molding less than was required, a cesarean section could and would have been done as soon as it was determined that the head could not be made to engage in the superior strait and without any increased danger to the mother.

On the other hand, with a perfectly normal pelvis, at times our best results will be secured by cesarean section.

CASE 1.—In case of Mrs. S., aged 38, water ruptured Sunday evening; there was slight pain one hour afterward, which continued Sunday night, Monday night and Tuesday and final examination on Tuesday at 10 p. m.; maternal temperature 100.2, pulse 110. Patient's condition was somewhat exhausted; there was continuous pain; it was not possible to determine Bandall's contraction ring on account of the thick, fat abdominal wall, the child's head floating free above the superior strait, cervix thin, absorbed and dilated about 5 cm. The patient was told a high forceps or version would cause an infantile mortality of about 15 per cent., some laceration of the cervix and perineum. A cesarean section would surely be a success as far as the infant was concerned and would be subjecting the mother to a danger of about 4 per cent. (which is greater than I believe the mortality will be). She elected a cesarean section and made an uneventful recovery with the exception of some bladder irritation which responded promptly to two irrigations, leaving one ounce of 10 per cent. solution of argyrol in the bladder to be voided with the next urination. In conducting the delivery but four vaginal examinations were made and the patient was as free from danger of infection, or nearly so, as if a primary cesarean section had been done, and certainly no one would have been justified in doing a primary cesarean section in this case unless it was that obstetrician's practice to do so in all elderly primiparae with early rupture of the membrane and senile uterus—the class to which this patient belonged.

It would seem that no harm is done patients in borderline cases (C. V. about 8 to 10 cm.) to decide by allowing them to be in labor a moderate length of time, or to be more definite, about the average time for the completion of the first stage of labor.

Routh collected 1,282 cases of cesarean sections which he divides into classes, A, B, C and D. Classes C and

D will not be considered here as they represent his infected cases. Class A, designated as not in labor, contains 245 cases with nine deaths, or 3.6 per cent. maternal mortality; Class B, in labor, membranes intact, 224 cases, five deaths, mortality 2.2 per cent.

In the relatively few cases in which the degree of error has allowed the head to become firmly impacted in the pelvis and it requires but a very slight degree of enlargement to permit of its safe expulsion, a pubiotomy can be resorted to.

CASE 2.—As a case in point, Mrs. H. entered the hospital Nov. 7, 1908, a catheter was introduced into the uterus to induce labor. She was advised by friends to leave the hospital and did so a few hours later (during my absence). On November 30, I was telephoned to that she had been in labor forty-eight hours and was willing to return to the hospital where I saw her a few hours later, finding the head well molded, flexed and firmly impacted in the superior strait of the pelvis. A pubiotomy was done and the patient delivered of a healthy, living child. About two years later she was again delivered by the induction of labor at the thirty-sixth week.

It is unnecessary to detail some nineteen cases of this kind but suffice to say that I have had no mortality and no morbidity except one case in which secondary repair work was done. In the eight cases I have been able to follow, all of the patients are able and most of them do such work as is necessary in the average life of women. (Five cases were shown at a clinical meeting of the American Gynecological Club.)

In outlining the field for pubiotomy, I should think it of greatest importance to select only those cases in which but a slight increase of the conjugata vera will permit the passage of a living child, and it is of special importance that sufficient trained assistance be at hand to prevent more than about 3 cm. separation of the pubic bones. It will never be a popular operation, will always have some morbidity, increasing in degree with the disproportion which exists, but in its limited field has a place in obstetrics.

Unfortunately, it is still the custom among some who practice obstetrics to apply forceps as soon as labor does not progress as fast as they feel it necessary, or they yield to the importunities of the husband and friends and apply forceps simply because the child has not been born, without any knowledge of the relative size of the pelvis and its passenger. It is frequently my experience to meet an anxious husband in the hall of the hospital and on inquiry as to the necessity of bringing his wife to the hospital I am told that one or two, and on one occasion, three physicians had tried to deliver with forceps and are now all tired out, finally suggesting moving the patient to the hospital in order that a fresh man could apply the necessary traction. In these cases it is usually not great strength that is needed, but an understanding of the fundamental principles of obstetrics. The cervix, closed or open, is not the rock on which the decision must be made, but the real question is, "Can the head descend into the superior strait and is it now engaged or can it be made to do so?"

It is in this class that we are called on to correlate the facts secured by our instruments of precision and the ear and finger, and above all, our estimate of the patient's reserved strength and the vitality of the child. Frequently our arch-enemy (meddlesome interference) has burned the bridges behind us and we must proceed by the vaginal route.

SUMMARY

1. The normal progress of labor should be interfered with only when mother or child seems to be in danger.

2. Judgment of each individual case should be carefully formed, applying all the known methods for measuring the pelvis, the size of the child's head, and placing special importance on the possibility of engagement or non-engagement as the result of pressing on the uterus and using the finger in the vagina, and the paw-like grip over the child's head.

3. Due consideration should be given to the fact that a competent obstetrician has previously had difficulty and has secured a dead child from high application of forceps.

4. As labor progresses, the border-line cases must be so conducted and at such a place as to permit of a cesarean section in preference to an application of high forceps, in case progress is not satisfactory and there seems to be a reason for hastening delivery.

5. These cases should be conducted largely by abdominal palpation, judging of the descent by this method in preference to frequent and many times unnecessary vaginal examinations.

6. In the absolute indications for cesarean sections, they should be preferably done as soon as the patient fairly enters labor, accepting as evidence of the opening of the os some slight vaginal discharge or, if necessary, one examination. In the relative indications for cesarean section they should be done prior to the time that the patient shows an unusual degree of exhaustion and preferably prior to the rupture of the membrane.

7. In elderly primiparæ the possibility of a senile uterus must frequently be the determining factor between spontaneous delivery, high forceps and cesarean section.

8. High forceps should be applied only in cases in which the surroundings of the patient do not justify an abdominal cesarean. The physician must be prepared to accept an infantile mortality in excess of 15 per cent., with a maternal mortality equal to elective cesarean section, plus a not inconsiderable morbidity.

9. Pubiotomies should be done only when sufficient assistance is at hand to prevent undue separation of the pelvic bones and in cases in which a very slight increase of the conjugata vera is known to be sufficient to permit the passage of a living fetus.

10. It should always be kept in mind that craniotomy has no place in obstetrics on a living child, and the physician should avoid putting himself in the position of having to sacrifice one life to save the other when both should have been saved.

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CESAREAN SECTION *

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The history of cesarean section is exceptionally interesting. But what concerns us most is this fact, that from a last-resort procedure of the utmost danger, it has evolved into one of the safest abdominal operations in the hands of the experienced abdominal surgeon.

Statistics show a fairly high mortality rate, but if these are analyzed, it will be seen that nearly all fatalities occur in patients exhausted or septic from prolonged obstetric abuse, or that death is due to the complication for which the operation is performed. For instance, in case of dystocia due to obstruction of the birth-canal, in which no other method of delivery has been attempted and there has been an early resort to operation, the

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

mortality is practically *nil*. That the operation in itself is simple and harmless is the point that should be borne in mind in its application for the relief of such conditions as placenta prævia or eclampsia.

The general technic is that of other abdominal operations. The best hospital facilities are not too good. A skilled assistant is more than usually essential. The abdomen is prepared in the conventional manner for laparotomy. The incision is made from just below the umbilicus, downward. It is usually of sufficient length, though it may sometimes be found expedient to enlarge it slightly upward, to the left of the umbilicus. A soft towel, warm and moist, is placed above the fundus for the protection of the intestines. An assistant, with a hand on either side of the abdomen, rotates the uterus and exerts moderate pressure downward and forward, bringing the anterior wall close to the abdominal incision. If clear of the placental attachment, the anterior wall of the uterus is incised in the median line from a point about an inch above the vesical attachment, upward, to a sufficient distance for delivery. Incision below the umbilicus offers better facilities for removal of the uterus in case it is deemed necessary, and I have observed that the low uterine incision, apparently, does not come in contact with the parietal peritonæum.

The membranes are ruptured and the child delivered as quickly as possible. The cord is clamped and cut. In the meantime, the assistant is exerting still firmer pressure and the placenta is usually presenting at the incision, ready to be removed. This is accomplished promptly and the uterus is forced through the abdominal wound. Hemorrhage may be controlled by having an assistant make pressure on the broad ligament, though it is usually unnecessary. The uterus is grasped at either angle of the wound and pressure exerted in such manner as to control hemorrhage and evert the edges, thus facilitating the introduction of the stitches. At this point, the soiled linens are supplanted by fresh field cloths.

Sutures may be of linen or catgut. I prefer linen and place them as accurately as possible at intervals of half an inch. They are introduced close to the edge of the wound, include peritonæum and muscle down to the endometrium and are securely tied and cut close. In some parts of the wound it may be found necessary to coapt the edges with additional sutures of fine catgut. The abdomen is closed as in the case of any other section.

I do not ligate the tubes or resort to any other expedient in order to prevent future pregnancy. I consider, if it is so deadly wrong to render a woman sterile for an ulterior motive, that I must be sure of my justification to do so in any event, and am glad to let my responsibility end when I have relieved the condition at hand, and console myself with the reflection that repeated cesarean section is not such a terrible catastrophe after all.

After-treatment is about the same as that of other abdominal operations. I have not found it necessary to administer ergot in my cases. The patient may nurse her baby as soon as she feels able to do so, usually within the first twenty-four hours.

In a general way, cesarean section may be said to be indicated in all cases of maternal or fetal dystocia, in which other methods of delivery are extra hazardous to either mother or child. The indication is absolute, if by other methods delivery can be accomplished only by the sacrifice of the intra-uterine life.

It is not my purpose to discuss the ethical question of our justification in destroying the life of the child in

the interests of the mother. The end is supposed to justify the means. The same humane reasoning has brought forward those who advocate the hastening of the inevitable in the case of the suffering incurable, but the moral doubt and the knowledge of the fallacy of prognosis has limited the number of adherents to this plan of relieving distressed humanity.

The therapeutic abortion is sanctioned by law and the medical profession generally; but there is a wide range of opinion as to the indications for its use.

Unquestionably, the lives of many women have been preserved; it is probable also that some have died by the very methods intended to save them; undoubtedly many children have been sacrificed needlessly. It is presumptuous of us to speculate on the relative value of these lives.

To terminate the intra-uterine life is then, to say the least, a matter to be approached with the gravest sense of responsibility instead of the cheerfully lax manner that too frequently prevails.

About three years ago, a patient was referred to me by her family physician for the purpose of emptying the uterus three months gravid. The woman had a contracted pelvis and the operation was considered justifiable by all concerned except myself. The patient finally accepted the risk of cesarean section. I later called an obstetrician in consultation who induced labor in the thirty-fourth week. She has two living children, each delivered at the same period of gestation.

Some months ago a physician of good repute had admitted to a perfectly reputable hospital a woman six months pregnant, and proceeded with all gravity, and no attempt at secrecy, to induce labor. I learned that the only indications for emptying the uterus were that the woman was so determined to rid herself of her pregnancy that she threatened, unless relieved, to commit suicide and that her husband was put to the inconvenience of hiding his razor and other implements of destruction.

A recent article on cesarean section reports a series of operations with brilliant results to both mother and child, in which the patient was permitted to decide the choice of treatment as between an early termination of the pregnancy and cesarean section.

We all know many instances of prospective mothers unwilling to undergo the inconvenience incident to pregnancy, unwilling to risk the danger of possible eclampsia, of possible placenta prævia, and so forth. They consult the criminal abortionist who, if he cared for justification, could find it in the acts of reputable men who hold the life of the unborn child so cheap.

The best way to discourage infanticide is to make it seem a greater crime.

The indications for cesarean section, quoting Amand Routh, are:

A. Obstruction to labor: (1) pelvic contraction; (2) fibromyomas; (3) cancer, cervix or vagina; (4) ovarian tumors; (5) other pelvic tumors; (6) stenosis, cervix or vagina; (7) miscellaneous: previous ventrifixation, tonic contraction of uterus, hour-glass contraction, prolonged gestation.

B. Uterine hemorrhage: (1) concealed accidental; (2) placenta prævia.

C. Constitutional crises: (1) eclampsia; (2) miscellaneous, chorea, advanced heart disease, obesity and anasarca, myasthenia gravis.

Time will not permit the consideration of them all.

Routh gives a conjugata vera diameter of less than 8.1 cm. as the indication for the cesarean operation in contracted pelvis.

It should be the object of the obstetrician or physician in charge to make his diagnosis and arrive at an early decision as to future treatment. In reaching his conclusions, he may bear in mind that the mortality of cesarean section is about the same as that attending the use of high forceps and that the risk of the operation increases proportionately to the severity of previous manipulations.

Without regard to pelvic measurements, it is of the greatest importance to determine the relative size of the child to the canal through which it passes. Two of my fatal cases occurred in women with normal pelvis. In one, the dystocia was due to a large child weighing 13½ pounds, in the other to a large unyielding fetal head. In these instances, the fact that the pelvis was normal and that each had previous normal deliveries encouraged the physician in charge to renewed efforts to deliver by the natural route.

In spite of the fact that craniotomy offers little, if any, greater safety to the mother, it is, I regret to say, sometimes the operation of choice. Can any justifica-

Placenta prævia is still an obstetric problem of great importance. The mortality, according to McPherson, is from 11 to 18 per cent. in hospital practice, while the fetal mortality is 40 to 57.3 per cent. To improve the mortality rate, both maternal and fetal, is an end devoutly to be wished for. The dangers are hemorrhage and sepsis. The indications of treatment are to prevent or check hemorrhage and to empty the uterus.

From a surgical point of view the quickest, surest and cleanest method of procedure would be cesarean section. It is instructive that cases are reported in which vaginal methods were attended with such trauma and hemorrhage that hysterectomy had to be performed as a last resort, and still the patient survived. McPherson, in the article quoted above, places the maternal mortality in cases of placenta prævia in which cesarean section has been performed as less than 4 per cent.

I believe that it is conservative to state that the operation is indicated in this condition in all cases of central placenta prævia, and in all cases of the partial variety with living child at or near term, provided that

TABLE 1.—PATIENTS OPERATED ON AT PERIOD OF ELECTION

No.	Date	Indication	Result Mother*	Result Child†	Remarks
1	6/21/06	Rachitic dwarf	+	+	Successful cesarean operation eight years previous.
2	11/16/06	Carcinoma of cervix.....	+	+	Cervix amputated by cautery in sixth month of pregnancy.
3	4/3/07	Fibroid obstructing birth-canal.....	+	+	Suprapubic hysterectomy.
4	12/2/07	Fibroid obstructing birth-canal.....	+	+	Suprapubic hysterectomy.
5	1/12/08	Ventrifixation of uterus.....	+	+	Transverse position.
6	10/3/10	Fibroid obstructing birth-canal.....	+	+	
7	11/15/10	Rachitic dwarf	+	+	Suprapubic hysterectomy.

TABLE 2.—MISCELLANEOUS

No.	Date	Indication	Result Mother*	Result Child†	Remarks
1	10/7/03	Excessive fetal development.....	—	—	Cause of death, shock.
2	4/4/09	Large non-molding fetal head.....	—	—	Cause of death, streptococcus infection.
3	11/11/09	Impacted face presentation.....	+	+	
4	1/23/10	Excessive fetal development; rupture of uterus.	—	+	Cause of death, nephritis.
5	2/3/10	Impacted face presentation.....	+	—	
6	11/16/10	Eclampsia	—	—	At end of seventh month.
7	12/21/10	Eclampsia	+	—	Ninth month of pregnancy.
8	4/9/12	Giant fetus; transverse position.....	—	—	Cause of death, septic peritonitis.

* In this column + stands for recovery; —, for death.
† In this column + stands for live birth; —, for dead birth.

tion whatever be offered? It is more frequently the operation of choice in those cases in which prolonged attempts at delivery have rendered the patient a hazardous risk for laparotomy.

It is here that we may ask ourselves, what percentage of risk to the mother justifies the physician in administering certain death to the child? Is it 5 or 10 or 20 or 50 or 90 per cent.? Shall each physician be a law unto himself? Shall he be influenced in his decision by the patient or by her friends?

It would simplify matters greatly, and stimulate us to greater endeavor to save both lives if we could bring ourselves to believe that we have no right to take one life in order to avoid a percentage of risk to another. Is it not clearly the duty of the physician to choose some method by which the lives of both may be preserved? It is especially the physician's duty so to do, in the light of our present knowledge. It must be remembered that the patient is a hazardous risk for any operative interference and it is doubtful if craniotomy is less dangerous than is some form of the cesarean operation. Suprapubic hysterectomy in some cases; the Porro or suprasymphyeal section in others.

adequate surgical skill is available and the patient is in such condition as to be a fair operative risk.

In eclampsia, cesarean section is a therapeutic agent of value. It empties the uterus quickly; it lowers blood-pressure by the attendant loss of blood; it adds to the safety of the child; it does away with the trauma and other dangers incident to forcible dilatation of the cervix. It is indicated in primiparæ with rigid undilated cervix or any condition in which other methods would cause delay or unusual trauma to mother and child. I have had occasion to operate twice in this condition.

In one instance the patient, a primipara in the eighth month of pregnancy, was admitted to the hospital unconscious. She had had four convulsions. Temperature was 103, pulse 130, respiration 26; the small quantity of urine that I was able to obtain by catheterization was solid albumin. Blood-pressure was 210; cesarean section was performed at once. Blood-pressure taken immediately after patient was returned to her room was 160. Both mother and child left the hospital in good condition.

In the other case the patient was unconscious when she entered the hospital. She had one convulsion after being

admitted. She was seven months pregnant. She had no convulsions following the operation and became perfectly conscious within twenty-four hours; the urine increased in amount and it was thought she would recover. She developed pneumonia and died on the fifth day.

In reporting my operations, I have divided them into two classes: (1) operators at period of election; (2) miscellaneous.

In the first class there are seven cases without maternal or fetal mortality. The indication for operation was, in two cases, contracted pelvis of the rachitic dwarf, in three cases fibroid obstructing birth-canal, in one case transverse position in patient with ventrifixation of uterine, in one case, carcinoma of cervix. In the latter, carcinoma was diagnosed in the sixth month of gestation. At that time, the cervix was amputated by cautery. Pregnancy was uninterrupted and cesarean with complete extirpation of the uterus was performed at about the thirty-sixth week. Unfortunately, the baby died before leaving the hospital. But it is gratifying that the mother, after six years, has had no recurrence of malignant disease.

Cases 1, 2, 6 and 7 in the miscellaneous table have been referred to in the body of the paper. Cases 3 and 5, impacted face presentation. The patients were in labor for a considerable period of time, but I had every reason to believe that they were not infected. Both mothers recovered. One child was still-born.

Case 4 was one of rupture of uterus. Patient had been long in labor, and after prolonged use of forceps under anesthesia was in profound collapse when admitted to hospital. I administered normal saline solution intravenously in both arms and performed hysterectomy. The patient rallied nicely from shock but died of nephritis.

In Case 8 I was called to see the patient when she had been some time in labor. The arm protruded from cervix. An attempt at version had been made. After examination, that method of delivery seemed to me impossible. The abdomen was very large and completely overhung the vulva, patient reclining. The lower abdomen and external genitals were exceedingly edematous. The legs and feet greatly swollen and hard. A catheterized specimen of urine showed large amount of albumin. I considered the case practically hopeless. The abdomen was opened. The fetus was so tightly wedged in the transverse position that I was unable to correct the marked dextrotorsion until after the uterus was emptied. In an attempt to make the operation extraperitoneal, I attached the parietal peritoneum to the uterus, surrounding the proposed line of incision on all sides. A giant fetus was delivered, weighing thirteen pounds. The uterine and abdominal wounds were only partially closed and were drained with iodoform gauze. The patient did very well for several days. The albumin almost completely disappeared and the quantity of urine in twenty-four hours reached as high as 70 ounces. The patient died of septic peritonitis on the tenth day after operation. I feel sure that this patient would have recovered if she had been removed to the hospital and hysterectomy performed. As I have said, the best hospital facilities are not too good and I am convinced that a patient must be ill indeed, if we are not well repaid for the slight delay occasioned by her removal to a proper environment.

In conclusion, I would repeat that it should be the object of the obstetrician or physician in charge to make his diagnosis and arrive at an early decision as to future treatment, bearing in mind that the risk of the operation increases proportionately to the severity of previous manipulations. That the operation in itself is simple and harmless is the point that should be remembered in its application for the relief of such conditions as placenta prævia or eclampsia. The field of usefulness of cesarean section is enlarging; therefore,

it is important that none of the stigma of high mortality, which attends the procedure in complicated cases, should attach to the operation done at a period of election. Hence, the above classification.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. MILLER AND STILLWAGEN

Dr. R. C. NORRIS, Philadelphia: I take it that nothing has been produced from modern obstetric procedures which is on such secure foundation as that when there are serious obstacles to labor the elective cesarean section is the operation of choice. We have been accepting the measurement of 7.5 cm. for the conjugate as the absolute indication for cesarean section, and some of those skilled in both abdominal and obstetric work are beginning to widen this indication to 8 cm. I know of no problem in obstetrics more difficult of solution. When we realize that 80 per cent. of patients with conjugates above 7.5 cm. are delivered spontaneously and that only 5 per cent. will require major obstetric procedures, we can understand that we cannot without a test of labor select elective cesarean section without some anxiety as to its real necessity. I am still old-fashioned enough to believe that with relative disproportion, with a conjugate between 9 and 10 cm., the induction of premature labor two or three weeks before term has a distinct field of usefulness. I should not think I did my duty to my clientele unless I employed this. When we say patients must have a test of labor it must be a *test* of labor. This means perhaps two hours of hard bearing-down pain. Anything short of this is not a test of labor. Considered from the standpoint of statistics, we know a real test of labor increases the dangers of cesarean section and of pubiotomy. It has been my experience that as the mechanism of labor goes on lateral flexion of the head increases and the sagittal suture will be brought nearer to the sacral promontory. If this is ever less than 1 inch forceps is always to be abandoned as a means of treatment. The crux of the matter is: Shall we do in these cases, which have been subjected to a test of labor, pubiotomy or cesarean section? Either operation on an exhausted patient is a bad surgical procedure. If we are prepared to believe that the mortality of cesarean section on exhausted patients is from 5 to 10 per cent., and that the mortality of pubiotomy in similar cases is less than one-half as great, with, however, a much greater mortality rate for the child, we shall be obliged to elect pubiotomy. I do not agree with Dr. Miller that 3 cm. is the maximum separation of the severed bones that should be permitted. In my cases it has been 5 or 6 cm., with no resulting harm to the bladder attachments or the sacro-iliac joints.

With the dangers of extensive laceration of the soft parts, pubiotomy means more than the skill of the abdominal surgeon. It means the additional skill of the obstetrician. I believe pubiotomy is justifiable after a prolonged test of labor carefully managed to guard against infection and exhaustion.

Dr. E. E. MONTGOMERY, Philadelphia: In 1883 before the Philadelphia County Medical Society I read a paper in which I asked, "Is craniotomy on the living child justifiable?" and took the ground that it was not. The progress from that time to this has been very great. We no longer find, as was then shown by the investigation of Harris, that the woman delivered with the horn of a cow was attended with less mortality than the woman subjected to cesarean section by the surgeon. Cesarean section for placenta prævia was not even considered at the time of which I speak for the treatment of such cases. It has been shown by Pankow that in twenty-three cases in which cesarean section was done in which the placenta was attached between the body and the cervix there was no mortality, while under the ordinary treatment eight out of forty-nine terminated otherwise. Selected cases of eclampsia offer another field of usefulness for cesarean section. Blood-pressure and tension must be estimated, and the operation for best results must be resorted to prior to the occurrence of convulsions. In many of these cases vaginal cesarean section may be the method of choice, but if the pelvis is slightly contracted, if the woman comes to her first labor threatened with eclampsia,

with high arterial tension, the chances against both mother and child will be greatly reduced by the employment of cesarean section. That this operation under later methods of treatment and in proper cases is not such a grave procedure is shown by the work of such men as Boyd, who records twenty-seven cesarean sections with no maternal mortality and only one fetal death, and that not attributable to the operation. Cases are on record in which the operation has been performed on one woman five times with five living children and with four living children in another. The subject is one of importance, and if the investigator is careful to select his cases and to operate promptly, there is no question but that the mortality of mother and child will be greatly reduced.

DR. ROSS MCPHERSON, New York: We encounter in some cases a conjugate even longer than normal with much lateral contraction, and we must remember that cesarean section is at times indicated where the conjugate is longer than normal. When I read a paper on cesarean section before this Section some years ago, reporting 186 cases from the New York Lying-In Hospital, I gave as two of the indications, placenta prævia in certain cases, and eclampsia, and I almost caused a riot. I am glad that some of the other men feel the same way about it now. I have had eight cases of cesarean section in placenta prævia with no deaths of the mothers and two deaths of children, the one dying on the third day, the other one being still-born.

DR. E. G. ZINKE, Cincinnati: Since the completion of the doctrine of narrow pelvis and the new therapy thereof, the practice of obstetrics has virtually been revolutionized. But it will take a long time before the profession generally will be familiar with all the details of the new management of cases of narrow pelvis. I have advocated cesarean section for certain cases of placenta prævia for the last eleven years. But the pendulum has now swung too far to the other side. I do not endorse cesarean section for every case of placenta prævia. There are cases of placenta prævia which can be treated with perfect safety by other methods. Cesarean section for eclampsia should be considered only after other intelligent medical treatment has failed, and before the patient's vitality has been reduced. Veratrum viride, if properly administered, will stop the convulsions in the majority of cases. This all means that the practitioner who undertakes to deliver women should know obstetrics; that he should study his cases before the time of birth and determine, prior to the event of labor, whether the patient before him can be safely delivered at home or whether the hospital is to be preferred. There lies the crux of it all. It is a mistake to send patients to the hospital after they have been infected or injured by the introduction of the hand or the use of the forceps.

DR. HENRY SCHWARZ, St. Louis: None of the speakers has mentioned a very important means for finding out whether or not in a given case of first pregnancy the pelvis is sufficiently roomy for the passage of the fetus, independent of careful pelvimetry, which, of course, must be practiced in every case. It is well known that toward the end of a first pregnancy the presenting part descends into the pelvis, so that vaginal examination of primiparæ, when made about a week before term, reveals in over 90 per cent. of all cases the presence of the fetal head well down in the pelvis, and in these cases there will be no trouble so far as the pelvis is concerned, no matter what the pelvic measurements may be. On the other hand, whenever in a primipara the presenting part has failed to descend into the pelvis a week before term, there is likely to be trouble, even if the pelvic measurements are satisfactory; in such cases an exact antepartum diagnosis should be made, if necessary, with the aid of an anesthetic. Placenta prævia never forms a justifiable indication for cesarean section. Most cases of placenta prævia are handled by the general practitioner; he sees them away from medical centers and at all hours of the day and night. It would be discouraging to the practitioner if we were to make him feel that his cases of placenta prævia would be better off in the hands of the specialist in a hospital, where they could be delivered by cesarean section, instead of teaching him how to handle his cases safely and successfully with the means at his command. My pupils are trained to handle their cases of placenta prævia in out-of-

the-way places by the same means which they see employed in our clinics, and we do not have a mortality of 4 per cent. in our cases.

DR. T. M. BURNS, Denver: In my paper last year criticism was made of my advocacy of cesarean section for eclampsia. I have done seven cesarean sections for eclampsia and have saved all the mothers and babies. I want to prophesy that in the future when we do cesarean section we will examine the appendix and the gall-bladder and operate on them also if necessary.

DR. C. S. BACON, Chicago: The examination in these cases must show us not only the size of the pelvis, but the shape; not only the length of the conjugate, but whether we have a normally shaped pelvis and whether the first and second vertebræ project so as to make a long inlet instead of a short inlet. It is interesting to note that the relative indication is gradually rising. Formerly it was 5.5 cm., then 6, then 7, and now it is 8. Seven cm. I believe is a limit that can well be adopted. The probability of spontaneous labor differs very much in these cases. I do not believe the probability is as great as given by Dr. Norris. We find from statistics that the possibility of spontaneous labor when the vera conjugata is from 9 to 10 cm. is 70 per cent; when from 8 to 9 cm., 40 per cent.; when from 7 to 8 cm., 10 per cent. The chances for spontaneous labor, then, can be taken in the two upper classes, but in the lower with considerable risk. The main question is, in all these cases, if we give up the thought of spontaneous labor, whether induction of labor is possible. It is not desirable in the lower groups. In case labor has begun and the patient is possibly infected, shall we choose cesarean section or hebosteotomy? I have no hesitation in agreeing with Dr. Norris that hebosteotomy is the safer of the two.

DR. M. M. LUCID, Cortland, N. Y.: In the presence of modern science, it would not be a sane conclusion that the self-appointed power of the physician is justifiable. To no physician, either legally or morally, is such a power granted. It is perfectly sane, however, to make the statement that in view of the advantages of modern surgery, a cesarean section offers the best possible chance of life for both mother and child. I offer the report of one case in which both mother and child are alive and well at the eighth month. I want to emphasize a point in my technic; that after making the incision in the abdomen and in the uterus, the sac should not be immediately opened, but that the hand should be passed around the sac, freeing the placenta, and the sac, child and placenta delivered simultaneously from the abdomen and the sac then opened immediately for resuscitation of the child.

DR. W. M. SPRIGG, Washington, D. C.: I want to report fifteen cases of consecutive cesarean section for dystocia, pelvic deformity, without a death and with only one death of the fetus and that due to the anesthetic. I do want to call attention to one point in the technic not mentioned and which in my hands has proved very satisfactory. That is the use of a rubber dam about 18 inches square with a small hole cut in it in the operation with partial delivery of the uterus. With the dam over the uterus separating it from the abdominal cavity, one can do the entire operation without having a particle of blood in the abdominal cavity.

DR. E. G. ZINKE, Cincinnati: It is very desirable to counteract the present infatuation to perform cesarean section in every case of eclampsia. The cases cited are not proof of the value of cesarean section in the treatment of puerperal convulsions. When I was a mere tyro in the practice of obstetrics I saw nine eclamptic patients recover without operative intervention. Both mother and child lived in every case. There are many among us who can report similar results.

DR. HAROLD A. MILLER, Pittsburgh: While it is a matter of great importance to secure all possible information regarding the size and shape of the pelvis, still, in borderline cases, other things, such as the size of the child, position, presentation, amount of molding and effectiveness of pains, may be the determining elements in electing a cesarean in preference to high forceps. I agree with Dr. Norris that pubiotomy has a field which is limited to those cases in which a very small amount of increase will permit of delivering a living child.

The expression should go out from this body that we should never be content with pulling a dead child out of a mother, but that we must give to that mother the benefit she is entitled to expect. What we want to do is to handle these cases largely by the result of abdominal palpation by which we determine whether the head is still floating above the superior strait. If a major operation is to be done the patient should be sent to the proper place for its performance. Do not touch the patient and kill the child and then refer the patient to some place after infection. We should never forget that the best pelvic measurement is the fetal head. The only thing we are interested in is whether or not that fetal head can pass through the birth-canal. For that reason it is best if possible to give all women the test of labor. I refer to a test that would compare to the average first stage of labor, not to a certain amount of dilatation of the os. If the head at that time has made no progress I would say that the case had better be treated by cesarean section.

DR. C. A. STILLWAGEN, Pittsburgh: In regard to Dr. Sprigg's suggestion concerning the use of the rubber dam, I may say that it is the custom of most operators not to deliver the uterus from the abdominal cavity. If, however, the operator chooses to bring the uterus out through the abdominal incision the use of the rubber dam is an excellent procedure.

INDUSTRIAL LEAD-POISONING IN THE LIGHT OF RECENT STUDIES

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Industrial lead-poisoning is a disease with which the ordinary practitioner has little familiarity. Occasionally, a case may come to him and be recognized as such, provided the occupation of the patient is one in which the danger of plumbism is notorious or there are unmistakable symptoms, such as a well-developed radial palsy.

Yet we know that plumbism is a disease fairly common in industrial centers in other countries, and that it not only causes permanent disability or death, but also decidedly influences the course of other diseases. Its importance, then, is undeniable, and the reason why it has escaped careful study in our country is hard to find.

PREVALENCE OF INDUSTRIAL PLUMBISM IN THE UNITED STATES

It is commonly supposed that the amount of lead-poisoning in the United States is negligible as compared with that found in the older countries, and that this comparative immunity comes from our superior methods of manufacture, the excellent construction of our factories, and the better health of our working classes, which last rests in turn on higher wages and better housing and food. Unfortunately for our national pride, none of these assumptions will stand investigation. There is more, not less, lead-poisoning in certain lead trades if not in all lead trades in the United States than in the corresponding trades in Germany and Great Britain.

In order to make a comparison between the proportion of men leaded in the United States and in Great Britain or Germany, we must turn to certain trades which have been studied intensively. Such a comparison can be made in the white lead industry and in some branches of the pottery trade. In an English white and red lead factory employing ninety men, there was not one case of lead-poisoning in five successive years. In an American white and red lead factory, employing eighty-five men, the doctor's records for six months showed thirty-five men leaded. Another English factory employs 182 men and did not have a case of lead-poisoning last year. An American factory with 170 men had sixty poisoned during this same year.

The pottery trade in certain branches is well organized, and the union records give more accurate information as to diseases than can be obtained in any other way. Through the courtesy of a secretary of a local dippers' union I am able to give the number of men who suffered attacks of plumbism during the year ending April, 1911. Out of a local of eighty-five dippers, thirteen men had had sixteen attacks of lead-poisoning. The English factory inspection report for 1910 states that in the Staffordshire potteries among 786 male dippers, there were thirteen cases of lead-poisoning, exactly the same number as among our eighty-five dippers. In other words, in Staffordshire one dipper in sixty or sixty-one suffered from acute plumbism during one year; in Ohio one dipper to six or seven.

It certainly needs no further demonstration to prove that industrial lead-poisoning is frequent enough in our country to constitute a serious problem.

LEAD COMPOUNDS USED IN INDUSTRY

Many authors in treating of the comparative toxicity of the different salts of lead have assumed that this depends on their solubility in water or in dilute hydrochloric acid, but experiments on animals have proved that the conclusions, based on tests of solubility in dilute hydrochloric acid *in vitro*, are misleading and do not show what takes place in the stomach. Thus Rambousek, Blum and E. Leymann showed that the sulphate and chromate are both of them soluble in the gastric juice, and can cause severe lead-poisoning in animals, while the sulphid is apparently harmless. Rambousek's experiments showed that the solution of metallic lead and of white lead is helped by the presence of 1 per cent. pepsin. A more accurate classification, therefore, of the poisonous lead salts is that of Leymann, who bases it on their solubility in gastric juice, although he adds that, other things being equal, a salt is poisonous in direct proportion to its dustiness.

Of late more and more stress has been laid on this factor of dustiness and other physical properties. Thus the English experts believe that a less soluble lead salt may be actually more dangerous than one which is more soluble, but less easily powdered. For instance, lead acetate is very soluble, but it has a disagreeable taste, so that the workman cannot swallow it unawares, and it is sticky, not powdery, so that in handling it he is not exposed to dust-laden air. On the other hand, the oxids, the basic carbonate, the chromate, sulphate and monosilicate are all dusty and some of them very light and fluffy. They are also almost tasteless, and the workman who handles them dry breathes into his mouth and swallows quantities without noticing it. Therefore, the English authorities—Oliver, Goadby and Legge—regard the lead salts as dangerous in proportion to their dustiness. They concentrate their efforts on the abolition of dust and with amazing practical success.

The worst of the lead compounds is probably Pb_2O , the suboxid, which forms on the surface of melted lead, and is given off in fumes at higher temperature (Saeger). It is this oxid which causes poisoning in lead smelters, zinc smelters, brass molders, workers in the typographic trades, and the men employed in making lead pipe and wire, sheet lead, solder, shot and all the multitude of articles made from metallic lead. Men who handle these objects after they are made may also become poisoned, because the oxids forming on the surface of the lead rub off on their hands.

The second place would be assigned by some to the higher oxids PbO (litharge) and Pb_3O_4 , or Pb_4O_5 (red

lead), or by others to the basic carbonate, white lead. The latter is decidedly more soluble and dose for dose more poisonous, but it is not so light and fluffy as are the oxids, and therefore Etz places it lower in the scale of industrial poisons. White lead, classed as the most dangerous of all by Lehmann, is the best-known of the lead salts and probably responsible for more industrial plumbism than any, for it is white lead that poisons the majority of painters, and it is white lead that is used in the potteries and manufactured in white-lead works. The oxids, litharge and red lead are used by makers of storage batteries; they enter into the composition of rubber, glass, varnish, certain kinds of pottery glaze, the enamel used on sanitary ware and the paint used to cover iron and steel. A few months ago there was an outbreak of lead-poisoning in the Brooklyn Navy Yard involving twenty men who had been set to chipping off old paint from the sides of steel ships.

My own experience would lead me to believe that the oxids are more dangerous than white lead. In two factories in which the medical records of white-lead men and oxid men are kept separate, the rate of poisoning is higher in the oxid department, and the average period of employment is shorter. For instance: in one of these there were fourteen cases of lead-poisoning among sixty-five men employed in the white lead department, or 22.5 per cent., and seven cases in the oxid department among twelve men, or 58.3 per cent. The average period of employment was four years for the white-lead men and one year for the red-lead men.

Lead sulphate is beginning to be an important substance in American industry, though it has not as yet gained much footing in other countries. It is to a great extent displacing white lead in the rubber industry, and is even entering, usually as an adulterant, into the composition of mixed paints. It is also produced in large quantities in smelting the sulphur-containing lead ores, and, mixed with the suboxid, is the cause of lead-poisoning in smelters. For a long time lead sulphate was held to be almost, if not quite, harmless, for it is insoluble in water and very sparingly soluble in dilute acids. Indeed, even now many physicians in our country advocate the giving of a weak sulphuric acid drink to workmen in the lead trades, under the impression that the formation of the sulphate will render the ingested lead harmless.

Rambousek's and Blum's animal experiments have shown that there is only one insoluble and therefore harmless lead salt—the sulphid—and that the gastric juice, probably with the help of peptone, dissolves lead sulphate comparatively quickly. Goadby, experimenting *in vitro* with gastric juice, found that it was even more soluble than the basic carbonate or than litharge, and Sommerfeld states that the bronchial mucosa renders soluble lead sulphate which has been breathed in.

AMOUNT OF LEAD REQUIRED TO PRODUCE TOXIC SYMPTOMS

It is impossible to say how large a daily dose of any of the lead salts is required to produce symptoms of lead-poisoning, and we are not, of course, concerned here with the question of a single toxic dose. Brouardel states that the daily ingestion of 1 mg. is enough to cause poisoning. Arnold Gautier puts it much higher, 8 to 20 mg. daily. Others, as Hauck, insist that the amount ingested must be much larger than this. All these observations are of slight value, because in lead-poisoning individual susceptibility plays so very large a part.

PREDISPOSING FACTORS

1. *Individual Idiosyncrasy.*—The most superficial study of cases of plumbism is enough to show the great

influence of individual susceptibility; indeed, every foreman and every workman knows that there are men who can hardly stand any exposure to lead, while others can handle it for years with impunity. I have never been in a factory so bad that the employer could not produce at least one or two old workmen who had breathed and swallowed lead compounds for from twenty-five to forty years, and yet remained apparently healthy. For instance: in one white lead factory I found the record of a man who had begun to feel symptoms of lead-poisoning at the end of two weeks' time, and who died of acute plumbism after five and a half months' work. In the same factory I talked to a man who had worked in clouds of white-lead dust for thirty-two years, ever since he was a boy of 12, and had felt no ill effects.

Hirt, who had long experience in industrial lead-poisoning, says that 20 per cent. to 30 per cent. of all leadworkers are not susceptible. Of the remaining 70 per cent. to 80 per cent., something over one-half (about 40 per cent. of the whole number) sicken quickly, the others more slowly. The few accurate figures I have been able to obtain on this point seem to indicate a greater susceptibility than that observed by Hirt on the part of American workmen, for the proportion escaping is smaller than Hirt's. In two very dangerous factories, where every employee was examined by a physician at least once a fortnight, 35 per cent. of all the men in one and 28 per cent. in the other were found suffering from the effects of the lead; 52 per cent. and 40 per cent. of all who had been employed as long as one year had lead-poisoning. Only 10 per cent. in one and 12 per cent. in the other had worked for more than eight years and had never been poisoned.

2. *Family and Race Idiosyncrasy.*—An oversusceptibility to lead-poisoning is found by Oliver to be characteristic of certain families, and he asserts that the son of a lead-poisoned father or mother should never go into a lead trade. Whether race has anything to do with it is a question. There is a general impression that negroes are more susceptible than white men. Edsall quotes Monell, an expert lead-smelter, as saying that negroes are specially prone to lead convulsions, and Edsall finds that of six cases of negroes who were in Philadelphia hospitals for lead-poisoning, three were encephalopathies. I have studied but one lead trade in which negroes are employed; the white-lead industry, and my figures are too small to be of any real significance. I give them only as tending to confirm Edsall's view. In the white-lead factories studied 1,600 men make up the pay-rolls. About 250 of these are negroes, or 15 per cent. Among nine cases of encephalopathy which were reported to me in this industry, four were in negroes, or 44 per cent.

3. *Influence of Sex.*—Sex is recognized as a factor in susceptibility, even by legislators. Not only are women said to be more susceptible than men, but the disease is more apt to assume the severer forms in women. Oliver states that there were, in 1897, 328 men employed in the white-lead works in Newcastle-on-Tyne and 571 women. The cases reported during six months of that year were nineteen men, or one for every seventeen employed, and sixty-six women, or one for every eight or nine employed—just about double. The factory inspector's report for 1910 shows that in the Staffordshire potteries the incidence of plumbism was twice as great among the female dippers as among the male.

The only trade in which I have been able to study the relative susceptibility of men and women to lead-poisoning is the pottery industry.

At first sight it would seem that my figures bear out the statement that women are more susceptible to lead-poisoning than men, for there were in 1911 fifty-seven cases among 400 women, or one to seven, and only eighty-seven among 1,100 men, or one to twelve or thirteen. But a closer analysis shows that there are factors influencing this difference other than the factor of sex. In East Liverpool and Trenton the relative proportion of male and female cases more than bears out the English theory. Seven hundred and ninety-five men had thirty-nine cases, or one to every twenty or twenty-one, and 150 women had twenty-nine cases, or one to every five or six employed.¹ These are the districts in which white ware is made and the National Brotherhood of Operative Potters holds sway, and the women have many handicaps as compared with the men, besides that of sex idiosyncrasy. They are unorganized, underpaid, poorly housed, poorly fed, subject to the worry and strain of supporting dependents on low wages, while the men are organized, prosperous and independent. In the unorganized pottery fields, however, in the tile works and art potteries of the Zanesville district, men and women are in the same economic class, all making low wages with everything that that implies, and here we find no such disproportion between the two sexes in the matter of lead-poisoning. In these potteries there were, in 1911, 304 men employed and forty-eight cases of lead-poisoning, or one for every six or seven men; 243 women were employed and there were twenty-eight cases found, or one for every eight or nine.

In discussing the relative frequency of lead-poisoning among men and women, several physicians told me that they saw more male cases than female. Two of them, Dr. Bainter and Dr. Sellers of Zanesville, said that while they saw more men with the typical gastric form of lead-poisoning, they saw large numbers of women and young girls with less pronounced and characteristic symptoms, which they, however, attributed to the lead, such as profound anemia with constipation and sometimes amenorrhea. Now, it is more than probable that many such cases were not reported to me, for the majority of physicians hesitate to speak of lead-poisoning if there is no colic. The British reports, however, include cases of "anemia of adolescence, aggravated by employment." Certainly it is probable that this is one reason for the discrepancy between my results and theirs as regards female cases.

4. *Influence of Alcohol.*—Alcohol is recognized universally as the most important factor in predisposing to lead-poisoning, although it has never been pointed out that, if this be true, the oversusceptibility to lead of women, the comparatively temperate sex, must be even greater than we have supposed. Pieraccini insists that alcohol and lead work together, forming a vicious circle, for as alcohol renders a man more susceptible to plumbism, so plumbism in its turn makes him more susceptible to the action of alcohol. I have found that lead-poisoning in its early stages may drive to intemperate living a man who up to that time had been sober, because the peculiarly disagreeable, sweetish taste so persistent in lead-poisoning yields better to beer and whisky than to tea or coffee or milk. I have talked with men who told me quite seriously that this fact proved that the beer cut the lead and carried it off, and that they always advised new men to drink beer. Later on, when appetite is quite gone and there is a loathing for solid food, the men bring home their lunches untasted and depend on beer almost

entirely. Girls seem to take to very sour pickles and strong tea to get rid of this detested sweet taste.

5. *Influence of Fatigue, Living Conditions, Etc.*—Rambousek says that a strong man, poorly nourished and housed, is in greater danger of lead-poisoning than a weak man well housed and fed. In our country there is distinctly more lead-poisoning among the non-union potters in the Zanesville district, working for \$1.25 to \$1.65 a day, than among the union potters of East Liverpool or Trenton, working for \$2.50 to \$5 a day. Thus, in Zanesville, among 304 men employed, forty-eight cases were found, or one for every six or seven men employed. In East Liverpool, among 785 men, thirty-nine cases were found, or one for every twenty or twenty-one employed. It must be remembered that the union records are fairly full, and it was much easier to trace the cases in East Liverpool, so the contrast would probably be even greater if the full truth were known, but it must also be remembered that much of the glaze used in Zanesville is stronger in white lead than that used in East Liverpool.

6. *Influence of Season.*—It is generally held that there is more lead-poisoning in summer than in winter, and the reason usually assigned is the greater absorbent power of the skin in summer and the greater thirst, leading to alcoholic excess. The generally increased susceptibility to gastric disorders during the summer months is also pointed to as influencing the development of lead-poisoning. I have not been able to convince myself that there is relatively more lead-poisoning during summer in the trades I have studied, but that there is actually more is probably true, because there is more work done in these trades in summer. This is the season of activity in the building trades, which means an increased number of painters, of bath-tub enamelers, of sanitary ware glazers and of tile workers, and therefore, also, an increased demand for white and red lead.

LENGTH OF EXPOSURE NECESSARY

The length of time a man may be exposed to the action of lead before he develops symptoms of poisoning is a question of practical importance, because many foremen and some employers hold that the best way of protecting their men against industrial plumbism is to employ them for short periods, a few weeks, or perhaps three months. Such men naturally do little else to protect their employees. One can hardly expect a foreman to show much solicitude for a gang of Poles or Italians whom he expects to lose in a few weeks' time. Now, if it could be shown that there is a period during which a man can be employed without risk, there might be something to say for this view, but this is not true. It depends on the quantity of dust to which the man is exposed and his individual susceptibility. Tanquerel reports a case of a man who developed palsy at the end of one week's work in white lead. Sabbatini has seen colic during the first week of employment in white lead. I found a white-lead worker employed in an extremely dusty, neglected factory who went to the hospital with both colic and neuritis at the end of three days' employment. My figures for length of exposure in this trade cover 120 cases; eight of the patients sickened in less than two weeks' time; thirty-six in less than a month; eighty-nine in less than a year. Only thirty-one of the 120 had worked as long as a year. The enameling of bath-tubs is done with a powder composed of silicates, borates and oxid of lead, which is fused and then ground and applied dry. The proportion of lead oxid is from 6 to 20 per cent. As some of it has by fusion been changed to the insoluble disilicate, the powder contains usually not over 6 to 7 per

1. "Employed" means employed in work involving exposure to lead.

cent. soluble lead. In this trade the average length of exposure is much longer than in the white-lead industry. One only of sixty-four enamelers was poisoned in less than a week's time; two in less than a month; nineteen in less than a year, and forty-two had worked more than a year. But among the mixers and grinders of the enamel the period of exposure was much shorter. Thirty-four averaged a little over six months' employment.

Cases of unusual susceptibility to lead which have come into my hands in other trades are the following: A Pole, who worked in a comparatively safe lead trade, making lead stoppers and strainers for wash-stands and who had colic at the end of a week. A painter, working indoors, and sandpapering dry paint, fell in convulsions at the end of nine weeks, was unconscious for three days and incapacitated for three months. A lead-smelter had double wrist-drop and partial paralysis of both legs, for which he was treated four months in the hospital, without any improvement. He had been at work only eight weeks.

MODE OF ENTRANCE OF LEAD SALTS

This is a question not only of scientific interest, but of great practical importance. Obviously, the whole sanitary control of the industry depends on whether we decide that the skin, the intestinal tract or the respiratory tract is the sole or the most important port of entry.

That lead is absorbed through the skin, especially in hot weather, is held to be true by many authorities, though some attribute much more importance to this mode of poisoning than do others. Pieraccini and Guidelli in Italy, Roth and Sommerfeld in Germany, Manning in England and Edsall in this country think that the skin plays an appreciable part in the absorption of lead, especially in the summer, when the combination of lead with the fatty acids of the skin takes place rapidly. Leymann finds no proof for such statements, and though he cannot as yet deny the possibility of some absorption of non-water soluble compounds through the skin, he doubts that actual poisoning ever takes place in this way, and considers skin absorption of no practical importance in industrial lead-poisoning. My own observations tend to make me think that the skin, if it acts at all as an absorbent, does so to a very slight extent. In England, under the leadership of Oliver, Legge and Goadby, skin absorption is practically ignored, and the efforts of the government inspectors are directed toward the abolition of dust and measures to prevent the lead being carried into the mouth. In the summer of 1910 I visited three white-lead factories in England and saw men smeared with white lead up to their shoulders, and this in summer weather. Yet in the whole district of Newcastle-on-Tyne, where 1,320 are employed, there were but five cases of lead-poisoning during 1910.

We might compare in our country the incidence of lead-poisoning among pottery dippers, who work with their hands plunged in a liquid glaze up to their shoulders, the glaze containing some 10 to 20 per cent. of unchanged white lead, with the incidence of lead-poisoning among bath-tub enamelers, who shake dry enamel over the tubs, the enamel containing a much smaller percentage of soluble lead.

Among eighty-six dippers there were thirteen cases of lead-poisoning, or one to every six or seven.

Among 148 enamelers, fifty-eight cases of lead-poisoning were found, or one to every two and one-half employed.

Certainly, if skin absorption were an important element, it should result in more poisoning among the dippers than among the enamelers.

The intestinal tract is, of course, admitted by all as the most important portal of entry, and some believe that it is only through the mouth and intestines that poisoning ever occurs. These men recognize that lead may enter through the inhalation of dust, but insist that here, too, it is a case of intestinal absorption, the lead, which has been breathed in, being swallowed with the saliva. Others of the German observers, as Leymann, Etz, T. Weyl and Wutzdorff, admit the possibility of direct absorption of lead compounds from the respiratory mucosa, and Weyl even believes that lead may penetrate the lung capillaries and reach the bloodstream. This last statement has been experimentally proved by Goadby, who kept cats in an atmosphere of flue dust (lead suboxid), red-lead and white-lead dust, at the same time preventing them from licking their fur. All lost weight and appetite, and suffered from constipation, colic, weakness of the muscles of the back and the extensors of the legs, and retinal hemorrhages. Lead could be demonstrated in the walls of the capillaries of the lungs. Goadby also states that lead will be found deposited in the mediastinal glands, whether it is administered with food, or by inhalation, or subcutaneously.

Many striking instances can be given of the effect of dust inhalation in the production of industrial plumbism. Teleky says that in a large factory in which 80 tons of white lead were used in indoor work annually, 163 cases of lead-poisoning developed among the indoor workmen, while among the outdoor workmen who handled almost three times as much (237 tons) there were only fifty cases. It is hard for me to choose illustrative instances from my own experience, because all the lead trades I have studied are in our country extremely dusty trades. Perhaps my statistics of lead-poisoning among painters, gathered from hospital records, would be as illuminating as any. I have a list of 100 painters with plumbism who averaged twenty years in the trade, but among these are eleven who served less than one year. All these eleven had been doing indoor work with sandpapering.

DIAGNOSIS OF LEAD-POISONING.

Of great practical importance is the diagnosis of lead-poisoning, and in the search for some one sure diagnostic sign many procedures have been suggested which have for a while seemed to fill the want, only to prove unsatisfactory in the hands of some observers. DuMoulin, working on the theory that lead is excreted through the skin, urged the application of sulphid to the skin when, if the patient were suffering from lead absorption, a black precipitate would form, and this even after all the adherent lead had been removed by rigid cleansing. Miura, however, proved beyond refutation that the test would succeed only on those parts of the skin which had been exposed to lead, and would fail on the surfaces which had been covered with clothing. The DuMoulin procedure is advocated now only in cases in which the workman does not know what he has been handling and it is necessary to determine whether he has been exposed to lead. Roth in Germany, Agasse, Lafont and Heim in France, and most English observers, especially Oliver and Bedson, maintain that lead is constantly present in the urine in plumbism, and place great value on its detection as a help in diagnosis. Pieraccini does not believe that kidney elimination is of any importance. Rambousek attributes little importance to the kidneys in the excretion of lead; von Jaksch does not find lead at all in the urine in the late stages of chronic plumbism,

though he believes that it is always present in the early stages and during an acute attack. Blum agrees with von Jakseh that lead is excreted by the kidneys only when the system is saturated with it, and even then it may not occur, for in some of Blum's animal experiments none was found.

The basophilic granulation of the red blood-cells, described fully first by Grawitz, has been more generally accepted as an unfailing aid in diagnosis. Indeed, at the International Congress of Industrial Hygiene in Milan, this was declared to be an absolutely trustworthy sign of lead-poisoning, but at the next congress, held in Brussels in 1910, opinions had changed, and we find Biondi calling it a good positive but a bad negative sign, and saying that the presence of granules simply indicates young red blood-corpuscles, and may be found one hour and absent the next, depending on the activity of the blood-forming tissues. P. Schmidt, on the ground of repeated observations, says that a small number of granular cells cannot be regarded as significant. There must be at least 100 out of 1,000,000 red cells, better 300 to 3,000, and even then carcinoma, malaria, chronic intestinal hemorrhage, must be ruled out, as well as leukemia and pernicious anemia. Oliver denies all diagnostic value to the presence of granules in the blood, for he has failed to find them in 40 per cent. of his cases. Rambousek examined the blood of lead-poisoned animals, and says that basophilia is neither a specific nor an early sign of plumbism, for he found it only once in seven animals.

The diagnosis of lead-poisoning must therefore rest on many, not on any one element, and I should like to add my voice to those that urge especially the importance of the anamnesis, the description of the patient's occupation. Increasing loss of strength, vague digestive disturbances, headache, loss of appetite, may mean nothing in an ordinary man; they are symptoms of great significance in a lead-worker, and if the physician makes no inquiry as to the man's occupation or, on ascertaining it, does not recognize it as involving exposure to lead, he will inevitably fail in his diagnosis in the early stages of this disease. The importance of inquiring minutely into the occupation is insisted on by every writer of note on this subject, and it is suggested that DuMoulin's skin test be used in cases in which there is reason to suspect exposure to lead.

Weyl gives the following symptom-complex as characteristic of an early stage of lead-poisoning and sufficient when occurring in a lead-worker to establish a diagnosis, even in the absence of a lead line: "Pallor, disproportionate to the grade of anemia, foul breath, caries of the teeth, bad taste in the mouth, especially on getting up in the morning, loss of appetite, digestive disturbances of various kinds, intermittent attacks of weakness and trembling, which may make fine work impossible for the time, spots before the eyes, itching of the eyelids." Such a man hardly considers himself sick, yet he is already poisoned.

After interviews with several hundred lead-poisoned persons, I should wish to lay particular stress on the sense of increasing loss of strength and on the distaste for breakfast, as the very earliest symptoms noticed by the majority of these people. In the absence of any signs of tuberculosis a complaint of increasing weakness on the part of a laborer should always lead to a careful inquiry into his occupation.

The diagnosis of chronic lead-poisoning is missed by the usual practitioner, even more often than the acute, for he is usually content to determine the existence of

chronic gastric disturbances, contracted kidney, arteriosclerosis with cardiac involvement, and unless a typical palsy supervenes the underlying cause is often not sought for. Yet industrial lead-poisoning is, according to Weyl, predominantly a chronic process and exceptionally an acute.

HOW SERIOUS IS ACUTE PLUMBISM?

It is a question of great practical importance whether or not the lesions of acute plumbism are lasting. I have found that most foremen and managers and many physicians hold that one, or perhaps two, or even three, attacks of colic may be endured without risk of permanent injury to the organs. It is the exceptional physician who looks on every sign of lead absorption as a serious matter.

We have a great deal of evidence that lead once absorbed may remain latent in the system for long periods and then again make itself felt. There is Oliver's famous case, a woman who had been severely poisoned in youth, who had left work and for seventeen years been free from symptoms of poisoning, but who developed symptoms of cerebral saturnism. Pieraccini says the symptoms of lead-poisoning may develop first after a man has left lead work for some months, and Tanquerel reported the case of a man who had repeated attacks after several years' absence from such work. Bernhardt had a patient in whom symptoms of paralysis came on twenty years after exposure to lead. All authorities insist that one attack of lead-poisoning predisposes to another, and urge that a man who has once been leaded be refused work in a place where he will be exposed to the lead again. Practically, this is hard to enforce in a skilled and well-paid industry. Potters, Scotch hearth-smelters, painters, hollow-ware enamelers, will cling to their trade in spite of suffering and loss of health. I have the histories of sixty-six enamelers who averaged between three and four attacks of poisoning.

Pieraccini believes that it is not possible to say positively that an attack of acute lead-poisoning may be completely recovered from, for it is more than probable that some permanent change has been set up in the parenchyma of the liver and perhaps of other organs, a connective tissue growth which tends to be progressive.

CONCLUSION

In conclusion, I should like to say a few words as to the situation at present in the lead trades in the United States. Some of these trades grow less dangerous as time goes on. The increasing use of cheap substitutes for white lead, such as zinc oxid, barytes, and lead sulphate, and of the German para-reds or graphite for red lead may be bad for the product, but is very good for the workman. Anilin dyes are displacing chrome yellow and green. In lead-smelting there is a slow progress away from the dangerous and fortunately wasteful open hearth to more economical and safer methods of extraction, and in the white- and red-lead industry there is an increased introduction of machinery in place of hand work. The plumber is becoming more and more an iron and brass worker. On the other hand, certain dangerous lead industries are on the increase, for the demand for storage batteries, for enameled sanitary ware and for glazed tiles grows daily. Young girls are tending now to displace men in all industries, and there are no laws to prohibit their employment in the lead trades. Owing to the lack of legislation prescribing special precautions in the poisonous trades, industrial plumbism is not only frequent with us, but in many trades it assumes very serious forms. At the beginning of this article I gave some contrasting figures to show the prevalence of indus-

trial lead-poisoning in this country in comparison with countries where there is proper legislative regulation of the dangerous trades. This contrast was brought vividly home to me by a description which I found in T. Weyl's "Handbuch der Arbeiter Krankheiten." He is drawing what he considers a shocking picture of lead-poisoning as it used to be found years ago. He says:

Lead tabes is the severest form of lead cachexia, now almost never seen, thanks to prophylactic measures. Here we find more or less all the phenomena of plumbism in one individual. Pallor like that of chlorosis, a predominance of the flexors over the extensors, as shown in the hanging head, the bowed shoulder, the hands held in pronation; muscular tremors, causing a shambling gait and trembling movements of all the muscles of the body; disappearance of all possible fat; general emaciation.

From my studies so far I can unfortunately testify to the fact that, thanks to the lack of prophylactic measures, Weyl's lead tabes is far from being a rare condition in our country; that instances of it can be found in every town where there are lead industries of a dangerous character, and that it is not even a vanishing condition, for new instances of lead tabes are being added to the number every year.

Surely there is every reason why we should devote to this disease the same intelligence and energy that we devote to other preventable diseases. There are many problems waiting solution. We need research into the question of sex susceptibility, of race susceptibility, of the influence of summer heat, of the influence of muscular fatigue; we need, above all, research into the different lead trades of our country and the different forms of lead-poisoning that they produce, the localization of palsies, the frequency of encephalopathies. As it is now, it would be hard to point to any disease equally prevalent, equally serious, equally controllable, which has been so neglected by the medical profession in America as industrial lead-poisoning.

EPIDEMIC POLIOMYELITIS IN NORWAY

ITS ETIOLOGY AND THE POSSIBILITIES OF ITS PREVENTION

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I. HISTORY

Acute poliomyelitis has been recognized in Norway as a distinct disease ever since 1820. Cases were exhibited in the Medical Society of Christiania in 1842 and in 1853. In 1863, discussing the case from 1853, Voss pointed out that, judging from the resulting paralysis, the disease must have its seat in the spinal cord or in the anterior nerve-roots.

The first epidemic of acute poliomyelitis broke out in 1868 in Dr. A. Christian Bull's district and was reported by him to the medical board of the state. This epidemic lasted from June to August. Fourteen persons were stricken, of whom twelve were children, with five deaths. The symptoms were so characteristic that any doubt of the nature of the disease can be excluded. Bull also reported two abortive cases—those of two children who were attacked by brief fever and indistinct paresis. The possibility of a contagious virus as the cause of the disease was discussed.

In 1886, Dr. Oxholm described an epidemic in his district; it also prevailed during the months of July and August. Nine persons were attacked. In the

eighties several new cases were reported to the state medical board; these cases were regarded partly as cerebrospinal meningitis. In 1898, Bülow-Hanson and Harbitz¹ reported three cases of acute poliomyelitis; two of the patients died, while the third, who had the abortive form, recovered. The anatomic study gave the now well-known result: acute, diffuse infiltration of the spinal cord and its membranes and of the medulla and pons. Based on the anatomic conditions, the theory was advanced that acute poliomyelitis was an acute infectious disease and that the infection entered the system through the alimentary tract and throat.

In 1889, another epidemic broke out in a country district (Bratsberg) during the months of July to October. There were fifty-four cases, mostly in children. This epidemic was thoroughly studied and described by C. B. Leegaard² who pointed out that the epidemic spread along the main roads of communication, branching out to the sides with small groups of cases. The invasion of the infection was supposed to occur through the alimentary tract, and the disease was pronounced contagious with a short period of incubation, hardly more than twenty-four hours. Leegaard proposed that the disease be subjected to public control and be made reportable; he also proposed isolation for three weeks and subsequent disinfection. Professor Johannesen,³ in 1911, published a synopsis of twenty-three cases of infirmities resulting from acute poliomyelitis, observed at the pediatric clinic during the years 1893-1899.

In 1903 and 1904, new, small epidemics occurred but, in 1905 and 1906, the disease broke out simultaneously in different and large tracts of the country. In 1905, 952 cases were reported of which 358 were of the abortive type.

The state physician for epidemic diseases, Dr. Geirsvold, gave a preliminary report of the epidemic of 1905; he maintained that acute poliomyelitis was a specific infectious and contagious disease. He further pointed out that great stress should be laid on the abortive cases and that the disease often was disseminated through the medium of healthy persons. The disease left immunity; stricken districts were the next year exempt from its ravages. It would spread from place to place, in the beginning often with influenza-like symptoms, later on developing into characteristic poliomyelitis, now and then accompanied by meningitis, abortive forms, Landry's paralysis, etc.

Geirsvold also called attention to the fact that exposure to cold and damp weather with subsequent catarrhal conditions or physical overexertion would predispose to the disease. He pronounced acute poliomyelitis infectious, with its point of invasion as a rule through the throat; the time of incubation, three to five days. At the time of the epidemics he had not observed similar diseases among the domestic or other animals. This short article by Dr. Geirsvold on the epidemic of 1905 contains in brief the main features of what has been observed during the different subsequent epidemics. In 1906, there were 466 cases with fifty deaths.

Francis Harbitz and Olaf Scheel,⁴ in 1907, presented a review of the epidemic in Norway in the years 1903-1906, inclusive. They communicated the results of the

1. Bülow-Hanson and Harbitz: Beitr. z. pathol. Anat. u. allgem. Pathol. (Ziegler's), 1899, xxvi, 517.

2. Leegaard, C. B.: Epidemisk poliomyelitis; Bakteriologiske undersøgelser, Norsk Mag. f. Lægevidensk., 1901, lxii, 377.

3. "Festschrift" in Honor of Abraham Jacobi, 1900.

4. Harbitz and Scheel: Epidemic Acute Poliomyelitis in Norway in the Years 1903-1906, THE JOURNAL A. M. A., Oct. 26, 1907, p. 1420.

careful anatomic examinations of nineteen cases. Of the patients, thirteen, most of them children, died during the acute stage of the disease. Harbitz and Scheel demonstrated a diffuse inflammation of the spinal pia-arachnoid, of the gray matter of the spinal cord and the medulla oblongata and the surface of the brain. They again pronounced the disease to be specific, infectious and contagious, and entirely different from epidemic cerebrospinal meningitis, because it occurs at a different season, and because the virus occurs in the cerebrospinal fluid and membranes whence the cord and medulla probably are infected; further, that the infection enters the system through the digestive apparatus (the nose and alimentary tract) and that the central nervous system is infected either by way of the lymph-vessels, along the nerve-tracts, or still more plausibly through the blood. Cases of neuritis or transverse myelitis were not observed in connection with the examinations.

Leegaard, in a more extensive work,⁵ has thoroughly described the epidemic of 1905. Here also the majority of patients were children; 50 per cent. of the cases occurred in August and September, 25 per cent. in July and October, and the remainder were distributed over the other months. In the genuine poliomyelitis cases 14.5 per cent. of the patients died and 58.5 per cent. became invalids. The disease this time also was disseminated along the main road of communication, along the coast by way of steamers, in through the country by the railroads. The disease was contagious, especially during the first three days but also the following three weeks. The time of incubation was found to be from two to three days as a rule. The contagion was carried from person to person and also through the intermediary of healthy persons (infection carriers) and its mode of entrance was found as a rule to be through the nose and throat.

During the four years following, the disease was on the retreat: in 1907, 204 cases with 15.2 per cent. mortality, in 1908, fifty-nine; in 1909, fifty-one, and in 1910, thirty-two cases. Real epidemics did not occur; only sporadic cases or small endemics. In 1911, however, the disease broke out with about 1,250 cases with about 10 per cent. mortality. Most cases occurred in July, August and September.⁶ The disease this time also was characterized by its wide dissemination, apparently without connecting links. As a rule, though, districts which previously had been ravaged were now comparatively exempted. The majority of cases were also now found in the rural districts, but several cases occurred in the larger cities — in Christiania there were sixty-two cases with twelve deaths. During the first months of 1912 sporadic cases of acute poliomyelitis — 117 cases with five deaths — occurred. The same year an extensive epidemic of several hundred cases of cerebrospinal meningitis infested Christiania and neighboring districts.

II. GENERAL EPIDEMIOLOGY

From the foregoing history it will be evident that acute poliomyelitis has been prevalent in Norway for almost a century, further, that small epidemics have been observed and described for about forty-five years. Consequently, we must assume that its virus has been constantly present in our country and if not active in the form of smaller or larger epidemics at least latent

in many and different districts which again under favorable circumstances have been the starting-points for dissemination of the disease. Only during the last twenty or twenty-five years have the Norwegian physicians collectively given much attention to this scourge and considered it to be of an infectious nature. This was first pointed out by Bull in 1868, openly pronounced by Leegaard in 1889 and strongly advocated by Bülow-Hanson and Harbitz in 1898, culminating in the State Board of Health circulars of 1904 and 1905 with a view of checking or preventing the occurrence of the disease.

The conclusions of the Norwegian physicians in regard to acute poliomyelitis are in the main that epidemic poliomyelitis is an acute infectious disease which, as indicated by several observations, must also be considered contagious.

The disease as a rule has started in widely separated smaller epidemics; somehow in an explosive manner in one or more places simultaneously, and without any apparent connection. It has been observed regularly that cases of genuine poliomyelitis (with paralysis), Landry's paralysis with subsequent deaths and abortive cases have occurred simultaneously and in the same localities, but no cases of neuritis, transverse myelitis or encephalitis.

The abortive cases were characterized by a transient fever, pains in the extremities, back and neck, nausea and vomiting, increased reflexes, a train of symptoms which often were mistaken for those of a heavy cold or "influenza," and so much more easily, as the symptoms quite strongly reminded one of the first severe epidemics of influenza or morbilli in previously uninfected districts.

For the contagiousness of the disease there are different theories. Even where the disease was greatly disseminated and single cases occurred simultaneously it could be determined by careful investigation that the disease had spread along the lines of communication, along the highways, railroads and steamship-routes, along the coast and into the fjords by smaller vessels from one place to another, but with different grades of velocity. This would be particularly manifest in sparsely inhabited districts with poor communications. Several reports pointed to small epidemics having started in schools, country stores, dairies, public meetings, weddings, funerals, or they could be traced to gypsies and other wanderers. These obstructions strengthened the theory of a direct contagion. In the study of virulent house-epidemics it was also found that one member of the family after the other became infected with a few days' intermission, and that they would exhibit the disease in its different forms. As an example the following may serve:

A physician treated some sporadic cases in his district in the latter part of June and the beginning of July. July 15, he himself became ill with fever, pains in the back, great exhaustion, diarrhea and vomiting. He recovered in three days. July 16, his son, aged 3, was seized with the same symptoms. July 18, his son, aged 5, was stricken in the same manner. He also recovered in three days. July 22, his oldest son was taken with well-defined gastro-intestinal symptoms, stiffness of the neck and paresis of the extremities and facialis. He recovered in eight days without permanent paralysis. The following days his 1-year-old son, the nursemaid, his wife and her sister were taken sick with acute angina, stiffness of the neck and fever; and finally a neighbor's child, who had been a playmate of the physician's children, was stricken with symptoms of a genuine poliomyelitis and with subsequent permanent paralysis.

5. Leegaard, C. B.: Videnskabselsk. Skr. I. Mathem-Naturvid. Kl., 1908, No. 11, Kliniske og epidemiologiske Undersøgelser over den acute Poliomyelitt i Norge med særligt Hensyn paa dens Forekomst i Aaret, 1905.

6. Gram: Tidsskr. f. d. norske Lægefor., 1911, p. 856.

When these cases are studied in connection with each other it seems reasonable to assume that here was a virus which easily and quickly spread from person to person.

As an argument against the contagiousness of poliomyelitis it has been advanced that nurses who take care of these patients escape the disease. This argument does not hold good; in a separate pavilion of the hospital for epidemic diseases at Christiania were several poliomyelitis patients during July, August and September, 1911. Two of their nurses, aged 28 and 29, became ill in the latter part of August and died with acute poliomyelitis. They had served in this hospital-division for about one month. The virus must, however, have been quite widely disseminated in this hospital, because in August there occurred among the children in the diphtheria pavilion four cases of acute poliomyelitis of which three were in the same ward. In the scarlet-fever pavilion one case of acute poliomyelitis occurred in a child who previously had been taken care of by one of the two nurses who died from poliomyelitis, and finally a nurse who served in one of the medical sections of the same hospital took the disease and died. In this last case it was impossible to trace the source of infection. These cases which occurred almost simultaneously can be explained only by the existence of a direct infection and wide dissemination of the virus among adults and children.

The time of incubation, according to Norwegian experience, has been quite short—two, three or four days, but at times longer. Cases were observed in which a latent condition of the virus must be assumed. An example of this is the case of a young woman who had been in solitary confinement for three months and had contracted acute poliomyelitis. Hers was the only case inside the prison, and it is reasonable to conclude that she came to the institution already infected.

The infection is as a rule carried from one person to another. Of great interest are the abortive cases, which have been found to be just as contagious as the cases of well developed poliomyelitis. It must be supposed also that the infection can be spread through the intermediary of healthy bacillus carriers who have had a latent infection not infrequently for longer periods. Through this assumption is explained the extended time of incubation sometimes noted.

According to our experience, the mode of entrance must be the throat, nose and alimentary tract.

The degree of infectiousness as a rule may be designated as not so great. This is proved by the fact that only one case might occur in one household or among a large family of children, several of these even sharing beds; further, by the fact that only sporadic cases would occur in a well-populated country district or even in a large city. But here again we must take into consideration the fact that latent infection and lighter abortive cases have been much more widely spread; this has been proved by the fact that a district infected with sporadic cases or small epidemics the next year would be exempt from the disease.

In Norway there is no safe foundation for the belief that foods might be the source of infection nor any support to the theory of a coexistent infection of animals and a conveyance of the infection through them. Simultaneously with the poliomyelitis epidemics a great many deaths have occurred among animals, caused by epidemic diseases. These have been prevalent among chickens, reindeer, dogs and cats. By further examination into these conditions any connection between the

etiologic factors of the diseases of these animals and acute poliomyelitis has been disproved. Experiments made under control have given the same results. During the epidemics of 1911 with its unusually dry summer, masses of flies and other insects (fleas) were in evidence. The possibility of an indirect conveyance of the infection by these insects (see Flexner and Lewis' experiments) may be admitted, but there is no proof or convincing examples of such occurrences.

In the epidemiology of acute poliomyelitis are several unexplained points: (1) its breaking out in great epidemics in certain years without reference to changed climatic conditions; (2) that most cases occur during the summer and fall and only sporadic cases during winter and spring; (3) that the disease is most prevalent in the rural districts, and, finally, (4) that the different epidemics vary in the degree of contagiousness and malignancy in the different years and in different localities.

Such, however, is also the case with other diseases with well-known contagiousness as, for instance, epidemic cerebrospinal meningitis. This disease, which also assumes an epidemic nature, has been known in Norway for a great many years, is found preferably during the cold season and has, according to our experience, clinically and anatomically nothing in common with acute poliomyelitis, and they must be considered as two specific, entirely independent diseases.

III. MEASURES AGAINST AND TREATMENT OF THE DISEASE

Recognizing acute poliomyelitis as an infectious, contagious disease, the chief medical officer of the National Board of Health on May 26, 1904, sent to all physicians of our country a circular directing that acute poliomyelitis should be classed with the epidemic diseases subject to public control. In a circular of May 28, the same year, he further specified the measures to be taken:

1. Immediate notification to the board of every case, abortive cases included, with a short history of the disease and its etiology.

2. Isolation of the sick during the acute stage for three weeks.

3. Careful disposition of the patient's excretions and secretions, particularly from the nose and throat. The patient and everybody who came in contact with him were recommended to use gargles at regular intervals, consisting of solutions of potassium permanganate or hydrogen peroxid. The sick should be furnished with separate dishes, handkerchiefs, pillowcases, etc., and anything soiled with secretions or excretions from the patient should immediately be boiled.

4. Disinfection of everything in contact with the patient for a time of three weeks from the beginning of the disease.

5. Particular attention given to the lighter abortive cases and patients with symptoms of angina; also to the possibility of the disease being carried through the intermediary of healthy persons.

6. Attention paid to the possibility of infection through schoolchildren. In much-infected districts it was recommended to close the schools, and healthy as well as sick children from infected homes were prohibited from appearing at school for some time.

These measures received active cooperation from the local health boards of the infected districts. The local board at times took even more drastic measures by prohibiting public meetings and vaccination during the prevalence of an epidemic. As a rule those measures

were undertaken too late when the epidemic was in full outbreak, but reports from districts, especially those more sparsely inhabited, and those where the measures had been early instituted, show that these precautions helped to limit and stop the disease. This again seems to point to the contagious nature of acute poliomyelitis.

The treatment of individual cases has been mainly symptomatic, and possibly not of much avail. Dr. Sinding Larsen⁷ recommends that treatment begin with laxatives, for instance, calomel followed with urotropin (hexamethylenamin) in doses of 0.30 gm. three times a day, and good results have been given in some cases. Spinal puncture and aspiration of spinal fluid were recommended and have seemed to act favorably by mechanically lowering the cerebrospinal pressure. Prophylaxis in the way of careful frequent antiseptic gargles and sprays of nose and throat have been found useful.

Persons with abortive cases and supposedly infected persons are admonished to exercise particular care in avoiding exposures to cold and overexertion, which experience has taught can excite the disease, with subsequent paralysis. For the resulting pareses and paralysis massage, persisted in if necessary for weeks to years, has seemed to be of great value.

The medical authorities have demanded reports on the frequency and nature of disabilities resulting from the disease with a view of considering how steps can be taken to give these patients massage, surgical or orthopedic treatment at public expense. The preliminary report shows that following the epidemic of 1911 about 400 cases (32 per cent.) of permanent disability were recorded. Measures will now be taken to examine further into the degree of disability and to inaugurate suitable treatment of such cases. The chief medical officer of the State Board of Health on petition has been granted funds for the purpose of: (1) systematic examinations into all the epidemics of late years, and (2) experimental research on apes to secure if possible a more thorough understanding of the modes of infection of acute poliomyelitis.

These investigations are conducted by the bacteriologist and sanitary inspector of the State Board of Health, Dr. Gram; Dr. Aaser, the chief physician of the municipal hospital for infectious diseases, and E. U. Hansteen, the prosecutor. No conclusive results have as yet been reached.

A. CONTRIBUTION TO THE ETIOLOGY OF POLIOMYELITIS *

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NEW YORK

The lesion of poliomyelitis confines itself mainly to the cerebrospinal system and produces focal clinical symptoms. This part of the human organism is rather remote from the external surface of the body and very tightly boxed in, as it were, and well protected from external influences. An infection, therefore, must primarily reach these tissues either through the circulatory or through the lymphatic system.

Experimentally, the disease was produced by injecting monkeys with the infected spinal cord and brain intracerebrally, intraperitoneally, by rubbing it into an abraded surface and an unabraded one of the nasal mucosa; into the nerve-sheath and finally by rubbing it into an abraded surface of the skin. It was further shown that the nasal mucosa contains the virus quite early in the incubation period of the disease—three days after injection of the virus—and that the tonsils, the salivary glands, the retroperitoneal glands and lung tissue are infected as well. There is unmistakable evidence that the pia of the anterior longitudinal fissure of the cord is the primary seat of the lesion, and in my own two cases the pia surrounding the cord contained marked lesions while the vessels and gray matter were intact and the cases were of the abortive type. It is an established fact that, while a very small quantity of an infected-cord emulsion—0.1 c.c.—of a high strain is enough to produce the disease, it would take a comparatively large amount of the blood-serum of the same animal—20 c.c.—to be effective. That the intravenous route of injection did not yield any good results so far is a very striking contrast to the uniform results obtained with the above-enumerated methods of experimentation.

From these facts we must conclude that the lymphatic circulation is the primary route and the circulatory system the secondary and, with the gray matter of the cord and brain, the coincident seat of the lesion. For this route of infection three avenues are obviously open, namely, the nasopharynx, the lungs and the alimentary canal.

It is true that in about 33 per cent. of the cases there are gastro-intestinal disturbances, but we must not lose sight of the fact that the disease is an infantile one and is coming on during the summer months so that, aside from the fact that an infection of any kind is apt to produce a gastro-intestinal disturbance in any infant, there might be quite another cause for these disturbances, such as bad food or the swallowing down of the irritating nasopharyngeal discharge containing the virus. Experimentally, the disease was produced in one instance through the alimentary canal in the monkey after an opiate was administered to the animal so as to paralyze the peristaltic movements of the intestine, and in no instance was the disease produced by feeding the animals with the feces of poliomyelitic patients. Pathologic findings in the gastro-intestinal tract in my cases so far reported were negative. Thus the alimentary canal may be excluded as a focus of infection.

In some instances characteristic lesions of poliomyelitis were reported to have been found in the lungs,¹ but these were rather few and since the nasopharynx, according to my theory, is the point of entry for the virus, it would seem to be a striking coincidence, which after all might be accepted as a further proof of my theory.

The nasopharynx is then the only avenue left and now we are facing the problem, the first phase of the paper, the mode of infection.

For a period of eleven years I have had the opportunity to examine schoolchildren of ages from 6 to 14 years. I have noticed that between the ages of 5 and 8 years there are present hypertrophied tonsils in 85 per cent. of the children examined, but as we go up in the age-scale, say at 14, we find only about 15 per cent. of the children with hypertrophied tonsils. The question

7. Larsen: Tidsskr. f. d. norske Lægefor., 1911.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Flexner, Peabody and Draper: THE JOURNAL A. M. A., Jan. 13, 1912, p. 109.

naturally arose, what has become of these tonsils? My explanation is that these children of from 5 to 8 years of age are forced to breathe the air nearest to the ground, which is more full of solid particles than the upper strata of atmosphere, and that these solid particles are constantly irritating the nasopharynx and producing the condition described. As the child grows taller and is inhaling air of a lesser density, so far as dust particles are concerned, the irritation subsides and the tonsils atrophy.

Since poliomyelitis is preeminently an infantile disease, occurring in the dry season, since no particular neighborhood or character of the living premises plays any material part in the spread of the disease, since several children in the same family may be attacked successively and since in a given house children are attacked in different families in fairly quick succession and along lines of neighborly communication, I have concluded that the virus probably lurks in the dust and the nasopharynx must be the point of entry. That the lymph-current is the avenue of transmission strengthened my theory.

In the early part of 1910 I began my experiments to prove this theory. The experiments were fully published,² but I shall take the liberty of giving a cursory review.

Sweepings of rooms where cases of poliomyelitis occurred, together with the dust accumulated on wooden trimmings of rooms, were collected and prepared for injection in the following manner: The samples of sweepings were macerated in sterile water for a number of hours, the menstura were filtered through paper and then through a Berkefeld and French bougé porcelain filter, respectively. These filtrates were then injected intracerebrally, intraspinaly and subcutaneously into monkeys. Two of the monkeys had abortive attacks, as subsequently proved by clinical symptoms and pathologic findings. One monkey injected with the extract of the dust of a very severe case had all the clinical features and pathologic lesions of poliomyelitis. An emulsion of the brain and cord of the infected monkey was injected into two other monkeys and both animals showed the clinical symptoms and pathologic lesions of the disease after an incubation period of seven and fourteen days, respectively. As a control four other monkeys were injected in the following manner: One animal was injected with sterile water; a second one with normal salt solution; a third one with an extract of dust from two different rooms in two different houses where no case of poliomyelitis occurred, prepared in the same manner as was the dust of all other rooms where cases of poliomyelitis occurred. The sterile water as well as the salt solution were passed through a Berkefeld filter before injection. The fourth monkey was injected with an extract of the brain and spinal cord of a normal monkey. All the four monkeys remained well and are well to-day after the lapse of five months. Another monkey was injected with a five-months-old emulsion of a poliomyelitic monkey which was kept in a refrigerator. This animal was quite ill after seven days but fairly recuperated. A month thereafter it was killed and we found the characteristic lesions of poliomyelitis in the surrounding pia of the cord, but the vessels and to an extent the cord-substance were intact. This monkey evidently had an abortive attack. It is pertinent here to remark that not all the monkeys contracted the disease. I have thus proved the theory that

poliomyelitis virus lurks in the dust of the sick-room, and we may also conclude from the above experiments as well as from the heretofore-enumerated deductions that the nasopharynx is the point of entry.

While my experiments with nasal discharges of patients suffering from poliomyelitis and the experiments of Strauss and Rosenau were positive failures, Kling, Wernstedt and Pettersson³ were more fortunate in their work. They have succeeded in demonstrating the presence of the virus in a viable condition in the nasal, buccal, tracheal and intestinal mucus in nine fatal cases of poliomyelitis and in twelve out of thirteen living patients suffering from the disease. Their work was well controlled and their results are of a most convincing nature.

This is certainly the last and most complete link in the chain of my theory and I dare say that the most skeptical hypereritic must admit its validity.

THE MANNER OF DISSEMINATION

The manner in which the virus finds its way into the dust is no longer pure conjecture. The nasopharyngeal discharges are certainly the medium of the transfer of the virus into the atmosphere in the same manner as the bacillus of tuberculosis. Once in the atmosphere the virus may be disseminated in the following manner: (1) by direct contact; (2) by healthy carriers, as human beings, on clothing or by domestic animals; (3) by winds scattering the dust; (4) by bathing in stagnant water in an infected neighborhood.

These propositions are practically illustrated in the report of 150 investigated cases of poliomyelitis by Robert W. Lovett⁴ which occurred in 142 families:

The evidence of communicability in our series of cases is a very important matter. We had instances of direct contagion from child to child, with an incubation period of from one to fourteen days. We had a number of instances of what appeared to be indirect contagion by a healthy carrier, and finally we had eleven instances in the 150 cases in which the disease followed intimate contact with persons with old infantile paralysis, often of many years standing. Instances of what would appear to have been contagion occurred in thirty-five out of the 150 cases. Of the 150 patients sixty-two were swimming or wading in stagnant water just before the onset.

A German observer found the disease in an unduly large proportion of shoemakers' children, who were much in the shops where the dried dust was flying about. Then, again, the disease is most prevalent along the course of railroads up to within a mile of them, as is well illustrated in Table 1.

TABLE 1.—RELATION BETWEEN DUST AND POLIOMYELITIS AS OBSERVED BY LOVETT AND RICHARDSON AND A. E. SHEPARD

LOVETT AND RICHARDSON*		A. E. SHEPARD†	
Amt. Dust	No. Cases	Amt. Dust	No. Cases
No dust	0	No dust	0
Very little dust	29	Moderate amount	112
Much dust	118	Much dust	81
Moderate amount	195	Excessive amount	7
Excessive amount	8		
Total	350	Total	200

* Lovett and Richardson: Ann. Rep. Mass. Board of Health, 1911, p. 83.

† Shepard, A. E.: Ann. Rep. Mass. Board of Health, 1911, p. 115.

Some English observers have lately reported substantially the same results.

Thus we have reached the third part of the paper.

3. Kling, Wernstedt and Pettersson: Ztschr. f. Immunitätsforsch., 1912, xii, 316, 596.

4. Lovett, R. W.: Pediatrics, 1910, xii, 574.

2. Neustaedter and Thro: New York Med. Jour., Oct. 21, 1911.

A NEUROPATHIC CONSTITUTION NECESSARY IN THE
ETIOLOGY OF POLIOMYELITIS

It is a significant fact that while the disease is highly contagious and infectious, and, as shown by me, the virus is found to be in a viable condition in the dust of the sick-room, yet we find, comparatively speaking, few cases of infection during an epidemic and in rare instances more than one case in a given family reported. In hospitals where patients with poliomyelitis were confined no case of infection by other patients has been as yet reported, with the exception of one case in a Massachusetts hospital.

TABLE 2.—FAMILY HISTORY IN THIRTY-ONE CASES

Case	Name	Age	Family History
1	N. N.	2 years.	Father has tabes.
2	J. K.	4 years.	Mother's only sister has chorea.
3	C. S.	3 years.	Mother neurotic.
4	F.	6-8 years respectively.	Father highly neurotic; paternal grandmother died insane.
5 and 6	N. F.	2½ years.	Mother neurotic.
7	J. F.	3 years.	Mother epileptic; father alcoholic.
8	S. R.	3 years.	Mother had eclampsia (pneperal); is constitutionally inferior.
9	C. W.	3 years.	Negative.
10	M. B.	3½ years.	Negative.
11	S. S.	4 months.	Father highly neurotic; paternal cousin had poliomyelitis.
12	E. L.	3 years.	Mother neurotic.
13	W. Cise.	2 years.	Mother insane.
14	J. S.	1 year.	Mother's sister epileptic.
15	N. N.	1 year.	Maternal cousin has chorea.
16	C. K.	1 year.	Father's sister and aunt insane.
17	G. K.	½ year.	Father's mother became suddenly deaf, mute and blind and died of apoplexy.
18	P. C.	1 year.	Mother's aunt paralyzed.
19	G. W.	5 years.	Mother epileptic.
20	L. G.	1 year.	Mother neurotic; maternal cousin had poliomyelitis.
21	J. L.	2½ years.	Father neurotic; two of his cousins have poliomyelitis and other cousin has Little's disease.
22	G. K.	1 year.	Maternal second cousin epileptic.
23	J. F.	1 year.	Negative.
24	F. C.	1 year.	Mother neurotic; maternal aunt has chorea and cousin has poliomyelitis; paternal aunt has chorea.
25	S. B.	8 months.	Negative.
26	L. E.	2 years.	Maternal aunt insane.
27	E. G.	1 year.	Mother neurotic; paternal aunt insane.
28	G. K.	8 months.	Father suffers from general paralysis of the insane.
29	C. S.	4 years.	Negative.
30	H. W.	2 years.	Maternal cousin has poliomyelitis; patient fell same day before the onset of fever, injuring his back.
31	C. W.	2 years.	Negative; received a blow on the spine on the day of the onset of the fever.
32*	S. L.	2 years.	Maternal cousin suffers from some nervous trouble.
33	L. E.	2 years.	Maternal aunt insane.
34	I. R.	10 months.	Paternal aunt imbecile.
35	S. L.	9 months.	Mother neurotic; sister has chorea.
36	S. M.	2 years.	Brother has infantile cerebral palsy.
37	J. McB.	4½ years.	Mother neurotic.
38	A. A.	1½ years.	Paternal grandmother was paralyzed in all four extremities.
39	M. B.	4 years.	Maternal cousin died in convulsions.

* Cases 32 to 39 have been investigated since the reading of this paper.

This pertinent question has stimulated me to inquire into the histories of my cases with the greatest care. Although I have complete histories of only thirty-one cases, I regard the facts elucidated as something more than a mere coincidence. I found that in a vast majority of my cases there is a hereditary weak point, a focus of minor resistance, a predisposition in the cerebro-spinal system, which causes it to give way under certain

favorable conditions. In other words, the virus of poliomyelitis must have a fertile ground on which to thrive and because, fortunately, there rarely is such a predisposition, we have, comparatively speaking, so few cases.

Tuberculosis, it seems to me, would offer an ample analogy. Here we also have the virus in a viable condition in the dust and atmosphere of our homes, of vehicles of transportation, of hospitals, everywhere, and yet not everybody contracts tuberculosis. It certainly is an accepted fact to-day that we must have a hereditary or acquired predisposition as a primary condition in order that the tubercle bacillus may exhibit its baneful influence on the tissues.

In Table 2, of thirty-nine cases, we find thirty-three with hereditary taint, a neuropathic constitution, and six negative. While I do not desire to draw conclusions from so few cases, I believe the histories of these cases are significant enough to stimulate investigations along these lines.

METHOD OF PREVENTION

At the present state of our knowledge or rather ignorance of the character of the virus and our inability to diagnose the disease before the onset of the paralysis a curative measure is not to be thought of. One familiar with the pathology of this disease will certainly realize the truth of this statement.

But measures of a prophylactic nature to prevent the spread of the affection may be instituted with a fair degree of success. These must be carried out with a view of eradicating the causes above enumerated.

1. The streets of a neighborhood where cases occur ought to be thoroughly washed and oiled daily.

2. The floors and trimmings of an apartment where a case occurs must be scrubbed daily with an antiseptic solution.

3. Everyone occupying this apartment should have his nasopharynx sprayed with hydrogen peroxid to be followed by a spray of salt solution. This procedure applies equally to the patient.

4. A strict quarantine should be maintained for at least two months.

5. Bathing in stagnant water in a neighborhood where a case occurred should be prohibited, as well as playing around sand heaps.

6. Domestic animals should be thoroughly disinfected, thoroughly bathed and scrubbed with an antiseptic solution, and removed from premises.

111 Second Street.

ABSTRACT OF DISCUSSION

DR. C. L. DANA, New York: We neurologists need particularly to have a little more knowledge of methods of preventing this disease. Dr. Neustaedter has given methods of prophylaxis; but I think his formulary would hardly apply in all regions. You cannot wash domestic animals, such as the cow and horse and hens, and you cannot oil all streets; his suggestions are counsels of perfection which cannot always be reached. But there are various measures which I think ought to be more or less standardized by this time. It ought to be one of the functions of this section, it seems to me, or of neurology in general, to help formulate definite and well-adjusted measures of prophylaxis. I know that has been done by the Public Health Service, and by various state boards of health; but they all differ a little and no one of them is very satisfactory.

DR. TOM A. WILLIAMS, Washington, D. C.: I have written a paper attempting to explain, on the grounds of localized anaphylactic reaction and the chemotaxis of the unknown particular noxa of poliomyelitis, the reason for the incidence

of this condition on certain different parts of the nervous system in different cases. In 500 cases, which we had in Washington two years ago, we did not find the biologic factor of nervous heredity which has been so conspicuously presented just now by Dr. Neustaedter, although his cases are most striking in that regard. It may be that they are coincidental, because in the New York epidemic I do not think that the same remarkable association was ascertained. It would seem *a priori* that a general susceptibility of the nervous system to such very different disorders as were described in the paper should not predispose to attack by this infection, which is of mesoblastic type. It is not a nervous disease at all; it is a vascular lymphatic disease, and the nervous structures are affected coincidentally on account of their situation relative to the vessels which are more particularly conveyers of the contagion. Besides which the contagion has been found in very different organs to those of the central nervous system.

With regard to the mode of prevention, we are hopelessly at sea when we consider that one case in a district will not convey the disease to children in intimate contact, when we consider the extreme rarity of hospital infection and when we consider the extraordinary leaping of the infection from case to case in the large epidemics. The measures advocated by the various health boards seem to be more or less in the air. Recently I have seen allusions made to the bedbug as a source of the conveyance of the disease, and that is worth keeping in mind in our research; but we failed to obtain data from patients or physicians in Washington in that respect during our research in 1910 (*Washington Med. Ann.*, May, 1911).

DR. ALBERT E. STERNE, Indianapolis: The peculiar regularity that we see in the manifestations in different individuals within the epidemic or endemic zone is interesting; it is notably the fact that there are many cases, relatively speaking, which do not show the full-fledged typical picture of what we have been commonly calling acute anterior poliomyelitis. There are many cases now on record, and we have all of us seen them probably, in which the polio-encephalitic inferior type is shown without the myelitic type prevailing. Again, the peripheral type shows occasionally in a very mild form. Last year we saw a number of these cases in Indiana, in which there was unquestionably in play the epidemic-endemic type of poliomyelitis, but in which the manifestations were extremely mild; and I discovered these milder cases, on the one hand, and the severer cases, with extremely rapid course, on the other, as also the upper medullary type in the same epidemic. These cases are a possible danger to the community, because they may not be recognized and hence not reported as epidemic-endemic poliomyelitis.

DR. A. L. SKOOG, Kansas City, Mo.: The nasopharynx is undoubtedly a source of infection; but I do not believe that it is the only source. Dr. Neustaedter mentioned the fly and other insects as possible carriers; some work has been done along that line, and it is possible that the fly may be a carrier. I agree with him about these epidemics following railroads. I have observed that point during my work of the last three years; and I think that holds true also in epidemic cerebrospinal meningitis. I do not agree with the idea that the disease attacks those of hereditary neuropathic tendency more than others. I have seen over a hundred cases during the past three years, and many of them I have had opportunity of studying rather closely in the families, having been sent out by the Kansas State Board of Health through the state, and mingling with the relatives as well as the patients, and I do not believe that there is any more heredity among these families than among the average of people that you see. If we take the statistics of New York state, I believe the number of mental defectives is about 1 in 100. If we accept that percentage and look up the families we will probably find very few families in the state of New York that are not tainted a little. Possibly in the far West or in the West that does not hold as it does in the effete East.

A number of boards of health as well as the Public Health Service have given out instructions as to how to prevent poliomyelitis; they do not agree entirely, although they do

agree in the main, and the point which Dr. Dana made about difficulty in carrying out all these fine points in prophylaxis is well worthy of consideration.

DR. M. NEUSTAEDTER, New York: If we can afford to oil streets for automobilists we can afford it for little children. The oiling and washing of the streets has been practically demonstrated to be of great value in the late epidemic in Massachusetts, where they have proved that in neighborhoods where the streets are thoroughly washed and oiled the epidemic stops. In Cornwall, England, last September, as stated in the *British Medical Journal*, an epidemic was stopped in one week after the roads were thoroughly washed. It is not a question of washing away or killing the germs, but of keeping down the dust and thus keeping down the germs.

Of course, statistics do not always tell the truth, and I have not attempted to draw any conclusions from so few cases. I have merely pointed out that it might not be simply a coincidence, and it is worth while to inquire along these lines. I have simply indicated what I found. Dr. Skoog's remarks on tainted families in New York I would not criticize, but I would insist that we have just as few tainted families here as in the West.

I have spoken of the age in school children with respect to tonsils, merely as indicating one of the reasons which brought to my mind why poliomyelitis attacks mainly little children, and I have simply drawn an analogy that as these 5- and 6- and 7-year-old children are condemned to breathe an area of atmosphere full of dust, so these little tots are condemned to breathe the area of dust when walking below. So it seemed to me that the dust was propagating the disease.

MEDICAL SOCIOLOGY IN CIVIC BETTERMENT *

OTTO P. GEIER, M.D.
CINCINNATI

About six months ago at a meeting of the National Municipal League at Richmond, Va., I heard an interesting paper on "Economy and Efficiency in Health Administration" by S. M. Gunn, professor of sanitary biology and public health at the Massachusetts Institute of Technology. Professor Gunn rather severely and perhaps justly criticized medical health officers of the present day and then proceeded to prove that trained sanitarians should hold these positions. He said:

Apparent economy may be attained by an untrained man, but in most cases true economy, combined with efficiency, cannot be had unless the health administration is in the hands of an individual thoroughly trained in the sanitary arts. . . . It cannot be expected that any one who has not received special training, or who has had merely the few hours of hygiene allotted to the subject in a medical school curriculum, is the proper person to be put in charge of the public health activities of a community. The first essential for any city which is honestly seeking to maintain a health department of real value is to secure the services of a trained sanitarian. There is no alternative in this matter.

In concluding, Professor Gunn stated that if health departments are to be economical and efficient, we must free them from politics with its accompanying uncertainties and strife.

In the discussion which followed, M. N. Baker, editor of the *Engineering News*, further read the death warrant of the medical health officer when he said:

The question is how and where to get trained men for the work. The training of even the best medical schools is not in the direction of public health work. . . . We are not, how-

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

ever, so badly off as might be thought, because some of our best technical schools, through their courses in sanitary engineering and in sanitary biology and chemistry, are turning out men who are much better qualified to take up the work of the health officer than are those who are the graduates of medical schools Already a number of cities are employing engineers as health officers When doctors are employed, we find either a poor weakling of the medical profession, who has been given his office out of pity or political favor, or else an ambitious young man who is taking up the work while trying to build up a medical reputation.

I have quoted the above arguments at some length because of their authoritative source and because it so aptly illustrates a tendency of the times which is not only to belittle the past attainments of medical men as health officers, but also to discount their ability to handle the problems of to-day and the future. I challenge these statements. These biologists and engineers have apparently forgotten that the tremendous advances in sanitation and hygiene of the past decade have come with physicians generally in charge of all health work: that this progress has been made in spite of the fact that politics has more or less pervaded all health administrations. They themselves assert that even the sanitary engineer can succeed only when the department is freed of politics. Have they not also forgotten, among other things, that it is a physician who has made possible the greatest engineering feat of history, the digging of the Panama Canal, after French engineers had failed because of their lack of knowledge of sanitary laws?

That the municipality to-day needs the services of a sanitary engineer is not to be denied. It also needs food inspectors, chemists, bacteriologists and veterinarians; but to obtain the best results from all these the municipality needs a highly qualified physician in charge, to direct and coordinate their work. The question is not one of the ability of a medical health officer to handle the work, but rather the failure of communities to recognize the importance and the necessity of putting the best available physician at the head of it and giving him sufficient power to follow his ideals. Has not the fact also been overlooked in the discussion of this subject by the biologist and engineer, that it is the medical profession which has created the field of the sanitary engineer?

The sanitary engineer demands good pay, and in criticizing health officers as a class, forgets that thousands of medical health officers have been serving without pay or for some pitiful sum in the great bulk of the lesser communities. Has not this unselfish work been the very inspiration, the energizing force in communities which has finally stirred them to an appreciation of the value of preventive health measures? There is hardly a city of any size in which the physicians have not led some movement for health betterment and by such movements educated the public and eventually forced city officials to improve health administration.

HEALTH PROPAGANDA IN CINCINNATI

Cincinnati can be quoted as perhaps the most notable example of such evolution as regards her health department. All the governmental functions of our city had been in the grip of an almost invincible political organization, the Cox ring, for nearly two decades. So compact was their organization, so complete their control, that it held in terror not only the public service corporations but our so-called "best citizens." This organization, of course, controlled the health department and usually selected a fairly well-known physician as health officer and thus placated the public. The organization con-

trolled all the appointments under him. The medical officer accepted the seemingly inevitable and did the best he could under the circumstances.

Cities are said to gain little from spasmodic reform, but let us see how the medical profession of Cincinnati made use of their one opportunity. In 1905 the Cox ring was defeated and the newly elected mayor selected as health officer Dr. S. E. Allen, a man of no experience in health affairs, a specialist, in fact, but a man above all things honest, fearless and with a broad social outlook. He appointed equally fearless men as his chief meat inspector and chief milk inspector. In attempting to carry on their initial inspections these men met with all sorts of obstacles, to say nothing of attempted bribery. The published annual reports of their predecessors had stated that everything was in fine condition, and yet Cincinnati was experiencing the second highest death-rate from tuberculosis in the country and its infant mortality was frightful. Now Cincinnati began to know the truth about her dairies and slaughter-houses. The findings of the inspectors were amazing and our new health officer began to visit the dairies himself. Federal officers stated that our dairies were indescribably filthy and "the worst in the country."

The practice of feeding wet distillery waste to cows had become universal and had produced a low type of city dairy. The health officer, recognizing that this style of slop feeding was responsible for the low standards of the dairymen, attempted to stop the practice by legislative action of council. The distillers with their tremendous influence and big fortunes, by injunctions and otherwise, temporarily delayed progress and so this efficient health officer sought other means of helping the situation. A medical milk commission was organized in May, 1906, by the county medical society and fortunately so, for it was this body which continued the fight for clean milk when on the following December our courageous health officer lost his position through the return to power of the Cox organization. Now we could hope for nothing locally, and so the next month a bill was introduced in the state legislature forbidding the sale of milk from cows fed on distillery waste. By this time the milk commission had introduced the production and sale of certified milk, and through publicity had gained the public's confidence. For the next three months a terrific battle was waged between the medical milk commission, fortified by the valiant ex-health officer on one side, and the distillers on the other. The distillers' efforts were strengthened by the former milk inspector, who had now regained his position. It was a battle royal, not confined to Cincinnati, but carried to the state capitol. The milk commission desired the endorsements of the several civic organizations and secured them too, but not until the controversy threatened with disruption the most powerful of these organizations, in which the whisky interests represented over one-tenth the membership and perhaps one-half the moneyed interest. Yet, although the directors of this club were threatened with wholesale resignations if they endorsed the pure milk bill, they stood their ground. When the bill finally became a state law, the Cox board of health refused to enforce it. The milk commission now began legal prosecutions under the law and waged such a forceful campaign for a new and non-partisan board of health that the Cox organization realized the futility of further antagonizing public sentiment. In August, 1909, the council organized a board of health along ideal lines, with the terms of the members so overlapping that a definitely constructive and continuous

policy has been possible ever since. We now feel that the great difficulties encountered at the outset have proved our greatest blessing in that every good citizen became acquainted with the real issue during the long-drawn-out fight. A definite public sentiment was crystallized in favor of clean health administration which will resist the attempts of any political organization ever to interfere with our health department affairs.

Our health officer and his force now, for the first time in our history, give full time to the service, and Cincinnati is rapidly reaching a place where its department of health will court comparison with the best in the country. This detailed recital is made to show that a few determined physicians can withstand the strongest political organization even when it is allied with "big business," and thereby accomplish much for the cause of good government as well. When the Cox machine was overwhelmingly beaten in the mayoralty campaign last fall, it was freely stated that the health department fight had contributed not a little to the organization's disruption, in that it had made new lines of cleavage in political ranks heretofore absolutely solid. It was probably more than coincidence that our new mayor, Henry T. Hunt, was the very representative in the state legislature who had brought to a successful issue the fight for the pure milk bill several years before.

Now let me add that it was not a "trained sanitarian" who started the revolution in Cincinnati health affairs, but just a plain medical man with a professional sense of duty, coupled with a broad social point of view. Cincinnati's experience can be duplicated in any other city if the medical men will fearlessly oppose the injection of politics into health affairs.

Another interesting fact in connection with this campaign is that city administrations are now very generous to the health department. In 1911 the health department secured an increased budget of 8.2 per cent. over that of 1910, and in 1912 an increase of 13.2 per cent. over 1911. Let us see whether this struggle was worth while.

INCREASE IN EFFICIENCY OF CINCINNATI HEALTH DEPARTMENT		
	1910	1911
Expenditure	\$72,401.51	\$78,902.19
Dairies under inspection.....	about 350	3,500
Dairies in Class A.....	1	58%
Average bacteria per c.c.....	5,700,000	770,000

Decrease in mortality in infants under 2 years of age from diarrheal diseases in 1911 over 1910, 28.6 per cent. (109 infants).

The first inspection in 1911 of the plants of wholesale milk-dealers showed the following:

Equipment, 12.9	Methods, 18.6	Total score, 31.5
The last inspection showed:		
Equipment, 23.9	Methods, 36.6	Total score, 60.5
The first inspection of retail milk-dealers in 1911 showed:		
Equipment, 17.6	Methods, 26.4	Total score, 44
The last inspection showed:		
Equipment, 29.1	Methods, 38.3	Total score, 67.6

SUMMARY		
	1910	1911
Dairy inspections	1,636	5,863
Milk depot inspections.....	79	815
Store inspections	244	9,150
Total.....	1,959	15,838

Increased efficiency of milk inspection 707 per cent. over 1910; increased cost, 7 per cent.

MEAT INSPECTION		
	1910, Part Time Force	1911, Full Time Force
Veterinarian in charge.....	1	1
Butchers	7	0
Veterinarians	0	7
Value condemnations	\$3,248.50	\$9,564.00
Other foods condemned	3,747.20	28,018.55

LABORATORY		
	1910	1911
Medical examinations	3,785	4,227
Chemical milk examinations	3,679	8,256
Bacteriologic milk examinations	70	1,487
Cream and ice cream examinations.....	0	65
Water examinations	27	214
Miscellaneous foods and special analyses	0	108
Total examinations	7,651	14,357

PREPARATION FOR THE OWEN BILL

The active campaign in Cincinnati for a non-partisan board of health drew the attention of the citizens to the value of effective health administration. You may believe that our representatives in Congress will be found supporting the Owen bill. Our congressmen know the public's attitude in Cincinnati and they will show no fear or favor when the bill is at issue. Were such preliminary local effort and accomplishment more general there would not be the situation that now exists in Washington. In their efforts to pass the Owen bill the profession is being forced to overcome the protestations of a horde of moneyed lobbyists, agents of greedy "big business" whose sale of impure foods or drugs may be threatened. They must also overcome the influence of those parasites of the poor unfortunate and sick — the patent medicine fakers. These pirates are viciously but adroitly aligned and befronted with that misleading and misbranded organization, the League for Medical Freedom. When the American people come to recognize the evil of decentralization of health control, when they understand the high purposes of a federal board of health, they will demand that they be protected by such a board. Unfortunately for the movement, the public does not understand how unnecessary was the terrible loss of life and property in San Francisco in 1900 and in New Orleans in 1905. Political control of health administrations, coupled with stupid business, cost thousands of lives and millions of dollars following uncontrolled epidemics of plague and yellow fever. We need the federal board to perfect local health administration; we need it to bring about intercity and interstate cooperation and coordination. If you desire then to engage in a national health propaganda, begin your education in your own home towns.

MEDICAL WORK AND SOCIAL SERVICE

Public health and charity work are closely allied. I believe the statement will go unchallenged that an intelligent physician, by previous training and service, is best qualified to consider social service endeavor from the broadest point of view, yet comparatively few are found in the ranks of the social workers who are to-day attempting to solve the many difficult problems that have arisen in congested cities. As a partial recognition of the foregoing fact, a new committee has been appointed which will make its report at the National Conference of Charities and Corrections in Cleveland in June. This committee reports on "The Relation of Medical and Social Work," and in its seven subcommittees will consider this interrelationship under the following topics: hospital social service; visiting nursing; industrial diseases and accidents; infant mortality; blindness; insanity and epilepsy; tuberculosis, syphilis, hookworm and alcoholism; sex hygiene, including subject of sterilization.

The wide field of social betterment, with its medical, hygienic and economic background, is one that is familiar to the physician and rather difficult of comprehension by the lay social worker; and yet by a strange transposition of interest and affairs the lay mind, instead of the medical mind, is grappling with these problems. The same criticism might be applied to a large part of the social worker's program.

As further evidence of this I submit to you a few excerpts from a recently published statement by Sara E. Parsons of the Massachusetts General Hospital, an expert in the social service field, in which she attempts to outline for college women the necessary preparation for social work.

She first suggests that the college graduate, as a preliminary, become a graduate nurse, or, as an alternative, on the assumption that this graduate from a girls' college has studied anatomy, physiology, hygiene, bacteriology and chemistry, she ventures to outline a program in preparation for social work as follows:

Actual nursing	2 months
Obstetrics, infant-feeding, etc.....	2 months
Child-nursing	2 months
Dispensary work, eye, ear, nose and throat....	2 months
Dispensary work, tuberculosis, home visits....	2 months
Dispensary work, nerve clinic.....	2 months
Field work	2 months

This involves a program of eighteen months of study, to which she would add one year in the theory of social service, all of which totals two years and a half of study.

Does not all this suggest that the profession is failing to cover a field of activity which is properly its own? Does it not indicate that the medical colleges should meet this demand of the new social order of things and supply the fraction which is lacking to make of their graduates social workers as well as physicians? Even if comparatively few entered the field, would it not so broaden the social outlook of the graduate as to make of him a better physician? The mere insertion of such a course, premedical or elective, would help materially in supplying the great demand of to-day for competent social service workers. There is even greater demand to-day for competent physicians, with a decent social outlook, to take administrative positions in charitable and social service work—the large offset to the ever-narrowing field of the physician resulting from preventive medicine. A few medical colleges have seen the need for a postgraduate course in preventive medicine, and in the near future we can hope to have a supply of trained men for health department work.

COOPERATIVE MEDICAL TEACHING

The Medical College of the University of Cincinnati has recognized the trend of public affairs and is better preparing its graduates to solve the problems of sanitation and hygiene in their respective communities. This university has established a cooperative course in preventive medicine by placing its students directly in the field of health department activity. In his junior year the student divides his time between active service in the board of health work and the regular work of the medical college. The groups of students are assigned to the health department to do chemical and bacteriologic work, examinations of milk, water, and testing for typhoid, tuberculosis and diphtheria. To this are added food, dairy and bakery inspections as well as school inspections and fumigation. In fact, every activity of the board of health is taken part in.

This cooperative plan of teaching hygiene and sanitation in the University of Cincinnati has proved valuable

to the students as well as to the health department. It has stimulated better work on the part of the inspectors. The student becomes more interested in his work as he realizes the relative importance of facts and conditions observed. Thus the graduates of this college will come to realize the practical importance of municipal health work. They will be more useful advisers to the smaller communities in which they enter practice and will be most helpful in creating a spirit of cooperation between the medical profession and the medical health officer. As a result, greater progress will be made in preventive medicine and public health.

PRODUCT OF PUBLIC INSTITUTIONS

The physician enjoys the most direct approach to the public and it is his duty to crystallize a public sentiment that will be appreciative of the tremendous advantages of hygienic living. It is also his duty to lead the way in insisting that public institutions be conducted in a humane and intelligent manner. In viewing the problems of the city's dependents he readily supplies the scientific background. He should know of the neglect that is usual in the care of indigent adults in almshouses. He should appreciate the menace of the feeble-minded outside the confines of an institution. He recognizes some of the causes, at least, of insanity and could be helpful therefore in its prevention. He should be the court of last resort to determine the admission or non-admission of the sick and afflicted to institutions, and lastly, he should be best qualified to judge wisely the problems involved in child welfare work.

INDUSTRIAL HYGIENE AND THE PHYSICIAN

Leaving the field of public charity and institutional work, there is the almost undiscovered one of improving the industrial life and activities of the wage-earner. It remains for the physician to prove to the capitalist that shop sanitation is a factor in industrial efficiency and that it pays fully as well to conserve the health of the human operator, as it does to reduce the number of lost motions by "scientific management."

The capitalist must be shown (1) that industrial hygiene induces a better personal hygiene, which in turn energizes the employee; (2) that efficiency of mind is affected by home and shop conditions; (3) that its ultimate result will be to keep busy many a machine now idle because of the preventable illness of the employees manning these machines; (4) that a better appreciation of the value of good health for itself will alone raise the standard of efficiency of any workman; (5) that improved personal cleanliness and better health make for a greater self-respect in any individual and tend to improve his family relations; (6) that betterment of civic health makes for happier homes, and healthy and happy homes are fundamental structures on which the commercial advancement of any city must largely be built.

In business life the brains and the energy of the American have astounded the world. The more intelligent captains of industry are now busily at work helping to improve industrial conditions, and are thereby solving some of the social problems. In many factories social service departments are being instituted in charge of physicians. The machine-tool industry in Cincinnati was influential in having the board of education take over the continuation schools previously conducted by them in their plants and permanently incorporate them as a part of the school system. This same group of men also saw the wisdom of cooperating with the dean of the engineering department of the University of

Cincinnati when he proposed to establish the first cooperative course of engineering, in which the student spends one week in the university and the next week in the shops. Besides increasing the efficiency of the graduate, this plan has a social phase in that it enables the student to earn his living while getting his education.

THE MEDICAL MAN IN THE NEW SOCIAL ORDER

The physician to-day does not occupy the exalted position that I would covet for him, partially because of a false sense of professional etiquette which has kept him from taking an active part in political affairs. The physician whom the public has generally seen in public positions is the "political doctor"—a man of no high standards, moral or professional—and this man has substituted in the minds of the people his standards for those more ideal ones of the profession.

The criticism that I direct at the medical profession is born of the hope that the members of the profession may be awakened to a sense of their real power, their great influence, their moral obligation and their greatest opportunity, that of serving all the people. They must align themselves with the modern idea of community life: "the whole for every man, and every man for the whole."

The appeal is likewise born of the belief that this, the noblest profession, in so widening its scope, is serving itself best; in so doing it is coming back into its own heritage, that of enjoying the respect, the admiration and the unbounded confidence of the American people, without which we must fail in accomplishing our highest mission.

This democracy of ours offers to us possibilities for growth and extension of propaganda not enjoyed by the physicians abroad, where the profession and health officials are bound about by tradition, official life and red tape unknown to us. Our opportunities for progress are greater, our responsibilities and obligations are likewise the greater.

The medical profession, scientifically, is rapidly placing itself on a par with the profession of the older countries. We have the knowledge to take up the tasks of preventive medicine and sociology in this country, and the opportunity is ours. If we but supply the necessary interest and energy, public welfare work in its broadest and truest scope will go forward by leaps and bounds. There will grow alongside of it and directly out of it a higher sense of public duty, a more ideal and unselfish citizenship—a citizenship that will more fully realize its deep obligation to the medical profession; and in this mutuality of confidence and regard, the medical profession will take a new and higher place in the community and will receive rewards not yet dreamed of.

Physician, "know thyself"—know thy strength, thy power, thy scope; physician, "heal thyself" of a contracted vision as to thy field of usefulness. From the ranks of thy profession must be developed the true "social engineer" to lead in the present world movement for social improvement. This social engineer will find his life—the extension of the humanities; his hope—the prevention of life waste; his work—service to mankind.

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ABSTRACT OF DISCUSSION

DR. C. HAMPSON JONES, Baltimore: I have voiced these views for some time, in a very limited sphere. In our annual report, I have insisted that the commissioners of health must largely become sociologists. That is particularly

true in obtaining death-rates and the cause of death-rates, obtaining the birth-rates and the cause of the low birth-rates, the study of infant mortality, and so on, by taking special census of the cities into which you go; but you can inject the social workers directly connected with the health department, or members of independent organizations that can and will work in harmony with the health department.

DR. M. P. RAVENEL, Madison, Wis.: I would be the last man to belittle the service of trained sanitary engineers. When they take the stand, however, that they are the only people who know how to run departments of health, they are like a man looking through a microscope, seeing one small field very much enlarged and losing sight of the rest of the specimen. There have been a few sanitary engineers who have made good health officers. I believe that without exception they have been in small cities. The splendid conduct of health matters we find in the state of Indiana is all due to a physician; the cities of Chicago, Detroit and Philadelphia were brought to the highest efficiency in health matters by physicians. I cannot think of any city or state in this country which has made any great advance that has not been under a physician as health officer. When you come down to the bottom, medicine is the foundation of all biologic and social training. What Dr. Geier says is exactly right, namely, the medical schools must keep up with the times; they must branch out a little. Everybody should read the brochure of Dr. Norman E. Dittman entitled "Education and Preventive Medicine," noticing especially the outline at the end of the book which he has given for a course in preventive medicine. At the University of Wisconsin, for several years past, Professor Ross has been advising his students to take medical bacteriology, in which course they get a good training in contagious and infectious diseases. Every social worker should have training in this sort of medicine.

While it is true that not many places are open at the present time for graduates in preventive medicine, they are increasing at a tremendous rate. We expect to graduate our first student with the degree of Doctor of Public Health this month, and already a place is waiting for him. We must educate the people to the necessity and value of preventive medicine, proving to them that it is the cheapest and best life insurance in which they can invest. As soon as business men realize this fact we will find all cities employing thoroughly trained health officers.

DR. J. N. HURTY, Indianapolis: Only the other day I happened on one of the works of Descartes. You know that Descartes was probably the most original mind of this later age; and certainly, he, more than any other thinker, has influenced modern speculative and experimental thought. He said that if ever the human race (he was not a physician) is to be raised to the highest practicable level, morally, mentally and physically, medicine would point the way. This, which was said over two hundred and fifty years ago, struck me as a very forcible and wonderful utterance. It is through hygiene that the human race is to be raised; it is hygiene that will finally purge the human race, as far as is practicable, of the terrible social diseases and of all of the other diseases which drag us down and which cost us so terribly. It seems to me there is no question about it.

Instead of believing that there is an oversupply of doctors of public health, I have decidedly the opposite opinion. We want this minute ninety-two doctors of public health in Indiana, for commissioners of public health in each of our counties. There is indeed a good market for them. At the University of Michigan, not long ago, I studied the requirements for the degree of Doctor of Public Health; I think that they are too high at the present time. They are ideal. We should aim at the ideal, but we cannot reach it all at once. I do not believe the universities will turn out enough doctors of public health to supply the Indiana demand for a long time, and I hope that the standard will not be placed so high that we may get a larger supply within a reasonable time. We cannot reach the ideal at one step.

DR. OTTO P. GEIER, Cincinnati: I hardly can emphasize any more definitely than I have the points at issue. The physician is forever turning aside the opportunities that are

presenting themselves to him in the social service field. We might well consider the economic phase of this question from the medical standpoint. We are reducing incomes in the profession 30 to 40 per cent. by medical preventive work, and we should plan to take care of the physician who has cooperated in reducing his work and thereby his income.

A METHOD OF SELECTION OF DONOR FOR BLOOD TRANSFUSION *

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CHICAGO

The possibility of iso-agglutination makes the choice of a donor for blood transfusion an important matter. It has been shown that individuals fall into definite groups as regards this phenomenon, and only a person belonging to the same group as the patient who is to be transfused should be selected as donor. It is obvious that it is unsafe to transfuse with the blood of a donor whose serum will agglutinate the patient's corpuscles, or whose corpuscles are agglutinated by the patient's serum, and still more so when both these reactions occur. Cases with seemingly unfavorable results under these conditions have been reported by Schultz,¹ Ottenberg² and Hopkins.³

The following method may be used for carrying out such tests: So far as the blood of the donors to be tested is concerned, sufficient blood may be obtained from the ear; but in the case of the patient it would be better to draw the blood from the median basilic vein of the arm in the usual way because more serum is required. Three drops of the blood are added to 10 c.c. of a 1 per cent. solution of sodium citrate in physiologic salt solution. In this manner approximately a 2 per cent. suspension of the blood is prepared, the citrate preventing coagulation. The remaining blood is poured into a centrifuge tube and allowed to clot. With a clean needle the clot is loosened from the side of the tube and the tube centrifuged for a few minutes to obtain an upper layer of absolutely clear serum. This completes the preparation of material, with the exception of the plate which is now to be described and which has been found to be very serviceable. On an ordinary piece of window glass, approximately 2 by 4 inches in size, which has been washed absolutely clean with water and ether, ten small circles are made with melted paraffin, assuming that a choice is to be made among five donors. If the melted paraffin is drawn up into a medicine-dropper, the circles are quickly made with the tip while gentle pressure is exerted on the bulb. Ten circles may be made with one medicine-dropper full of melted paraffin. In this manner ten paraffin cups are made, each of which will hold at least 4 drops. The circles are made in two rows of five each. In each cup in the first row is placed 1 drop of the suspension of the patient's blood, and in each cup in the second row are placed 2 drops of the patient's serum. To Cup 1 in the first row are added 2 drops of serum of Donor 1, to Cup 2, 2 drops of serum of Donor 2, etc. To Cup 1 in the second row is added 1 drop of the blood of Donor 1, and to Cup 2, 1 drop of the blood of Donor 2, etc. There are therefore required in

such a set 5 drops of patient's blood suspension, and 10 drops of patient's serum, and 1 drop of each donor's blood suspension and 2 drops of serum. With a narrow glass rod the fluids are mixed thoroughly, the rod being washed in citrate solution and wiped after each mixing. In practically all instances, iso-agglutination when present becomes visible macroscopically after half an hour at room temperature; the mixture can be inspected easily under the microscope also. It is obvious that in testing for iso-agglutination in larger groups, as in twenty, the greatest advantage is to be derived from this method. It has seemed so simple and easy of performance in comparison with other methods that it was thought best to make a brief report of it.

THE PALLIATIVE TREATMENT OF TERMINAL LARYNGEAL TUBERCULOSIS *

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SAN FRANCISCO

The palliative treatment of terminal laryngeal tuberculosis is a thankful one. In private practice, much can be done by daily treatments to relieve the severity of the patient's sufferings, but in institutional work the problem is entirely different. In public hospitals, as a rule, it is unusual to have a trained laryngologist constantly in attendance. Therefore the questions arise what practical methods should be adopted for giving permanent relief from the laryngeal pain, and whether such methods could be put into the hands of the resident physician. Whether this problem has been solved can be determined by a study of the results obtained in the following series of cases.

The condition of these patients is such as to awaken our deepest sympathy. Doomed in a few months to die, with absolutely no hope of escape, their last moments are made miserable by continuous pains in the larynx, which are present not only during the ingestion of food, but even when the larynx is in a condition of rest. The taking of solid food is an impossibility; and even the swallowing of water or milk produces such an agony of suffering that slow starvation is generally preferable.

Local applications of cocaine, frequent insufflations of propaesin, anesthesin or orthoform, local cauterization with lactic acid, can all be used with marked benefit to the patient. As a usual thing, however, these measures give only temporary relief and in addition consume so much time as to make them impossible to be thoroughly carried out in a hospital of several hundred beds.

In the cases which are not too far advanced, the patient can be instructed in methods of auto-insufflation, but in the bed-ridden patients, in whom the suffering is the most intense, local methods have been found to be of very little benefit.

It occurred to Rudolf Hoffman, of Munich, that some form of permanent anesthesia of the interior of the larynx would prove an unbelievable blessing to this class of poor unfortunates. The brilliant results in superficial neuralgias, which followed Professor Schlösser's original communication on the use of alcohol injections in these conditions, gave him the clue, and he saw that by injecting the superior laryngeal nerve such an anesthesia might be brought about. Already Braun and Frey, by means of cocaine injections in the region of

* From the Memorial Institute for Infectious Diseases.

1. Schultz: Ueber Bluttransfusion beim Menschen unter Berücksichtigung biologischer Vorprüfung, Berl. klin. Wchnschr., 1910, xlvii, 1407.

2. Ottenberg: Transfusion and the Question of Intravascular Agglutination, Jour. Exper. Med., 1911, xlii, 425.

3. Hopkins, J. Gardner: Phagocytosis of Red Blood-Cells After Transfusion, Arch. Int. Med., September, 1910, p. 270.

* Read before the San Francisco Polyclinic Society, June 5, 1912.

the ramus internus of the superior laryngeal nerve, had secured anesthesia sufficient to carry out small laryngeal operations.

The emaciation which is usually an accompaniment of tuberculosis in the latter stages makes it particularly easy for this procedure to be carried out successfully. The point of entrance of the nerve through the thyrohyoid membrane can be palpated with great exactness. The technic of making the injection is as follows: The skin is first prepared by painting the region to be injected with iodin. The left side of the larynx is grasped with the first and second fingers of the right hand, and with the thumb of the same hand the painful point is located. As soon as this spot is found the thumb-nail is pressed in to mark the spot and the needle is introduced at that point. The needle is introduced perpendicularly for 1.5 cm.; then the point is moved in all directions until a sharp pain, radiating to the ear, is felt. From 3 to 5 c.c. of a warm solution of 85 per cent. alcohol are then injected until the pain in the ear disappears. The point of entrance of the nerve will be found just at the upper edge of the thyroid cartilage, about one-third of the distance from its outer edge.

In none of the sixteen cases reported by Hoffman, and certainly in none of my own cases, were untoward effects observed. In fact, it can be stated that the procedure is entirely without danger. The relief from pain is immediate, and aspiration of food as a result of paralysis has seldom been observed. The injection can be repeated without danger as often as necessary. The duration of the anesthesia varies from a few hours to as long as forty days.

To my mind one of the most important secondary effects of the injection is the mental effect on the patients. The immediate relief from pain gives them hope of rapid recovery; their spirits improve and they try to take more nourishment.

The great value of this procedure is undoubted, yet a study of the literature shows surprisingly few case series reported. The simplicity of the procedure, the ease of application, the permanency of the result, and, most important of all, the fact that the method can be used by any medical man or intern, make it a relief measure with which every man working with tuberculosis should be familiar.

The tabulated series of cases, studied at the San Francisco City and County Hospital for Tuberculosis, is especially interesting for several reasons, and as far as the literature shows, absolutely unique, in that only those cases were selected in which death was inevitable within a few weeks, and the sufferings of the patients were intense. The majority of the patients found the greatest relief from pain and surcease from their sufferings up to the day of their death. The negative results in three cases are self-explanatory.

The negative results in the series mentioned above, and in some subsequent cases in which the laryngeal involvement was not so marked, bring out one interesting point. If there is an involvement of the epiglottis, especially on the external surface, the relief from the injection is entirely absent in most cases, and only partially present in others.

TABLE SHOWING RESULTS OF ALCOHOL INJECTION IN TEN CASES OF TERMINAL LARYNGEAL TUBERCULOSIS

No.	Name	Sex	Age	Pulmonary Findings	Larynx Findings	First Injection	Condition Before First Injection	Relief After Injection	Days Relief	Later Injection	Condition Before Second Injection	Death	Total Days Relief
1	N.	M.	35	Very late cavity formation; daily fever.	Both cords and arytenoids deeply ulcerated; epiglottis free.	2/1/12 Both sides.	Continuous pain, night and day; increased on swallowing.	Immediate relief; freedom from pain; eating and mental condition improved.	30	Second, 3/2/12	Patient rapidly failing; mentally irrational; complains of some pain.	3/18/12	46
2	K.	M.	23	Same as Case 1.	Filled with pus and mucus; ulceration of arytenoids.	2/4/12 Both sides.	Continuous pain, night and day; solid food impossible; takes milk, one swallow at a time.	Great relief, lasting until death.	14	None.	.....	2/18/12	14
3	W.	F.	55	Same as Case 1.	Large ulceration of tongue and interarytenoid space; fungating granuloma of right cord; large ulceration of septum.	2/1/12 Both sides.	Sharp, racking, continuous pain, day and night; cannot drink milk or water except by single swallow.	Immediate, marked improvement; free from all pain; swallows easily; takes solid food; says relief is wonderful.	3	.....	Repetition of injection not absolutely necessary, but was made at request of patient; comfortable up to death.	3/3/12	31
4	C.	M.	25	Same as Case 1.	Large ulcerative process of cords and arytenoids.	2/12/12 Both sides.	Great pain on swallowing and between meals.	Immediate marked improvement; drinks an entire glass of milk.	31	3/15/12	Pain has returned last few days; patient wants second injection.	3/16/12	31
5	B.	M.	32	Same as Case 1. Tuberculosis of femur.	Slight infiltration of interarytenoid space; no ulceration.	2/28/12 Both sides.	Complains of constant hacking cough; no pain on swallowing.	Immediate relief from cough, which patient ascribes to injection (?).	19	.....	.....	4/24/12	4
6	S.	M.	27	Patient in extremis; rapidly failing.	Filled with pus; regurgitates all food.	2/19/12 Both sides.	Constant pain on swallowing.	Relief claimed by patient, who is not rational; result considered doubtful.	..	Second injection refused.	.....	5/29/12	4
7	H.	M.	47	Same as Case 1.	Great thickening of epiglottis; no view of larynx.	3/21/12 Both sides.	Burning pain on swallowing; can take no liquids.	Relief after forty-eight hours.	9	None.	.....	3/30/12	9
8	W.	F.	36	Same as Case 1. Weight 69 lbs.	Large ulceration of arytenoids; first exam. 3/6; no pain till 3/28.	3/28/12 Right side.	Pain on swallowing.	Relief immediate and lasted until death, April 11, 1912.	15	None.	.....	4/11/12	15
9	D.	M.	56	Same as Case 1.	Cords, arytenoids and epiglottis ulcerated.	3/19/12	Continuous and racking pain; demands relief by repeated injections.	Nerve not located by first two inj.; immediate, marked relief following third.	34	2nd, 3/28; 3rd, 4/11/12	.....	5/15/12	34
10	Y.*	M.	37	In extremis.	Extensive ulceration of cords and arytenoids.	4/4/12 Both sides.	Continuous racking pain.	Nerve not located; no pain in ears; no relief.	†	.....	.....	4/4/12	..

* Japanese. † Died day of injection. ‡ Relief from injection doubtful.

This fact was proved in one case in which the ulceration involved the internal surface of the epiglottis. Because of its low position it was thought inadvisable to amputate. Repeated alcohol injections were made both by myself and others without the slightest relief. Subsequent amputation of the epiglottis gave immediate and lasting relief. This is probably to be explained by the fact that the external surface of the epiglottis is innervated by the glossopharyngeus, while the internal surface is innervated by the superior laryngeal nerve coming from the vagus.

The severity of the cases can be appreciated by the fact that the longest period a case was under observation before death intervened was forty-six days; the shortest, three days. The relief in most cases was immediate and marked, lasting usually up to the day of death. Most of the patients requested a second injection and described the relief in the most exaggerated terms such as "marvelous," "wonderful," etc.

The accompanying table is self-explanatory. All of the patients were bed-ridden; none recovered. Although this procedure can in no sense be looked on as a curative measure, the marked relief afforded the patients puts it in a class by itself as a palliative measure.

In conclusion, it should be noted that the failures are, in the vast majority of cases, due to faulty technic. This can usually be proved at the time of the injection. If the patient does not complain of a sharp pain, due to a rubbing of the point of the needle against the nerve, the injection will probably be a failure. It is always well, however, when it has been impossible to locate the nerve by this method, to inject the alcohol, as the perineural infiltration will possibly cause enough anesthesia to help the patient greatly.

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IMMUNIZATION IN PNEUMOCOCCUS INFECTIONS *

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The formation of antibodies in those infections due to bacteria which produce little or no soluble toxins is held to be due to the stimulus of the whole bacterium in question. Intoxication and immunization are held to be due to the same cause. The idea that there are produced during infections substances purely toxic in nature which do not call forth an immunizing response, but which may even interfere with the proper formation of antibodies in response to certain other substances, has not been considered by most investigators.

In this paper I wish to present briefly the results of immunization experiments in animals and the results of the treatment of lobar pneumonia in man with various products obtainable from pneumococci.

The opsonic content of the serum in lobar pneumonia has been found to be below normal during the early part of the disease, but well above normal as the symptoms subside. In those patients who die from overwhelming infection it remains persistently below normal. In experimental pneumococcus infections the opsonic curve runs a similar course. When pneumococci killed by heat are injected there is first a reduction and then an increase in opsonin practically similar to what occurs

during an infection. The opsonic content of the serum for pneumococci may therefore be looked on in a general way as an index of resistance.

When highly virulent pneumococci are allowed to autolyze in sodium chlorid solution there appears at a certain period a highly toxic substance. This, when injected intravenously in guinea-pigs, rabbits and dogs, produces symptoms characteristic of anaphylaxis in these species, and when injected subcutaneously in man produces a moderate increase in opsonins after a short negative phase, rather marked local reaction, leukocytosis and some fever. These extracts call forth reactions in man similar to those caused by the heat-killed bacteria. The pneumococci after extraction or autolysis lose the ability to retain the Gram stain, show varying degrees of disintegration, and when injected into animals and man exert little or no toxic action, but induce a prompt rise in the opsonic power of the serum without a preceding negative phase. By injecting large enough doses of a combination of the toxic material and the autolyzed pneumococci I have been able to produce a continuous negative phase similar to that observed in overwhelming pneumococcus infections. The mechanism of immunization seems paralyzed. In this connection it should be pointed out that the action of the toxic material obtained by autolysis of pneumococci is exactly similar to that which I have found in various pneumococcus exudates, such as the peritoneal exudate in pneumococcus peritonitis from the consolidated lung in pneumonia, from pneumococcus empyema pus, etc. The appearance of the toxic material in pneumococcus extracts and its disappearance have been found to be associated with proteolysis. The toxicity of the extracts may be temporarily restored by the addition of serum, but not by a second addition of serum. It has been found that intravenous injections of heat-killed pneumococci, of pneumococcus extracts during the toxic stage and after the toxicity has disappeared, of pneumococcus broth-culture filtrates and of autolyzed pneumococci render guinea-pigs resistant to subsequent injections of toxic autolysates in two, four, six, twenty-four and forty-eight hours, respectively. Salt solution, broth and extracts of typhoid bacilli, on the other hand, do not render guinea-pigs refractory to toxic pneumococcus autolysates. The reaction seems to be specific. The facts that the extracts after they have lost their toxicity and that autolyzed pneumococci which are non-toxic call forth reactions which render guinea-pigs resistant to such highly toxic material speak in favor of the view that intoxication is not essential in this process, but without further proof we could not be sure but that a certain amount of intoxication follows even these non-toxic injections.

The highly toxic substance in pneumococcus autolysates has been found to be soluble in ether. This serves to separate the toxic substance from the protein constituents of the autolysate. The ether-soluble material produces symptoms in guinea-pigs exactly similar to those observed following the injection of the autolysate itself, but fails to render the animals insusceptible to subsequent injections of both the toxic autolysate and the ether-soluble portion. We have here then an example of intoxication by a bacterial product which does not call forth an immunizing response. Moreover, the protective value against experimental pneumococcus infections in the guinea-pig and rabbit, of heat-killed pneumococci and of pneumococcus extracts before the toxic stage has been reached has been found to be distinctly less than that of large doses of autolyzed pneumococci

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Memorial Institute for Infectious Diseases, Chicago.

and autolysates after the toxicity has disappeared. The immunizing substances seem to be present in relatively larger amounts. The protective power is greater in the antigens from which the toxic substance has been removed.

For the treatment of lobar pneumonia so far chiefly the autolyzed pneumococci have been used.

A study by the statistical method during the past two years at the Cook County Hospital has shown a definite reduction in the mortality of the 130 treated cases. The number of patients treated, however, is too small to allow definite conclusions to be drawn; but when we consider that the patients that have been treated in this way belong to the most unfavorable group it looks as if this antigen really was of definite value.

Recently the effect of the non-toxic autolysate has also been tested. The seemingly beneficial effect in individual cases especially when the injection was made early has been very striking and it is proposed to carry out a study of this mode of treatment by the statistical method.

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ABSTRACT OF DISCUSSION

DR. G. A. WARREN, Black Rock, Ark.: What has been said regarding typhoid immunity, I believe, admits of no argument. I have not followed so carefully as has Dr. Rosenow the work on the opsonic index, but I have followed with care the clinical manifestations after the immunizing treatment of those who have been subjects of pneumonia, particularly after having gone through an experience with an epidemic of this disease in our part of the country. Not only did I use this treatment for immunizing purposes, but I used it in the treatment of the patients themselves, those who had not been given the immunizing doses, but who developed the disease. Did the immunity to which Dr. Rosenow referred occur among guinea-pigs alone, and how long was the immunity supposed to last, if at all? An attack of pneumonia, as we all know, establishes an immunity for a very short time, and contrary to other infectious diseases, after the period of immunity has passed the person is now liable to subsequent attacks of the disease. This has been our teaching and has been warranted by observation. I have followed, I think not less than thirty-seven cases which seemed typical, beginning with chill, fever and so forth, and which have been placed under this treatment. The treatment of these cases alone, would not amount to much in establishing the remedy were they not corroborated by other investigators. Instead of the classical crisis that occurs in lobar pneumonia, we find a gradual disappearance of the disease by lysis and a milder termination of the disease than is common. I have been led to believe that immunizing is what we all have been looking for, but after the disease is established, vaccines or antigens should be used as treatment, together with our medicinal "standbys," as we get a shorter duration of the disease and a much milder and quicker termination.

DR. SOLOMON SOLIS COHEN, Philadelphia: In using the latest introduction, namely, toxins derived from pneumococcus cultures, the organisms are killed, the cultures filtered, and with this filtrate there are mixed like products of other organisms, chiefly streptococcus and staphylococcus in definite proportions. Carefully used, the substance has not seemed to do harm, which is the first and most important question; the second, it has seemed to promote resolution in some cases of delay after symptomatic recovery under treatment with injections of quinin and urea hydrochlorid. I have several times called attention to the great value of these massive injections of quinin carbamid in overcoming the pneumonic toxemia, but in a certain number of cases, after the toxemic symptoms disappear, resolution is slow, probably because the treatment saves life in patients who would otherwise go unresolved to the grave. In a few (four or five) such

instances, I have used these toxic filtrates and the results have been striking. After an intravenous injection the temperature will shoot up 4 or 5 degrees, and there is marked rigor; then, within a few hours there occurs an actual crisis during which the patient may become cyanotic and sweat profusely, the blood-pressure and the pulse falling as well as the temperature; and all of these may fall far below the normal line. When one sees this the first time, one may be alarmed lest the patient go into collapse. The functions, however, soon return to normal and the patient professes increased comfort. Resolution is apparently given a fillip by the disturbance. When the toxic filtrate is used intramuscularly the reaction is less pronounced, and the intravenous injection later is better borne. I am always in readiness to meet danger, however, with camphor, epinephrin, heat, strychnin, atropin, or whatever may be indicated.

Secondly, I have also used the pneumococcic and mixed bacterins (vaccines, so called), the suspensions of killed bacteria to promote resolution, and in a few cases, from the beginning. The results in the latter group are perhaps not quite so favorable as with the quinin and urea; but I can confirm Dr. Warren as to termination by lysis instead of crisis. The same thing happens when the quinin and urea salt is used early; hence I consider it an antitoxic. I urge on those who have the opportunity to observe patients under suitable conditions that in selected cases they make careful trial of bacterial products. By suitable conditions, I mean that the patients shall be under the constant observation of dependable interns and trustworthy nurses in hospitals. The methods are not at present suited to the conditions of house practice or even of indiscriminate hospital routine.

DR. DELANCEY ROCHESTER, Buffalo, N. Y.: According to Shattuck's analysis of the cases of pneumonia that have been treated in the Massachusetts General Hospital between the years 1889 and 1912, the death-rate was about the same as during the last 100 years by the various methods of treatment employed. I speak of this because I have been very much impressed with Dr. Rosenow's work. This work I have been following carefully in the literature. It holds out to us a definite advance in method of treatment. There is no doubt that a careful study of the use of the antibodies in the treatment of these cases will be of great value to us.

DR. JOHN A. LIGHTY, Pittsburgh: I wish here to present a temperature curve of a typical case of pneumonia affecting successively two lobes, and should like to ask Dr. Rosenow when he would expect a change in this curve from the use of the serum treatment, and in what part of the curve he would expect the change, and what change would he expect? I had under observation a child 12 years of age, with typical lobar pneumonia at the right base. In four days the middle lobe became affected, but there was no change in the temperature curve. At the end of the tenth day the lower lobe cleared up and the temperature dropped to the normal. Four days later the middle lobe cleared up and the temperature went down to subnormal. No doubt something occurred in the system which kept the temperature lower at one period than at another. During the second lobe involvement something had happened between these two points which kept the temperature down. Does Dr. Rosenow use his treatment also as a prophylactic? We are all besieged daily by exploiters who offer us all sorts of serums and most of us are at a loss to know just what to do. We depend, therefore, on such statements as Dr. Rosenow has given us to set us right.

DR. E. C. ROSENOW, Chicago: I think it is well known that the immunity following attacks of lobar pneumonia is very short; the ability to produce these antibodies in the serum which can be transferred to the human is practically impossible and, for that reason, we hoped to do good in these cases of lobar pneumonia by relying on some form of active immunization—some product of the organism itself. I believe that in a disease like pneumonia the final proof of how much good really results from treatment is statistical. We all know that there are cases of this disease that run only two or three days; then there are cases that begin with great severity. I am not willing to accept the study of any one particular case as a final proof. I am very hopeful of what I have

offered you but just exactly what its value is going to prove to be I do not know. I have seen harm done by the treatment referred to by Dr. Cohen. I have seen two sudden deaths at least which followed the collapse Dr. Cohen referred to. We have no right to inject toxic substances and bacteria which are not already present in the individual. It is fundamentally wrong. It may be that lobar pneumonia is a mixed infection; I do not know; but I believe that it is a pneumococcal infection, pure and simple, in ninety-nine out of 100 cases and we should not be permitted to inject in such patients toxic substances that are derived from other bacteria than the pneumococci. We should give some immunizing substance that is not toxic. Some of these substances are very toxic to animals producing sudden death in many instances. What right have we to use these toxic substances on human beings?

With regard to the course of the temperature curve, especially that following the injection of antibodies, it should be remembered that those things that are soluble in salt solution, when injected, usually produce a very pronounced reaction. In the treatment of thirty-five proved cases of pneumococcus infection there has not followed a death; all the patients recovered and not one of them ran the course expected of him. The disease seemed to have been cut short, some more strikingly than others. What has been referred to about antolysis in pneumonia holds true in this disease as in others.

I have been accused of being foolish in advocating the use of these substances. After the injection of these soluble materials, after the toxic substances have been removed, when the injection is made early in the disease, there is first a slight rise of temperature, sometimes a chill, but usually not. If a chill does follow, it is due to some toxic substance that has been injected. The temperature usually falls by lysis.

A HOME-MADE ANTISEPTIC THERMOMETER CASE

J. N. FORCE, M.D., BERKELEY, CAL.

In a recent issue of *THE JOURNAL*,¹ I saw an account of a thermometer case which provided a plug of cotton saturated with formaldehyd solution. For those who wish to supplement washing, with entire submergence in an antiseptic solution of the area formerly in the mouth of the patient, I offer the following:

The case is a common ignition tube of heavy glass, 1 cm. in diameter and 11 cm. in length. The end of the thermometer is thrust into a soft-rubber cork, and a fountain-pen carrying clip slipped over the outside of the tube. For solution I use 50 per cent. alcohol.

The entire case is no larger than a fountain pen, is quicker than the screw and chain case to put in action, bathes the entire length of the thermometer, does not leak or have an objectionable odor and is immensely appreciated by patients.

2952 College Avenue.



Therapeutics

THE CARE OF INFANTS

(Concluded from page 721)

DIARRHEA

There seems to be in artificial feeding of infants two forms of bowel upset: the first is that of fermentation, with watery movements, due to too much sugar in the food. This condition is cured by removing the sugar from the diet and administering fat and lime in proper

proportions. The second form is that in which the stools are dry and soapy, and is cured by temporarily stopping the fat, pushing the carbohydrate and giving malt-sugars and malt-extracts.

Angelia M. Courtney¹ has made a study of the casein curds in infant stools, and concludes that the hard or casein curds represent remnants of food, principally of a protein nature, that have escaped digestion; that the exact mechanism of their formation is not known; that they represent imperfect digestion; that they are not pathognomonic of any pathologic condition; that the loss of nutriment to the child is slight; and that their presence in the stools should not be a strong factor in the decision as to whether the child's food is correct and the child properly nourished. Brennemann² believes that these curds appear in the stools only after the feeding of raw milk, and that the curds disappear when boiled milk is substituted.

In the treatment of the diarrheas which show intestinal disturbance during artificial feeding, the various rules laid down by the different pediatricians, all equally successful, show that it means only the proper relation of the elements of the nutriment in the particular child.

Dr. John L. Morse³ discusses Finkelstein and Meyer's findings that casein causes no disturbances in digestion and that fat and sugar have no pathologic action unless the intestinal functions have been injured. They believe that sugar is the special and primary cause of fermentation, and with fermentation they would advise the diminution of the quantity of sugar and increase in the casein, and sometimes an increase in the amount of fat. After the digestion improves they would then administer a little very assimilable carbohydrate. The *Eiweissmilch* which these investigators advise is prepared as follows:

EIWEISSMILCH

Heat 1 quart of whole milk to 100 F. Add four teaspoonfuls of essence of pepsin and stir. Let the mixture stand at 100 F. until the curd has formed. Put the mass in a linen cloth and strain off the whey from the curd. Remove the curd from the linen cloth and press it through a rather fine sieve two or three times by means of a wooden mallet or spoon. Add 1 pint of water to the curd during this process. The mixture should now look like milk and the precipitate must be *very* finely divided. Add 1 pint of buttermilk to this mixture.

Finkelstein and Meyer use buttermilk in the preparation of this food for the following reasons: (1) because of the small amount of milk sugar which it contains; (2) to obtain the good effects of the lactic acid, and (3) because buttermilk can be kept for a long time.

The composition of this food is:

Fats	2.5 per cent.
Sugar	1.5 per cent.
Protein	3.0 per cent.
Salts	0.5 per cent.

One quart of this milk contains about 370 calories.

They used this food in a great variety of conditions accompanied by diarrhea, and in their original paper claimed good results in all, but not in the new-born.

The general principles laid down by them for the use of this food in these conditions are as follows: a preliminary catharsis, if necessary, followed, or not, by an initial period of starvation and tea diet, as the case may be; small amounts of casein milk; larger amounts of casein milk; the addition of some carbohydrate other than milk-sugar or cane-sugar, preferably some dextrinized preparation of malt-sugar. They claim that the loose, green stools are quickly replaced by typical soap-stools and that the addition of malt-sugar does not cause a recurrence of the symptoms of fermentation. They call attention to the fact that on account of the low nutritive value of

1. Gros, E. L.: An Antiseptic Thermometer Case, *THE JOURNAL A. M. A.*, June 8, 1912, p. 1756

2. Courtney, A. M.: *Am. Jour. Dis. Child.*, 1912, iii, 1.
3. Brennemann, J.: *Am. Jour. Dis. Child.*, 1911, i, 341.
3. Morse, J. L.: *Am. Jour. Dis. Child.*, 1911, ii, 366.

the food there is certain to be a loss of weight in the beginning of the treatment. This is followed by a stationary period; then, when the amount of food is increased and carbohydrates added, by an increase in weight. They found that babies could be kept on this food for months and continue to thrive.

It has been shown that milk-sugar causes diarrhea much more easily than dextrin-maltose mixtures, which are generally well borne. It has also been shown that withdrawal of all sugar diminishes the secretion of the ferments necessary for the metabolism of sugar. The axiom of this scientific finding is that when sugar is again begun after complete withdrawal, only small amounts should at first be administered.

Morse concludes his paper with the statement that he believes the method of withdrawing lactose and raising the percentage of casein followed by the addition of dextrin maltose is the most valuable one in the treatment of intestinal disturbances of infants. He also believes that as soon as the digestion is improved the child should be put back on its ordinary diet.

Dr. J. M. Brady⁴ reminds American physicians of the milk nutritional disorders described by Czerny and Keller. The symptoms of this disease as described by these writers and translated by Brady are as follows: They develop gradually, and are often overlooked by the mother. If the baby is regularly weighed, the weight-curve will be found irregular; first no gain, then a slight gain; the lack of gain is often in spite of the fact that the caloric value of the food is increased. Then the amount and strength of the food is increased, and in spite of this the child begins to lose weight and becomes pale; the skin loses its elasticity; the muscles become soft and flabby, and the child is restless, peevish and sleepless. The abdomen becomes distended and vomiting sometimes occurs. The stools are characteristic; they become gray, or grayish-white, dry, do not soil the napkin, and are frequently of foul odor. The dryness of the stool is due to lack of water, and the stool is composed largely of insoluble soaps, which soaps cannot take up water. The reaction of the stool is alkaline. If dyspepsia and intestinal infection occur, the stools then become more watery and acid. If proper treatment is not soon instituted, such little patients become marasmic.

These writers believe the cause of this metabolic disturbance is that there has been too much fat in the baby's food, at least too much for the particular baby. They do not believe bacteria have anything to do with the condition. Increase in the proteins brings about no change in the condition. The diminution of fat or an increase in the carbohydrate causes improvement and disappearance of the soap stools.

Finkelstein believes that this condition may be due to an excess of fatty acids combining with calcium and magnesium, with the result that there is formed a much larger amount of insoluble calcium and magnesium soaps than is normal. It has also been found that in these digestive disturbances there is a condition bordering on acidosis and there is an increase of ammonia salts in the urine. The administration, however, of alkalies does not help the child until the mistake in the diet has been remedied. Nevertheless alkali is added in the recommended treatment, namely in what has been termed "Keller's malt soup." This malt soup is asserted by the authors almost invariably to cause recovery of the babies who have this milk nutritional disorder. Brady believes that this food has the greatest value when the baby is

more than 3 months old, and the baby must also have a good carbohydrate tolerance.

KELLER'S MALT SOUP

It is prepared as follows:

Two ounces of wheat flour are mixed with 11 ounces of whole milk and then passed through a sieve. In a second vessel 3 ounces of extract of malt are mixed with 20 ounces of warm water. The two mixtures are then poured into a porcelain vessel, 2½ drams of 11 per cent. carbonate of potassium added, and the whole cooked with constant stirring for twenty minutes and then brought to a momentary boil; any loss through heat is made up by the addition of boiled water.

This mixture has a formula of fat 1.20, protein 2.00, carbohydrates 12.00, and has a caloric value of 800 to the liter. The above is designed for babies with a body-weight of from 6½ to 10 pounds from the third month to the ninth month. For babies under 3 months old the flour is reduced to 1 ounce and the malt extract to 2 ounces. It must be kept on ice and warmed before being fed. It has a sweet, pleasant taste and is taken greedily by all infants.

VALUABLE SUGGESTIONS

Some facts for the determination of the welfare of an infant the first three months of its life are well presented by Dr. F. C. Neff,⁵ whose observations are based on the study of a hundred infants, all artificially fed. Some of his conclusions are as follows:

1. The temperature of an infant should always be taken by the rectum. Neff believes that an infant's normal temperature in this region is 98.6 F. He believes that even a temperature of 99 is suspicious and should be regarded as pathologic.

2. There is no advantage in peptonizing the milk for new-born babes, but it is occasionally beneficial in older infants.

3. Buttermilk is a useful food in some cases, even in the first weeks of life, and it should be tried in cases of fat intolerance and in enterocolitis.

4. Some infants show increased weight when fed on skimmed milk, which when suitably diluted can be made the basis for fat and sugar additions.

5. Malt soup is the food that in his experience proved the best milk preparation.

6. Casein milk has a useful but limited field in catarrhal enteritis.

7. Maltose answers all the requirements for a sugar in infant feeding.

CARE OF THE TEETH

The mother should be carefully instructed to cleanse the child's teeth gently with a simple alkaline mouth wash, and, perhaps, a soft brush, at least twice a day, better three times a day. Nothing is better than a simple dilute milk of magnesia. Care should be taken not to rub or irritate the tender gums, but it is well to remove all particles of milk from the mouth, especially after a number of teeth have erupted. Acid decomposition in the mouth is one of the causes of early decay of teeth.

CONSTIPATION

If the child, in spite of the diet being as near proper as possible, becomes constipated, the simplest addition to its food, whatever it may be, is probably a milk of magnesia. It also adds, many times, a necessary alkali to a milk food. While lime-water may often be of value, it is also more or less constipating. A good milk of magnesia, besides preventing the formation of large curds, if cow's milk is the food, also acts as a gentle laxative. The amount and the frequency in twenty-four hours depend entirely on the results.

4. Brady, J. M.: THE JOURNAL A. M. A., March 16, 1912, p. 751.

5. Neff, F. C.: THE JOURNAL A. M. A., Dec. 23, 1911, p. 2068.

Special Article

TENTH ANNUAL SUMMARY OF FOURTH OF JULY INJURIES

This week, for the tenth consecutive year, THE JOURNAL presents statistics of deaths and injuries resulting from the celebration of the Fourth of July, with particular reference to tetanus, or lockjaw, resulting from these injuries. With the rapid decline in the number of casualties in the last few years, instead of relaxing its vigilance THE JOURNAL has made extra effort to secure complete and accurate data. Very significant is the fact, however, that a large majority of the blanks were returned from hospitals bearing the statement, "No cases treated this year," or "This city had a sane Fourth." From others the lists had but a few names whereas in previous years the pages were filled. Our thanks are due to health officers, hospital superintendents, physicians and others for the careful reports which have made these statistics practically complete and the figures fairly reliable. The data are presented in the same manner as heretofore so that comparison with the figures of previous years may be made.

FEWER CASES OF LOCKJAW

Only seven cases of tetanus were reported this year as compared with eighteen last year, seventy-two in 1910 and 150 in 1909. The returns this year encourage the hope that deaths from this needless cause will soon cease.

TABLE 1.—CASES OF TETANUS

Name.	Sex.	Age.	Cause of Wound.	Site of Wound.	Dura- tion in Days*	Day Anti- toxin was used	Termina- tion.
CALIFORNIA							
Chargin.....	M.	10	Bl. ctg.....	Hand.....	(4) 10	4	D.
INDIANA							
Porter.....	M.	10	Bl. ctg.....	Hand.....	7	..	D.
MASSACHUSETTS							
Peteclaire.....	M.	14	Bl. etg.....	Hand.....	(4) 10	..	D.
MICHIGAN							
Ronzani.....	M.	13	Bl. ctg.....	Hand.....	..	..	..
OKLAHOMA							
Jones.....	M.	12	Bl. ctg.....	Leg.....	..	..	D.
WEST VIRGINIA							
Bowman.....	M.	8	Bl. ctg.....	Leg.....	(5) 8	5	D.
Miller.....	F.	15	Bl. ctg.....	Hand.....	(6) 8	..	D.

* Figures in parentheses show incubation period.

The ages of the lockjaw patients this year ranged from 8 to 15 years, and all but one were boys. In five cases the injury was on the hand; in the other two it was on the leg. The length of time between injury and death was from seven to ten days. The figures in parentheses (Table 1) give the number of days between the time of injury and the appearance of active symptoms of tetanus, varying from four to six days. In two cases anti-toxin was said to have been used, but most unfortunately it was not employed until after the active symptoms of the disease had set in and this is almost invariably too late a period for its successful use. Tetanus antitoxin is chiefly valuable as a prophylactic and very few cases have been reported in which its use immediately after

the injury has been followed by active symptoms of the disease. The list of tetanus cases is given in Table 1.

DISTRIBUTION OF TETANUS

The tetanus cases by states are shown in Table 2. Cases occurred in only six states this year as against ten states last year, eighteen states in 1910 and twenty-five states in 1909. One state, West Virginia, had two cases of tetanus this year, both occurring in the same city, Wellsburg. Other states having one case each were California, Indiana, Massachusetts, Michigan and Oklahoma. Illinois, Missouri, New Jersey, New York, Pennsylvania and Wisconsin, which heretofore have had so many cases reported, had none this year.

THE DEADLY BLANK CARTRIDGE

Blank-cartridge wounds, which have always been responsible for a large majority of tetanus cases, this

TABLE 3.—RATIO OF TETANUS CASES TO BLANK CARTRIDGE INJURIES

Year.	Tetanus Cases.	Blank Cartridge Injuries.	Ratio.
1912.....	7	75	1:10.71
1911.....	18	185	1:10.28
1910.....	72	450	1: 6.25
1909.....	150	1,225	1: 8.17
1908.....	76	942	1:12.39
1907.....	73	606	1: 8.16
1906.....	89	979	1:11.00
1905.....	104	809	1: 7.78
1904.....	105	905	1: 8.62
1903.....	392	1,672	1: 4.27
Totals.....	1,056	7,848	1: 7.23



THERE WERE FEWER ACCIDENTS THIS YEAR THAN EVER BEFORE, BUT STILL TOO MANY—

year caused all of the seven cases. With a full knowledge of this fact and of the awfulness of the deaths from lockjaw, it is entirely inexcusable if not actually criminal to tolerate further the use of blank-cartridge pistols.

As may be noted on comparison of the statistics of this year with those of previous years (Table 3), there is a significant ratio each year between the number of tetanus cases and the number of blank-cartridge wounds.

TABLE 2.—TETANUS CASES BY STATES
Comparison With Previous Years

	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912
Alabama.....	..	..	1	..	..	..	..	..	..	..
Arizona.....	..	..	..	..	1	..	..	..	..	..
California.....	2	4	4	3	1	..	2	1	2	1
Colorado.....	4	..	1	..	..	..	..	..	..	..
Connecticut..	3	..	3	..	4	1	..	..	..	..
Delaware.....	..	..	1	1	1	..	2	..	..	..
Dist. of Col..	1	..	..	..	..	..	..	..	..	..
Florida.....	..	..	..	..	..	..	1	..	..	..
Georgia.....	..	..	..	..	1	..	..	..	..	..
Idaho.....	1	..	..	..	..	..	1	..	..	..
Illinois.....	49	15	20	16	12	12	20	10	3	..
Indiana.....	11	6	3	8	2	..	9	6	..	1
Iowa.....	14	2	3	4	4	1	1	1	1	..
Kansas.....	11	1	..	..	2	1	6	..	..	..
Kentucky....	4	2	..	1	..	1	1	..	..	..
Louisiana....	..	..	..	..	..	..	..	..	..	..
Maine.....	2	4	1	1	..	1	1	1	..	..
Maryland....	1	..	1	1	..	..	2	2	..	..
Mass.....	16	5	7	3	2	5	8	..	1	1
Michigan....	29	7	9	4	4	2	11	11	2	1
Minnesota....	15	2	2	2	2	..	..	..	..	..
Missouri....	29	1	3	3	1	5	8	2	..	..
Montana....	2	1	1	..	1	..	3	2	..	..
Nebraska....	4	3	3	1	..	1	3	1	..	..
New Hamp...	2	..	..	1	..	..	1	..	..	..
New Jersey...	8	9	3	10	8	10	19	9	2	..
New York....	36	9	6	8	4	9	11	7	1	..
N. Dakota...	..	..	..	..	..	..	..	..	..	..
Ohio.....	67	9	5	7	6	7	12	3	3	..
Oklahoma....	1	..	1	1	..	1	..	1	..	1
Oregon.....	2	..	..	1	1	1	..	..	..	..
Penn.....	82	17	12	5	7	7	10	11	1	..
Rhode Island	3	..	..	1	..	..	..	..	..	..
S. Carolina..	..	..	..	..	..	..	..	..	..	..
S. Dakota....	..	..	..	..	..	1	1	..	..	..
Tennessee...	..	..	..	..	..	..	..	..	..	..
Texas.....	..	..	..	..	2	..	..	..	..	..
Utah.....	..	1	1	..	..	..	..	1	..	..
Vermont....	3	2	..	2	2	..	..	..	..	..
Washington.	2	2	..	..	2	4	4	1	..	..
W. Virginia..	3	..	..	2	..	1	4	..	..	2
Wisconsin...	10	4	13	2	3	5	9	3	2	..
Wyoming....	..	..	..	1	..	..	..	..	..	..
Total.....	415	105	104	89	73	76	150	72	18	7
States hav- ing cases..	30	21	23	25	23	20	25	18	10	6

TABLE 4.—CAUSES OF TETANUS CASES

Year.	Blank Cartridge	Giant Cracker.	Cannon.	Fire-arms.	Powder, etc.	Total.
1903.....	363	17	5	3	27	415
1904.....	74	18	5	1	7	105
1905.....	65	17	4	5	13	104
1906.....	54	17	1	7	10	89
1907.....	52	8	6	4	3	73
1908.....	53	5	4	3	6	76
1909.....	120	9	1	4	6	150
1910.....	64	2	..	5	1	72
1911.....	15	1	1	..	1	18
1912.....	7	..	..	..	..	7

A larger number of blank-cartridge wounds almost invariably brings also a larger number of cases of lockjaw. Do away entirely with blank-cartridge pistols, therefore, and lockjaw from the celebration of the Fourth of July will be practically abolished.

THE MORTALITY IN TETANUS CASES

Of the seven cases of tetanus reported this year, six, or 86 per cent., were reported as fatal as compared with 55 per cent. last year, 93 per cent. in 1910 and 84 per cent. in 1909.

TETANUS FROM INJURIES NOT CAUSED BY FIREWORKS

Besides the cases of lockjaw due directly to the use of fireworks, it is interesting to note also those occurring during the Fourth of July season which were due to penetrating wounds from other causes, such as nails or splinters, to crushing injuries, etc. Instead of a reduction in these cases this year there was an increase, forty-three cases being reported during this Fourth of July season, or fourteen more than last year, when twenty-nine cases were reported. The fact that tetanus germs were apparently fully as prevalent if not more so this year than in 1911 makes the marked reduction of cases from Fourth of July injuries all the more significant and gratifying.

TABLE 5.—CASES OF TETANUS FROM OTHER CAUSES

	1903	1909	1910	1911	1912		1903	1909	1910	1911	1912
Alabama.....	..	..	1	1	..	New Hampshire	..	..	..	..	..
Arizona.....	..	..	..	..	..	New Jersey....	7	8	8	1	..
Arkansas.....	2	..	..	..	..	New Mexico....	..	1	..	..	..
California.....	4	4	1	2	*7	New York.....	17	12	4	2	4
Colorado.....	3	..	..	1	..	North Carolina	1	..	..	..	..
Connecticut..	2	2	..	..	..	North Dakota..	1	..	..	..	..
Delaware.....	2	1	..	..	..	Ohio.....	23	13	2	..	2
Dist. of Col..	..	..	..	..	..	Oklahoma.....	..	..	..	..	..
Florida.....	2	..	..	..	..	Oregon.....	..	1	3	..	2
Georgia.....	..	1	..	..	..	Pennsylvania..	21	21	8	6	4
Idaho.....	..	..	..	..	..	Rhode Island..	..	1	..	..	..
Illinois.....	17	18	7	6	10	South Carolina	..	..	..	..	..
Indiana.....	6	4	1	2	1	South Dakota..	2	2	..	..	..
Iowa.....	2	7	3	1	..	Tennessee....	3	..	..	..	1
Kansas.....	4	..	1	..	..	Texas.....	4	1	1	..	..
Kentucky....	5	5	..	1	2	Utah.....	..	..	..	..	..
Louisiana....	1	..	..	1	3	Vermont.....	..	..	1	..	..
Maine.....	..	..	..	..	..	Virginia.....	4	1	..	1	2
Maryland....	3	..	2	1	1	Washington...	2	..	..	..	1
Massachusetts	3	5	..	..	..	West Virginia..	..	1	..	..	..
Michigan....	4	5	1	..	..	Wisconsin....	5	4	1	..	..
Minnesota....	4	2	..	..	..	Wyoming.....	..	..	..	..	..
Mississippi..	..	..	..	..	..	Total.....	166	128	47	29	44
Missouri....	12	5	1	2	3	States report- ing cases....	29	25	18	15	15
Montana....	..	..	..	..	..	
Nebraska....	..	3	1	1	1						
Nevada.....	..	..	..	..	..	

TABLE 6.—CAUSES OF DEATHS NOT DUE TO TETANUS

Year.	Gunshot.	Fire from Fire-works.	Powder, Torpedoes, Etc.	Giant Crackers.	Cannon.	Other Causes.	Total
1905.....	37	23	6	5	7	17	95
1906.....	38	18	18	3	3	3	83
1907.....	20	31	13	13	3	22	102
1908.....	30	22	19	23	7	7	108
1909.....	17	37	16	7	7	6	90
1910.....	19	26	11	2	3	3	64
1911.....	11	12	9	2	5	8	47
1912.....	9	8	7	2	2	7	35

DEATHS AND INJURIES NOT CAUSED BY TETANUS

Besides the six deaths due to tetanus thirty-five persons were killed by various forms of fireworks, making a total of forty-one deaths, sixteen less than last year, ninety less than in 1910 and 174 less than in 1909. This is the lowest number of deaths from such causes during the ten years covered by THE JOURNAL'S statistics, and shows a decided improvement over previous years. This year nine persons were killed outright by firearms, seven by explosions of powder, bombs or torpédoes, two by cannon, two by giant firecrackers and seven by various causes, as blood-poisoning, explosions of chemicals, etc. There were eight victims also, mostly little girls, who were burned to death by fire from fireworks, some of these being the so-called harmless varieties, including very small firecrackers and sparklers. All accidents not due directly to the discharge or handling of fireworks or other means of noise production and dis-

play on or about the Fourth of July have been omitted. Table 6 shows a comparison of the causes of deaths aside from tetanus for the past eight years.

DISTRIBUTION OF INJURIES

In Table 7 will be found a summary of all injuries including tetanus and of all causes arranged by states. Beneath the totals at the bottom are given, for comparison, the totals for the nine previous years. The grand totals for the ten years are also given. Table 8 permits the comparison by states of the total deaths and injuries for ten years. The number of casualties shows a continuation of the remarkable decrease of the last few years, which unquestionably is the result of the efforts to secure more intelligent methods of celebration. This is evident from the fact that the most marked decreases in

the last two years are in the states in which the agitation for restrictive measures has been strongest. For example, the total casualties in Illinois this year are thirty-nine as against 218 last year, 285 in 1910 and 546 in 1909; Massachusetts had forty-five casualties this year as compared with twenty-seven last year, sixty-three in 1910 and 430 in 1909; Ohio had only fifty-five casualties this year, as compared with 105 last year, 166 in 1910 and 323 in 1909; New York had 115 this year as compared with 237 last year, 327 in 1910 and 897 in 1909; Wisconsin had only thirty-eight this year as compared with fifty-two last year, 171 in 1910 and 157 in 1909. Even in Pennsylvania, which has had the largest number of casualties for each of the last five years, there has been a marked improvement, clearly the result of a powerful campaign which has been carried on in that

TABLE 7.—SUMMARY BY STATES OF JULY FOURTH CASUALTIES

Number.	States.	Deaths.			Injuries.					Total Persons Dead or Injured.	Causes of Tetanus Cases.		Causes of all Cases Aside from Tetanus Cases.						Number.
		From Tetanus.	From Other Causes.	Total.	Loss of Sight.	Loss of One Eye.	Loss of Legs, Arms or Hands.	Loss of Fingers, One or More.	Other Injuries.		Total Non-Fatal Injuries.	Blank Cartridge.	All Other Causes.	Blank Cartridge.	Fire Crackers.	Cannon.	Firearms.	Powder and Fireworks.	
1	Alabama.....								2	2	2								1
2	Arizona.....								2	2	2								2
3	Arkansas.....					1			1	1	1								3
4	California.....	1		1		4	1	4	21	30	31	1							4
5	Colorado.....		3	3	1			2	15	18	21			2	10	6	2	10	5
6	Connecticut.....		1	1		2	1	3	23	29	30			9	3	6	7	5	6
7	Delaware.....								6	6	6				4	1	1		7
8	Distriet of Columbia.....								2	2	2							2	8
9	Florida.....																		9
10	Georgia.....								28	28	28						6	22	10
11	Idaho.....								2	2	2						2		11
12	Illinois.....		3	3		2	1	1	32	36	39			4	9	3	15	8	12
13	Indiana.....	1	4	5	1	1	1		35	38	43	1		1	11	2	5	23	13
14	Iowa.....		2	2					22	22	24			2	14		2	6	14
15	Kansas.....							1	7	7	8					4			15
16	Kentucky.....							1	4	5	5				2		1	2	16
17	Louisiana.....								2	2	2						2		17
18	Maine.....																		18
19	Maryland.....								11	11	11			2	3	1	2	3	19
20	Massachusetts.....	1	1	2			1		42	43	45	1		1	20	3	4	16	20
21	Michigan.....		4	4	1	1		7	37	46	50	1			16	4	12	17	21
22	Minnesota.....						1		16	17	17				10	1		6	22
23	Mississippi.....								1	1	1							1	23
24	Missouri.....				1	1		3	52	57	57			4	20	5	13	15	24
25	Montana.....							2	4	6	6				3	1		2	25
26	Nebraska.....		1	1		1			10	11	12			1	6		2	3	26
27	Nevada.....																		27
28	New Hampshire.....								3	3	3			1				2	28
29	New Jersey.....		2	2	1	1			12	14	16			4	4		3	5	29
30	New Mexico.....																		30
31	New York.....		2	2		2	1	1	109	113	115				13	23	3	40	31
32	North Carolina.....																		32
33	North Dakota.....								2	2	2				2				33
34	Ohio.....		3	3				1	51	52	55			5	22	1	4	23	34
35	Oklahoma.....	1		1					10	10	11	1		1	4		2	3	35
36	Oregon.....						1		4	5	5				2			3	36
37	Pennsylvania.....		5	5	3	5	1	12	239	260	265			20	134	28	20	63	37
38	Rhode Island.....						1		1	2	2							2	38
39	South Carolina.....																		39
40	South Dakota.....																		40
41	Tennessee.....								12	12	12				1		8	3	41
42	Texas.....						2		1	3	3					2		1	42
43	Utah.....								1	1	1							1	43
44	Vermont.....							1		1	1							1	44
45	Virginia.....						1			1	1				1				45
46	Washington.....							2	10	12	12				3	1	2	6	46
47	West Virginia.....	2		2							2	2							47
48	Wisconsin.....		4	4				2	32	34	38				15	1	1	21	48
49	Wyoming.....								1	1	1							1	49
1912 totals.....		6	35	41	8	21	13	43	862	947	988	7	0	70	362	75	157	317	
1911 totals.....		10	47	57	8	26	30	83	1,399	1,546	1,603	15	3	170	484	114	184	633	
1910 totals.....		67	64	131	7	33	26	114	2,612	2,792	2,923	64	8	386	1,050	212	229	974	
1909 totals.....		125	90	215	16	36	41	176	4,823	5,092	5,307	130	20	1,095	1,614	427	341	1,680	
1908 totals.....		55	108	163	11	93	57	184	5,115	5,400	5,623	58	18	816	1,793	399	481	2,058	
1907 totals.....		62	102	164	12	75	57	237	3,868	4,249	4,413	52	21	554	1,489	267	502	1,528	
1906 totals.....		75	83	158	22	72	56	227	4,931	5,308	5,466	54	35	925	1,690	408	532	1,822	
1905 totals.....		87	95	182	25	106	80	221	4,562	4,994	5,176	65	39	744	1,775	474	404	1,675	
1904 totals.....		91	92	183	19	61	61	208	3,637	3,986	4,169	74	25*	831	1,268	508	406	1,057	
1903 totals.....		406	60	466	10	75	54	174	3,670	3,983	4,449	363	29†	1,309	1,152	397	236	363	
Total for ten years.....		984	776	1,760	138	598	475	1,667	35,479	38,357	40,117	882	198	6,900	12,677	3,281	3,472	12,707	

* Kind of fireworks causing six tetanus cases unknown. † Kind of fireworks causing 24 cases of tetanus unknown.

state and particularly in Philadelphia, for more enlightened methods of celebration. That state had 265 casualties this year as compared with 442 last year, 623 in 1910 and 986 in 1909. Altogether there were only 988 casualties this year, 615 less than last year, 1,935 less than in 1910 and 4,319 less than in 1909. The total, however, is still by far too large and efforts at restriction should be continued.

NATURE OF NON-FATAL INJURIES

There were 947 non-fatal injuries this year, or 599 less than last year. Eight persons were totally blinded this year, twenty-one lost one eye each, thirteen lost legs, arms or hands, and forty-three lost one or more fingers.

TABLE 8.—TOTAL DEATHS AND ACCIDENTS BY STATES DURING TEN YEARS

	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912
Alabama.....	2	7	1	2	1	1	1	3	3	..
Arizona.....	1	..	4	5	2	5	3	..	2	2
Arkansas.....	..	..	3	4	..	5	1	4	1	1
California.....	160	138	142	96	121	136	89	63	43	31
Colorado.....	39	44	26	23	25	13	18	19	6	21
Connecticut.....	162	133	132	169	63	105	86	78	15	30
Delaware.....	1	5	14	8	16	12	13	8	3	6
Dist. Columbia..	2	10	24	5	12	21	..	..	..	2
Florida.....	1	2	2	..	..	..	1	4	..	..
Georgia.....	..	..	..	4	2	4	..	5	10	28
Idaho.....	4	4	3	3	4	4	2	3	1	2
Illinois.....	366	423	542	598	468	558	546	285	218	39
Indiana.....	160	211	217	250	..	255	164	167	53	43
Iowa.....	168	137	323	255	231	174	91	141	54	1
Kansas.....	63	88	56	61	64	72	86	50	25	8
Kentucky.....	30	72	17	21	18	33	17	26	6	5
Louisiana.....	..	2	3	7	8	4	..	4	2	2
Maine.....	31	32	29	15	11	16	22	7	4	..
Maryland.....	21	22	13	10	23	21	10	8	13	11
Massachusetts...	637	193	467	329	168	430	430	63	27	45
Michigan.....	144	157	288	193	163	203	177	143	69	50
Minnesota.....	157	102	174	95	95	65	69	64	17	17
Mississippi.....	..	..	..	2	2	1	..	..	1	1
Missouri.....	147	84	218	325	299	375	352	112	60	57
Montana.....	5	17	40	3	6	11	9	10	..	6
Nebraska.....	46	63	43	47	58	46	42	36	17	12
Nevada.....	..	1	2	..	1	4	..	1	..	..
New Hampshire...	27	23	9	29	13	13	23	10	2	3
New Jersey.....	228	204	350	398	402	472	488	167	43	16
New Mexico.....	..	4	5	1	6	..	1	3	..	..
New York.....	522	549	566	681	752	647	897	327	237	115
North Carolina...	..	..	1	1	..	..	..	1	5	..
North Dakota...	10	8	29	11	8	13	4	13	1	2
Ohio.....	443	327	329	490	375	543	323	166	105	55
Oklahoma.....	1	3	7	14	194	9	12	11	9	11
Oregon.....	16	13	9	11	5	9	21	19	3	5
Pennsylvania...	553	744	721	969	491	987	986	623	442	265
Rhode Island...	61	30	11	21	39	39	42	19	11	2
South Carolina...	..	..	..	1	..	..	4	..	1	..
South Dakota...	4	10	15	5	8	10	9	4	2	..
Tennessee.....	4	1	5	6	4	5	4	10	3	12
Texas.....	2	2	4	11	7	11	4	2	..	3
Utah.....	23	22	25	18	30	12	18	8	2	1
Vermont.....	45	14	10	14	18	19	12	4	4	1
Virginia.....	..	11	5	8	..	5	..	..	3	1
Washington.....	21	25	15	25	23	38	32	37	22	12
West Virginia...	19	16	34	64	27	29	35	20	2	2
Wisconsin.....	190	215	230	155	150	187	157	171	52	38
Wyoming.....	1	2	8	3	..	1	1	4	4	1
Totals.....	4449	4169	5176	5466	4413	5623	5307	2923	1603	988

Although there has been a marked reduction in the total number of non-fatal injuries, the totals of these more severe injuries are about the same as reported for the two years previous. The giant firecracker continues to hold the first place as a cause of lacerated wounds and is responsible for most of the losses of eyes, hands and fingers. This year 362 injuries including two deaths were due to the giant firecracker. Firearms caused 157 accidents this year including nine killed. Of the total number thus injured nearly half were orderly persons who were struck by stray bullets from the reckless use of firearms by others, and six deaths resulted. The use of cannon caused seventy-five injuries, including two killed. In the ten years, a total of 40,117 people—the equivalent of forty regiments—were killed or injured in the celebration of the Fourth of July!

TABLE 9.—NUMBER REPORTED KILLED AND INJURED IN THE LARGER CITIES

City.	Population Census of 1910.	1907		1908		1909		1910		1911		1912	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New York City.....	4,776,883	22	422	11	316	7	559	6	179	3	91	1	58
Chicago.....	2,185,283	16	151	12	202	..	118	4	62	2	53	2	12
Philadelphia.....	1,549,008	7	248	6	426	9	508	4	405	..	294	2	127
St. Louis.....	687,029	3	189	4	229	4	163	..	44	..	38	..	48
Boston.....	670,585	3	59	6	190	5	167	..	35	..	3	..	16
Cleveland.....	560,663	3	63	12	93	..	4	..	1	..	5	..	1
Baltimore.....	558,485	..	5	1	10	..	5	..	6	..	10	..	10
Pittsburgh.....	553,905	10	88	..	30	5	48	6	26	1	25	1	14
Detroit.....	465,766	2	46	..	10	2	46	1	17	..	18	2	20
Buffalo.....	423,715	..	18	3	11	..	33	1	13	..	16	..	6
San Francisco.....	416,912	..	..	..	11	..	12	..	9	1	8	..	7
Milwaukee.....	373,857	2	93	..	70	..	78	3	112	1	19	..	24
Cincinnati.....	364,463	2	89	1	112	3	86	3	49	1	4	..	21
Newark, N. J.....	347,469	1	129	2	81	1	150	1	15	..	..	..	..
New Orleans, La....	339,075	..	8	..	4	..	..	..	3	..	2	..	2
Washington, D. C..	331,069	..	12	..	21	..	..	..	..	..	..	..	2
Los Angeles, Cal..	319,198	..	35	..	40	..	26	..	..	..	4	..	5
Minneapolis, Minn.	301,408	..	13	..	16	1	24	..	20	..	..	..	..
Jersey City, N. J..	267,779	..	31	5	34	1	14	1	44	..	14	..	3
Kansas City, Mo...	248,331	1	46	..	55	4	67	1	25	..	4	..	1
Seattle, Wash.....	237,194	1	3	..	11	3	10	..	7	..	..	..	2
Indianapolis, Ind.	233,650	1	31	1	14	1	35	..	24	..	5	..	6
Providence, R. I...	224,326	..	20	1	21	..	13	..	10	1	9	..	..
Louisville, Ky.....	223,928	..	13	..	10	1	10	1	13	..	..	..	2
Rochester, N. Y....	218,149	..	12	..	10	..	5	..	10	..	..	..	2
St. Paul, Minn....	214,744	..	20	..	15	..	18	..	12	..	10	..	7
Denver, Colo.....	213,381	..	8	..	13	..	12	1	6	..	..	..	7
Portland, Ore.....	207,214	..	2	..	3	..	16	..	13	..	1	..	2
Columbus, Ohio....	181,548	5	36	..	5	1	19	..	..	..	1	..	1
Toledo, Ohio.....	168,497	1	5	..	8	2	3	1	2	..	2	1	1
Atlanta, Ga.....	154,839	1	4	..	3	..	..	..	5	..	10	..	28
Oakland, Cal.....	150,174	..	9	..	..	..	8	..	9	..	1	..	2
Worcester, Mass....	145,986	1	6	2	20	1	42	..	6	..	1	..	10
Syracuse, N. Y....	137,249	..	20	..	14	..	13	..	6	..	1	..	4
New Haven, Conn..	133,605	..	2	..	..	..	15	..	..	..	1	..	6
Birmingham, Ala..	132,683	..	..	..	..	..	..	..	..	..	3	..	..
Memphis, Tenn....	131,105	..	1	..	3	..	4	..	2	..	..	..	2
Scranton, Pa.....	129,867	..	5	1	17	1	29	..	6	..	10	..	..
Richmond, Va.....	127,628	..	..	..	1	1	..	..	..	..	..	..	..
Paterson, N. J....	125,600	1	29	2	31	1	45	1	14	..	5	..	2
Omaha, Neb.....	124,069	..	25	..	10	1	17	..	17	..	7	1	2
Fall River, Mass..	119,295	..	..	..	12	..	19	..	1	..	..	..	1
Dayton, Ohio.....	116,577	..	11	..	14	..	4	..	2	..	4	..	1
G. Rapids, Mich....	112,571	..	20	1	30	..	3	..	17	1	6	..	9
Nashville, Tenn....	110,364	..	2	..	..	..	..	..	8	..	2	..	10
Lowell, Mass.....	106,294	..	23	..	..	..	18	..	..	1	3	1	..
Cambridge, Mass..	104,839	..	..	..	17	..	..	..	..	..	4	..	..
Spokane, Wash....	104,402	..	..	..	..	..	..	..	..	..	7	..	4
Bridgeport, Conn..	102,054	..	1	..	27	..	21	..	4	..	4	..	1
Albany, N. Y.....	100,253	1	24	..	37	..	31	..	11	1	5	..	..
Hartford, Conn....	98,915	..	18	..	18	..	11	..	14	..	1	..	9
Trenton, N. J.....	98,815	..	38	1	17	1	58	..	..	..	1	..	..
New Bedford, Mass.	96,652	..	..	..	3	..	..	..	..	..	..	..	..
Reading, Pa.....	96,071	..	17	..	13	..	17	1	3	..	4	..	3
San Antonio, Tex..	96,614	..	..	..	1	..	..	..	..	..	..	..	..
Camden, N. J.....	94,538	..	16	..	29	4	14	..	6	..	..	1	..
Salt Lake City....	92,777	..	15	..	6	2	14	1	4	..	..	..	..
Lynn, Mass.....	89,835	..	3	..	11	3	16	..	4	..	..	..	2
Springfield, Mass..	88,926	..	21	1	36	1	9	1	2	..	..	..	..
Wilmington, Del...	87,411	1	14	..	13	3	9	..	6	..	..	..	5
Des Moines, Iowa..	86,298	1	31	..	41	..	12	..	23	..	12	..	..
Lawrence, Mass....	85,812	..	11	1	..	5	21	..	..	..	..	..	..
Tacoma, Wash.....	82,972	2	4	1	3	..	3	..	2	..	..	..	1
Kansas City, Kan..	82,331	1	10	..	17	..	32	..	14	1	5	..	..
Yonkers, N. Y.....	79,803	..	32	..	5	..	8	..	..	..	4	..	..
Houston, Texas....	78,800	..	..	..	1	..	1	..	..	..	..	..	..
Duluth, Minn.....	78,466	..	13	..	9	2	10	..	3	..	1	..	..
St. Joseph, Mo....	77,468	1	23	1	41	1	24	..	11	..	1	..	..
Somerville, Mass..	77,236	..	..	..	..	..	1	..	2	..	..	..	1
Troy, N. Y.....	76,813	..	..	2	18	..	16	1	8	..	2	..	1
Utica, N. Y.....	74,419	..	18	..	10	..	5	..	1	..	..	..	..
Waterbury, Conn..	73,141	2	8	..	14	..	5	..	15	1	..	..	..
Schenectady, N. Y.	72,826	..	4	..	20	..	8	1	13	..	7	..	..
Hoboken, N. J.....	70,324	..	1	1	24	..	7	..	4	..	..	..	1
Elizabeth, N. J....	73,409	..	43	..	72	..	37	..	15	..	1	..	..
Manchester, N. H...	70,063	..	3	..	1	1	5	..	..	..	..	..	1
Evansville, Ind....	69,647	..	5	..	12	..	6	..	7	..	1	..	..
Norfolk, Va.....	67,452	..	..	..	..	..	..	..	..	..	..	..	..
Wilkes-Barre, Pa..	67,105	1	..	3	38	1	15	2	8	..	2	..	5
Peoria, Ill.....	66,950	..	8	..	27	1	22	1	17	..	..	..	2
Erie, Pa.....	66,525	..	..	..	1	..	4	..	2	..	3	..	1
Savannah, Ga.....	65,064	..	..	..	..	..	..	..	..	..	..	..	..
Harrisburg, Pa....	64,186	..	23	1	71	..	22	..	3	..	1	..	..
Portland, Maine....	58,571	1	2	..	..	..	2	..	..	1	2	..	..
Totals.....		94	2,458	83	2,860	80	2,935	43	1,455	16	771	12	522
Totals elsewhere.		70	1,791	80	2,600	135	2,156	88	1,337	41	775	29	423
Grand total.....		164	4,249	163	5,460	215	5,091	131	2,792	57	1,546	41	945

TOTALS IN CHIEF CITIES

Table 9 shows the number reported killed and injured in our largest cities during each of the past six years. The population figures are from the United States Census of 1910. This table is of particular interest, since by it the results of the adoption and enforcement of prohibitive or restrictive ordinances can be seen. Chicago, Philadelphia and Detroit each reported two deaths this year and six other cities reported one each, making a total of twelve deaths in our largest eighty-four cities as compared with sixteen killed last year, forty-three in 1910 and eighty in 1909. Philadelphia is the only large city having more than 100 injuries this year. Altogether only 522 non-fatal injuries were reported for these large cities this year, as compared with 771 last year, 1,455 in 1910 and 2,935 in 1909. A slight increase is seen in the records of some of these cities, although on the whole there has been a decided reduction. Even Philadelphia has reduced its total by more than one-half.

Of these eighty-four cities, twenty-one have a record of six or more injured, the same number as last year, but twenty-six less than in 1910 and thirty-seven less than in 1909. There were thirty of these cities which had a clean record this year as compared with twenty-four last year, eighteen in 1910 and eleven in 1909. On the other hand, only one city had more than 100 injured in each of the last two years, as compared with three in 1910, and six in 1909. Probably the most marked reductions in the number of injured in the last few years have been in New York, Chicago, Boston and Newark. From Newark no casualties have been reported during the last two years, although there were 150 injured and one killed there in 1909.

WHERE THE RESPONSIBILITY RESTS

As has been reiterated in these annual reports, the responsibility for the vast majority of Fourth of July injuries clearly rests with city governments, since the employment of death-dealing methods of celebration is subject to their regulation. It is therefore the duty of the city authorities to decide whether or not the maiming of hundreds, the agonizing deaths from lockjaw and the burning to death of little children by fire from fireworks are to be continued. Prohibitory ordinances are most effective and permanent, as shown by the results in Baltimore, Washington, Cleveland, Trenton and this year in Chicago, and even restrictive ordinances, if they could be rigidly enforced would be effective. But the enforcement of restrictive measures is difficult and requires constant vigilance on the part of the police. By the sound, it is difficult to know whether an explosion is due to a firecracker 3 inches long or to one 5 inches long, or whether it is due to some other forbidden form of fireworks. Under a prohibitory ordinance, however, any explosion is recognized at once as a violation of the law. Again, the smaller firecrackers and sparklers, which have been considered so harmless, caused the clothing of several girls or small children to catch fire this year and all were burned to death.

RECENT PROGRESS

It was understood from the beginning that the obliteration of the sorrow and suffering needlessly caused during the annual celebration of the Fourth of July could be brought about only by a vigorous campaign of education favoring more enlightened methods coupled with the enforcement of restrictive or prohibitive legislation against destructive methods.

For ten successive years THE JOURNAL has collected and published the statistics showing the dire results of

this pseudopatriotic celebration of July 4, but for several years, apparently, there was little result. Aside from a publication of THE JOURNAL's figures by a few prominent newspapers no attention was paid to the awful facts. In 1907, however, another table was added to THE JOURNAL's statistics showing the number of killed and injured by cities and emphasis was laid on the statement that the responsibility for these casualties clearly rested with city governments. Also reprints of THE JOURNAL's report were circulated far and wide among newspapers and other publications. Since that time not only has the press of the country generally taken up the cause but also local, state and national organizations and societies have become interested. They have not only argued against the use of fireworks, but, more important still, have provided more rational and patriotic means of celebration. A correspondingly vigorous action has been taken by city councils during the last few years in enforcing restrictive or prohibitive legislation. These various forces, using and quoting as they did the statistics published annually in THE JOURNAL, have finally reduced the totals of casualties to a small fraction of what they were in previous years. The necessity of perseverance in this campaign for better methods of celebration is aptly shown by the record of Philadelphia. In spite of a most vigorous campaign which has been carried on during the last two years, that city still has over 100 injuries. A continuance of that campaign, however, will doubtless clear the city's record. The more general enforcement by city councils of restrictive measures, similar to those adopted by Chicago, Boston, New York and elsewhere, will do much to help the situation. Reports received also indicate that hundreds of smaller cities and towns this year enforced either restrictive or prohibitive measures. These measures should everywhere be generally adopted.

THE METHOD OF SUBSTITUTION

Better by far than mere negative methods of restricting or prohibiting the use of fireworks during the last few years, however, has been the general adoption of positive methods of reform. Our national Independence Day must cease to be a day of destruction and become a day of recreation, joy and enlightenment. From every section of the country comes the news that, in place of the senseless din of former years, more truly patriotic methods have been employed. The display of flags, the music of bands, the children's parade, the witnessing of historic floats, and afterward the picnics, the trips to the parks and the visiting of friends — these methods are coming more generally into favor. And the result is evident; the smallest number of lockjaw cases and other deaths reported in any year since THE JOURNAL began the collection of these statistics; fewer blinded eyes, fewer maimed bodies and an astonishing reduction in the number of injuries. Let the campaign be continued until this annual slaughter of innocent children shall cease and until common-sense methods of celebration shall prevail throughout our fair land.

The Ideal General Practitioner.—He is virile by virtue of his environment; he is self-reliant from his isolation; he is resourceful from necessity; he exalts common sense above fine theories; he deals with all conditions and preserves a breadth of vision, grasps general principles, and, failing the finer technical knowledge of the specialist, is spared the distortion of his perspective. He knows his patient as a man and a friend and not as a commodity, and he it is who exemplifies best and most consistently that unselfish regard for others that glorifies medicine.—Mearns in *Boston Med. and Surg. Jour.*

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SATURDAY, SEPTEMBER 7, 1912

THE FOURTH OF JULY IN 1912

Probably in no previous year in the last half or three-quarters of a century has the celebration of the Fourth of July been so quiet, so orderly or so worthy of the dignity of a great nation as it was in this year of our Lord, nineteen hundred and twelve. And probably in no previous celebration has there been so extensive and general a display of the national flag as this year. Irresponsible rowdies with their giant firecrackers, their blank-cartridge pistols and their reckless shooting of firearms, instead of being tolerated in our large cities were promptly arrested and fined in most instances. This year, instead of the usual pandemonium of ear-splitting and nerve-wrecking noise, there was order, with quiet, genuine enjoyment and recreation. Instead of the former heathenish methods of celebration, there was much more general use of flag drills, band concerts, picnics, children's parades, pageants in which historic events were represented, etc. Bright, innocent children, instead of being tortured, blinded, mutilated and burned to death as in former years, were this year preserved for their families and the world, save in a few sad instances. Instead of 5,623 persons injured—the number reported by THE JOURNAL only a few years ago—there were only 988; and instead of 466 killed, including 406 who were subjected to the agonizing tortures of lockjaw, as reported by THE JOURNAL in 1903, there were only forty-one killed, including six tetanus victims. Instead of having a continuous struggle of from twenty-four to seventy-two hours against disastrous fires caused by the discharge of fireworks, this year the fire departments of our large cities, with a few exceptions, were practically idle. The forcing into bankruptcy of a few large fireworks factories in the last two or three years has been more than offset by the enormously increased sale of flags, bunting, banners and decorations.

Besides their immediate effect in saving lives, preventing needless tortures and injuries, and increasing the enjoyment of the day by the new form of celebration, these changes have a much wider, more important and lasting significance. Whereas the old methods encouraged lawlessness, disorder, noise and a selfish disregard of human life and comfort, the new methods of

celebrating Independence Day present an annually recurring opportunity to develop in the youth of our land ideas of national and civic righteousness and a love of law and order. The old form of celebration permitted our national holiday to be given over to a furtherance of loose methods and degeneracy; the new methods will make of the celebration a means of developing a better and more useful citizenship.

No day stands for more in the national life of this country than does the Fourth of July; hence the forms of its celebration point in the direction whither the undercurrents of national feeling are turning. The flagrant disregard for law and order shown by the reckless use of firearms, blank cartridges and fireworks July 4 is but a parallel to the absence or looseness of law or authority in other phases of our national life. As a reaction against the tyranny of monarchs which led to the formation of this republic, our government apparently swung to the other extreme of allowing the individual too much freedom. This was inevitable, however, in the beginning of our country's history and continued so during the rapid extension of the frontier. In fact, it has been only in comparatively recent years that the need of better laws, providing for the checking of selfish greed in the interests of the people as a whole, has been more evident. Hoodlums and other reckless individuals were allowed to shoot, maim and kill others in a noisy, barbarous celebration of the Fourth of July for the same reason, clearly, that the vicious were permitted to traffic in vice; that the corrupt were allowed to find their profit on so huge a scale in politics; that corporations and private owners were permitted to neglect safety-devices in mines and other hazardous occupations; that thieves were allowed to appropriate the nation's timber and mineral lands by wholesale; that in a few years' time capitalists owning only thousands could become multimillionaires or billionaires, and that such disgraceful scandals as Lorimerism were made possible. In short, the health and the life of the people have been wasted or jeopardized in countless ways for the profit of a few, because the people feared to infringe on individual liberty by exercising their own authority. Only a few years ago, in fact, this trend toward an apparent national degeneracy was so marked that the country was becoming a mockery and a byword abroad, and its future well-nigh a subject of despair to many at home. Such almost was the feeling held by THE JOURNAL when year after year—for seven long years—the publication of the awful results of the senseless—nay, damnable—methods of celebrating the Fourth were treated with indolent disregard and even in some instances with resentment and ridicule, while the annual murder and mutilation of thousands of innocent children went deliberately on.

Other agencies have been energetically at work, and with some success, to correct other evils; and, by persistent hammering, THE JOURNAL's statistics have finally so thoroughly aroused public sentiment that the

prohibition of fireworks and noise and the adoption of safe and sane methods of celebrating the Fourth of July are being generally demanded. A new era in our national life has begun wherein the necessity is recognized for law and regulation nicely calculated to place a check on individual selfishness and avarice in the interests of the people as a whole without hampering any justifiable private activity. There is still much room for improvement, however, in the celebration of our Independence Day. A total of forty-one killed, including six little children who died by the most agonizing death known to modern times, and 947 who were blinded, or bereft of arms, legs or hands or otherwise mutilated, many for life, still presents too serious a picture to permit a cessation of activity. Even though the totals are smaller than in previous years, the picture of these bright, active, sweet-faced children who but for the criminal negligence of city authorities would still be among the living, is just as pitiful as ever. This year Chicago and several other cities exchanged restrictive for prohibitive measures and secured almost clean records. Cannot the authorities in all our cities and towns—and they are the ones who have the authority and, therefore, the responsibility in this matter—adopt and enforce effective measures so that following no celebrations hereafter will any doors bear crape or any hearts needless sorrows as a consequence of accidents so easily prevented? May not the next seven or eight months see so general an adoption of measures prohibiting fireworks that this national disgrace will be a thing of the past?

THE NEED OF A CRITICAL ATTITUDE IN CURRENT DISCUSSION ON NUTRITION

It was not until recent years that the practical questions relating to dietary standards received any widespread attention in the United States. The unremitting efforts of the late Professor Atwater and his associates, facilitated by the cooperation of governmental departments in giving a larger publicity to the work thus accomplished, have not been without permanent good in stimulating a wholesome interest in the subject of nutrition. From different angles other American investigators have brought their power to bear on the problems of food and diet, so that no one can deny the existence of a sort of popular enthusiasm for the topics here involved. The fact that the technical expressions of physiology—calories, food units, metabolism and the like—have found their way into the humorous publications of the day as well as into the scientific journals, testifies to the hold which the study of nutrition has on the popular mind. Scarcely a week passes without some final dictum in the magazines of the day on the correct habits of eating; and the clever diction which some of these writers cultivate at times serves to conceal a ridiculous inference which is likely to appeal to popular fancy and frequently acts as a substitute for a more wholesome

critical attitude. There is in much of this a danger that the reading public will—to borrow another's expression—become educated beyond its knowledge.

The interesting and laborious work of Chittenden and his colleagues at Yale on the practical protein minimum for an every-day dietary has led to much difference of opinion. In Germany the conclusion of these investigators that the commonly accepted "standards" of Voit and of Atwater, calling for a daily protein intake of 118 gm. of protein and over, are unduly large has received more ready acceptance than in Great Britain. In the United States the new propaganda has attained considerable popularity; but protests have by no means been lacking. Appeals have been made by the advocates of opposing views in a manner which now and then reminded one of partisan politics and the earlier days in the warfare of science¹. The need of trenchant criticism is well illustrated by some of this literature from which the following widely quoted experience may be cited.

Major McCay of the Indian Medical Service has collected a valuable series of observations on the dietaries, food utilization and metabolism of certain native races that inhabit lower Bengal. These persons, who subsist on a simple vegetarian diet, in accord with the custom of many of their Eastern neighbors, are of inferior physique, of low endurance and activity and not long lived. Their protein intake is exceptionally low, conforming to the minimum figures set by Chittenden, and amounting to about 40 gm. of protein per day. Contrasting these Bengalis with some of the other peoples who consume protein more liberally and also have a superior physique, McCay has reached the conclusion that the physical inferiority of his subjects is directly attributable to the low plane of nitrogenous metabolism on which they subsist. The low protein standard has resulted in a bodily deterioration of most threatening aspect.

Here, at length, it might seem as if the advocates of protein economy had received a setback by an experiment in daily life carried out on a large scale and over a sufficient period to carry conviction with it. An unbiased inspection of the facts, however, warns us to be cautious in formulating our conclusions. McCay found that his subjects were in nitrogenous equilibrium despite the confessedly low protein intake. In other words, there were no losses of nitrogen from the body notwithstanding the wretched condition of the individuals. This fact of itself might make one question whether after all the protein level of the diet is at fault in these cases. This suspicion is strengthened by an inspection of the general character of the Bengali diet. These natives subsist almost entirely on rice and dhall, a kind of legume apparently characterized by its indigestibility and extreme unsuitability as an adjuvant to the diet. No less than one-quarter of the ingested protein remained

1. A review of some of the conflicting opinions is given by Mendel, L. B.: *Theorien des Eiweisstoffwechsels, Ergebnisse d. Physiol.*, 1911, xi, 418. Cathcart, E. P.: *The Physiology of Protein Metabolism*, Longmans, Green & Co., 1912, p. 69.

unutilized, giving opportunity for the most objectionable alimentary conditions in the form of irritating and continuous putrefactive changes. Diarrheas and inevitable pathologic intestinal phenomena were regularly observed. If any diet has been singularly inappropriate from a qualitative standpoint, the descriptions of McCay indicate that it is to be found among these Bengalis.

The cited facts should warn us against any hasty acceptance of the broad conclusion that protein is the most important factor in physical development and the general welfare of mankind. There are too many complex factors, aside from mere quantity or composition, to warrant these hasty judgments. The foregoing considerations are not necessarily to be accepted as decisive in the protein minimum controversy. Indeed, they rather constitute a confession of "not proven." The lesson lies in the admonition against superficial judgments and the necessity of approaching the data with objective scientific critique.

THROMBOSIS AND EMBOLISM AFTER OPERATION FOR APPENDICITIS

In twenty-two out of 188 cases of operation for appendicitis, Bull¹ observed the development of thrombosis; his was followed by pulmonary embolism in fifteen, with two deaths. On the basis of this experience as a text Bull presents an exhaustive and instructive discussion of postoperative thrombosis and embolism especially in relation to appendicitis. In explanation of the apparently large proportion of this complication it may be pointed out that all the cases, which are unselected, occurred in the private practice of the same surgeon and were observed with special care; hence it is highly probable that many instances of thrombosis and embolism were recognized which under other circumstances would have escaped notice.

In this series, only embolism of the lungs is considered, as there were no cases of embolism in the portal system. In nine of the twenty-two cases the source of the emboli was manifest thrombosis, mostly in the left femoral vein, which was affected six times, but also in the right femoral vein and in the veins of the muscles of the leg; in thirteen cases the source of the emboli is referred to occult thrombosis in the veins about the incision, in the pelvic veins, or in the vena cava, etc. In the two fatal cases the seat of thrombosis was found to be in the pelvic veins. Nearly all the instances occurred in patients past 30 years of age and more often by far in women than in men. There was no noteworthy difference in the frequency of thrombosis and embolism in patients operated on during the interval as compared with those operated on during the acute attack, but the tendency to thrombosis seemed greater in the severe acute cases than in the milder, and especially so far as

concerns femoral thrombosis. Whether thrombosis in any of these cases had started before the operation cannot be stated.

Of the symptoms and signs of manifest and palpable thrombosis it is not necessary to speak. Outside of embolism the most important symptoms of occult postoperative thrombosis are a slight irregular rise of temperature without manifest cause and mild general disturbances. There may be no reliable symptoms until pulmonary embolism suddenly throws light on the situation. The symptoms caused by pulmonary embolism depend on the size of the embolus. The phenomenon of fatal pulmonary embolism needs no portrayal at this time; its occurrence after a satisfactory operation and when the patient is well along the road to recovery is one of the great calamities in surgery. The symptoms caused by medium and small emboli lodging in the lungs are, in general, pain in the precordium or epigastrium, one side, or back, depending on the place of lodgment, associated with more or less uneasiness, dyspnea and rise of temperature, followed by hemoptysis if hemorrhagic infarction develops, in which case certain evident physical signs are usually present. It would seem as if pulmonary embolism should be easily detected, but doubtless cases often are overlooked and the symptoms attributed to rheumatism, neuralgia, pneumonia or nose-bleed; the careful observer, however, will not be misled by superficial resemblances if he is intent on discovering the real cause of such postoperative disturbances even when seemingly slight. Postoperative thrombosis is usually not dangerous as to life, although complete recovery may require a long time; when pulmonary embolism takes place, the prognosis is uncertain because there is danger of several attacks.

The most obscure phase of postoperative thrombosis is its etiology, unless one accepts the view now so generally prevalent that it always results from infection. Although attractive in many ways, this view leaves many facts unexplained. Among these may be mentioned especially the immunity to thrombosis in the young; the comparative frequency of the complication after laparotomies; its occurrence after clean operations as well as operations for infective conditions—it is two or three times as frequent after aseptic operations for myofibroma of the uterus as after removal of infected adnexa—and the fact that it is five or six times as frequent in the left femoral vein as in other large veins. It is remarkable also that the emboli which form as a consequence of postoperative thrombosis comparatively seldom suppurate. Manifestly, infection alone is not an adequate explanation of all these peculiar characteristics of postoperative thrombosis. Bull discusses this aspect of the subject fully. He reaches the tentative conclusion that postoperative thrombosis may result without infection and that the underlying conditions are largely of mechanical nature, the evident result being interference with the circulation of the blood in the veins. In favor

1. Bull: Supplement to Norsk Mag. f. Lægevidensk., July, 1912; abstr. in THE JOURNAL A. M. A., Aug. 10, p. 492.

of this view he brings forward a number of facts and considerations, of which the following may be mentioned: With advancing years chronic changes usually develop in the veins of the pelvis and the lower extremities, which result in localized thickenings and dilatations and thus favor thrombosis by producing eddies and stasis in the blood-current. This circumstance probably goes far toward explaining why postoperative thrombosis occurs so much more frequently after the age of about 30 than before. The operation of laparotomy in itself tends to interfere with the return circulation by inducing superficial respiration, meteorism and changes in the vascular tonus. With the patient in the recumbent position the current in the femoral veins is hindered more or less as they cross the pubes, and the greater frequency of thrombosis in the left femoral and iliac veins no doubt is connected intimately with their anatomic relations: The left common iliac vein empties into the vena cava at a more obtuse angle than the right and is crossed by three arteries, each beat in which may influence the venous current. These anatomic conditions were discussed recently by Kistler.² Whether changes occur in the composition of the blood, owing perhaps to the anesthetic and other factors, is not definitely known. At all events, the apparent importance of mechanical conditions in the development of postoperative thrombosis suggests that bandages and positions that tend to restrict the circulation in the veins most often affected should be avoided so far as possible. The necessity of absolute quiet when there is danger of embolism is self-evident. Finally, Bull's contribution emphasizes once more the really unbounded opportunity possessed by every practitioner to make substantial additions to our knowledge by systematic observation and careful study of his clinical material.

OXYGEN AND PULSE-RATE

Oxygen therapy has in some way or another entered into the experience of almost every physician, yet we doubt whether any clear conception of the actual rôle which the gas plays is formulated by many who administer it. Much has been written about oxygen inhalation; but the majority of the contributions to the literature of this subject are not founded on the solid basis of either experiment or accurate clinical records. Critical investigation which will place the subject of oxygen therapy on a sound basis is much needed.

In view of the efficiency of hemoglobin as an oxygen-carrier and the liberal supply of the gas furnished by the respiration of ordinary air, it would seem scarcely possible to increase the actual consumption of oxygen by still further increasing the oxygen in the air inspired. In a careful investigation of the effects of breathing oxygen-rich gas mixtures, in the Boston Nutrition Laboratory of the Carnegie Institution of Washington,

Benedict and Higgins¹ note that there is no apparent difference between the metabolism as indicated by the gaseous exchange (i. e., the carbon dioxide output, oxygen consumption and respiratory quotient) and the metabolism when breathing ordinary air. Furthermore, there is no change in the character, depth or frequency of the respiration as compared with the same factors when breathing ordinary air. One observation, however, is striking, namely, the lowering of the pulse-rate as higher and higher percentages of oxygen are breathed. The decrease is quite notable and has been verified by Parkinson² in England. After the oxygen is stopped the pulse-rate at once increases and almost regains the original rate in fifteen minutes.

The explanation of this action of oxygen is difficult. Perhaps, as Parkinson believes, the heart-muscle supplied with excess of oxygen itself works at greater advantage and also provides the amount of oxygen needed by the tissues with less expenditure of energy, i. e., by fewer beats. Yet how are we to understand that an already well-oxygenated blood is to take up an additional excess? Although the hemoglobin as an oxygen-carrier is not noticeably affected, perhaps the blood-plasma takes up a larger amount and thus facilitates the oxygenation processes.

It is suggested that in those cases of disease of the heart and lungs in which the pulse-rate is increased, the administration of oxygen will as a rule be found to reduce it. Doubtless the greatest effect is produced when the heart is ill-supplied with oxygen. In any event, the now well-substantiated influence on the pulse-rate when oxygen-rich mixtures are inhaled deserves to be kept in mind for its therapeutic possibilities.

WHERE ARE THE ETHEREAL SULPHATES FORMED?

More than thirty-five years have intervened since Baumann's discovery of ethereal sulphates as a constituent of the urine. These compounds, and particularly the one familiarly known as indican, have come to possess a prominent significance in clinical medicine as well as in physiology. The conjugated sulphates are associated with putrefactive processes in the alimentary tract and represent one of the forms in which toxic products are paired and eliminated from the organism. Phenol, cresol, indol and skatol are known to unite with the sulphuric acid radical in the course of their path toward excretion; and the ethereal sulphates have often been taken as an index of the extent to which these undesirable compounds are encountered as the outcome either of alimentary or of metabolic changes.

Although the gastro-intestinal canal has been clearly connected with the genesis of the more or less toxic products which are ultimately eliminated as sulphate

2. Kistler, H. D.: Thrombophlebitis of the Left Leg, *THE JOURNAL A. M. A.*, August 10, p. 437.

1. Benedict, F. G., and Higgins, H. L.: Effects on Men at Rest of Breathing Oxygen-Rich Gas Mixtures, *Am. Jour. Physiol.*, 1911, xxviii, 1.

2. Parkinson, J.: The Effect of Inhalation of Oxygen on the Rate of the Pulse in Health, *Jour. Physiol.*, 1912, xlv, 54.

derivatives, the seat of their synthesis into the urinary end-product has not been so conclusively determined. Like many other text-book traditions, the association of the formation of the ethereal sulphates with the liver has been handed down from edition to edition. It is, of course, a natural sequence to ascribe this synthetic function to the liver, an organ so closely connected through the portal circulation with the alimentary tract. Furthermore, there is some experimental justification for the commonly accepted view. Perfusion experiments with the products under consideration carried out on excised livers have indicated a synthesis in the organ.

Lade¹ has attempted to learn whether the production of the ethereal sulphates is confined to the liver by studying their output in animals whose hepatic functions have largely been excluded by an Eek fistula operation. When the portal blood is diverted in this way from the liver the excretion of the sulphates by no means ceases. Even when the liver is still further damaged by administration of phosphorus they may be produced in undiminished amounts. Evidently, then, the liver is by no means necessary for the conjugation leading to the elaboration of the ethereal sulphates. Whether the reaction here involved is common to various tissues of the body or is confined to the intestine, within which the products to be taken care of arise, remains to be determined. In any event the liver still has enough activities in its list of physiologic duties to keep it out of mischief.

FINGER-PRINT IDENTIFICATION

Francis Galton published² his "Finger-Prints" in 1892, and soon afterward his "Index of Finger-Prints." His theory is that the chance of the finger-prints of two individuals being identical is less than one in sixty-four billions. If, therefore, two such prints are compared and found to be identical, nothing in human affairs can be surer than that they are the prints of the same person; if they are not identical they must belong to different persons. The chance of error here is infinitesimal, and is still further eliminated if prints of three or more fingers are taken. The only requisite seems to be that they be taken clearly enough to bring out all the lines. It is considered that these lines and prints are more enduring than any other marks of the body; they do not vary from youth to age; they persist even after death — at least until decomposition has set in. Injuries alone change them; but the scar on a cut that has been printed would be an additional identification.

This finger-print system of identification is by some accredited to Bertillon, but erroneously, it would seem. It was Galton, that amazing genius in scientific detail and in the utilization of data, who proposed and first reduced the finger-print method to a system; and when

he made it known to Bertillon, the latter was for a long time skeptical as to its utility, preferring his own system of measurements.

The finger-print system is the surest method of identifying criminals, and such evidence has been deemed incontrovertible in judicial procedures. About a month before Galton died this method was temporarily under a cloud: A man was charged in an English police-court with loitering, supposedly in order to commit a felony. When a previous conviction was sought to be established against him by the production from the police records of finger-prints identical with his, he handed in papers tending to show that he had been serving in the army at the time of the alleged conviction, whereupon he was promptly discharged. This event was naturally disconcerting to finger-print enthusiasts, who regarded the method as infallible; many skeptics declared, reasonably enough, that this simple failure ought to discredit the whole system. Nevertheless, a week later it was ascertained and proved beyond peradventure that this culprit had stolen the papers of another army man; what is more, it was shown clearly by another mark of identification, as well as by his handwriting, that he was without any manner of doubt the man with whom the police had sought to identify him.

But the finger-print system has a number of uses entirely unrelated to criminal procedures. Railways are using it as a means of identifying employees. Banks now identify foreigners in this way. By means of this system some of the government employees in the Canal Zone sign receipts when their salaries are paid, as do also Indians who cannot write their names. The substitution on documents of the finger-print for the mark of the person who cannot write his name would be a great advance. The latter, which is just a cross, is no identification at all; the finger-print is even more positively and unforgeably a signature than the writing of the name.

Capt. Joseph A. Faurot, who heads the identification bureau of the New York police department, urges a much wider utilization of the finger-print system than at present obtains. He would have every new-born babe and every school child finger-printed as a basis for really adequate vital registration. Such prints will absolutely identify the individual from the cradle to the grave. The print of the baby and of its mother differ unmistakably. The measurements will be enlarged with growth, but otherwise they never change. It was recently objected in the metropolis that persons suspected of crime, but not yet convicted, should not be obliged to be finger-printed; but the leaders of the Men and Religion movement in that city, believing it important for the innocent as well as for the guilty to have it ascertained whether they have ever been under arrest, offered to persuade all men of the churches and in fact all residents whom they could influence, to place the impression of their fingers in the records of the police department.

1. Lade, F.: Ueber die Bildungsstätte der Aetherschwefelsäure im Tierkörper, *Ztschr. f. physiol. Chem.*, 1912, lxxix, 331.

2. Galton, Francis: *Finger-Prints*, London: MacMillan Co., 1892.

Captain Faurot would do away with lost identity in the United States by establishing a central bureau to which the finger-prints of every unit of the population must be forwarded for classification; to this central bureau, which should be a federal institution, all other bureaus — state, county and municipal — would be tributary. There would be two sets of prints of each individual, one deposited at the local bureau, the other at Washington.

Among the many advantages of such a plan would be the possibility that the numberless unknown unfortunates found dead might be identified. This system might solve those puzzles which aphasia and insanity are constantly presenting — cases continually increasing in number by reason of the great strain of our present-day civilization. The crime of desertion might be prevented were the mother's and her infant's finger-tips printed on the same card. The finger-printing of policyholders would prevent fraudulent death-claims. Finally, if this system ever becomes part and parcel of civilized life, it will have the further advantage of furnishing the readers of Mark Twain's "Pudd'nhead Wilson" with the fantastic pleasure that comes from seeing fiction daily realized in fact.

Current Comment

ABSORPTION FROM THE STOMACH

The possibility of absorption from the stomach has been debated from time to time without leading to any convincing conclusion. Set over against the popular assumption that absorption can proceed from any part of the gastro-intestinal canal are numerous experimental researches in which evidence of the disappearance of alimentary contents through the gastric wall has been entirely lacking. Water is not absorbed from the stomach ordinarily to any extent. Whatever amount is introduced therein can be recovered quantitatively as it passes through the pylorus into the duodenum. Alcohol, on the other hand, is known to disappear from the stomach rapidly even when the pylorus is closed; and there has been evidence furnished to make the gastric absorption of compounds in alcoholic solution appear more likely than is the case for ordinary aqueous fluids. The fact that absorption, if it ordinarily does go on to any extent from the stomach, has escaped the observation of so many competent observers, makes one somewhat skeptical as to the extent to which it really is a normal feature of alimentation. A positive finding, however, must almost invariably supplant a negative hypothesis. Folin and Lyman¹ have lately furnished some convincing indications that the familiar products of protein digestion can be absorbed directly from the stomach. These observations were made on a stomach with a closed pylorus, and therefore need not be applied with immediate reference to the experiences of the normal alimentary processes; furthermore, ordinarily

the products of proteolysis found in the stomach have scarcely reached the amino-acid stage which the products studied by the Harvard investigators represented. The essential point rather is the demonstration that the gastric wall is permeable to simple nitrogenous compounds in watery solution. Strange to say, creatinin, which forms a frequent component of the food intake in the form of meat products, appears to lack absorption by the stomach though it is readily taken into the circulation from both the large and the small intestine. This serves as a reminder of how much yet remains to be learned respecting the unique place of creatinin and its chemical relatives in the nutritive processes.

CONGRESS RECONSIDERS

We recently¹ commented on a sweeping provision inserted in the appropriation bill for the District of Columbia whereby no money appropriated by that or any other act could be expended for membership fees or dues or for the expenses of attendance of any officer of the government at a meeting of any society or association. It was pointed out that this enactment would exclude the United States government, as such, from participation in a number of scientific congresses, both national and international, and would result in the scientific isolation of our government. It would seem that this protest has not been in vain. In the act making appropriations for the sundry civil expenses of the government, Section 10 revokes this objectionable prohibition with respect to the current fiscal year, except so far as the payment of membership fees or dues is concerned. This section also provides that a detailed statement of all expenditures for the expenses of attendance at such meetings from June 30 until Dec. 1, 1912, shall be submitted to Congress on or before Jan. 1, 1913. This would indicate that Congress is now willing to inform itself in the matter before taking action on this important question.

OVARIOTOMY: A REMINDER

It has been said that "pélvie and abdominal surgery began with ovariectomy; ovariectomy began with McDowell." Now that the last century's monumental achievements in abdominal surgery have sunk almost into commonplace through frequent repetition, the tale of the prejudiced opposition to this epoch-making procedure seems almost incredible. It is said that while McDowell was performing the first ovariectomy, a little over a century ago, a crowd of excited and angry men waited in the streets of Danville for the result, ready to show little mercy to the courageous surgeon if his "victim" succumbed. That perhaps seems less strange than the fact that W. L. Atlee, thirty or forty years later, "was pointed at as a dangerous man—even as a murderer" for his employment of the same procedure. The semicentennial of the first ovariectomy in France, mentioned by our Paris correspondent this week, now reminds us that over fifty years after the first ovariectomy was performed by a backwoods surgeon in this

1. Folin, O., and Lyman, H.: Absorption From the Stomach, *Jour Biol. Chem.*, 1912, xii, 259.

1. An Unwise Economy, *THE JOURNAL A. M. A.*, August 10, p. 451.

country, the operation was unknown in France except by reputation, which branded it as "criminal." A curious, yet not incongruous, passage in this strange chapter of surgical history!

A GOOD PROPHYLACTIC EXHIBIT

That the average citizen in towns of 7,500 or more can be led to take an active interest in public health work, was demonstrated recently by the combined work of the various philanthropic and charitable agencies of Waynesboro, Pa., in an interesting and instructive campaign for the lessening of infant mortality. The exhibit was ocular as far as it was possible to make it so, supplemented by lectures given by trained nurses connected with the exhibit, by local physicians in the town, and by representatives of the state health department. The exhibit was advertised under the name of "The Baby-Saving Show," and it well deserved the name. The entire program and nearly every lecture given were published each day in the local papers. Similar "baby-saving shows" were held in many towns in Pennsylvania following the original show in Philadelphia, and for many of them portions of the exhibit used in Philadelphia were borrowed. It is gratifying to see the increase in work of this kind. It pays well in lives saved and sickness lessened.

HYGIENE AT STATE AND COUNTY FAIRS

Missouri, through her state medical society, has taken up the matter of educating the public in hygienic and sanitary matters by providing a course of lectures and an exhibit at the state fair. Two half-hourly lectures are to be given each day of the fair by some physician or veterinarian on various medical and sanitary subjects pertaining to human beings and animals, supplemented by moving-picture exhibits along the same line. The *Journal of the Missouri State Medical Association* appropriately recommends that county medical societies, cooperating with the county boards of health, county superintendents of schools and other county officers whose duties bring them in touch with questions of municipal sanitation, arrange similar courses of lectures and exhibits at county fairs as a means of popular education. State and county fairs, although held for public educational purposes, usually confine their attention to stock and other material interests, to the neglect of the most important interest of all, the physical welfare of the human animal.

Medical News

ALABAMA

Accidents.—Dr. John L. Stockdale, Stockdale, fell at his home August 8, fracturing his right hip.—Dr. R. B. Nelson, health officer of Birmingham, fractured his leg while exercising at the Athletic Club, recently.

Hospital Plans Completed.—The plans for the new hospital at Bessemer have been completed and the institution is to be known as the Elizabeth Duncan Memorial Hospital, in memory of the mother of Dr. T. F. Robinson. Work on the erection of the new building will be started very soon.

Personal.—Dr. C. A. Crote, Greensboro, has been appointed a field worker for the State Board of Health under the Hookworm Commission.—Dr. R. V. Taylor, Jr., Mobile, has started

for his new field of work in the Baptist Hospital at Yang Chow, China.—Dr. A. W. Cawthorn, Selma, is reported to be critically ill with cerebral hemorrhage.

Approves Bond Issue for Hospital.—The Jefferson County Medical Society at its meeting August 6, adopted resolutions regarding the adopting of the one hundred thousand dollar bond issue for the proposed Hillman Hospital Annex, Birmingham. The hospital, with an equipment for 72 patients, is overcrowded all the time, caring daily for from 90 to 100 patients.

COLORADO

Children's Hospital Association.—At the annual meeting of the medical board of the Children's Hospital Association, Denver, Dr. George B. Packard was reelected president; Dr. Henry A. Sewall, vice-president, and Dr. T. E. Carmody, secretary. The board recommended that steps be taken for the erection of a building with a capacity for one hundred patients.

Another Medical College in Colorado?—It is reported that incorporation papers have been taken out for a "Thompsonian Medical College" to be located at Paonia, Colo., with a stated capital of \$100,000. Among the names of the incorporators published is the name of "Dr. R. S. Clymer," who, it will be remembered, was connected with the fraudulent "Twentieth Century College of Medicine," a correspondence institution operated at Guthrie, Okla., and of which the charter was revoked in 1904.

ILLINOIS

New Buildings for Dunning.—The State Board of Administration has approved plans for two buildings at the Chicago State Hospital, Dunning, each to cost \$50,000, to replace those recently burned.

County Hospital Examination Declared Unfair.—As the result of complaints concerning a civil service examination held last December for the selection of members of the attending staff of Cook County Hospital, a committee of physicians was appointed to make a careful investigation of the facts. They have declared the examination unfair and recommended its annulment. The Board of County Commissioners accordingly declared the examination void, and will hold a new one.

Chicago

Personal.—Dr. Julius Grinker leaves Chicago September 7 for the East, on his way to Europe.—Dr. B. Barker Beeson has returned from Europe.—Dr. William A. Mowry has been appointed a house physician at the French Lick Springs Hotel.—Dr. E. A. Fischkin started for Europe, September 4.

Jubilee of Scandinavian Society.—The twenty-fifth annual meeting of the Scandinavian-American Medical Society will be held in Chicago next month. Plans for the anniversary meeting include a scientific meeting and the distribution of a memorial volume detailing the work of the Scandinavian medical men of Chicago from the earliest days.

INDIANA

Tuberculosis Conflict.—The county board of St. Joseph County has appropriated \$15,000 for the sanitarium for tuberculosis and tentative plans for the building have been drawn. This is the result of the earnest work of the local society for three years. The tuberculosis camp at present has accommodations for thirteen and has a large waiting list.—At a meeting of Spanish-American War veterans in Lafayette, August 6, a campaign was started to build a tuberculosis sanatorium at the Indiana State Soldiers' Home to cost about \$10,000. The local veterans have subscribed \$500 of the amount.

Personal.—Dr. Herman G. Morgan has succeeded Dr. C. S. Woods as city sanitarian of Indianapolis.—Dr. Lynn Rogers, Fort Wayne, has been appointed a house physician at French Lick Springs Hotel.—Dr. C. S. Woods, formerly city sanitarian of Indianapolis, was presented with a gold watch and chain by the members and employees of the board, August 16. The presentation speech was made by Dr. E. B. Mumford.—Dr. M. S. Canfield, Frankfort, has been appointed local surgeon of the K. M. and W. Traction Line.—Dr. C. B. Stemen, Fort Wayne, has been reelected president of the Elida Pioneer Society.—Dr. and Mrs. A. P. Roope and family, Columbus, have sailed for Europe.—Dr. A. O. Ward, Indianapolis, was knocked down by a wagon, August 10, and painfully injured.

IOWA

New Officers.—Botna Valley Medical Association at Atlantic, August 22: president, Dr. Frank Hanna, Walnut; secretary-treasurer, Dr. A. Weaver, Cumberland.

Gives Funds for Hospital.—The Fort Madison Medical Society, at a special meeting August 19, voted an appropriation of \$500 from the treasury for the purchase of equipment for the new Sacred Heart Hospital.

Personal.—Dr. H. A. Steckel, third assistant physician at Mount Pleasant State Hospital, has resigned to accept a position as assistant at the Kings Park State Hospital, Long Island, New York.——Members of the Dubuque County Medical Society gave a farewell banquet in honor of Dr. E. R. Jackson, Dubuque, who is about to leave the city for Oregon.

MARYLAND

Crusade Against Impure Water and Milk.—The State Board of Health has commenced a crusade against impure water and milk, and will make examinations of all water throughout the state.

State Entrance Examination.—Maryland medical and dental college entrance is now in the hands of the state board. An examination will be held at the hall of the State Medical Society, September 12-14, in charge of Mr. Isaac L. Otis of the department of civics and history of the Polytechnic Institute. Those who can show evidence of a four-year high school course will be exempt from this examination for entrance to the medical schools, and those who show a three-year course will be exempt from examination for entrance to dental schools.

Baltimore

Changes in Health Department.—Drs. John H. Von Drelle, E. K. Ballard, C. Franklin Jones and J. Harry Ulrich have been appointed health wardens, vice Drs. Vernou F. Kelly, William Caspari, W. D. Olmstead and Marshall G. Smith.——Dr. Harry Kolb has succeeded Dr. J. Howard Iglehart as inspector of schools.

Personal.—Dr. William S. Thayer has been appointed a member on the commission for the study and prevention of malaria in the South.——Dr. Thomas R. Brown has been placed in charge of the bacteriologic and research department of the Ohio State Hygienic Laboratory, Columbus.——Dr. M. L. Todd, who has been ill in St. Agnes Hospital with typhoid fever, is reported to be convalescent.——Dr. Randolph Winslow has returned from a trip to Panama, Cuba, Jamaica and Costa Rico.——Dr. William Royal Stokes has recovered from his recent illness and resumed his duties as city bacteriologist.——Dr. Isaac M. Macks has been appointed pathologist at the University of Maryland.

NEW YORK

Higher Preliminary Requirement Adopted.—It is reported that the New York regents at a meeting held August 29 voted that, after Jan. 1, 1913, an applicant for a medical student certificate, qualifying for admission to a medical school, must have completed a year's study in physics, biology and inorganic chemistry.

Hospital Contract Held Up.—The State Board of Charities has served an injunction preventing the awarding of the contract for the kitchen and dining hall to be added to the tuberculosis pavilion of the Metropolitan Hospital on Blackwell's Island because the plans for the buildings were not submitted to the State Board of Charities. The Commissioner of Charities of New York had the opinion of counsel that it was not necessary to submit plans of hospitals to the Board of Charities of the state. The case will be tried on September 7.

New York City

Held for Suspected Cholera.—On account of a case of disease on board the steamer *Martha Washington*, which arrived in New York August 13 from Palermo, the steamship was held in quarantine until the test for cholera had been made.

Private Hospital for the Bronx.—Jacob H. Schiff, Sol. R. Guggenheim, Ferdinand Sulzberger and Samuel Sach have each given \$50,000 for a fund for the construction of a private hospital for persons suffering chronic diseases, to be built by the Montefiore Home, in the Bronx.

Wall Street Men Vaccinated Against Typhoid.—Since the recent outbreak of typhoid fever in Wall Street, one firm employing about twenty persons, asked that they submit to the administration of typhoid antitoxin. This they readily did. It is understood that a number of other houses will follow the same course.

Fish of Flushing Bay a Menace.—A number of cases of ptomain poisoning have been attributed to fish taken from Flushing Bay. All of the fish and shell fish in the bay were killed some years ago when factories were established on the bay. Recently a dye works moved away and an attempt was

made to restock the bay with fish. The Board of Health of Queens is making an investigation and, if suspicious are verified, will prohibit the use of fish taken from the bay.

Saving the Babies.—The Babies' Welfare Association continues to keep ahead of its record of last year. For the week ending August 23 there were 358 deaths of infants under one year of age against 361 for the corresponding week of 1911. During this week there were nine deaths among babies cared for by the milk stations. In an appeal for funds to continue the work among tenement babies, sent out by the New York Association for Improving the Condition of the Poor, this organization announces that it has spent during the last ten months \$20,000 for milk for sick babies and that no administrative or investigation work is included in this sum.

Personal.—Dr. William H. Tolman, director of the American Museum of Safety, has returned from Europe bringing with him a collection of articles presenting the latest ideas in life-saving apparatus. Dr. Tolman has also brought a number of wax models showing the effects of various occupational diseases.——Dr. and Mrs. G. F. Blauvelt, Nyack, N. Y.; Dr. and Mrs. W. T. Alexander, and Dr. and Mrs. L. A. Conner have sailed for Europe.——Dr. W. S. Russell, Dr. W. Benham Snow, Dr. and Mrs. G. G. Rambaud, Dr. W. B. Brinsmade, Brooklyn, and Dr. and Mrs. Howard C. Taylor have returned from Europe.——Dr. J. Wallace Beveridge has been suffering with mastoiditis for the past three weeks. His condition is said to be very satisfactory.——Dr. David E. Hoag has returned after a three-weeks' automobile trip through the Canadian provinces.——Dr. Le Roy Broun has returned from Europe.——Dr. Charles B. Meding of the Harlem Eye, Ear and Throat Hospital sailed for India September 1, and after studying cataract extraction at Amritsar, will visit China and Japan.

OHIO

Personal.—Dr. Cook, National Soldiers' Home, Dayton, has been appointed third assistant physician at the Mount Pleasant (Iowa) State Hospital.——Dr. Dana O. Weeks has been appointed health officer of Marion.——Dr. L. A. Lemmon, East Liverpool, was seriously injured in a collision between his automobile and an electric car, August 2.——Dr. E. R. Crew, Miamisburg, has succeeded Dr. J. C. George, resigned, as superintendent of the Miami Valley Hospital, Dayton.——Dr. H. G. Sherman, head of the medical supervision department of the public schools of Cleveland, has resigned.——Dr. Paul W. Tappan, Dayton, has been commissioned captain, M. C., O. N. G.——Dr. Arleigh C. Delaplane, night physician at the State Penitentiary, Columbus, has resigned to accept a position as assistant physician in the volunteer relief department of the Pennsylvania System.——Dr. J. W. Bunn, West Union, is reported to be critically ill with cerebral hemorrhage.——Dr. William C. Stafford, Youngstown, is reported to be seriously ill.

PENNSYLVANIA

State Hospital Soon Ready.—The Rittersville State Hospital, which has been under construction for more than ten years, is about to be opened to receive patients, September 14.

School Dispensary Established.—A school dispensary is to be opened in the administration building of the board of education at Reading to treat school children for minor defects. It will be under the care of Dr. Heister Bucher, chief medical inspector of city schools.

Sanatorium Contracts Awarded.—The contract for the Hamburg State Tuberculosis Sanatorium was awarded August 22 to Buffalo contractors for \$510,629. This contract calls for the construction of an administration building, power house, laundry and two wings with initial capacity of four hundred patients.——Contracts have been awarded for a new building at White Haven Sanitarium to cost \$25,000.——The contract for the refrigerating plant of the Cresson Sanitarium has been given a DeKalb, Ill., company for \$3,510.

Personal.—Dr. D. P. Maddux, Chester, has been reappointed a member of the State Board of Education and Licensure and Dr. William A. Stewart, Pittsburgh, has been appointed a member of the board.——Dr. I. Riley Bucher, Lebanon, celebrated his eightieth birthday anniversary, August 22.——Dr. Thomas P. Martin, Mayfield, was operated on for appendicitis at Dr. Burns' Private Hospital, Scranton, August 21.——Dr. Edward Kerr, East Downingtown, has been elected chief physician at the Chester County Hospital.——Dr. Ernest Zueblin, pathologist of the Tuberculosis League Hospital and Dispensary and a member of the medical staff of the Allegheny General Hospital, Pittsburgh, has been appointed a member of the staff of the University of Maryland, Balti-

more.—Dr. Charles F. Palmer, Chambersburg, is ill in the Chambersburg Hospital.—Dr. Gyula Ullmann, Chester, is reported to have received a bronze medal from the French government in recognition of research work on mineral waters in France.—Dr. J. O'Malley, Seranton, has been appointed resident physician at the Pittston Hospital and Dr. W. H. Berge, Avoca, has been appointed a member of the hospital staff.

Philadelphia

Chemists to Visit City.—Following the eighth International Congress of Applied Chemistry which opens in Washington, September 4, the members expect to spend several days in Philadelphia inspecting research laboratories and visiting the leading industrial plants of chemical importance in the city. The visitors reach Philadelphia September 16, and will be welcomed at Independence Hall by the mayor.

Personal.—Dr. John M. Baldy has been reappointed a member of the State Board of Medical Education and Licensure.—Dr. Charles H. Dwyer, who was operated on recently in the Philadelphia Hospital, is rapidly recovering.—Dr. R. Tait McKenzie has executed a large bronze medallion known as "The Joy of Effort" which has been presented to the Swedish nation by the American committee and is now being mounted in granite in the wall of the stadium at Stockholm. It commemorates the fifth holding of the Olympic games.

TENNESSEE

Appeal for Sanatorium.—The new tuberculosis sanatorium of Chattanooga and Hamilton County is almost completed. The estimated expense of the institution is \$10,000 a year. Of this amount the county has agreed to pay \$5,000 and an appeal is being made to the city to make a similar appropriation.

Personal.—Dr. George H. Bandy, Nashville, has been elected president of the Negro Board of Trade.—Dr. Cooper Holtzclaw, Chattanooga, has returned from Europe.—Dr. J. A. Albright, Nashville, for fifteen years secretary of the State Board of Health, has accepted a position with a pharmaceutical house in Philadelphia.—Dr. Henry M. Green, Knoxville, has returned from Europe.

Hospital Bond.—The Emerson-Hodgson Memorial Hospital, Sewanee, was formally opened, August 6. The building, which is to replace the one burned last year, has accommodation for fifty patients and has been erected at the cost of \$30,000.—Dr. John A. Witherspoon, Nashville, president-elect of the American Medical Association, made an address at Gallatin in the interest of the Galloway Memorial Hospital, Nashville. Sumner County has subscribed about \$7,000 toward the hospital.

Trachoma in Nashville Schools.—A vigorous campaign has been started by Dr. E. L. Roberts, public school inspector in Nashville, and Prof. J. J. Keyes, superintendent of education, for the eradication of trachoma from public schools of the city. In this work they have the cooperation of the City Board of Health and Dr. W. E. Hibbett, city health officer. More than 2 per cent. of the white children in the schools are said to be affected with the disease which, however, very rarely attacks colored children.

UTAH

State Meeting Date Changed.—The date of the meeting of the Utah State Medical Association at Ogden has been changed from October 1-2 to September 24-25.

Society Endorses Sterilization of Criminals.—At the August meeting of the Utah County Medical Society held in Provo, resolutions were adopted endorsing the sterilization of those who are criminals or who are hopelessly insane.

Health Department Reorganized.—The reorganization of the health department of Salt Lake City became effective September 1, Dr. Samuel G. Paul becoming health commissioner; Dr. H. B. Sprague, assistant health commissioner, and Drs. R. W. Fisher and Clarence Snow, members of the board of health.

VIRGINIA

Personal.—Dr. William H. Parker has been elected police commissioner of Richmond.—Dr. M. P. Doyle has been elected chief medical inspector for the public schools of Norfolk.—The residence of Dr. W. L. Ould, Concord Depot, was burned to the ground, August 16.

Memorial Association Organized.—The Rawley W. Martin Memorial Association has been organized at Lynchburg for the purpose of erecting a memorial shaft to the late Dr.

Rawley M. Martin who was for several years president of the State Board of Health. The following officers were elected: president, Dr. A. W. Terrell, Lynchburg; vice-presidents, Drs. A. R. Long, Lynchburg; L. E. Harvie, Danville; J. W. Whitehead, Chatham; G. Tucker Harrison, Charlottesville; S. C. Reed, Chatham, and R. E. Ramsey, Tushes; Dr. R. S. Martin, Stuart, secretary, and Dr. Randolph Harrison, Lynchburg, treasurer.

GENERAL

Obstetricians and Gynecologists.—The American Association of Obstetricians and Gynecologists will hold its twenty-fifth annual meeting at Toledo, September 17-19, under the presidency of Dr. X. O. Werder, Pittsburgh. The headquarters will be at the Hotel Secor.

Southwest Physicians to Meet.—The seventh annual meeting of the Medical Association of the Southwest, whose membership is made up by physicians of Missouri, Kansas, Oklahoma, Arkansas and Texas, will be held in Hot Springs, Ark., October 8-10, under the presidency of Dr. A. L. Blesh, Oklahoma City. The profession of Hot Springs is making great preparations to make the meeting a professional and social success, and the railroads have offered reduced round-trip rates.

Naval Medical Reserve.—On August 12, the Senate passed without debate a bill to create a medical reserve corps and thereby increase the efficiency of the medical department of the Navy. The institution of this corps will place the medical corps of the Navy in close contact with eminent members of the profession throughout the country as has already been the case in the Army, thus enabling the Navy to call them into consultation, and to profit by their advice when emergencies arise.

Report on the Country's Epidemic Diseases.—From August 21 to 27 no additional cases of plague were reported from Porto Rico. Total number of cases to date is forty-nine. Last case of plague reported from Havana, July 22, terminated fatally July 27; a total of three cases with one death. No plague infected rats have been found in Havana to the date of the last report.—The epidemic of poliomyelitis at Los Angeles has almost subsided, only ten cases being reported in the ten days prior to August 25. Buffalo still has some cases. Cleveland also has a small epidemic which seems to be under control. Many other cities and towns report cases of the disease.—Los Angeles has had small-pox in benign form since March, 1911, with two exacerbations of the virulent form in November and December, 1911, and in July and August, 1912. The disease has attacked almost exclusively persons not vaccinated and is of interest as showing the occurrence of the virulent type in a community where the mild form of the disease had existed for some time.

Canal Zone Sanitation.—The report of Col. W. C. Gorgas, M. C., U. S. Army and chief sanitary officer of the Isthmian Canal Commission, for June shows the lowest mortality rate among employees since the organization of the commission in 1905. The annual average death-rate among employees per 1,000 for June has been as follows:

1905.....	16.44
1906.....	41.55
1907.....	27.53
1908.....	12.35
1909.....	9.34
1910.....	10.66
1911.....	12.61
1912.....	6.84

The annual average death-rate per 1,000 in Panama, Colon and the Canal Zone, including both employees and civil population, for June of each year has been as follows:

1905.....	50.57
1906.....	51.89
1907.....	33.45
1908.....	29.17
1909.....	16.42
1910.....	20.38
1911.....	25.33
1912.....	22.88

The total number of deaths among employees in June was 28, of which 12 were from violence, and two each from dysentery, malarial fever, pneumonia and tuberculosis. No case of yellow fever, small-pox or plague originated on, or was brought to, the isthmus during the month.

European Physicians' Study Travel Tour in America.—Last week in this department THE JOURNAL gave a list of those in a party which will make a tour of the principal cities of the United States, including a stay in Washington during the International Congress on Hygiene and Demog-

raphy. The detailed itinerary of the trip was given August 24. In this connection it is interesting to give a short sketch of the German Central Committee for Physicians' Study Travels. The idea of medical study travels originated with a French physician, Dr. Carron de la Carrière, in Paris, in 1899, who was supported in this work by Professors Brouardel, Lannelongue, Landouzy, Fournier and others. In Germany the idea quickly found fertile soil; and Hofrat Gilbert in Baden-Baden assisted by Geheimrat von Leyden, Geheimrat Liebreich, Professor Meissner and Sanitätsrat Oliven became the officers of the organization. Almost all clinicians of German and German-Austrian universities, as well as the heads of the medical departments of all the German states and of Austria-Hungary became members of the executive committee. There are now more than 700 members. Physicians who are occupied at home with their practice can hardly acquire sufficient knowledge of watering-places and health-resorts. Books, lectures and advertising pamphlets give but imperfect ideas of such places. To select a health-resort for a patient the physician needs an accurate knowledge of the local medicinal agencies, the general surroundings and sanitation, the expense and the general atmosphere of the place. The study trips not only enable the physicians to secure this knowledge but also give them an agreeable vacation. The itineraries in Europe have been made out with the idea of economizing time and expense as much as possible. Medical conventions are included in the trips, when possible, as well as provisions for social entertainments and sight seeing. The work of the German Central Committee for Physicians' Study Travels extends now to the study of not only local conditions, climate, etc., of health resorts, but also social, economic, philanthropic, hygienic and civil institutions, factories, laboratories, mining-plants, etc. The German Central Committee in the years from 1901 to 1911 has made twelve trips which included many parts of Europe. This year the trip to America was decided on, whereby opportunity to attend the International Congress on Hygiene was given. This year is the first time that wives and daughters are in the party. The present officers of the German Central Committee are: presidents: Geheimrat Ober-Medizinalrat Prof. Dr. Dietrich (Berlin); K. K. Regierungsrat Prof. Dr. Glat (Abbazia); Geheimrat Medizinalrat Prof. Dr. His (Berlin); Geheimrat Medizinalrat Prof. Dr. von Strümpell (Leipsic). The secretary-general is Sanitätsrat Dr. Albert Oliven.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, August 17, 1912.

Plague in Liverpool Mistaken for Appendicitis

A boy aged 7 was admitted to the Royal Infirmary, Liverpool, and operated on for supposed appendicitis. A gland was removed from the groin and found to contain plague bacilli. The theory as to the source of infection is that the boy was bitten by a flea carried by a foreign rat. The patient lived in the neighborhood of the docks, where there is a likelihood of foreign rats being brought in. When his condition was discovered he was immediately isolated and three days later was removed to an infectious diseases hospital, where he is progressing favorably. The strictest watch is now being kept at the Liverpool hospitals for cases of plague.

The London School of Tropical Medicine

The London School of Tropical Medicine is making an appeal for \$500,000 to provide for the equipment and more efficient carrying on of this work. Founded in 1899 by Mr. Chamberlain, then secretary of state for the colonies, it has done remarkable work both in the form of research into tropical diseases and in the training of the medical officers of the colonies. Additional laboratories and residential quarters for at least twenty more students are urgently required. It is desired to raise a sum sufficient so that experts in protozoology, helminthology and entomology may continuously work in the tropics.

The Bicentenary Celebration of the Medical School of Trinity College, Dublin

The bicentenary celebration of the Medical School of Trinity College, Dublin, which took place July 4-6, has been a brilliant success. Delegates from most of the universities in the world—including Japan, Russia, Finland, Sweden, Norway, Denmark, etc.—attended. The universities of Ann Arbor, Harvard and Pennsylvania in the United States, and McGill, Manitoba, Queen's and Laval, in Canada, were represented.

Sir William Osler, who represented the University of Oxford, in proposing the toast of "the School of Physic in Ireland," referred to those brilliant days in the early part of the nineteenth century when the school of medicine in Dublin shone out in a way that perhaps no other school in these isles shone out. After mentioning many names he considered that it was no disparagement to those great men to say that the imperishable memories of the Dublin school rested with the names of Graves and Stokes.

The Registration of Births and Deaths With Reference to Infant Mortality

The Royal Statistical Society has issued the report of a special committee appointed by the councils of that society to inquire into the systems adopted in different countries for the registration of births (including still-births) and deaths with reference to infantile mortality. The report covers practically the whole system of registration and calculation of vital statistics. It has been drawn up in four sections: (1) a brief history of registration, (2) the practice of registration in general, (3) still-births and (4) statistical methods. Information has been collected from many sources within the British Empire, from European nations, from Japan, Egypt, the United States, Argentina, Costa Rica, Cuba and Uruguay. The committee states that the answers dealing with the efficiency of registration convey, with comparatively few exceptions, opinions that registration is very fairly complete, in the more settled countries, at least. The registration of still-births is said to be not required by law in the United Kingdom, Jamaica, New Brunswick, New South Wales, New Zealand, Queensland, South Australia, Tasmania, Victoria, Denmark, Mississippi, New Mexico, North Carolina and Virginia. No legislature has, up to the present, enacted any definition of still-birth, and the only guidance afforded to those required to declare and inscribe such births in places in which their registration is compulsory is that afforded by regulations made by the various statistical offices. It is suggested that it is desirable that an international definition of still-birth should be adopted.

The committee remarks that at the present time the principal function of vital statistics is the examination of the causes of unnecessary and preventable waste of life and (but not to so general an extent) sickness. "Vital statistics may, in effect, be regarded as taking the place of laboratory experiments in social physiology and pathology. If such views be accepted as correctly representing the functions of statistics, it is evident that reliable conclusions cannot be obtained unless the basic data are reliable and accurate and the methods of calculations used by different inquirers uniform, or at least strictly comparable." There is a need of greater uniformity in the practice of calculating fertility and mortality rates, as it is only by the comparison of carefully estimated and adjusted rates that questions affecting the health and welfare of nations can be studied. The usual basis on which rates of infantile mortality are calculated is the ratio of deaths during the first year of life to births, and the committee suggests that it is very desirable that the latter value should be universally used. The following conclusions are drawn: (1) that still-births should be tabulated separately, such tabulation to include, if necessary, (a) the number of children born alive but registered as dead, and (b) the number born in each successive week or month after the prescribed (earliest) time for registerable still-births; (2) that for general use the infantile mortality-rate should be calculated from (a) the births of children born alive, including, if necessary, those born alive but registered dead, and (b) the number of deaths during the first year of life of children born alive, including, if necessary, the children "presented dead."

Increase of Lunacy

The number of certified insane persons under care in England and Wales on Jan. 1, 1912, was 135,661, or 2,504 more than a year earlier. This increase may be contrasted with that of 2,604 for 1910, of 1,766 for 1909 and of 2,703 for 1908. The average annual increase for the ten years ending Dec. 31, 1911, was 2,495 and that for the five years ending on the same date, 2,335. The increase for 1911 was therefore nine above that of the annual average of the decennium, and 169 above that for the quinquennium. On Jan. 1, 1859, there were known to be under care 36,762 persons certified as insane; as on Jan. 1, 1912, the number amounted to 135,661, there was an increase of 269 per cent. During this period the estimated population of England and Wales has increased 85.6 per cent. The ratio of insane to population has increased in the fifty-three years by 98.8 per cent. The proportion of insane to population now is 1:269. Of the total number of certified

insane persons under care on Jan. 1, 1912, 46.5 per cent. were males and 53.5 per cent. females. These figures show an appreciably higher proportion of females than is found in the general population, in which there are forty-eight males to fifty-two females. In regard to the causation of insanity, mental stress was more prominent in the case of females than males in the proportion of sixty-five to thirty-five. On the other hand, alcoholism was twice as common a factor in males as females and syphilis six times as common.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Aug. 16, 1912.

The Crisis in Ophthalmology

The serious outlook for ophthalmologists in France was discussed at the recent general assembly of the *Syndicat des oculistes français*. Dr. Aubineau, of Brest, reviewed the many causes of the present crisis. In the first place, the greater attention given to hygiene in all classes of society tends to decrease the number of cases of ocular disease not only by diminishing the chances of infection and contagion, but also by inclining the individual to seek medical aid for the slightest trouble of the eyes. Cases of conjunctivitis, keratitis and even of iritis are therefore treated at the beginning, when they can be cared for by the family physician. This is fortunate from a broad point of view, but the result is a constant diminution of the number of cases for which the oculist is consulted. Moreover, the surgical side of ophthalmology, which formerly was an important source of revenue, is becoming more and more restricted, whereas in such specialties as otology and rhinology operations grow more frequent. The increase in the number of oculists and ophthalmologists, by encouraging early attention to ophthalmologic troubles, makes surgical cases more rare. Then too, ophthalmologic knowledge is becoming more general in the medical profession. The new program of medical studies makes the ophthalmologic *stage* obligatory, which will make the general practitioner more competent and still further increase the natural tendency to eliminate the specialist. Charlatanism and illegal practice of medicine likewise constitute important factors. According to Dr. Aubineau, the most serious injury to oculists from illegal practice of medicine is caused by the pharmacist, who not only dispenses ophthalmologic remedies but also prescribes and sells glasses. The new profession of pharmacist-optician, springing up in many localities, is detrimental to oculists. The most important cause of the crisis in the specialty is professional overcrowding, general as well as special. There are few or no vacant posts, and the diminution of appointments leads young physicians to abandon the general practice of medicine for a specialty which appears more agreeable and more remunerative. The fact that general practitioners themselves are subject to severe competition tends to make them crowd out the specialist. The number of oculists is increasing so that ophthalmology is even more overcrowded than general medicine. This is a natural result of the present facilities for ophthalmologic studies. Ophthalmologic services, with assistants, interns and externs, are multiplied in the hospitals. Moreover, the *facultés* and *écoles de plein exercice* are continually preparing future oculists.

Some of these factors are due to social and scientific progress and therefore cannot be combated, whatever may be their consequences. Accordingly, Dr. Aubineau believes that professional overcrowding must be opposed by enlightening the public with regard to the actual situation of the physician in general and the specialist in particular.

Tuberculosis as a Reportable Disease

A certain number of senators and deputies have recently formed a parliamentary group on tuberculosis. Among other means of combating this terrible scourge, this parliamentary group demands that tuberculosis shall be made a reportable disease. The *Syndicat des médecins de la Seine* protests against this obligation, declaring that "reporting tuberculosis would tend to make patients reluctant to place their confidence in the physician, and that the rôle of police officers imposed on the physician would violate professional secrecy." The *syndicat* believes that to combat tuberculosis effectively the government should prevent the renting of insufficiently lighted and aired lodgings, should require the disinfection of lodgings, should strive to improve the general hygiene and the food of working people, and should take measures against alcoholism.

Reorganization of the Service of Military Hygiene

The technical section of the military service of hygiene will hereafter constitute a special establishment directly under the minister of war, and will comprise three services, which will permit the study of all the organic questions of the health department of the army. It will, moreover, have at its command facilities which hitherto were lacking for making numerous researches in regard to military hygiene and epidemiology.

Semicentennial of the First French Ovariectomy

It is now fifty years since the first ovariectomy in France was performed in Strasburg by Dr. Koeberle, who is now living in retirement, at an advanced age. Real courage was necessary at that period to undertake such an operation, which, although it had already been successfully performed in the hands of American, English and German surgeons, was still considered by French surgeons as criminal.

Personal

Dr. Sabrazès, *agrégé* professor at the laboratory of the *Faculté de médecine de Bordeaux*, has been appointed professor of pathology and anatomy at the same school, in place of Dr. Coyne, who has retired.

Dr. Bué, *agrégé* professor at the *Faculté de médecine de Lille*, has been appointed professor of obstetrics and pediatrics at the same school.

Adrenal Insufficiency and Typhoid Fever

On July 22, Dr. Emile Sergent, physician of the hospitals of Paris, read a paper on the subject before the *Académie de médecine*. Dr. Sergent described in 1889, with Dr. Léon Bernard, the now classical syndrome of adrenal insufficiency; he then undertook to prove that adrenal insufficiency may be observed in all infectious diseases and in all severe intoxications. This theory is of great practical importance, involving the use of adrenal medication in such cases. Adrenal insufficiency may be suspected in an infectious disease when agitation, excitement and fever give place abruptly to prostration, lower temperature, and arterial hypotension with the white adrenal line (a dermatographic sign considered by Sergent as characteristic of adrenal insufficiency) and a tendency to collapse. Habitual prostration and small pulse are signs of adrenal insufficiency in typhoid. These signs attain their maximum in certain severe typhoids, simulating peritonitis or internal hemorrhage, and disappear rapidly under adrenal opotherapy. Certain complications of convalescence (prostration, anemia, psychasthenia) are due to slow adrenal insufficiency, from subacute inflammation of the adrenals. From these data, Sergent concludes that the systematic employment of epinephrin is justified in all cases of typhoid and that the extracts of the entire adrenal capsule are indicated for the severe complications due to acute adrenal insufficiency. Except in those hypertoxic or hemorrhagic cases which defy all treatment, this method combined with ordinary treatment of typhoid gives the more favorable results.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Aug. 16, 1912.

Personal

Since Professor Matthes of Marburg has declined the appointment as successor of Professor von Lichtheim at Königsberg, Professor Schittenhelm of Erlangen, one of the best-known pupils of Professor Kraus of Berlin, has been selected.

Statistics of Illness in the German Navy

According to a statistical report prepared by the medical department of the imperial naval office on the imperial German marine, there were 28,461 cases of sickness in a strength of about 50,000 men, or nearly 570 per thousand. The fact that on the average each patient was under medical treatment for seventeen or eighteen days, indicates that in many cases the illness was severe and protracted. On the other hand, it is satisfactory to note that in spite of the absolute height of the morbidity, the death rate did not reach one per thousand of the established strength. Unremitting efforts are being made to improve the insanitary conditions of the war vessels which are particularly unfavorable because of insufficient room. Among these is to be reckoned the introduction of tanks for fresh water in the dressing-rooms. The apparatus for seltzer water, which have been of late introduced in

increasing numbers on the battle-ships, are finding constantly greater favor with the crew. In connection with this the decided reduction in the use of alcoholic beverages is to be noted.

A New Cancer Treatment

New methods of cancer therapy follow each other almost daily and particularly since the publication by Wassermann, scarcely a month passes that new methods of cure are not reported in Germany or elsewhere. In the last few weeks a method has been announced by Dr. Zeller, a practitioner in a small place in Württemberg. Zeller, following a previous recommendation by an English physician, employed silicic acid internally in the form of its sodium and potassium salts, as well as an organic silicate prepared by himself. Further he treated the cancer patients—only surgical cases with external cancer—by brushing with a paste of arsenic, cinnabar and charcoal, according to the recommendation of a chief district physician, Dr. Standemeyer. When the paste was brushed over an ulcerated breast cancer of the mammary gland, it was noted that the cancer tissue absorbed the chocolate-colored paste, became separated from the healthy tissue and could be peeled out with the hand while healthy tissue remained practically unaffected. Also the swelling of the glands receded distinctly. Zeller has so far treated fifty-seven cancer patients, of whom forty-four are reported by him as cured, three are dead and ten are still under treatment. On the basis of a demonstration which he made and at which Professor Czerny of Heidelberg was present, Obermedizinalrat Schenrlen expresses himself in a medical journal to the effect that good results from the treatment are indubitable. Some of the patients had undergone repeated operations and had been declared to be suffering from an inoperable recurrence. Under Zeller's treatment they present an excellent general condition and neither a return nor a swollen gland is to be found, though it remains to be seen whether or not they are permanently cured. It would be premature as yet to draw final conclusions regarding the method, or for private practitioners to try this new method except in completely hopeless cases.

Death-Rate in the German Army

According to the latest official information the annual death-rate per thousand men in the German army is two, while in the French, Italian and Austro-Hungarian it is four, in the army of the United States six and in that of Great Britain eight. These satisfactory figures are the more notable because for a long time there have not been enough surgeons in the German army. According to a late report 100 places for surgeons are vacant. The favorable mortality figures must be regarded as an evidence of the good hygienic condition of the entire people as well as the excellent sanitary discipline in the army. Indeed, for many years the German sanitary authorities have taken care that the condition of the garrisons and the care of the soldiers and the arrangements of hospitals shall constantly conform in the highest degree to the principles of scientific practice.

Meeting of the German Anthropologists

At the first session of the annual meeting of the German Anthropologie Society early in August, at Weimar, the president, Professor von Luschan, director of the ethnologic museum in Berlin, delivered an opening address which contained a number of interesting ethnologic statements. He established the fact that paleolithic man already presented a number of different types and that European man is a mixture of several races. To the dark-skinned Africans whom many regard as savages we owe the technic which characterized the iron age. Bronze took its origin in Egypt. The question whether we are intellectually advancing or retrograding is of great importance and whether in the mass of the population the capable or the incapable are increasing in numbers. The lowering of the birth-rate and the evil of the two-child system is no longer, as formerly, confined to France, but is becoming manifest in most civilized countries. It is found not only in the upper ten thousand but has spread also to the rural population. The remedy can be found only by careful investigation and here an important task awaits social anthropology, the newest branch of anthropologic science. About \$250,000 (1,000,000 marks) is necessary for such a general investigation; it is to be hoped that this sum will be appropriated by the imperial government. The problem of miscegenation is an important question for social anthropology. The mixing of nearly related groups is not unfavorable for posterity. Von Luschan regards the few who express themselves in favor of the culture of a pure blond dolichocephalic type

as fanatics. The population of countries which stand on a high plane is composed of many types. It is well known that some colored hybrids are of high intellectual character. Luschan is of the opinion that the Indogermanic, African and East Asiatic groups of mankind formed about 100,000 years ago a single distinct species and that all can mix with each other without disadvantage. He freely admits, however, that other scientists are of different opinions. Statistical inquiries regarding this question will be of great value, particularly with reference to the intellectual and physical peculiarities of half-breeds.

BUDAPEST LETTER

(From Our Occasional Correspondent)

BUDAPEST, Aug. 13, 1912.

Trachoma in a Hungarian County

In the county of Vas, trachoma has prevailed this year to such a degree that the medical board of the county had to ask the minister of public health to appoint two special physicians solely to treat trachoma. Whereas there were in the last year 741 trachoma patients, in the first half of this year they numbered 850. It was discovered recently that trachoma is introduced into the villages chiefly by discharged soldiers, the army being so much infected that, as mentioned in a previous letter (May 4, 1912, p. 1388), regiments had to be formed from trachomatous soldiers and officers for the sake of isolation. Even this measure was of little avail, because the soldiers acquire trachoma voluntarily, running the terrible risk of losing their sight in the hope that they will be discharged from service, because even after the formation of trachomatous companies and regiments, soldiers with severe or incurable cases have to be discharged.

Cholera in Hungary

At this season of the year, supposed cholera cases crop out in every corner of the country. Most of these cases prove to be only severe gastro-enteritis, diarrhea, etc. Should a real cholera epidemic break out, it will not find us unprepared, because every precaution is taken to prevent the spread of an epidemic. As cholera is mostly brought into Hungary from Roumania, in ships coming up from Galatz on the Danube to Hungary, the ship surgeons of the Danube vessels have been instructed to examine every passenger before he comes on board, and also to examine goods carried on the ships, drinking-water, etc. In the ports the passengers are repeatedly examined by the port medical officers. From navigable rivers samples of water are to be sent once every week to the public health ministry, where the water is carefully examined for cholera vibrios.

The Prevention of Senility

Professor Metchnikoff, director of the Paris Pasteur Institute, addresses a letter to a leading Hungarian daily paper (a freemasons' paper, chiefly edited by medical men) in which he publishes the results of his latest investigations. His scientific discoveries, he says, have been so exaggerated in lay papers that he has resolved henceforth to write direct to the public. After mentioning his early theory that the length of life among animals varies inversely with the length of the large intestine, and his later theory that senility is the consequence of the effects of toxins (chiefly phenols) produced by the intestinal bacteria, Metchnikoff refers to experiments in which he actually succeeded in producing in apes senile degeneration by giving them small doses of parakresol (a derivative of phenol) for some time.

These were the fundamental investigations which led to the solution of the question as to how the action of the intestinal bacteria might be checked or lessened. The lactic acid bacillus has proved to be the best for this purpose. An obstacle to the work of the lactic acid bacilli has been their need of sugar, which does not reach the rectum in a usable form. Dr. Metchnikoff and Dr. Wollmann, his pupil, have overcome this by cultivating bacteria which produce sugar from starch. It is now possible to supply a diet capable of supporting the bacillus which limits the action of the intestinal flora.

Of course, concludes Metchnikoff, the struggle against senility is not at all finished. Whether these discoveries will actually tend toward the lengthening of human life is yet a question of the future. But it cannot be denied that a beginning has been made, and we have reason to hope that from these investigations mankind may derive practical benefit.

Marriages

PHILIP GRAHAM REEDY, M.D., McLaughlin, S. Dak., to Miss Rachel Nora O'Neill, of O'Neill, S. Dak., at Fort Yates, N. Dak., August 21.

HUGO BRUNO CHARLES RIEMER, U. S. P. H. Service, Boston, to Miss Lucille Elizabeth Warner, of Ellensburg, Wash., September 2.

T. SELDEN STEWART, M.D., Buffalo, N. Y., to Miss M. Emma Veazy Newnons, of Harrington, Del., at Summit Bridge, Del., August 7.

MAURICE E. BROADAS OWENS, M.D., Long Lake, Wash., to Maysville J. Freeman, of Baltimore, at Spokane, September 1.

LOUIS E. SAUNDERS, M.D., to Miss Edna E. Whitmore, both of Stewartville, Mo., at Leavenworth, Kan., August 10.

MATHEW JOSEPH HOEY, M.D., Las Casadas, C. Z., to Miss Maybelle Jane Fowler, at Colon, Panama, August 8.

WILLIAM L. DAVIS, M.D., Elmira, Mo., to Miss Sybil Gertrude Wood, of Sedalia, Mo., at Elmira, July 28.

ALVIS E. GREER, M.D., Houston, Tex., to Miss Claire Eleanor Gadde, of Odanah, Wis., at Chicago, June 27.

JOHN GOLDSBOROUGH SWAILS, M.D., Grafton, Neb., to Miss Hazel Folks, of Maysville, Mo., August 10.

LUTHER SHELDON, JR., M. C., U. S. Navy, to Miss Helen DuBose, of Washington, D. C., August 14.

WILLIAM H. FALLS, M.D., to Miss Cordelia W. Coffey, both of Cincinnati, at Cleveland, August 10.

JOHN J. MULHERON, M.D., Greenfield, Mich., to Mrs. Mary J. Jones, of Albion, Mich., August 21.

STERLING C. BASNEY, M.D., Mont Clare, Pa., to Miss G. R. Parmentier, of Philadelphia, May 20.

LEWIS F. LADD, M.D., Martin, Mich., to Miss Blanch Monteth, of Allegan, Mich., August 15.

TURNER BENTON SMITH, M.D., Clifton, Ariz., to Miss Rebecca Lynch, of Los Angeles, August 13.

Deaths

Paul Emile Archinard, M.D. Tulane University, New Orleans, 1882; professor of diseases of the nervous system in his alma mater; bacteriologist of the State Board of Health; city bacteriologist of New Orleans; one of the founders of the New Orleans Polyclinic; a member of the American Medical Association and for two terms president of the Louisiana State Medical Society; author of standard text-books on microscopy and bacteriology; a member of the Medical Reserve Corps, U. S. Army; died at his home in New Orleans, August 23, from pulmonary disease, aged 53. Dr. Archinard was a good practitioner of medicine and eminent as a neurologist and bacteriologist; he was greatly esteemed and beloved by his colleagues in the medical profession and his untimely death is universally deplored.

Rudolph Wirth, M.D. Pennsylvania Medical College, Gettysburg, Pa., 1859; one of the founders of the Columbus, Ohio, Academy of Medicine; for many years a member of the faculty of Columbus Medical College in the department of nervous and mental diseases; surgeon of the First Ohio Volunteer Cavalry throughout the Civil War; for one term physician to the State Institution for the Deaf; died at his home, June 8, from senile debility, aged 83.

Charles H. Rose, M.D. Eclectic Medical College of Philadelphia, 1855; a member of the Medical and Chirurgical Faculty of Maryland; president of the Talbot County Medical Association; for two terms a judge of the Orphans' Court; a member of the Maryland House of Delegates in 1868 and 1910; a resident of Cordova for fifty-six years; died at the home of his daughter in Centreville, Md., August 23, aged 78.

Sarah E. Furnas Wells, M.D. New York Medical College and Hospital for Women, New York City, 1869; formerly a member of the faculty of her alma mater and president of the Woman's Medical College and Hospital, San Francisco; who had lived in seclusion for several years; died at her home in St. Louis, August 21, from the effects of burns accidentally received, aged 78.

Andrew J. Hobach, who attended, but was not graduated from the Philadelphia College of Medicine and Surgery; an honorary member of the Medical Society of Virginia; surgeon in the Confederate service throughout the Civil War; a practitioner for fifty-five years; died at his home in Roanoke, August 19, from cerebral hemorrhage, aged 80.

Walter Ross Foster, M.D. Jefferson Medical College, 1886; a member of the American Medical Association; physician to St. Paul's Orphan Asylum and the Allegheny County Home, Crafton, Pa.; surgeon to the Pittsburgh Railway Company and the Panhandle System; died in the West Penn Hospital, Pittsburgh, August 23, aged 48.

John M. Wells, M.D. University of Louisville, Ky., 1876; a member of the Kentucky State Medical Association and secretary of the Nicholas County Medical Society; formerly health officer of Nicholas County and secretary of the county board of health; died at his home near Ellisville, August 15, from nephritis, aged 58.

Benjamin Michael Alford, M.D. University of Nashville, Tenn., 1856; surgeon in the Confederate service during the Civil War; for twenty years surgeon of the Southern Pacific and Santa Fe systems at Tulare, Cal.; died at his home in Alameda, August 15, from cerebral hemorrhage, aged 79.

Theodore A. Worrall, M.D. University of Pennsylvania, Philadelphia, 1870; a member of the Medical and Chirurgical Faculty of Maryland; at one time health officer of Cecil County; a veteran of the Civil War; died at his home in Northeast, August 14, from tuberculosis, aged 68.

Henry Stuart Nolan, M.D. Tufts College Medical School, Boston, 1906; of West Somerville; a member of the Massachusetts Medical Society; died in the Deaconess Hospital, Brookline, August 18, from intestinal disease, five months after an operation for appendicitis, aged 29.

Henry Strong Denison, M.D. Johns Hopkins University, Baltimore, 1908; a member of the American Medical Association; died at his home in Denver, August 24, from the effects of bichlorid of mercury accidentally self-administered, aged 29.

Henry Sanford Green, M.D. Miami Medical College, Cincinnati, 1869; formerly a member of the American Medical Association; a member of the Ohio State Medical Association; died at his home in Cardington, August 18, aged 70.

James Polk Sangston, M.D. University of Wooster, Cleveland, 1868; a member of the Medical Society of the State of Pennsylvania; died at his home in McClellandtown, August 17, from angina pectoris, aged 67.

Robert Edward Martin, M.D. Chicago Homeopathic Medical College, 1886; a physician and organist of Milwaukee; died at the home of his mother in Milwaukee, August 21, from heart disease, aged 47.

William Horace Johnson, M.D. College of Physicians and Surgeons, Baltimore, 1879; a member of the Medical Society of the State of Pennsylvania; died at his home in Dudley, August 17, aged 70.

Michael L. Lyons, M.D. Tulane University, New Orleans, 1871; of Crowley, La.; a Confederate veteran; died in the Touro Infirmary, New Orleans, August 19, after a surgical operation, aged 78.

Richard D. Wilson, M.D. Tulane University, New Orleans, 1898; of Phoenix, Ariz.; aged 42; was drowned August 18 while swimming across the Arizona Canal, to recover a bird he had shot.

John Walker Colver, M.D. Rush Medical College, 1864; for more than half a century a practitioner of Welland Port, Ont.; died at his home, August 20, from senile debility, aged 82.

John W. Burchard, M.D. University of Buffalo, N. Y., 1884; a practitioner for more than thirty-five years; died at his home in Bradley, S. Dak., August 15, aged 65.

Louis Frank Lattan, M.D. Rush Medical College, 1891; for twenty years a practitioner of Chicago; died at his home in Detroit, August 15, from pneumonia, aged 45.

J. L. Miles (years of practice, Texas, 1907), one of the oldest practitioners of the state; died at his home in Swan, August 17, from senile debility, aged 86.

R. A. Cook, M.D. Atlanta (Ga.) Medical College, 1877; president of the Board of Education of Social Circle, Ga.; died at his home, August 16, aged 58.

Dennis B. Nisbit, M.D. Medical College of Georgia, Augusta, 1896; of Eatonton, Ga.; died at the home of his brother in that city, August 15, aged 57.

David P. Shattuck, M.D. Hahnemann Medical College, Chicago, 1883; died at his home in Independence, Iowa, August 20, from nephritis, aged 66.

William Armstrong Davison, M.D. Washington University, St. Louis, 1873; died recently at his home in Bridgeport, Cal., aged 62.

Lettie C. Mansur, M.D. Denver College of Physicians and Surgeons, 1896; died at her home in Santa Ana, Cal., in July.

J. Newton Rogers, M.D. University of Michigan, Ann Arbor, 1848; died at his home in Marion, Kan., August 19.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE HABITINA FRAUD

A Morphin Mixture Sold as a Cure for Morphin Addiction

Habitina, sold by the Delta Chemical Company of St. Louis as a cure for the morphin habit, was exposed in *THE JOURNAL*, March 12, 1910. It was one of those vicious mixtures containing large amounts of morphin, which are sold to drug addicts but which, instead of curing, substitute slavery to a high-priced, fancy-named, morphin mixture for that to the simple opiate itself. The Delta Chemical Company did a flourishing business and when investigated by the federal authorities it was estimated that the gross receipts of the company must have exceeded half a million dollars in the six years of its existence. *THE JOURNAL* of May 11, 1912, chronicled the fact that R. C. Prewitt, M.D., and Ryland C. Bruce, who constituted the Delta Chemical Company, were each fined \$2,000 and sentenced to five years' imprisonment at hard labor in the United States Penitentiary, for the villainous business in which they had been engaged. An appeal was taken—of course—and Bruce and Prewitt were released on bonds of \$7,000 each. The St. Louis papers of July 12, 1912, stated that Prewitt had obtained legal permission to change his name to Gregg.

At the trial it was brought out that this nostrum was made for the Delta Chemical Company by the Combs Chemical Company of St. Louis, of which Delta E. Combs is president. The federal inspectors reported on Gregg (Prewitt) as follows: He is a graduate of the Barnes Medical College, St. Louis, and for a year before graduation had practiced medicine in Arkansas. In 1900, he was located in Mississippi County, Ark., then went to Forest City of the same state and being unable to obtain a practice moved once more, this time to Little Rock, Ark. There he engaged in the surgical instrument business, on borrowed money, and failed in about a year; he then moved to St. Louis in the fall of 1904 and became a traveling salesman; left that position and went to Cincinnati, O., where he traveled for the Merrill Chemical Co., returning to St. Louis about the middle of 1905. He then entered the employ of a branch of the James Sanitarium, Memphis, Tenn., which was at that time doing a mail-order "morphin cure" business. Later the James Sanitarium discontinued its mail-order work and it was then found in the hands of Bruce and Prewitt who called the nostrum "Morphina-Cura." When the Food and Drugs Act went into effect, they changed the name of their villainous nostrum to "Habitina."

Bruce and Gregg (Prewitt) had maintained up to the time of the trial that they did not send samples of Habitina to any person until they had first received a list of answers to questions regarding the physical condition, nature of addiction, etc., of the prospective patient. This claim was false and was proved to be so by a member of *THE JOURNAL* staff, who appeared as one of the witnesses for the government. In the course of preparing our first article regarding this fraud the following letter was sent to the Delta Chemical Company:

"Gentlemen: Please send me a sample of your morphin cure, Habitina, also directions for use."

This letter, which certainly gave no information about its writer, brought a reply from the Delta Chemical Company with a sample of Habitina, containing enough morphin to kill six or seven people. A carbon copy of this letter together with the various letters received from the Delta Chemical Company, including the envelopes in which these letters came, also the sample that was sent and the package in which it came, were all turned over to the government by *THE JOURNAL*, as exhibits in the case. They proved of material value to the prosecution.

The formula of Habitina, according to Delta E. Combs, who made the stuff, is:

Morphin sulphate	16.0	gr.
Heroin	8.0	gr.
Caffein	2.5	gr.
Spartein	0.5	gr.
Pilocarpin	0.5	gr.
Hyoscin, etc.	0.05	gr.
Carbolic acid	0.5	gr.
Alcohol	1.0	gr.
Water to make.....	1.0	oz.

The testimony of the victims of this preparation was what might be expected. In the report of the post-office inspectors, which is published in a government bulletin, the names and addresses of the various victims are given in full. They will be referred to here, only by initial.

Mr. H. I. C., Missouri, testified that he had been addicted to the Habitina habit for more than six years; that he had purchased Habitina to cure himself of the morphin habit; that at first he took one bottle a week, gradually increasing until during the last year of his addiction he took one \$2 bottle daily. He further testified that the stuff injured his eyes and made him a maniac and mentally irresponsible; that he used his utmost endeavor to break himself of the habit, but could not do so; that when under the influence of Habitina he would give away all he possessed. Before his addiction he owned his own home and earned \$29 a week as a mechanic. He is now penniless and without work.

Mrs. M. P., Pennsylvania, testified that she purchased Habitina to cure herself of the drug habit; she found it impossible to reduce the dose and increased from a few drops to about half a bottle a day. It destroyed her reason and made her absolutely blind. Later she was treated in a hospital and is no longer a drug addict.

Mr. H. W. D., Iowa, testified that he had been purchasing Habitina by mail for the past five years. He had increased the dose until at the time of the trial he was using half a bottle daily. He stated that he was unable to quit or reduce the dose and was a slave to the Habitina habit.

Mr. W. J. H., Missouri, testified that he purchased Habitina to cure himself of the morphin habit. He increased from a bottle a week to a bottle a day, and at last ordered six bottles at a time, which the company always sent without question. He finally had to go to a reputable sanitarium to be cured. He submitted \$289 in checks that he had sent to the Habitina Company, and stated that he had purchased a large additional amount at drug stores.

Mrs. A. S. J., South Carolina, testified that she was 52 years of age and had taken \$354 worth of Habitina trying to cure herself of the morphin habit. She said that Habitina destroyed her reason and she had to resort to a sanitarium to free herself from its thralls.

Mrs. G. M. S., Missouri, 26 years of age, testified that she had spent at least \$2,300 on Habitina in the past five years trying to cure herself of the morphin habit. For two years past she had been taking \$2 worth daily. She testified that she was still a slave to Habitina and had sacrificed position, family, clothes and had even gone without shoes in order to obtain this drug. She is a young woman of good family. Her father was for many years connected with the Department of Justice and her brother-in-law holds a high position in the Federal service.

Other individuals suffering from the Habitina habit were present at the trial but were not called to testify as it was believed that sufficient evidence on the point had been given. The Habitina concern introduced in its defense the testimony of three physicians, all of St. Louis. Dr. Mark Ray Hughes testified that he believed Habitina would effect a cure, if taken as directed. It was shown on cross-examination that he had only treated one habitué by placing the drug in the hands of the patient himself. This was nine years ago and he had never seen the patient since to know whether or not he was cured. Dr. Andrew B. Nichols testified that he believed Habitina would cure if taken as directed, but he stated that he had never known of an addict curing himself. Dr. Charles H. Hughes, while called by the defense, gave testimony that was helpful to the government's case. He testified that if a patient could take Habitina as directed, he might be cured, but that the treatment was neither feasible nor safe.

When Dr. Gregg (Prewitt) was called to the stand he was made to admit the various details that have already been given of his lack of success as a reputable physician. It was further brought out that while connected with the Habitina Company and up to the time of his arrest he was also in the employ of the Glyco-Thymoline Company. In summing up the case, the post-office inspectors, in their report, concluded as follows:

"The conviction obtained in this case has terminated one of the most pernicious and outrageous frauds ever perpetrated on a credulous public, who were not only defrauded out of

large sums of money, ranging from a few dollars to over \$2,000 each, but were robbed of health of body and mind; some were rendered blind and some were made maniacs—how many died under the 'treatment' will never be known—but, taking their own testimonials as a source of information, four out of eight have died drug addicts, and out of the thousands of persons they have treated but one witness could be produced by the defendants to testify in behalf of this drug having any remedial properties whatever. These defendants deliberately fostered the most dreadful forms of drug slavery for their personal gain. They made no effort to cure the patient for the blood money thus obtained. They produced no evidence which would traverse the contention of the Government that the whole purpose of the defendants was to substitute for the slavery to the drug purchased by the habitué from the 'corner pharmacist' under the restrictions of state law, the slavery to the same and worse drugs purchased under a disguised name at many times a fair commercial price from the Delta Chemical Co."

Correspondence

The Insanity Problem

To the Editor:—Your editorial on this subject (August 17, p. 545) is most timely. Insanity, criminality and pauperism are on the increase in the United States, and as a large proportion of the insane, the criminal and the pauper elements of our population are aliens, there is nothing astonishing about that fact. For many years this country has been the dumping-ground for the riffraff and scum of Europe, and now we are reaping what we sowed. In our large American cities vice and crime are rampant; murder, arson, dynamiting, burglary, hold-ups, blackmailing, larceny and general dishonesty and graft are the order of the day. New York stands at the head of the list, with one murder daily during July and a startling exposé through the Rosenthal murder of moral rotteness in official life.

The expense of looking after the criminals of this country is enormous. A member of the Court of Pardons of New Jersey has stated recently, in a pamphlet on penology, that it amounts to \$1,000,000,000 annually, \$114,000 for every hour of the day and night. How much good could be accomplished with so much money devoted to help the really worthy poor, instead of being wasted on a lot of worthless wretches, most of whom are either foreigners or only one remove from foreigners. It would be interesting to know how much it costs every year to support the inmates of our hospitals, orphan asylums, insane asylums, homes for the feeble-minded, etc. The amount runs into the millions, and here again the "undesirable alien" and his progeny are in great measure responsible for this gigantic expenditure.

Why should this country be called on to support the human refuse of every country of Europe? This is a question which, perhaps, some Solomon in our national legislature might be able to answer, if pattering over the tariff or devising means to increase the "pension grab" did not overtax his mental capacity.

Is the medical examination of immigrants anything more than a farce? Would it be possible for the medical examiners at our ports of entry to diagnose incipient or latent disease in the time at their disposal, even if they had x-ray eyes and every man were a veritable medical Sherlock Holmes? The medical profession through its representative organizations should protest in no uncertain tones against making this country the dump-heap for the human refuse of Europe and breeding-ground for mental and physical degenerates and criminals. For many years there has been far more attention paid to the breeding of hogs in this country than to the breeding of human beings. Breeders have sense enough to give their cattle the benefit of the law of heredity; but our national legislators probably think—if they think at all—that they can "make a silk purse from a sow's ear," or breed a thoroughbred horse from a jackass.

I hope that your editorial will have the effect of waking up to a proper sense of his responsibility the medical man of this country.

G. H. BALLERAY, Paterson, N. J.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

AMBARD'S FORMULA

To the Editor:—In an abstract in the Current Medical Literature department of THE JOURNAL (July 20, p. 229), Ambard's formula for finding the urea index in kidney disease is given. The language seems somewhat ambiguous to me and I do not understand the method of procedure of the test. The formula given is:

$$\frac{\text{Ur}}{\sqrt{D \times \frac{70}{P} \times \sqrt{\frac{C}{25}}}} = K.$$

It appears to me that it should be $P/70$ instead of $70/P$, since P stands for the unknown weight of the person and 70 is given as the standard weight of man, as 70 kg. Then in the typical case given,

$$\frac{.0426}{\sqrt{24 \times \frac{70}{72} \times \sqrt{\frac{22.5}{25}}}} = 0.034$$

according to my calculation there is a mistake in the figuring, the square root of 4.4 which is 2.1, having been overlooked. $.0426 \div 2.1$ will give the figure 0.0203, but after extraction of the square root of 4.4 the answer is incorrect. Will you kindly explain, in simple language, the entire method of procedure, how to make the test with the patient's blood and urine, and how to calculate the index from the formula.

A. A. HIMOWICH, M.D., New York City.

ANSWER.—1. The technic of this test is as follows: The bladder is emptied completely either by spontaneous micturition or in a more accurate way by the catheter. When the bladder is completely empty the exact time is carefully noted. Ten minutes later two wet cups are applied to the patient so as to collect about 40 gm. of blood. At the end of about a half hour the urine which has collected in the bladder is accurately measured and the moment when the last drop flows is exactly noted. Thus are accurately determined (1) the duration of the experiment, and (2) the quantity of urine secreted during this time.

The percentage of urea in blood and in the urine is then determined. The technic followed by Carrion in determining the amount of urea in the blood is as follows: Ten c.c. of serum, or a mixture of serum and corpuscles expressed from a clot, are placed in a conical glass and little by little an exactly equal quantity of a 20 per cent. solution of trichloroacetic acid is added and thoroughly mixed by stirring with a test-tube [or thick glass rod]. This mixture is then filtered through a single unplaited filter placed in a rapid-filtering funnel. Ten c.c. of the filtrate are placed in an Yvon mercury ureometer (as modified by Desgrez—an instrument of a form not used in America) and 3 or 4 c.c. sodium hydroxid solution, diluted with twice the volume of water, are added to neutralize the acid. Any gas which may have been evolved is allowed to escape and then solution of sodium hypobromite is added and the urea determined by the amount of nitrogen evolved. By calculation from the figures thus obtained the amount of urine which would be secreted in twenty-four hours and the entire quantity of urea are determined. These figures together with the weight of the body in kilograms are substituted for the corresponding letters in the equation

$$\frac{\text{Ur}}{\sqrt{D \times \frac{70}{P} \times \sqrt{\frac{C}{25}}}} = K.$$

and the equation solved to determine the coefficient K . In the equation Ur stands for the proportion of urea in the blood, D for the total urea for twenty-four hours in grams, P for the body-weight of the patient in kilograms, and C for proportion of urea in the urine.

With regard to our correspondent's question as to the correctness of the fraction referring to the body-weight, we think a little reflection will show that the formula is correct. The introduction of the body-weight serves to indicate the quantity of urea excreted per unit of body-weight. It is evident, therefore, that to obtain this, D should be divided by the weight or, as expressed in this formula, by the specific body-weight over the average. That is to say, the amount of urea secreted per unit of body-weight would be by $D \div \frac{P}{70}$ which is equivalent to the expression given in the equation $D \times \frac{70}{P}$.

With regard to our correspondent's difficulty in the calculation we think it may arise from a typographic error by which

the radical sign is not properly extended to include both the numerator and denominator of the fractions. Thus the last term in the general denominator in the equation should read

$\sqrt{\frac{22.5}{25}}$ The equation when solved gives according to our calculation the figure 0.0906 which is slightly different from the figure 0.094 printed in the *Presse Médicale*. It is a singular coincidence that by neglecting to extract the root of the denominators in the equation as written by our correspondent a figure almost exactly the same is obtained.

DETERMINATION OF SUGAR IN THE URINE

To the Editor:—Kindly explain the details of a simple, accurate and quick office method of quantitative estimation of sugar in the urine, using the Haines and Fehling test solutions; also explain the calculation for obtaining the percentage of sugar in the urine.

F. Y.

HAINES' SOLUTION

ANSWER.—Ten c.c. of Haines' quantitative solution are measured into a 100 c.c. Erlenmeyer flask, which is closed with a rubber stopper with two openings. Through one of these is passed a tube bent at a right angle and with the outer end drawn out to a small caliber. Through the other opening is passed the tip of the buret. To the solution in the flask are added about 30 c.c. of ammonia solution (10 per cent.). The mixture is heated to boiling and kept gently bubbling during the operation. The urine, as a rule, should be diluted to from five to ten times its volume and the degree of dilution should be accurately noted. It is placed in a buret the tip of which passes through one of the openings in the stopper closing the flask. When the mixture in the flask reaches the boiling-point the urine is run in somewhat cautiously, the boiling being repeated between the separate additions until the color of the solution has entirely disappeared. The first titration must be considered as a preliminary one, and a second should be made with the same quantity of test solution. In titrating the second time nearly the whole quantity of urine used in the first trial should be added at once and then subsequent additions made drop by drop until the color of the solution has entirely disappeared. In this operation it is important that the flask should remain filled with the vapors of ammonia. If air is allowed to enter the flask the reduced copper will be reoxidized and the accuracy of the titration will be defeated.

In determining the percentage of sugar it should be remembered that the greater the quantity of urine needed to secure the reduction of the copper in the amount of test solution employed, the smaller is the percentage of sugar in the liquid under examination. The Haines' solution is so prepared that if 10 c.c. is reduced by 1 c.c. of urine the percentage of sugar is 1 per cent. Consequently this percentage of sugar should be divided by the number of cubic centimeters of urine which are required to effect the reduction. Thus, if 1 c.c. of urine is required for the reduction, the percentage is 1. If 5 c.c. are required the percentage is one-fifth (0.2).

FEHLING'S SOLUTION

As the best results are obtained if from 5 to 10 c.c. of urine are used in one titration, it is often necessary to dilute the urine to this end; in the determination of this point the specific gravity may serve as a guide. As a general rule, urines of a specific gravity of 1.030 should be diluted five times, and if the density is still higher ten times. Albumin, if present, must first be removed by boiling.

Ten c.c. of Fehling's solution diluted with 40 c.c. of water are placed in a porcelain dish and boiled. While boiling the diluted urine is added from a buret, 0.5 c.c. at a time, when, as a rule, the precipitated red cuprous oxid will settle, so that the white sides of the dish may be seen through the blue field. As the end-point is reached every trace of blue has disappeared and the liquid has a faint yellowish tinge owing to beginning caramelization of the excess of sugar by the caustic alkali.

If any doubt should arise whether the end-point has been reached, tiny droplets of the mixture should be placed on ferrocyanid paper (prepared by soaking filter-paper in a moderately dilute solution of potassium ferrocyanid). If unreduced copper is still present a brown color results. The result is regarded as positive only if the brown develops at once. If it occurs only after several seconds, the final point has been reached or passed.

Prolonged boiling always brings some copper into solution again. It is hence advisable to make two examinations always, the one approximate only, and the second as the final one. The calculation is then made according to the following:

equation: $y : 0.05 :: 100 : x$; and $x = 5/y$ in which x equals the percentage of sugar and y the number of cubic centimeters of the liquid employed. In case the urine has been diluted the results should be multiplied by 5 or 10 according to the degree of dilution, in order to determine the percentage of sugar in the original urine.

PELLAGRA

To the Editor:—Is there any evidence that pellagra is either infectious or contagious? If so, where can I get it?

F. D. SHERMAN, Mangum, Tex.

ANSWER.—There is no evidence that pellagra is a contagious disease. No case has been reported, to the best of our knowledge, in which the disease has been conveyed from one person to another. Some theorists have supposed that it is an infection, due to the action of some microorganism, such as a protozoon. No evidence, so far as we know, has been presented to incriminate any particular microorganism. The general belief seems to be that it is due to the use of maize, and many authors believe that the poison is the result of the action of microorganisms on the maize but not on the patient. A discussion of the theories regarding pellagra and the evidence for them can be found in Niles' work on "Pellagra."

A MISPLACED CREDIT FOR A GOOD ARTICLE

To the Editor:—The terse and very sensible quotation on "The Physician as a Business Man," which appears in THE JOURNAL (August 24, p. 620), should, be credited not to the *Delaware State Medical Journal*, but to Dr. William Brady, whose editorial in the *New York State Medical Journal* the Delaware journal republished in full, giving due credit to the source. The editorial in question is so splendid from beginning to end that we desire to give Dr. Brady the credit he deserves.

A. ROBIN,

Editor *Delaware State Journal*, Wilmington.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

NEWSPAPER EDITORS ON HYGIENE

Reference has previously been made to the peculiar features of the present popular crusade against common drinking-cups.¹ Although not inspired or directed by any individual or organization, the movement for the abolition of common drinking-cups in public places has in the last two years swept across the entire country. Almost without exception the passage of laws forbidding common drinking-cups on trains and in public buildings has been endorsed by the newspapers. Occasionally some reactionary editor has regarded the subject as a fit one for ridicule or has denounced the awful tendency of the times to interfere with individual liberty. An excellent example of this frame of mind is found in a recent editorial in the Columbus (Ohio) *Journal*. Under the title of "The Microbe Fear," the editor says: "It is against the law to have a common drinking-cup in a railroad train and so a fellow has to travel a long way often without even a drink of water. This is pretty fine-haired hygiene, and the country is getting too much of it."

Evidently the editor of the *Journal* fears that there is danger of the people of his state becoming too clean. Perhaps he would change his views if he could read an editorial in the Norfolk (Va.) *Pilot*, under the title of "Disease in Public Cups." The editor of the *Pilot* does not feel that cleanliness has yet reached the danger mark. He quotes a tourist from New York, describing a scene on a Southern railroad train:

"To my surprise I saw one big black greasy fellow hold back two white women while he took his drink of water from the same cup and from the same water-cooler as the white people were expected to take theirs from." The editor continues: "The common drinking-cup in public places is a source of great danger to the community, not only because

1. The Common Drinking-Cup, THE JOURNAL A. M. A., Sept. 2, 1911, p. 841.

negroes are peculiarly liable to spread disease by infection, but also because the germs do not draw any color-line and are apt to be transmitted from one unhealthy white to another. This is not a race question but a matter of scientific prevention of contagion. . . . This is not a question of sentiment. It is simply a wise precaution of modern sanitary science. Facts prove that disease is propagated by this custom. Law should make such propagation impossible."

A recent editorial in the Zanesville (Ohio) *Signal*, might also be read with profit by the editor of the *Columbus Journal*, as it might help to calm his fears lest we are becoming too dangerously clean a nation. The *Signal* says: "Microscopic examination of twenty-two common drinking-cups taken from public places such as hotels, stores, public schools and public wells, shows that disease-producing bacteria were present on the various cups examined." The bacilli found are enumerated as: diphtheria present in two cups taken from schoolhouses; pus-producing bacilli found on seventeen cups; pneumonia bacilli on three. In the light of this summary the editor's comments appear quite conservative. It seems rational, in the light of an investigation of this character, to forbid the use of the common drinking-cup in all public places, whether on the streets, on railroad cars, in hotels, libraries, or any other place of a public character where the multitude gathers. In view of the general sentiment in favor of increased cleanliness, public as well as personal, the only alternative for those who object to such reforms would seem to be the organization of a National League for Freedom to be Dirty.

Evidently, to paraphrase Sterne's famous remark, "they do those things better in Kentucky." The Louisville *Courier-Journal*, under the title of "The Public Horse-Trough," after stating that the common drinking-cup for human beings has been forbidden by the state legislature, quotes a New York veterinary surgeon as saying that the public horse-trough is one of the most pernicious sources of disease for horses. The *Courier-Journal* continues:

"There has been no agitation of this question in this particular part of the country, but when one comes to think about it the advice is sensible. Horses have their infectious diseases the same as human beings, and some of these diseases are much to be dreaded by those who have any considerable amount of their capital wrapped up in horse-flesh. A drinking-trough where hundreds of horses are watered every day, and where little regard is paid to cleanliness, would seem to be a most dangerous source for the distribution of disease germs."

If this suggestion of the *Courier-Journal* should be followed out and public drinking-troughs for horses abolished, it may be necessary for the conservative horses of Kentucky to leave the state and migrate to Columbus, in a body, in order that they may establish congenial relations with the editor of the *Columbus Journal*.

Finally the Columbia (S. C.) *State Journal*, under the title of "The Medical Trust," discusses the charge made by the united opposition to national and state health legislation, of the existence of a "medical trust." After pointing out that the proposed national department of health would have for its object the prevention of disease and would therefore diminish instead of increasing the revenues of the medical profession, the editor says:

"Cordial advocacy of the project by the medical profession, instead of being cause of suspicion, is rather cause for admiration of that spirit of unselfishness which has always distinguished the physician. This health department plan, in fact, is merely one concrete feature of a comprehensive campaign of health conservation, to which the profession as a whole is heartily committed in disregard of the unfavorable financial reaction on its members which these endeavors must produce. . . . When opponents of the national department of health raise the cry medical trust against it, the public will bear in mind that the ethical physicians supporting the project have not proposed any gigantic scheme based on any particular school of medicine, but have urged merely the gain which could be effected in efficiency and economy, through coordination of cognate governmental agencies for social reform and uplift, intended to bring each individual into physical harmony, as nearly as may be, with his environment and to inaugurate a comprehensive system of health-conservation through disease prevention."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ILLINOIS: Coliseum Annex, Chicago, September 24-26. Sec., Dr. James A. Egan, Springfield.

IOWA: Capitol Bldg., Des Moines, September 11-13. Sec., Dr. Guilford H. Sumner, State House.

MASSACHUSETTS: State House, Boston, September 10-12. Sec., Dr. Edwin B. Harvey, Room 159, State House.

NEW YORK: September 17-20. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

Connecticut July Report

Dr. Charles A. Tuttle, secretary of the Connecticut State Medical Examining Board, reports the written examination held at New Haven, July 9-10, 1912. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 39, of whom 32 passed and 7 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale Medical School (1910)	75.5, 80.6; (1912)	77.8, 81.1, 81.8, 81.8, 83.1, 83.8, 84, 84.8.	
Georgetown University	(1911)	75.5, 75.7	
Maryland Medical College	(1912)	75, 75	
Baltimore Medical College	(1912)	79.9	
Johns Hopkins University	(1902) 93; (1909) 79.9; (1912)	90	
University of Maryland	(1910) 75.8; (1912)	82.3	
Harvard University Medical School	(1912)	84.9	
Tufts College Medical School	(1912)	78.8	
St. Louis University	(1912)	80	
Columbia University, College of Phys. and Surgs.	(1895)	75.5	
Cornell University Medical College	(1910)	82.1	
Medico-Chirurgical College of Philadelphia	(1912)	81.8	
University of Pennsylvania	(1910) 80.5; (1912)	80.2	
Woman's Medical College of Pennsylvania	(1912)	76.4	
University of Vermont	(1911)	81.7	
McGill University, Montreal, Quebec	(1903) 83.7; (1907)	87.9	

FAILED

College of Physicians and Surgeons, Baltimore	(1911)	68.9
Baltimore Medical College	(1912)	74.2
Columbia University, College of Phys. and Surgs.	(1876)	56
Woman's Medical College of Pennsylvania	(1912)	73.8
Jefferson Medical College	(1912)	68.5
University of the South	(1904)	67.7
Queen's University, Kingston, Ontario	(1907)	68.7

Connecticut Eclectic July Report

Dr. Thomas S. Hodge, secretary of the Connecticut Eclectic Medical Examining Board, reports that at the meeting held at New Haven, July 9, 1912, one candidate, a graduate of Bennett Medical College, 1906, was licensed through reciprocity with Pennsylvania.

Ohio June Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports the written, oral and practical examination held at Columbus, June 18-21, 1912. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 208 of whom 191 passed, including 9 osteopaths, and 16 failed, including 5 osteopaths. One certificate was withheld. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College		(1912)	87
University of Louisville		(1909)	84.2
University of Michigan, Homeopathic College		(1912)	81.6
Starling-Ohio Medical College	(1912) 75.7, 76.6, 77, 77.4, 77.5, 78, 78.3, 79.4, 79.7, 79.8, 80, 80.4, 80.7, 80.8, 80.9, 81, 81.2, 81.2, 81.2, 81.5, 81.6, 81.8, 81.9, 82, 82, 82.1, 82.3, 82.4, 82.4, 82.4, 82.5, 82.7, 82.7, 82.7, 82.8, 83, 83.5, 83.5, 83.7, 83.9, 84.1, 84.1, 84.2, 84.6, 85.2, 85.4, 85.5, 86, 86.2, 86.3, 86.7, 87.2.		
Ohio-Miami Medical College	(1910) 79.7; (1912) 75, 75, 75, 75.6, 76.7, 76.7, 77.5, 78, 78.3, 79.1, 79.2, 79.5, 80, 80.1, 80.2, 80.3, 80.4, 80.6, 80.6, 80.7, 80.8, 81, 81.2, 81.5, 81.6, 81.8, 82.1, 82.1, 82.2, 82.4, 82.5, 82.9, 83, 83.3, 83.7, 83.8, 83.9, 84.7, 84.8, 85, 85.2, 86.8, 86.9, 87.		
Western Reserve University	(1912) 78.3, 78.8, 79, 80, 80.2, 80.3, 80.7, 80.8, 80.9, 81.3, 82, 82.2, 82.2, 82.5, 83.1, 83.4, 83.6, 83.8, 84, 84, 84, 84.6, 84.7, 85.1, 85.2, 85.2, 85.6, 86.7, 86.9, 87, 87.4, 87.5, 88.		
Cleveland College of Physicians and Surgeons	(1912) 77.4, 77.9, 80.8, 81.3, 82.1, 82.6, 82.9, 83, 84.2, 84.3, 84.8, 85, 85.4, 85.5, 85.7,		
Cleveland Homeopathic College		(1909)	78.2

Cleveland-Pulte Medical College (1912)	75.2, 76.3, 77.5, 77.8, 80.4
81, 81.4, 83.	
Eclectic Medical College, Cincinnati (1912)	75.6, 76.2, 76.5, 78.7, 79.5, 80.6.
Toledo Medical College (1912)	75.7, 76.5, 78.8, 78.8, 79.5, 81.5, 84.8, 86.7.
Miami Medical College	(1890) 76.1
Jefferson Medical College	(1902) 78.3; (1912) 76.1, 80.5
University of Pennsylvania	(1910) 82; (1911) 81.8
University of Pittsburgh	(1911) 78.9
Medico-Chirurgical College of Philadelphia	(1912) 79.5
Hahnemann Med. Coll. and Hospital, Philadelphia	(1911) 77.4
Lincoln Memorial University	(1911) 75.4

FAILED

Cleveland University of Medicine and Surgery	(1890) 53
Starling-Ohio Medical College	(1912) 73.5
Ohio-Miami Medical College	(1912) 71.5, 73
Cleveland-Pulte Medical College	(1912) 69.2, 73.7, 74.4
Eclectic Medical College, Cincinnati	(1911) 71.5, * 73.3
Toledo Medical College	(1912) 74.3
Royal University of Naples, Italy	(1911) 72

* Third examination.

The following questions were asked:

ANATOMY

1. What are the two kinds of bone tissue and where is each one found? 2. What tends to prevent anterior displacement at the elbow-joint? 3. What muscles connect the scapula with the trunk? 4. Describe and locate each of the valves of the heart. 5. Name the visceral branches of the abdominal aorta.

PHYSIOLOGY

1. Name four conditions that influence the composition of the blood in health. Describe such influence. 2. State what you know about the distribution and structure of the capillaries. 3. What purpose is served by the arrangement of valves in veins, and where are they most generously placed? 4. What is the object of respiration? Define complementary, reserve and residual air. 5. What is the condition of the vascular system in asphyxiation. 6. State what you know of the office of the thyroid gland and of the effects on the body of its complete removal. 7. Describe the mechanism of vomiting, and what general muscles are involved in the act. 8. What structures of the kidney are chiefly concerned in filtration? What effect does increased blood-pressure have on the process? 9. What are the principal morbid effects of division of the fifth nerve? 10. To what property does muscle owe its activity? Name four conditions which affect the irritability of muscles, and state how.

CHEMISTRY

1. What are ferments? Name and explain the action of the salivary, gastric and pancreatic ferments. 2. Name two neurotic poisons. Give antidote of each. 3. Name and give antidote of three poisons most frequently used for suicidal purposes. 4. Define atomic weight, molecular weight, acid, base, and radical. 5. Name the principal acids and give source of each. Name the principal alkalies and give source of each. Name four of the principal bases and give source of each. 6. Write the chemical reaction that occurs when bicarbonate of sodium is given for hyperacidity of the gastric juice. 7. How would you distinguish chemically between uric acid and urea? 8. What is catalysis? What is its value in chemistry? 9. Define or explain the term hardness as applied to a potable water. What makes water hard? Give a test for chlorids in water. 10. What are the principal constituents of cow's milk? Give chemical explanation of the souring and curdling of milk.

PATHOLOGY

1. Give in detail the vascular changes in a simple inflammation. 2. What is metastasis? Name three pathologic conditions in which it occurs. 3. Describe a typical lesion produced by the tubercle bacillus. 4. Describe minutely the process of healing in an infected wound of the skin. 5. What is a thrombus? What are its possible terminations? 6. What local defensive measure does the organism use to limit an appendiceal inflammation? 7. Is there any importance to phagocytosis? Why? 8. How would you make a Widal test? 9. On what principle does vaccination against typhoid depend? How is the vaccine prepared? 10. Describe the exudate in a pneumonic lung in the stage of red hepatization.

DIAGNOSIS

1. What indications may be derived from an increased dullness of the cardiac area toward the left and downward? 2. Define rales, mention their typical types and their pathologic significance. 3. Where do you find the normal apex beat and what indications do you derive from its displacement? 4. In what pathologic conditions do you find Cheyne-Stokes breathing? 5. What indication is given by a decreased resonance, dullness in the left axillary line? 6. What diagnostic significance do you derive from an increased resonance on one side of the chest? 7. To what pathologic conditions is a general distention of the abdomen due? 8. State how you determine the shape and size of the liver by percussio. 9. What pathologic significance is given to the absence of the plantar reflex—Babinski phenomenon. 10. In what pathologic affections do you find facial paralysis?

PRACTICE

1. Differentiate between infectious and contagious diseases. 2. Give the etiology, symptoms and clinical findings of bronchial asthma. 3. Give the cause of hematuria. How may the source of the blood be inferred? 4. Differentiate between rheumatic fever and pyemia with suppuration. Arthritis and gonorrheal arthritis. 5. Describe procedure in making a physical examination of the abdomen. 6. Give causation, symptoms and treatment of acute cholecystitis. 7. Differentiate coma of cerebral hemorrhage from that of diabetes mellitus. Give treatment for the latter. 8. Give etiology and symptomatology of empyema. 9. Diagnose gastric ulcer. 10. Define and give symptoms, diagnosis and treatment of acute articular rheumatism.

SURGERY

1. Diagnose pleuritic effusion, purulent and non-purulent. 2. Name causes for chronic inflammation of bone. Do they always pass

through an acute stage? Are they ever amenable to medical treatment? Give the most common symptom? 3. Give supplementary and surgical treatment for tuberculous knee-joint disease in children. 4. What are the most common complications following amputation? How met? 5. Define coxalgia and give treatment.

OBSTETRICS

1. What symptoms would cause you to suspect ectopic pregnancy? 2. Give diagnosis and management of placenta prævia. 3. Give cause, symptoms and treatment of the various forms of dysmenorrhea. 4. What are the dangers of vaginal examinations during labor and what can be learned by them? 5. Outline your attentions to a new-born child up to the time it is turned over to the nurse.

DERMATOLOGY, SYPHILOLOGY AND DISEASES OF THE EYE, EAR, NOSE AND THROAT

1. Describe seborrhea capillitii (of the scalp) and differentiate it from sporiasis. 2. How do you recognize scabies and how treat it? 3. Describe leg ulcers and give treatment. 4. What is the initial lesion of syphilis? 5. Describe syphilitic roseola and state how it is recognized. 6. Define astigmatism. Give its causes, symptoms and state how to improve the vision with lenses. 7. Describe dacryocystitis, mention its causes and outline treatment. 8. Describe otitis media purulenta and the dangers which may result. 9. Describe catarrhal laryngitis. 10. How do you recognize nasal polyp? Give causes and treatment.

MATERIA MEDICA AND THERAPEUTICS (REGULAR)

1. What drugs would you use in acute articular rheumatism? Write a prescription for each. 2. Name four drugs giving dose of each that are used hypodermically. What precautions should be observed in administering them? 3. Mention indications for the use of arsenic. In what forms is it used? Give dose of each. 4. Explain the action and use of diuretics. 5. Name the preparations and alkaloids of opium. What are the chief indications for their use? State the dose of each. 6. Name the preparations of veratrum viride giving dose of each. Give treatment for overdose. 7. Name three cerebral sedatives. Give dose and use of each. 8. Describe the physiologic action and state the therapeutic use of digitalis. 9. Name two drugs used in the treatment of intermittent fever. Give dose of each and describe the action of each. 10. Is electricity indicated in acute tubercular synovitis? If so, what form would you use?

MATERIA MEDICA AND THERAPEUTICS (HOMEOPATHIC)

1. Give the leading indications for calcarea iodid. 2. Differentiate ipecac and tartar emetic. 3. Differentiate stannum and phosphorus. 3. How much morphin would you give a child under two years of age, hypodermatically? Why? 5. What are the physiologic effects of gelsemium? 6. Give the leading indications for cantharis. Crotalus. 7. Name three remedies having a specific influence on the action of the heart? Give the indications for the first named. 8. Name three remedies having a specific action on the kidneys. Three on the liver. 9. Name three remedies having a specific action on the lungs, on the female genital organs. Give indication for sepia. 10. Is electricity indicated in acute tubercular synovitis? If so, what form would you use?

MATERIA MEDICA AND THERAPEUTICS (ECLECTIC)

1. Give specific use of veratrum viride. 2. For what is benzoic acid principally used? How does it act? 3. Differentiate between colocynth, dioscorea, nux vomica and magnesium sulphate in their use in abdominal pain. 4. What is the common name of piper methysticum? For what is it used and what is its effect? 5. Discuss the therapeutic uses of collinsonia. 6. Give antidotes to arsenic, carbolic acid, oxalic acid, belladonna and strychnia. 7. Discourse briefly on podophyllum. 8. What are the physiologic effects of gelsemium? 9. From what is thuja occidentalis obtained? Give use. 10. Is electricity indicated in acute tubercular synovitis? If so, what form would you use?

Rhode Island July Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence, July 11-12, 1912. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 80. The total number of candidates examined was 15 of whom 8 passed and 7 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Boston University	(1900) 81; (1912)		84
Tufts College Medical School	(1912) 82, 83, 83, 85		
Harvard Medical School	(1912)		85
Jefferson Medical College	(1912)		84
FAILED			
Tufts College Med. School	(1903) 79; (1911) 77; (1912)		77
Harvard University Medical School	(1906)		72
Jefferson Medical College	(1901)		78
Medico-Chirurgical College of Philadelphia	(1912)		77
Laval University, Quebec	(1911)		75

South Dakota July Report

Dr. L. G. Hill, secretary of the South Dakota State Board of Medical Examiners, reports the written and oral examination held at Deadwood, July 10, 1912. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 11 of whom 10 passed and 1 failed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago.....		(1912)	82, 89.7
Jenner Medical College		(1910)	80
Northwestern University Medical School.....		(1910) 77; (1911)	87
Indiana University		(1909)	88
University of Louisville		(1910)	87
Barnes Medical College.....		(1905)	81
Creighton Medical College		(1912)	82
Jefferson Medical College		(1910)	88
FAILED			
Hamline University		(1904)	69
LICENSED THROUGH RECIPROCITY			
College		Year Grad.	Reciprocity with
Creighton Medical College		(1911)	Nebraska

Vermont July Report

Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the written examination held at Burlington, July 9-11, 1912. The number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 40 of whom 38 passed and 2 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale Medical School		(1904)	85.6
George Washington University		(1912)	81.6
Baltimore Medical College		(1911)	80
Dartmouth Medical School		(1912)	78.1, 80.8
Woman's Medical College of Pennsylvania.....		(1912)	82.7
Medico-Chirurgical College of Philadelphia.....		(1912)	80.2
University of Vermont (1910) 79.6; (1911) 84.5; (1912) 75.2, 75.3, 76.4, 77.1, 77.7, 77.7, 78.3, 78.6, 79.1, 79.5, 79.8, 79.9, 81.1, 81.5, 81.6, 82.1, 82.5, 82.7, 83.1, 84.1, 84.2, 84.7, 84.8, 85.6, 85.7, 85.8, 87.4, 88.1, 88.6.			
FAILED			
University of Vermont.....		(1911)	67.8
University of Naples, Italy.....		(1902)	67.1
LICENSED THROUGH RECIPROCITY			
College		Year Grad.	Reciprocity with
Woman's Medical College of Pennsylvania.....		(1897)	Dist. Colum.
Laval University, Montreal, Quebec.....		(1904)	Maine

Washington July Report

Dr. F. P. Witter, secretary of the Washington State Board of Medical Examiners, reports the written examination held at Tacoma, July 6, 1912. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75, and not less than 60 in any one branch. The total number of candidates examined was 56 of whom 36 passed, including 1 osteopath, and 20 failed, including 3 osteopaths. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Examined.
University of Colorado.....		(1909) (1910) (1911)	3
Coll. of Phys. and Surg., Chicago.....		(1902) (1910) (1912, 2)	4
Chicago College of Medicine and Surgery.....		(1910)	1
Rush Medical College		(1903) (1912, 2)	3
Northwestern University Medical School.....		(1911)	3
University of Louisville		(1911)	1
State University of Iowa, College of Medicine.....		(1909)	1
Kansas Medical College		(1911)	1
University of Michigan, Dept. of Medicine and Surg.....		(1908)	1
Johns Hopkins University		(1911)	1
University of Minnesota, College of Med. and Surg.....		(1911)	1
St. Louis University		(1908)	1
Washington University, St. Louis		(1911)	1
Missouri Medical College		(1895)	1
University of Oregon.....		(1911, 3) (1912)	4
Jefferson Medical College.....		(1911) (1912, 2)	3
University of the South		(1908)	1
Lincoln Memorial University		(1892)	1
Vanderbilt University		(1912)	1
Milwaukee Medical College		(1897)	1
McGill University, Quebec		(1909)	1
FAILED			
Illinois Medical College		(1910)	1
College of Physicians and Surgeons, Chicago.....		(1909)	1
Hahnemann Medical College and Hospital, Chicago.....		(1906)	1
Chicago College of Medicine and Surgery.....		(1908) (1909)	2
Bennett Medical College		(1911)	1
Physio-Medical College of Indiana.....		(1898)	1
University of Michigan, Dept. of Med. and Surg.....		(1898)	1
Detroit Homeopathic College		(1908)	1
University of Minnesota, College of Med. and Surg.....		(1905)	1
St. Louis College of Physicians and Surgeons.....		(1893)	1
University of Buffalo		(1888)	1
Eclectic Medical College, Cincinnati.....		(1911)	1
University of Nashville		(1902)	1
University of Siena, Italy.....		(1909)	1
University of Berne, Switzerland.....		(1884)	1
University of Lemberg, Austria.....		(1905)	1

Book Notices

ESSAI SUR L'ANATOMIE ET LA MÉDECINE OPÉRATOIRE DU TRONC CÉLIAQUE ET DE SES BRANCHES; DE L'ARTÈRE HÉPATIQUE EN PARTICULIER. Par le Dr. P. do Rio Branco (da Silva Paranhos), Ancien Interne des Hôpitaux de Paris. Paper. Price, 22 francs. Pp. 828, with illustrations. Paris: G. Steinheil, 1912.

This work is a comprehensive exposition of the history of the embryologic development and the descriptive and surgical anatomy of the celiac axis. Not content with describing the normal and usual course and the relations of the celiac group of vessels, the author has in addition elaborately and carefully investigated, examined and recorded their many anomalies and unusual arrangements. As the most important branch of the celiac axis, the hepatic artery is given special attention, the major part of the work being given over to the description of this vessel and its branches. The best methods of approaching and ligating the gastric, hepatic and splenic arteries are also fully described. The illustrations are good, many being original.

The author points out that a full knowledge, not only of the usual, but also less common anatomy of the branches of the celiac axis is essential to the surgeon, who may at any time be called on to deal with conditions making such knowledge an absolute necessity. The active surgeon, for whom the work is especially designed, will scarcely find time to search out from the voluminous mass of details the few valuable additions to our knowledge of the celiac axis that the author has contributed.

HENRY PHIPPS INSTITUTE FOR THE STUDY, TREATMENT AND PREVENTION OF TUBERCULOSIS. Sixth Annual Report, 1908-1910. Paper.

This report is the first since the Henry Phipps Institute came under the control of the University of Pennsylvania and contains much statistical material in the form of tables covering the period from Feb. 1, 1908, to Feb. 1, 1910, in addition to a number of papers on various phases of tuberculosis and the results of research work in the Institute. The tables are given without much comment, but present in a graphic way material of extreme importance covering every phase of tuberculosis—patients, housing conditions, contagion, pathology, etc. The editors announce that the article on "The Finding of Alleged Tubercle Bacilli in the Blood" is to be attributed to Dr. E. Burville-Holmes instead of to Dr. Joseph McFarland.

MITTEILUNGEN AUS DER MEDIZINISCHEN FAKULTÄT DER KAISERLICHEN UNIVERSITÄT ZU TOKYO. Volume 10, first half. Paper 1911.

This collection of papers, published under the auspices of a committee of the faculty of the Imperial University of Tokyo, is the first number of Volume 10 of a periodical which usually contains from two to five similar numbers per volume. The articles are records of high-grade scientific work and are prepared and printed in a form creditable to the Imperial University. The articles in the present number deal with disturbances of the conductive power of the heart, Thomsen's disease, a peculiar bacillus exciting an acute inflammation of the knee and a typical disease of the tuberosity of the tibia in adolescence. The articles are excellently illustrated.

THE INDEX OF OPHTHALMOLOGY AND OTOLARYNGOLOGY. Published Monthly by Dr. Joseph C. Beck, Editor. Volume 1. Price, Complete Index, \$5; Ophthalmological Separate, \$2.50; Otolaryngological Separate, \$2.50. J. C. Beck, 2551 N. Clark St., Chicago.

This book contains the twelve monthly issues of the "Index" for 1911. Articles on ear and throat affections which have appeared in the literature since Jan. 1, 1911 up to and including December, 1911, are listed under various headings, such as "Nasal Cavity," "Septum," "Accessory Sinuses," "Oropharynx," "Larynx," "Mastoid," "Internal Ear," etc. As an addendum appears an authors' index for the entire year, giving the author's name, the month in which the article was listed and in what division it appeared. This is a wealth of information presented in concise form and suitably arranged, for which the otolaryngologist is no doubt thankful.

Medicolegal

Physician Asserting Privilege

(*Trichter vs. New York & Queens County Railway Co. (N. Y.),*
134 N. Y. Supp. 267)

The Appellate Division of the Supreme Court of New York, Second Department, holds that in this action, brought to recover damages for the death of the plaintiff's husband through the alleged negligence of the defendant, there was no reversible error in sustaining a physician in claiming privilege. The physician, who had attended the decedent some five or six years before the accident, was called as a witness by the defendant and asked what he treated him for at that time. The physician refused to answer, claiming that it would be improper to disclose information acquired by him in his professional capacity. The trial court declined to compel him to answer unless there was an express waiver by the plaintiff; and, while no formal objection was made by the plaintiff, there was at the same time no express waiver made, and the question remained unanswered. It was true, the Appellate Division says, that the privilege claimed by the physician did not belong to him, but to the patient, and could have been waived by the personal representative, the plaintiff. At the same time, though technically the physician was claiming a right which he did not possess, yet a refusal by the court to compel him to answer would not, even on a trial where there had been an express waiver, be reversible error, unless it appeared that the evidence sought was material to the question to be determined, while the question here was not specific enough to appear material on its face. To say that the failure of the court to compel the witness to answer this question was against the ends of justice on this inquisition of damages would require some speculation as to what the answer would have been, and this court is not at liberty to resort to speculation in order to reverse the decision of the court which presided over the inquisition.

Not Consultation of Physician or Being Treated for an Ailment

(*Modern Woodmen of America vs. Miles (Ind.), 97 N. E. R. 1009*)

The Supreme Court of Indiana holds that an applicant for life insurance had not consulted, nor been treated, by a physician, for any personal ailment within seven years, although the evidence showed that, within that period, in a physician's office, he had told the physician he had a headache, and the physician gave him a dozen trade tablets, for which he made a charge of 15 or 20 cents, the physician asking him no questions about the headache, and making no examination. The court says that it does not believe that the man "consulted" the physician within the ordinary meaning of the word, having neither sought nor received any professional advice, information or instruction. Neither was he treated for any "ailment," within the meaning of that word in the question, the cause of the uneasiness, or affection, apparently having been considered as known by both the man and the physician, and the latter having simply given him some trade tablets. Furthermore, if it did constitute treatment for an ailment, within the meaning of that word as used in the application, the court is constrained to hold that the applicant's answer to the question, under the evidence, did not constitute a breach of warranty. The question called for information covering a period of seven years. It was framed for practical use, to elicit substantial information from people of average memory. Yet the insurer was bound to know that it would be impossible for a person of average memory to give the dates and particulars of each treatment for, or consultation about, every temporary functional disorder he may have suffered during a seven-year period. While the authorities are not in harmony on the proposition, this court is of the opinion that the correct rule applicable to questions of this character is that the disorder, to constitute a breach of warranty, must be of a substantial nature, and not a mere temporary functional indisposition.

Society Proceedings

COMING MEETINGS

Amer. Assn. for Study, etc., of Infant Mortality, Cleveland, Oct. 2-5.
Amer. Assn. of Obstetricians and Gynecologists, Toledo, Sept. 17-19.
American Association of Railway Surgeons, Chicago, Oct. 16-18.
American Public Health Association, Washington, D. C., Sept. 18-20.
American Roentgen Ray Society, Niagara Falls, Sept. 11-14.
Assn. of Military Surgeons of the United States, Baltimore, Oct. 1-4.
Colorado State Medical Society, Pueblo, Sept. 24-26.
Conf. State Bds. of Health of N. Am., Washington, D. C., Sept. 20-21.
Delaware State Medical Society, Wilmington, Oct. 8.
Indiana State Medical Association, Indianapolis, Sept. 26-27.
Internat. Congress on Hygiene, etc., Washington, D. C., Sept. 23-28.
Kentucky State Medical Association, Louisville, Oct. 29-31.
Medical Association of the Southwest, Hot Springs, Ark., Oct. 8-10.
Mississippi Valley Medical Association, Chicago, Oct. 22-24.
National Association for Study of Pellagra, Columbus, S. C., Oct. 3-4.
Nevada State Medical Association, Reno, Oct. 8-10.
New Mexico Medical Society, Roswell, Sept. 12-14.
Pennsylvania State Medical Society, Scranton, Sept. 23-26.
Utah State Medical Association, Ogden, Sept. 24-25.
Vermont State Medical Society, Montpelier, Oct. 10-11.
Virginia Medical Society, Norfolk, Oct. 22-25.
Wyoming State Medical Society, Sheridan, Sept. 17.

MINNESOTA STATE MEDICAL ASSOCIATION

Forty-Fourth Annual Meeting, held at Duluth, Aug. 14-15, 1912

(Continued from p. 745)

Treatment of Hernia in Children

DR. A. J. OCHSNER, Chicago: The development of hernia in children is favored by (1) faulty development of the abdominal wall; (2) insufficient strength in the tissues involved in closing the umbilical, inguinal and femoral openings; (3) abnormal intra-abdominal pressure; (4) unclosed condition of the tunica vaginalis. Causes 1 and 2 are frequently inherited. The abnormal intra-abdominal pressure is due (a) to gaseous distention resulting from improper feeding; (b) to the exertion necessary to evacuate the bladder on account of obstruction due to phimosis; (c) to severe, long-continued coughs; (d) to vomiting; (e) rarely to traumatism or overexertion.

Approximately 95 per cent. of all cases of hernia in children will heal spontaneously if the abnormal intra-abdominal pressure is relieved and the hernial sac is kept empty. This can be accomplished by means of trusses, or much more rapidly in inguinal and femoral hernia, by placing the child in bed with the foot of the bed elevated. The time required usually does not exceed six weeks. Children with a tendency to the formation of hernia should be guarded against developing coughs. Their diet should be given at regular times and chosen with a view to avoiding gaseous distention. Constipation should be prevented. In case of boys, phimosis should be relieved, if present, by operation. Badly nourished and badly cared-for children of the poor should be treated in hospitals, being placed in bed in the Trendelenburg position, the cause of increased intra-abdominal pressure being removed at the same time by proper diet and treatment.

Operation is indicated (1) in strangulated hernia; (2) in irreducible hernia due to adhesions; (3) in case the opening is unusually large in a free hernia, especially if the condition is hereditary; (4) in reducible hydrocele; (5) in cases with undescended testicle unless they show a tendency toward spontaneous cure. Except in Class 3 the operation should consist simply in carefully dissecting out the sac or in certain cases of congenital hernia the neck of the sac, ligating it within the abdominal cavity, cutting away the sac and permitting the stump to retract within the abdominal cavity and closing the skin wound. In Class 3 the Ferguson-Andrews operation is indicated. In Class 5 the Bevan-Ferguson-Andrews operation is indicated.

The recumbent position, with the foot of the bed elevated, is of very great importance in the after-treatment of operative cases as well as in the non-operative treatment in hernia in children. In young children who will not remain in bed with the foot of the bed elevated this position can usually be maintained by applying rubber adhesive straps to both lower extremities and having these held in a vertical position by means of weights and pulleys. If the child can-

not be kept in this position, a well-fitting truss should be worn night and day until there has been no protrusion for at least six months; at the same time the necessary precautions must be constantly taken to guard against abnormal intra-abdominal pressure from any cause.

Blood-Vessel Anastomosis

DR. J. FRANK CORBETT, Minneapolis: My failures have been many in applying the principles of Carrel, and I will enumerate their causes so far as I know: too long storage of blood-vessel; interpolation of adventitia between segments of vessel; failure to remove small clots and fibrin ferment from inside vessels; traumatism of endothelium of blood-vessel by clamp; drying of endothelium resulting from tardy application of petrolatum; too much time in operating. The technique is simple, the principles difficult to master. With a thorough knowledge of these principles, and a complete application of this knowledge in every detail, success should attend the suturing of a normal vessel.

The application of blood-vessel work seems limited to the following fields: (1) repair of blood-vessels accidentally torn and free from thrombosis; (2) artery-to-vein anastomosis where the artery has been destroyed by mechanical or surgical interference; (3) transfusion. In addition, transfusion is applicable only: (1) to cases of severe and extreme anemia from hemorrhage; (2) to cases of uncontrollable hemorrhage from jaundice or hemophilia; (3) to cases of shock.

Unifying the Medical Profession

DR. JOHN A. WITHERSPOON, Nashville: I cannot imagine any body more democratic, having as its units the state organization and the county organization, than the American Medical Association. If it is a democratic body composed of these units, just as sure as we live its objects will be accomplished only when these units form themselves into one single unit, with a singleness of purpose, namely, to bring that great national body up to its true state of usefulness. The American Medical Association ought to stand for everything that is good and great in American medicine, and I am sure that if it is handled properly, if these units will do their part, there will be no such thing as failure and no ground for criticism.

Ten years ago there were four times as many medical colleges in the United States as existed in the world elsewhere. We had at one time 172 medical colleges. A great many of these schools were improperly equipped, both in teaching facilities and in teachers, but that condition has gradually been transformed into a better one, until now forty or fifty of these schools have gone out of existence. The time has come when the great profession of America has risen in its might and determined that no medical school shall live that does not live for a just purpose, namely, to equip young men to assume that most sacred of all obligations, the saving of human life.

With the influence of the American Medical Association coming from the units we shall be able to accomplish the objects we desire. In my judgment it will only be a matter of a few years before we shall be proud we have such an organization as the American Medical Association with sufficient funds to push the great work of doing good among the people, and I ask you in this great progressive state of Minnesota to rise up as your units are called for and meet the demands of your country as you have met them for your state. If you will do that, there will be no slurs on the state of Minnesota.

Operations for Uterine Prolapse

DR. A. W. ABBOTT, Minneapolis: Vaginal repair with plication of the uterosacral and anterior broad ligaments per abdomen has been adopted by me in thirty-five cases in the last four years with no known failures. In case there is much tension on the uterosacral ligaments, a narrow Albert Smith pessary is worn for a couple of months. This operation is applicable either before or after the menopause, is anatomically correct and does not exclude other necessary abdominal operations; the only mutilation is the abdominal incision. It is free from the dragging pains complained of after fixation and in my experience affords a permanent cure.

Acute Appendicitis in Childhood

DR. N. L. WERNER, Red Wing: I had a case of appendicitis in a child which was interesting inasmuch as the symptoms pointed to a kidney lesion rather than to the appendix as the seat of the trouble. The patient, a boy of 12, presented the following symptoms: pain, of acute onset, all over the abdomen, but most prominent in the epigastric region, followed in a few hours by nausea and vomiting, slight tympanites and albuminuria, and some traces of pus in the urine. The right rectus was rigid; the tenderness was not over McBurney's point, but above and behind the superior spine of the ilium. The right kidney appeared swollen and tender. Pains extended down the right thigh, and one prominent symptom was inability to extend the right leg, the leg being held in a flexed position at all times, regardless of the position assumed in bed. There was a leukocytosis of 16,000; operation was delayed until the leukocyte count ran up to 24,000, and the dullness on percussion extended to the edge of the right rectus muscle. The operation consisted of an intra-abdominal incision, and the drainage of a large pocket of pus. In a few days the patient was able to extend the leg completely, the pus disappeared from the urine, and the albuminuria cleared up. Recovery was rapid. I do not believe it is safe to use any other method of treatment than operation in cases in which we are reasonably certain we have an acute infection of the appendix.

Treatment of Septic Endocarditis

DR. SOREN P. REES, Minneapolis: A blood-culture should be the first, and not the last, step in the treatment. It is not only the best means of making an early diagnosis and a probable prognosis, but will assist greatly in the treatment by suggesting appropriate measures, and especially by excluding drugs that consume the patient's strength. Complete rest is the second step. Removal of the primary infection is the next step. This focus can usually be found from the history and by physical examination. The tonic or supportive treatment should combine all that we have learned about the value of sunshine, pure air and selected food in tuberculosis, blood-tonics in anemia, hot water between meals and colonic flushing in auto-intoxication, and light massage and good nursing in malnutrition. Not one but all of these measures in wise combination must be employed. The question of specific medication by means of an autogenous vaccine is still on trial. The principle seems right and some reported cases undoubtedly testify to its value.

The Diagnosis of Diseases Associated With Enlargement of the Spleen

DR. H. Z. GIFFIN, Rochester: Movable and wandering spleens are occasionally seen and on superficial examination may be diagnosed as movable kidneys. The spleen may descend as low as the pelvis, but if the wandering spleen be kept in mind, the organ usually can be recognized by its contour. Two patients with wandering spleen have been operated on at St. Mary's Hospital. One of the patients had been previously operated on elsewhere for movable kidney, apparently as the result of a mistaken diagnosis. The kidney had been stitched up but the spleen remained as movable as before. Tumors of the stomach and intestine will rarely be confusing in the diagnosis of these cases. The spleen may be enlarged temporarily in many of the acute infections of childhood, also in rickets, and other forms of malnutrition in babies. The enlargement of the spleen which occurs with typhoid, generalized tuberculosis, and malaria need only be mentioned. Syphilis of the spleen should always be considered as a possibility, and a Wassermann reaction should not be neglected in any questionable case. Primary sarcoma of the spleen is rare; the growth of the organ is rapid and the clinical picture of an acute splenic anemia is presented. Twenty-four well-authenticated cases have been reported. Pernicious anemia may be associated with enlargement of the spleen, and, if the blood-findings be not typical at the time of examination, a diagnosis may have to be deferred. The spleen is not large, and in this there is a contrast with splenic anemia and Banti's disease.

A review of the diseases associated with enlargement of the spleen impresses one with the fact that exhaustive examinations and complete notes are necessary if we may hope to arrive at a definite grouping of these obscure conditions. Certain rare disorders must be kept freshly in mind. Laboratory findings must be utilized in the differentiation more liberally than is ordinarily necessary.

Rectal Section for Pelvic Abscess in Men

DR. ARCHIBALD MACLAREN, St. Paul: A boy, aged 12, was operated on for perforative appendicitis. At the operation a commencing general septic peritonitis, with much pus in the abdomen, was found. An enlarged gangrenous perforated appendix was removed, two rubber drainage tubes were introduced, one extending into the bottom of the pelvis, and the other to the region of the base of the appendix. That afternoon the temperature went up to 102 F., but soon subsided, ranging between 100 and 101 F. until the tenth day, when it reached 103 F. The pulse in the meantime ranged between 110 and 135. I saw this boy first on the tenth day following this operation. When the anus was exposed, there was bulging at the anterior wall of the rectum; the peritoneal culdesac was distended by a collection of fluid which filled the pelvis. This was immediately opened by a sharp-pointed pair of scissors, used as a dilator instead of cutting. At least a quart of, first, serous pus, and later, thick, very offensive colon pus was evacuated, and a winged rubber tube was inserted. The same afternoon the boy was crying for food and has steadily improved until he is now out of danger and ready to go home. The success or failure in dealing with appendiceal abscess cases depends on vigilance rather than on the methods of operation or drainage.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Internal Medicine, Chicago

August 15, X, No. 2, pp. 73-168

- 1 *Influence of Carbonated Brine (Nauheim) Baths on Blood-Pressure. J. M. Swan, Rochester, N. Y.
- 2 *Clinical Study of Effects of Sleep and Rest on Blood-Pressure. H. Brooks and J. H. Carroll, New York.
- 3 Arterial Lesions Found in Persons Dying from Acute Infections, and Attempts to Produce Arterial Lesions in Animals by Non-Infectious Toxins. C. Frothingham, Boston.
- 4 *Some Clinical and Experimental Observations with a Saccharomycete. L. M. Breed, Pomona, Cal.
- 5 Case of "Pancreatic Diabetes Mellitus" by Hermon O. Mosenthal. G. Lusk, New York.

1. Influence of Carbonated Brine Baths on Blood-Pressure.

—A very careful clinical study of eighty-one cases leads Swan to the conclusion that carbonated brine baths have no constant effect on the blood-pressure of the human subject. In the cases in which observations were made both before and after each bath the systolic pressure was raised more frequently than it was lowered; so that we may say that the tendency of the baths is to raise the blood-pressure. Although there are cases of high blood-pressure in which a course of carbonated brine baths has been followed by a lower systolic pressure, there are other cases of high pressure in which the pressure has been higher at the end of the course of treatment than it was at the beginning; in one case 26 mm. higher. Although there are cases of low blood-pressure in which a course of carbonated brine baths has been followed by a higher systolic pressure, there are other cases of low pressure in which the pressure has been lower at the end of the course of treatment than it was at the beginning; in one case 20 mm. lower. Swan says that there is no method of determining in advance whether a given treatment will be followed by an elevation or by a fall of pressure.

In the eighty-one cases the systolic pressure was higher at the end of the course of treatment than at the beginning in thirty-nine; lower in thirty-four, and unchanged in eight. In cases of fibroid myocarditis the pressure effect is inconstant.

In this series of cases the systolic pressure was lowered more often than it was raised; but the pulse-pressure was raised more often than it was lowered. It seems to Swan a dangerous procedure to use a form of treatment in a case of cardiac fibrosis which may be followed by an increase of systolic pressure of 22 mm., or an increase of pulse-pressure of 32 mm. In cases of parenchymatous myocarditis the effect of the baths on blood-pressure is usually to raise it; but in some cases the baths are followed by a reduction of both the systolic and the pulse-pressures. In cases of dilatation of the heart, cases of hypertrophy and dilatation of the heart, cases of mitral regurgitation, cases of hypertrophy of the heart, cases of tachycardia, and cases of aortic regurgitation, the same uncertainty of results was seen, except that in cases of mitral regurgitation the pulse-pressure was reduced in every one of the five cases; and in cases of aortic regurgitation the diastolic pressure and the mean pressure were reduced in every one of three cases.

In a case of arteriosclerosis an increase of 17 mm. in the systolic pressure and 23 mm. in pulse-pressure might result disastrously. In a case of chronic parenchymatous nephritis an increase of 9 mm. in systolic pressure and of 22 mm. in pulse-pressure may or may not be negligible. In a case of interstitial nephritis an increase of 50 mm. in systolic pressure could hardly be thought desirable. The reduction of systolic pressure in a case of weak heart can scarcely be looked on as a favorable circumstance. The benefit in the subjective symptoms in cases of heart disease which follows a course of carbonated brine baths is not dependent on the influence of the treatment on the blood-pressure.

2. Effects of Sleep and Rest on Blood-Pressure.—Clinical observations appear to justify the discouraging conclusion that sleep-drop cannot as yet be utilized therapeutically to lower the blood-pressure and that although its effect in high blood-pressure cases is more marked than that of any drug in medicinal doses, it cannot be employed therapeutically. In an attempt to apply these observations clinically the authors endeavored to ascertain whether prolonged sleep causes a proportionate lowering of the pressure. Within an ordinary degree at least this does not appear to be the case and attempts to secure even a temporarily lower twenty-four-hour pressure by prolonging or deepening the sleep were apparently without avail. Furthermore, they found that little difference existed in the total twenty-four-hour pressure whether the patient is confined to bed or is allowed to be up and about.

A special series of observations (ten instances) were conducted to determine whether the sleep-drop might not be artificially increased in order to secure a lower pressure curve in concrete cases of high pressure. They obtained no results in this direction, and in cases in which the drop and curve had been previously determined, by the administration of potassium bromid in a dosage of as high as 120 grains the degree or persistence of the fall was not increased. The same lack of result was shown when chloral hydrate in a dosage of 50 grains per night was given, yet the drop and curve were not materially altered.

4. Observations With a Saccharomycete.—During more than two years of clinical laboratory work in Pomona, Breed has encountered a yeast in fifteen individuals sent to her for laboratory diagnosis. The organism was first discovered in a vaginal discharge. Four months later she found similar organisms in the sputum of a child said to have tuberculosis, and again in a culture from the tonsil membrane of a child supposed to be suffering from diphtheria. The fourth time she encountered this fungus was in the sputum of a patient with a pulmonary lesion resembling lobar pneumonia in the early stage of resolution. In this case repeated examinations of the sputum failed to reveal any tubercle bacilli and the tuberculin test was negative.

To ascertain what was causing the symptoms Breed made cultures from the sputum and each time got a pure growth of an organism which she identified as a saccharomycete and which gave the same results culturally and with animal

experimentation as did the fungus found in the vaginal discharge in the first case. This organism resembles the *Saccharomyces cerevisiae* both culturally and morphologically, but the latter on all culture media grows less profusely and is less spherical. It is about the size of a red blood-corpuscle, possesses a double-contoured capsule and contains fine granules and refractile bodies like fat or vacuoles. Old cultures show lessening of granules and extension of vacuoles, and numerous empty capsules. It grows by budding and possesses a nucleus which can be demonstrated by special staining. It was mixed with other organisms in most cases, but has been found as the only apparent cause of infection in a few patients in whom disappearance of the organism has been followed by alleviation and disappearance of the symptoms. Autobacterins made from this yeast organism have seemed to cause some improvement in three cases and an exacerbation of symptoms in one. The most benefit has been derived from the use of the iodids in large doses. An extract prepared from this saccharomycete gave a slight reaction in a skin test on two patients. The serum of four patients gave a positive agglutination test for the yeast.

Journal of South Carolina Medical Association, Seneca

July, VIII, No. 7, pp. 187-217

- 6 Medical Ethics. D. Furman, Greenville.
- 7 Medical and Surgical Treatment of Gall-Stones. J. Graham, Durham, N. C.
- 8 How Long Has Pellagra Existed in South Carolina? J. W. Babcock, Columbia.
- 9 Contagiousness of Laryngeal and Pulmonary Tuberculosis. W. P. Porcher, Charleston.
- August, VIII, No. 8, pp. 218-241
- 10 Practical Method of Infant-Feeding. S. R. Lucas, Florence.
- 11 Bronchoscopy. E. W. Carpenter, Greenville.
- 12 Role of Drainage. H. W. Rice, Columbia.

Boston Medical and Surgical Journal

August 15, CLXVII, No. 7, pp. 207-238

- 13 Medicine and Humanity: Physician as Promoter of Civilization. J. C. Berry, Worcester, Mass.
- 14 Present Knowledge of Physiology and Chemistry of Gastric Digestion as Applied to Vomiting in Infancy. A. C. Eastman, Springfield, Mass.
- 15 *Pneumonia Not a Rare Complication of Heat Prostration. W. D. Reid, Newton, Mass.

15. **Pneumonia as Complication of Heat Prostration.**—In 158 cases of heat prostration treated at the Boston City Hospital July 2-13, 1911, Reid found seventeen cases of pneumonia. This makes it a complication in about 10.7 per cent., a figure of such size that he feels sure that physicians should take it into consideration in giving a prognosis of any heat case. Nine of the seventeen patients died. Heat exhaustion, ten cases, one pneumonia with fatal result. Heat prostration, eighty-eight cases, pneumonia ten, deaths two. Heat stroke, sixty-two cases, pneumonia six, all fatal. There were forty-four deaths from all causes and nine from pneumonia. Therefore, pneumonia caused one-fifth of all the deaths. Lobar pneumonia: seven cases, two deaths. No cases after heat stroke. Usually affected one of the lower lobes. Incubation one to four days. Bronchopneumonia: ten cases, seven deaths. This was the only type following heat stroke and all were fatal. Three out of the four following heat prostration recovered. One or both lower lobes were the only areas involved. Incubation one to six days. Sex shows no marked difference in results. The greatest number of cases occurred between 20 and 30 years, but the severest mortality was in the decade 50 to 60 years. Alcohol and arteriosclerosis were fatal complications. Erysipelas and empyema necessitans were two sequelae.

Ophthalmology, Seattle

July, VIII, No. 4, pp. 461-636

- 16 Arteriosclerosis of Retinal Vessels (Angiosclerosis). E. L. Oatman, New York.
- 17 Treatment of Trachoma with Radium. Use of Radium-Coated Celluloid Plates for This Purpose. C. H. May, New York.
- 18 Two Cases of Retinal Detachment in Myopes, Cured by Simple Sclerectomy. P. Bettremieux, Roubaix, France.
- 19 Metastatic Purulent Ophthalmia. F. W. Alter, Toledo, Ohio.
- 20 Sympathetic Iridocyclitis Following Cataract Extraction, with Report of Case. A. Brav, Philadelphia.
- 21 Tripling Distance of Test Cards by Catoptrics. J. N. Rhoads, Philadelphia.
- 22 Alternative to Strabismus. A. A. Bradburne, Manchester, England.

- 23 Pathologic Conditions of Eye Secondary to Disease of Lymphatics of Neck and Throat. E. W. Alexander, San Francisco.
- 24 Rational Method of Removing Fragments of Iron from Interior of Eye. F. W. Lamb, Cincinnati.

Canadian Medical Association Journal, Toronto

August, II, No. 8, pp. 653-750

- 25 Treatment of Fractures of Long Bones. R. J. Manion.
- 26 Labyrinth Tests. J. P. Morton.
- 27 *Pleurisy in Children. M. Mackay, Sherbrooke, Quebec.
- 28 *Diet in Tuberculosis. W. B. Kendall, Gravenhurst.
- 29 Revolver Bullet in Chiasma: Consecutive Binocular Blindness. J. N. Roy, Montreal.
- 30 Does a Human Tick-Borne Disease Exist in British Columbia? J. L. Todd, Montreal.
- 31 Some Experiences with Radium. G. S. Rycerson.

27. **Pleurisy in Children.**—Mackay says that any child that comes under the physician's care with a primary pleurisy should be considered as a possible, nay more, a probable, victim of tuberculosis, and should be treated accordingly. There is no use in telling the parents that the child has "weak lungs" and that they must be careful that it does not "catch cold." Give explicit directions and leave nothing to chance. Correct all abnormalities, such as nasal obstruction, prohibit school for a prolonged period, unless the education can be carried on in the open air; and with this encourage out-door games rather than the frequency of poorly ventilated places of amusement. Fresh air is to be prescribed day and night, and a personal inspection of the sleeping apartments should be made in order that a practical demonstration may be given. If possible the residence should be located in the country or open suburb. Give definite rules as to the quality as well as the quantity of food; too much knowledge is taken for granted in this subject; be precise. Let the clothing be warm, yet light and comfortable. Explain the methods of judicious "hardening" by means of cool sponging of the neck and chest. Forbid undue exertion. Last, but not least, impress the parents with the idea that the child must be taught self-restraint and unselfishness. This point of a physician's advice is not sought, and is seldom given, but it should not be omitted.

28. **Diet in Tuberculosis.**—Forced feeding in the treatment of pulmonary tuberculosis is not considered essential. Great gains in weight should not be sought, but an endeavor made to secure a gradual increase in the patient's weight up to a point slightly above normal. A lower protein content is better tolerated than the amounts now usually given. The partaking of meals should be under close supervision, with rest before and after meals enforced. Constant attention must be given to the question of proper proportions of food elements. Cheerful and contented patients are more likely to be hearty eaters, and to progress favorably, than those who worry. Eggs and milk are not indispensable in the dietetic management of tuberculous patients. Lunches should not be given between meals unless there is a special reason. It is a hardship to advise patients to procure food, the price of which is almost prohibitive, when a diet of equal or greater nutritive value can be purchased for less money.

Journal of Cutaneous Diseases, New York

August, XXX, No. 8, pp. 461-513

- 32 Erythema Ab Igne. M. B. Hartzell, Philadelphia.
- 33 Experience with Noguchi's Luetin Reaction. H. Fox, New York.
- 34 Alopecia in General, with Special Reference to Hitherto Undescribed Form of Baldness, "Alopecia Indurata Atrophica." R. L. Sutton, Kansas City.

Interstate Medical Journal, St. Louis

August, XIX, No. 8, pp. 657-738

- 35 Precautions in Use of Tuberculin in Therapy. F. M. Class, New York.
- 36 When and How to Use Digitalis. A. E. Taussig, St. Louis.
- 37 Variations in Clinical Picture of Gastric Ulcer. W. F. Cheney, San Francisco.
- 38 Use and Abuse of Ligamentum Teres Uteri. F. W. Bailey, St. Louis.
- 39 Chronic Universal Perihepatitis. R. W. Wilcox, New York.
- 40 Interpretation of Precordial Pain. J. M. Patton, Chicago.

New York Medical Journal

August 17, XCVI, No. 7, pp. 305-360

- 41 Prevention of Causes of Insanity. A. J. Givens, Stamford, Conn.
- 42 Newer Teachings of Diseases of Alimentary Canal. M. L. Knapp, New York.

- 43 Commoner Contagious Diseases of Childhood. C. Herriman, New York.
44 *Glycyltryptophan Test. G. A. Friedmann, New York.
45 *Prognosis of Tuberculosis of Larynx. S. von Ruck, Asheville, N. C.
46 Pathology of Chorea. F. A. Hulst, New York.
47 Chorea. F. C. Eastman, New York.
48 Proteins. D. D. Van Slyke, New York.

August 24, XCVI, No. 8, pp. 361-408

- 49 Inheritance of Acquired Characters. J. Wright, New York.
50 Health Conditions in Canal Zone. S. H. Brown, Philadelphia.
51 Fee Book of an Irish Physician of Seventeenth Century. J. J. Walsh, New York.
52 History of Surgical Hemostasis. P. C. Borden, Washington, D. C.
53 *Some Experiences with Lessilur-Priley Test. B. G. R. Williams, Paris, Ill.
54 Poisoned Blood-Stream. L. A. Merriam, Omaha, Neb.
55 Ten Sex Talks to Girls. I. D. Steinhart, New York.
56 Technique of Radiography. J. Friedmann, New York.

44. **Glycyltryptophan Test.**—In making a resumé of twenty-one cases which he reported in a previous communication, with the nineteen reported here, Friedmann has only once in his series of cases found the glycyltryptophan test positive in benign pyloric obstruction. This occurred with an enormous amount of sarcine in the contents of the stomach on fasting. On the other hand he found it frequently positive in gastric cancer. This gives value to the test, but it cannot be considered pathognomonic. A case in which a positive glycyltryptophan test only should lead one to suspect gastric cancer, Friedmann has not observed so far. The fact that in no case of anacidity, except cancer, a positive reaction has been obtained seems to speak in favor of the test. The relative value of the test is evident. The tryptophan test without glycyltryptophan is no longer worthy of serious consideration.

45. **Tuberculosis of Larynx.**—It is emphasized by von Ruck that tuberculous changes are present in the larynx of patients suffering from pulmonary tuberculosis much more frequently than is generally recognized. The disease in the larynx in its early stages causes, as a rule, no definite or but slight subjective symptoms. For this reason the physical examination of every tuberculous patient should include as much as a matter of routine the inspection of the larynx as an examination of the chest. Slighter degrees of thickening of the mucosa which many observers are willing to accept as catarrhal are not infrequently tuberculous in nature, and may well suggest to the laryngologist who notes them in the course of his routine practice, the propriety of a physical examination of the chest. Finally the prognosis of tuberculosis of the larynx in the earlier stages is no worse than that of the disease in the lungs.

53. **Lessilur-Priley Test.**—Williams has applied the tuberculous albumin reaction test as a routine procedure to all sputums examined, provided a sufficient amount of the sample was available. Of these, the results of fifty-one could be checked with clinical as well as microscopic findings. In other words, some knowledge of the symptoms and signs were held in each case; and a diligent search was made for the bacillus of Koch and other suspicious microscopic elements. He has concluded that while the positive test does not signify that every sputum is tuberculous, such would seem to be the case if the clinical data put the patient into the chronic class. In other words, the test is sometimes positive in acute bronchitis, and usually positive in croupous pneumonia. On the other hand, he has been unable to find albumin in chronic bronchitis, bronchial asthma and emphysema. In this series of cases, he met no sputums of bronchiectasis, gangrene or nontuberculous abscess, and is, therefore, unprepared to give advice concerning the possible presence of the reaction in such cases. He has modified the original test by substituting sulphosalicylic acid for the heat and nitric acid when testing for albumin. This is important if the amount of albumin is small, as the sulphosalicylic acid is a more delicate reagent. In a large test-tube, 5 drams of physiologic salt solution, 5 c.c. of sputum and 5 drops of acetic acid are well shaken for five minutes. The mixture when homogeneous, is filtered through paper and the filtrate is tested for serum albumin by any of the methods used in the identification of albumin in urine.

New York State Journal of Medicine, New York

August, XII, No. 8, pp. 441-478

- 57 Vertigo from Standpoint of General Practitioner. C. G. Stockton, Buffalo.
58 Ocular Vertigo. P. Friedenbergl, New York.
59 Labyrinthine Vertigo. P. D. Kerlson, New York.
60 Vertigo Due to Middle-Ear Causes. J. F. McKernon, New York.
61 Medical Expert Testimony from Lawyer's Standpoint. W. A. Purrington, New York.
62 Medical Expert and Proposed Changes in Law Governing Defense of Insanity in Homicide Cases. A. C. Brush, Brooklyn.
63 Nervous and Mental Symptoms Due to Disturbed Circulation, with Illustrative Cases and Treatment. F. H. Stephenson, Syracuse.
64 Gastric Neurasthenia and Abdominal Ptozes. B. C. Loveland, Syracuse.
65 Further Immunologic Studies in Chronic Pneumococcus Endocarditis. E. C. Rosenow, Chicago.
66 Bismuth Paste, Its Uses in Surgery. E. G. Beck, Chicago.
67 Case of Bismuth Poisoning. Employment of "Bryant Bull-Dog." Recovery. W. C. Cramp, New York.
68 Clinical Vagaries in Some Forms of Liver Disease. N. E. Brill, New York.
69 Acute and Chronic Congestions of Liver. B. W. Stearns, Unadilla.
70 *Hyperacidity. G. R. Lockwood, New York.
71 Plea for Early Diagnosis in Surgical Affections. A. H. Traver, Albany.
72 Only or Favorite Child in Adult Life. A. A. Brill, New York.
73 Toxemia of Pregnancy; Treatment. W. M. Brown, Rochester.
74 Lateral Curvature of Spine. W. Truslow, Brooklyn.
75 Cardiac Sequellæ of Tonsillar Infection. J. R. Wiseman, Syracuse.
76 Alopecia Areata; Its Causative Factors and Therapy. P. E. Bechet, New York.

70. Abstracted in THE JOURNAL, May 11, p. 1474.

Archives of Diagnosis, New York

July, V, No. 3, pp. 209-308

- 77 Uses of Whispered Bronchial Voice. M. Manges, New York.
78 *Value of an Antiputrefactive Diet in Differential Diagnosis of Conditions Producing High Blood-Pressure. E. E. Cornwall, Brooklyn.
79 *Fat-Heart: Aid to Its Early Recognition. H. Stern, New York.
80 Clinical Significance of Albumin Reaction in Sputum. M. Fishberg, New York.
81 *Modern Methods of Diagnosis. M. H. Fussell, Philadelphia.
82 Mental Factor in Diagnosis and Treatment of Functional Diseases. B. Sidis, Portsmouth, N. H.
83 Diagnosis of Gastric and Duodenal Ulcer. W. G. Morgan, Washington, D. C.
84 Diagnostic Points in Gastro-Enterology. J. W. Weinstein, New York.
85 Dilatation of Ascending Colon. J. M. Bell, St. Joseph, Mo.
86 Functional Albuminuria from Diagnostic and Prognostic Point of View. I. I. Wolf, Kansas City, Mo.
87 Diagnostic and Prognostic Significance of Leukocytes in Urine. C. Posner, Berlin.
88 "Tis the Little Things That Count." B. L. Arms, Boston.

78. **Antiputrefactive Diet.**—When we give the antiputrefactive diet in a case with persistent high blood-pressure and the tension returns nearly to the normal and stays there, Cornwall says we can, as a rule, exclude any considerable amount of chronic nephritis or arteriosclerosis. When the administration of this diet, though it may be followed by great improvement in the other symptoms, fails to bring about much reduction of the blood-pressure (fails to reduce it to much below 200 mm. Hg), we can be reasonably sure that advanced nephritis is present or sclerosis of arteries supplying regions of the body which are of vital importance. When the administration of this diet brings about a notable reduction of the blood-pressure, but still leaves it considerably above the normal, considering the patient's age, we may suspect arteriosclerosis or an early stage of chronic nephritis. The light which the antiputrefactive diet throws on the diagnosis of conditions accompanied by high blood-pressure makes it very much easier to interpret the other signs and symptoms presented by those conditions; and the administration of this diet is not only valuable as a diagnostic procedure, but it is, in general, the best treatment for those conditions.

79. **Fat-Heart.**—Stern has found a very simple sign, not heretofore pointed out as such, which, he says, is almost pathognomonic of fat-heart even at a period when other indications of its presence are still wanting. This sign, in brief, is the following: Normally the heart-sounds are less distinctly audible when an individual is in the recumbent or reclining than when in the erect position. The increase in loudness and sharpness of the heart-sounds when standing is especially noticeable after moderate bodily exertion. On the other hand, in the presence of fatty overgrowth of the heart, this increased audibility of the cardiac sounds when

in the upright position (and after moderate exertion) either does not ensue at all or only in an insignificant degree.

81. **Modern Methods of Diagnosis.**—The albumin reaction of sputum Fussell has found to be a useful test in cases suggestive of pulmonary tuberculosis and often of assistance when the microscope failed to reveal tubercle bacilli. A positive albumin reaction, he says, is not always decisive, because many diseases, not at all tuberculous in character, may show albumin in the sputum. A negative reaction, when repeatedly found during several examinations, from specimens of sputum carefully collected, excludes tuberculosis. In cases of tuberculosis, in which the albumin reaction was positive but has become negative for some time, we may conclude that the process of cicatrization of the pulmonary lesion is progressing favorably, even when the physical signs are slow in disappearing. The albumin reaction has a prognostic value. It gives us an opportunity to follow the progress of the tuberculous process. Whenever albumin makes its appearance in a case in which the reaction was negative for some time, there is surely to be found an acute exacerbation, or an extension of the lesion in the lung. In pulmonary emphysema a positive albumin reaction appears to be an indication of cardiac dilatation, thus indicating the proper treatment to be pursued.

Journal of Missouri State Medical Association, St. Louis

August, IX, No. 2, pp. 43-72

- 89 Report of Committee on Cancer Investigation. F. J. Lutz, St. Louis.
- 90 Cancer Research. M. Pitzman, St. Louis.
- 91 Cancer of Stomach. J. F. Binnie, Kansas City.
- 92 Surgical Treatment of Gastric and Duodenal Ulcer. W. Bartlett, St. Louis.
- 93 *Multiple Primary Carcinoma of Jejunum. F. W. Bailey, St. Louis.
- 94 Head Noises or Tinnitus Aurium. J. S. Weaver, Kansas City.

93. Abstracted in THE JOURNAL, July 5, p. 59.

Virginia Medical Semi-Monthly, Richmond

August 9, XVII, No. 9, pp. 209-236

- 95 Clinical Value of Polygraph. P. S. Roy, Washington, D. C.
- 96 Inguinal Hernia. L. Sexton, New Orleans.
- 97 Surgical Shock. L. H. Reichelderfer, Washington, D. C.
- 98 Postpuerperal Conditions Simulating Puerperal Fever. G. Baughman, Richmond.
- 99 Nervous Manifestations of Pelvic Disease. W. H. Smith, Goldsboro, N. C.
- 100 Repair of Relaxed Vaginal Outlet. S. N. Michaux, Richmond.
- 101 Perforation of Uterine Wall with Injury to Intestine; Resection of Intestine. C. S. Lawrence, Winston-Salem, N. C.

Annals of Surgery, Philadelphia

August, LVI, No. 2, pp. 201-376

- 102 *Value of Direct Gastroduodenoscopy in Affections of Stomach and Duodenum. T. Rovsing, Copenhagen.
- 103 *Conservative Treatment of Giant-Cell Sarcoma, with Study of Bone Transplantation. J. C. Bloodgood, Baltimore.
- 104 *Radical Operation for Relief of Cancer of Rectum and Rectosigmoid. W. J. Mayo, Rochester, Minn.
- 105 Nephrectomy. A. G. Gerster, New York.
- 106 Diagnosis of Renal Tuberculosis, Indications for Nephrectomy in Its Treatment and Technic of Operation. P. M. Pilcher, Brooklyn.
- 107 Acute Hematogenous Infection of One Kidney in Person Apparently Well. G. K. Dickinson, Jersey City, N. J.
- 108 Acute Unilateral Infection of Kidney. F. W. Rinkenberger, Tacoma, Wash.
- 109 Adherent Hernias of Large Intestine. J. L. Ransohoff, Cincinnati.
- 110 Apparatus for Intratracheal Insufflation. H. H. Janeway, New York.
- 111 *Picric Acid as Skin Disinfectant. O. W. H. Mitchell, Columbia, Mo.

102. **Direct Gastroduodenoscopy.**—Rovsing asserts that direct gastroduodenoscopy enables us to give the exact diagnosis in cases of disease in the stomach and the duodenum in those difficult cases where all other diagnostic expedients are insufficient. It is of special importance in three directions: 1. In the numerous cases where the symptoms speak in favor of ulcer, but where inspection and palpation of the stomach show nothing of the sort. Here gastroduodenoscopy removes all doubt, and sometimes shows us that the supposed ulcer does not exist, whereby the patient is spared a senseless and injurious encroachment; and sometimes it proves the presence of the ulcer, its seat and its nature. 2. For the differential diagnosis between ulcers in the stomach and the duodenum. 3. By rendering possible a direct attack on the ulcer, where one had formerly to content oneself with gastro-enterostomy because the seat of the ulcer was

unknown. This is of exceptional importance with ulcers, the hemorrhages from which constitute a menace to life, whether they be permanently oozing, small bleedings, or violent, acute hemorrhages. Nor, naturally, is this method infallible; as with it also one may sometimes overlook a small ulcer which has concealed itself in the folds of the mucous membrane, and may sometimes interpret a depression as being the edge of an ulcer or something similar, but this is of rare occurrence.

103 and 104. Abstracted in THE JOURNAL, July 27, pp. 301 and 302.

111. **Picric Acid as Skin Disinfectant.**—Up to the present time the picric acid solutions, in the main 1 per cent. alcoholic solutions, have been used in seventy-eight cases at the Parker Memorial Hospital. When a patient can be prepared over night he has the usual shaving and soap and water scrub, with a saturated watery solution of picric acid applied over the field. Before operation he is washed again with soap and water and the alcoholic solution is applied. In cleansing a scalp or sterilizing an infected wound it has been found most efficient and reliable, which is no doubt due to its high germicidal action and its great power of penetrability, as Mitchell has shown by his experiments. There has been no case of wound infection since the method has been in use. The only objection to it is the intense and tenacious staining, and on two occasions when the wound edges were not perfectly coapted there were one or two small points of delayed union due to small coagula of serum between the edges of the wound. These coagula were cultured and found to be absolutely sterile. This high power of coagulating serum makes it necessary to make close and perfect approximation of wounds and leave no pocket of serum which will be coagulated with a very small quantity of the picric acid and hinder union mechanically. The solutions of picric acid can be depended on as germicidal and are recommended by Mitchell for skin disinfection because of this property and the one of penetrability.

Journal of Kansas Medical Society, Kansas City

August, XII, No. 8, pp. 301-340

- 112 Antituberculosis Fight and Some Field Notes. J. J. Sippy, Belle Plaine.
- 113 Rights of a Child. J. R. Scott, Newton, Kan.
- 114 Surgical Treatment of Hallux Valgus, Associated with Bunion. J. L. Grove, Newton.
- 115 Medical Education, Professional and Lay. W. A. Klingberg, Elmo.
- 116 Open Treatment of Fractures. J. T. Axtell, Newton.
- 117 Use of Calcium Chlorid as Prophylaxis Against Hemorrhage in Typhoid. N. E. Wilson, Douglas.
- 118 Treatment of Typhoid. W. C. Chaney, Independence.

Southern Medical Journal, Nashville, Tenn.

August, V, No. 7, pp. 439-510

- 119 *Eradication of Malaria. J. H. White, New Orleans.
- 120 American Society of Tropical Medicine: Secretary's Report. J. M. Swan, Rochester, N. Y.
- 121 *Malarial Hot-Bed Within Sight of National Capital. T. W. Jackson, Fort Washington, Md.
- 122 *Possible Etiologic Factors in Malarial Recurrences: Significance of Such Cases and Their Treatment. G. E. Henson, Crescent City, Fla.
- 123 Pernicious Malaria with Cerebral Symptoms, Resembling Heat Stroke, with Report of Cases. B. H. Booth, Drew, Miss.
- 124 Some Side Lines in Tropics. I. Dyer, New Orleans.
- 125 New Treatment of Pellagra, with "Organo-Mineralized Radio-Activated Serum of Dr. Jean Nicolaidi, Paris, France. J. Nicolaidi, Paris, France.
- 126 *Clinical Aspects of Pellagra Question. C. H. Lavinder, Washington, D. C.
- 127 Intestinal Parasites of North Mississippi. L. Kohlheim, Saitillo, Miss.
- 128 Simple Methods of Differentiating Disease-Bearing Insects. C. S. Ludlow, Washington, D. C.
- 129 Some Fallacies in Laboratory Diagnosis. C. Wellman, New Orleans.
- 130 Relation of Rat to Public Health. E. W. Warren, Palatka, Fla.

119 and 121. Abstracted in THE JOURNAL, July 27, pp. 297 and 299.

122. Abstracted in THE JOURNAL, December 2, p. 1861.

126. Abstracted in THE JOURNAL, May 11, p. 1472.

Medical Record, New York

August 24, LXXXII, No. 8, pp. 323-368

- 131 Clinical Recognition of Syphilitics. W. W. Graves, St. Louis.
- 132 Importance of History in Diagnosis of Incipient Tuberculosis. J. M. Cruice, Philadelphia.

- 133 Coronary Sclerosis with Special Reference to Gastric Symptoms. I. W. Held, New York.
134 Medical Supervision of School Children in South Manchester, Conn. T. G. Sloan, South Manchester, Conn.
135 Orygia Lencostigma: Factor in Causation of Ophthalmia Nodosa. G. W. Beatty, Brooklyn.
136 Phosphoproteins in Diet. F. Von Oefele, New York.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Glasgow Medical Journal

August, LXXVIII, No. 2, pp. 81-159

- 1 Chronic Ovarian Pain as Illustrated in Record of Case Finally Treated by Double Oöphorectomy. A. W. Russell.
- 2 *"Tunnel" Skin-Grafting: New Method of Covering Raw Surfaces with Epithelium. A. MacLennan.
- 3 Successful Removal of Large Retroperitoneal Sarcoma, with Method and Treatment. D. Duff.
- 4 Primary Carcinoma Arising from Bronchus in Tubercular Lung. M. McIntyre.

2. "Tunnel" Skin-Grafting.—In many cases of burns the surfaces seem never to be ready for grafting, and so the matter is delayed till by the lapse of time and the applications of very frequent dressings the surface to be covered gets more or less clean. It is especially in those unfavorable cases that MacLennan thinks his method is so applicable. The usual measures to get as ideal a surface as possible are not neglected, but too much time should not be allowed to elapse before an attempt is made to get an epithelial covering over the raw surface. The steps of his operation are as follows: The day previous the skin to be transplanted is washed with soap and nailbrush well soaked with methylated spirit and covered with a dry sterile dressing. Before removing the graft the skin is again rubbed with spirit, and dried with sterile gauze. The graft may be a mere shaving, or be the entire thickness of the skin. The subcutaneous fat, when the whole skin is taken, is not raised with the graft, and may, or may not, require to be subsequently excised before the wound is closed with a continuous silkworm suture. The excised skin should be placed in saline, and the wound closed before the hands, etc., become soiled during manipulation about the septic surface. The graft is then cut into little strips a quarter of an inch wide and about three-fourths of an inch long. The ulcerated surface is then prepared for the graft by tunneling beneath the granulations with a pair of forceps or other suitable instrument. The tunnel should be just wide enough to lightly compress the graft, and long enough to cover in the ends. If wide strips be employed too much of the granulation layer is raised, and it sloughs too soon, certainly before the graft has taken firm root. The depth of the tunnel will depend on the breadth of the strip and on the quality of the granulations. The deeper the tunnel the more likely is the graft to become firmly attached before the protecting granulation layer disappears. The points of the forceps protruding through the other end of the channel grasp the skin-strip, and by withdrawing the forceps the graft is drawn into the tunnel, and there left. Bleeding is often profuse, but if the passage be made of the proper size the graft plugs it and inhibits the oozing; if still bleeding a little light pressure will stop it. In some vascular parts it is advisable, if possible, to perform the maneuver after the region has been rendered anemic by the Esmarch's bandage. The graft comes to lie in a little cell embedded in blood-clot, and under the surface protected from contact with the dressing. The tension of the superimposed granulations keeps the graft in contact with its bed to which it is intended it shall adhere. The graft is pulled into the tunnel, made by a knife or other suitable instrument; when firmly fixed the superimposed bridge of scar tissue is divided. After such a plan of grafting the dressings take place irrespective of the grafts, and in this way the ulcerated surface may be kept clean, and septic absorption minimized.

Journal of Tropical Medicine and Hygiene, London

August, XV, No. 15, pp. 225-240

- 5 Speculations on Life-History of Schistosomum Hematobium. F. Milton.
- 6 Mongolian Birth-Marks. L. G. Fink.

Lancet, London

August 10, 11, No. 4641, pp. 351-424

- 7 Some Points in Decline of Birth-Rate and Death-Rate. Sir S. F. Murphy.
- 8 *Diagnostic and Prognostic Value of Leukocyte Counts in Cirrhosis of Liver. L. Rogers.
- 9 Surgical Tuberculosis: Its Needs and Treatment. H. J. Gauvain.
- 10 *Mercurial Administration: Some Uncommon Methods in Treatment of Syphilis. D. Freshwater.
- 11 *Vascular Symptom in "Cervical" Rib. T. W. Todd.
- 12 Multiple Gummata with Separation of Principal Lobes of Liver. J. J. Jervis and A. L. Dykes.
- 13 Congenital Absence of Gall-Bladder Associated with Imperfect Development of Pancreas and Imperforate Anus. H. Blakeway.
- 14 Industrial Employment of Married Women: Its Influence on Birth-Rate and Sex Ratio at Birth. H. R. Jones.
- 15 Neuron. H. Campbell.

8. Leukocyte Counts in Cirrhosis of Liver.—Rogers has continued his observations on the blood changes in cirrhosis of the liver, and the results confirm, and in some respects extend, the conclusion that leukocytosis is common in ordinary cirrhosis of the liver, a high degree being of immediate very bad prognostic significance. On the other hand, a marked leukopenia is diagnostic of the disease being secondary to kala-azar. It appears that a relative increase of the white corpuscles is of great immediate prognostic value. Five of the nine patients showing an actual leukocytosis died within a short period of time, while in the six patients showing only a relative leukocyte increase four also died while under treatment in hospital. Thus, out of a total of fifteen patients showing either an actual or relative leukocytosis no less than nine, of 60 per cent., died within a short time, while the remainder were discharged from hospital "relieved," mostly without any improvement in their condition. On the other hand, out of nine cases with no increase in the leukocytes, even of a relative degree, and in which kala-azar was not the primary disease, there was only one death, or 11 per cent., the fatality in that case, moreover, having been from a complicating bronchitis. Even among the eight kala-azar cases only two terminated fatally while under observation, so that including them there were still only three deaths in hospital, or 17.65 per cent., among seventeen patients with normal or diminished leukocytes. As most of these patients were in hospital from one to three months, and some of them showed improvement as a result of medicinal treatment, it is clear, Rogers says, that, except in the kala-azar cases with marked anemia or daily fever, surgical procedures might safely have been adopted in those with recurring ascites after repeated tapplings, and who thus did not appear to be likely to completely recover under purely medical treatment. On the contrary, several of the patients showing leukocytosis died within a short time of its discovery, although clinically indistinguishable from many of the more favorable cases with normal leukocytes, and had they been operated on only a disappointment would have resulted. In seven out of the nine cases in which an actual leukocytosis was found, from 80 to 93 per cent. were polymuclears, the two cases showing over 90 per cent. being both in a cholemic state which rapidly ended fatally. This polymuclear leukocytosis points to a terminal bacterial infection, very possibly due to the bacillus coli communis. In the kala-azar cirrhosis cases a marked degree of anemia was always present, while the proportion of white to red corpuscles was usually reduced to much below the normal figure of about 1 to 666. The occasional absence of a marked relative leukopenia is due to the fact that cirrhosis is a very late complication of kala-azar, only ensuing after the patient has suffered from fever for several years, and has to some extent become immune to its effects, and partly due to the frequency of dysenteric complications, which tends to increase the leukocytes.

10. Mercurial Administration.—Either the intramuscular injection or the inunction treatment is believed by Freshwater to be by far the most satisfactory way of treating syphilis and least liable to be followed by relapses. For the ordinary routine treatment of syphilis, he prefers intramuscular injection; it is more convenient and cleanly, and does not take much time during the day, but in nervous lesions

following on late syphilis, e. g., tabes, the inunction treatment is as a rule more satisfactory, the results being sometimes marvelous. Freshwater says that treatment by the mouth should only be carried out when it is not possible to give injections or inunctions; it is certainly often useful to give mercury by the mouth between the routine courses of injection. The intravenous method is better left alone except in very severe cases in which other means have failed, and in acute lesions of the ophthalmic apparatus in which there is danger of loss of sight. Treatment by means of the "mask" is the most satisfactory method of introducing the mercury by respiration; it is certainly very suitable as an alternative method to the oral administration, being cleanly, simple to carry out, and effective. The same applies to the "mercurial bib," but somewhat better results are obtained with the mask; the bib is very suitable for children. Suppositories offer a good alternative method and may be continued off and on for a long time; they are *par excellence* the simplest method of giving mercury secretly when it is necessary. Fumigation is excellent for chronic lesions if used with a simple apparatus, but where it is not possible to carry out this, the application of a mercurial plaster will often cause a chronic lesion to heal. Baths are somewhat dangerous and unreliable, but may be employed where a syphilitic lesion is complicated with a parasitic one. The mask is a flexible wire contrivance covered with a double layer of gauze, which is impregnated with 8 gm. metallic mercury. The mask is attached to the face by means of two tapes tied round the head; thus the mask fits over the mouth and nose, and the vaporized mercury is inspired. A course of treatment should be continued for six weeks, the mask being worn during sleep. A single mask is sufficient for ten days treatment; it is worn in one position for five days, then turned so that the upper portion which has been over the nose is brought over the mouth for the next few days, and is then discarded. The bib consists of cotton-wool impregnated with an ointment containing 90 per cent. mercury. These chest protectors or bibs are made double, that is to say, there is a part to go over the chest and one to go over the back, joined with straps which fit over the shoulder. They answer very well as a mild mercurial treatment; they should be worn day and night until they show signs of turning white, when they should be discarded and a new one obtained. They can be used over an indefinite period as a mild mercurial course.

11. Vascular Symptoms in "Cervical" Rib.—In the condition known as cervical rib, Todd says that any explanation of the vascular phenomena may be found inadequate if it depends only on direct mechanical pressure on the subclavian artery. Clinical and anatomic evidence suggest that the vascular symptoms may be trophic in character and caused by a lesion of the sympathetic fibers in the lower part of the brachial plexus. Certain anatomic facts indicate that damage may occur to the sympathetic fibers to the arm in the situation where a lesion of the spinal fibers is likely to occur in cases of cervical rib. The anatomic disposition of the parts around the subclavian artery as it passes from thorax to axilla indicates that this cannot be the site of injury to the vessel or to sympathetic nerves surrounding it.

British Medical Journal, London

August 10, II, No. 2693, pp. 285-344

- 16 Physics and Biochemistry in Relation to Dermatology. W. G. Smith.
- 17 Acne and Seborrhea, Their Causation and Treatment. A. Whitfield and R. Sabouraud.
- 18 Sporotrichosis. L. de Beurmann.
- 19 *Treatment of Nevi, Based on More Than Two Hundred Cases. J. L. Bunch.
- 20 Types of Dermatitis Seborrheica. G. G. S. Stopford-Taylor.
- 21 *Rational Method of Treating Syphilis. J. E. R. McDonagh.
- 22 Vacuum Electrode in Neurodermitis. J. G. Tomkinson.
- 23 Papilliform Lesions (Lymphangiomas) of Scrotum. F. C. Madden.
- 24 *Chronic and Recurrent Maladies of Skin in Relation to Heart Disease. D. Walsh.
- 25 Systematic Study of Morbid Conditions of Nails. G. N. Meachen.
- 26 Sebaceous Carcinoma and Its Relation to Rodent Ulcer. L. Savatard.
- 27 Fibrosarcoma on Lupus Scar Tissue. L. Savatard.
- 28 Xanthoma Multiplex. W. C. Oram

19. Treatment of Nevi.—During the past two years and a half Bunch has treated over 2,000 nevi by solid carbon dioxide, apart from other skin diseases. For stellate, capillary, cavernous and flat-pigmented nevi, he says, the method is excellent, and gives most satisfactory results. For linear nevus and nevus verrucosus, where there is much thickening and warty growth, it is not so good, but these cases are, of course, very rare. For port-wine stains (*taches de feu*) it depends how far the corium and underlying structures are involved; the most unsatisfactory cases are port-wine stains with a nodular, irregular surface and warty projections, and for these there is no really satisfactory method of treatment. But for the vast majority of nevi, Bunch is convinced there is no more effective, satisfactory and painless remedy, nor one which gives such uniformly good results.

21. Treatment of Syphilis.—McDonald emphasizes the fact that every case must be treated individually, and no laws made as to how many injections this or that stage of the disease requires. A patient must be treated as early as possible, and the treatment should not be stopped until the patient is cured. A cure can only be said to occur when the Wassermann reaction is negative within a short interval of stopping treatment. Finally, the treatment required can be accurately gauged only by making examinations of the blood at frequent intervals after each injection.

24. Skin Diseases in Relation to Heart Disease.—Clinical observation has convinced Walsh that a large number of chronic and recurrent skin eruptions are associated with disease of the heart, and that unsuspected organic heart trouble is comparatively common among patients attending a skin hospital. Prognosis in skin diseases largely depends on the state of the heart, therefore attention to the circulation is imperatively demanded in a large number of skin affections. The success or failure of much of skin therapeutics depends on the attention paid to the circulation. The circulatory inadequacy which determined the onset and duration of many chronic or recurrent skin eruptions might likewise affect internal organs. What is called "idiosyncrasy" might in many cases simply describe a pathologic reaction, natural or acquired, to moderate traumatism. In this way the irregular incidence of trade and of drug eruptions might in many cases be explained, predisposition simply being another name for central cardiac inadequacy and disturbed balance of capillary circulation. In all cases of delayed healing or of chronic skin disease the state of the circulation should be carefully investigated. When it is proposed to administer any drug, such as mercury or arsenic, known to act as an organic irritant, the possession of a normal or a fully compensated central circulation should be regarded as a *sine qua non*. The delayed healing of wounds and the persistence of inflammatory conditions, external or internal, often affords a clinical test of cardiac inadequacy more delicate than the shortness of breath, palpitation and other ordinary evidence described in the text-books. The dermatologist who wished to do justice to himself and his patients would have to keep a constant eye on the heart and its treatment in relation to diseases of the skin.

British Journal of Children's Diseases, London

August, IX, No. 104, pp. 337-384

- 29 Infantism with Chronic Interstitial Nephritis; Report of Two Cases. A. E. Naish.
- 30 Saline Solution in Epidemic Diarrhea. J. R. Mackenzie.
- 31 Case of Nodular Leukemia. G. R. Ward.
- 32 Appendicitis in Children. A. Mitchell.
- 33 Herpes Zoster by Contagion. S. Veras.

Presse Médicale, Paris

July 17, XX, No. 58, pp. 605-612

- 34 Spontaneous Amputation of the Appendix. P. Delbet.
- 35 Bone Graft After Removal of Bone Tumor. (Transplantation libre et tumeurs des os.) J. de Gouvea.

Revue Médicale de la Suisse Romande, Geneva

June, XXXII, No. 6, pp. 421-500

- 36 *Extra-Uterine Pregnancy at Term; Death from Ileus a Few Days After Extraction of Macerated Child. (Grossesse extra-utérine à terme.) C. Thelin.
- 37 Mixed Cancer of the Mamma. (Les sarco-carcinomes du sein.) H. Perrier.

36. **Extra-Uterine Pregnancy at Term.**—The young woman had previously had a protracted abortion, but her second pregnancy was apparently normal until the eighth month, when symptoms developed suggesting typhoid or peritonitis from an extra-uterine gestation. A large macerated fetus was found in a great cavity above the uterus, walled off from the abdominal cavity by a membrane reaching from the abdominal wall near the umbilicus to the rectum. The genital organs below seemed to be intact except for a patch of pressure necrosis in the fundus of the uterus. Conditions seemed to render a primary abdominal pregnancy most probable.

Deutsche Zeitschrift für Chirurgie, Leipsic

July, CXVII, Nos. 3-4, pp. 207-404

- 38 The Arteries in the Skin. (Die Hautarterien des menschlichen Körpers.) F. Walcker.
- 39 Treatment of Fracture of the Femur. (Zur Behandlung schwieriger Oberschenkelbrüche.) Vorschütz.
- 40 Laceration—Fracture of the Lesser Trochanter. (Die isolierte Abrissfraktur des Trochanter minor.) Vorschütz.
- 41 *Omentopexy: Twelve Cases. (Zur Frage der Talma-Operation.) Goetjes.
- 42 Gunshot-Wounds of the Pancreas. (Pankreasschussverletzungen.) H. Luxembourg.
- 43 Nine Permanent Cures After Resection of the Tongue for Cancer. (Einige Dauerheilungen nach Zungenkrebsoperationen Rezidiv oder neue Geschwulst.) B. Riedel.
- 44 Condition Twenty-Nine Years After an Operative Reduction of Dislocation of the Hip-Joint. (Jetziger Befund nach 1 blutiger Reposition einer Luxation spont. coxae vor 29 Jahren.) B. Riedel.
- 45 Slow Progressive Destructive Process in an Extremity: Four Cases. (Die langsam zur Vernichtung einer Extremität resp. des Lebens fortschreitende Zerstörung von Haut und Unterhautzellgewebe.) B. Riedel.
- 46 Sprain of the Knee with Laceration of Middle Lateral Ligament. (Kniegelenksverstauchung und Abriss des medialen Seitenbandes.) P. Ewald.
- 47 Operations to Relieve Pressure on the Brain: Eleven Cases. (Erfahrungen über die Dekompressiv-Trepanation und den Balkenstich nach A. von Bramann beim Gehirndruck.) von R. Rydigier.
- 48 Gasserectomy: Two Cases. (Zur Exstirpation des Ganglion Gasseri.) von R. Rydigier.
- 49 Section of the Posterior Spinal Nerve Roots for Spastic Paralysis: Three Cases. (Erfahrungen über die Resektion der hinteren Rückenmarkswurzeln bei spastischen Lähmungen.) von R. Rydigier.
- 50 Isolated Fracture of the Sella Turcica. (Isolierter Abbruch der Türkensattellehne.) Siebert.
- 51 Olecranon and Occiput Spurs. (Spornbildung.) P. Esau.

41. **Omentopexy.**—Goetjes has performed the Talma operation in twelve cases of rebellious ascites. In seven of the cases the ascites returned and the patients succumbed after an interval ranging from six weeks to a year or two. In the five other cases the results of the operation were excellent. In one the cirrhosis was probably of syphilitic origin; the patient is still in the best of health after seven years. Another patient required occasional tapping for a time, and then outgrew the tendency to ascites so that the man now, two years later, is attending regularly to his business as a brewer and restaurant-keeper. Another patient died after seven months and necropsy revealed a subphrenic abscess. Goetjes calls this a tardy operative fatality.

Therapeutische Monatshefte, Berlin

July, XXVI, No. 7, pp. 469-548

- 52 *Emphysema of the Lungs. R. von den Velden.
- 53 Does Digitalis Act on the Vessels? (Haben therapeutische Digitalisgaben Gefäßwirkung?) R. Gottlieb. (Bemerkungen zu vorstehender Abhandlung.) W. Heubner.
- 54 Efficacy of Baths and Air Douches in Treatment of Pure Neuroses of the Heart. (Zur Diagnose und Behandlung der reinen Herzneurosen.) M. de la Fuente.
- 55 Propaganda for Reform. (Zur Arzneimittelliste, Reformbestrebungen in England. In Nordamerika. Zur Frage des Namensschutzes. Fabrikant und Arzt. Concordia medica.) W. Heubner.

52. **Treatment of Emphysema of the Lung.**—Von den Velden remarks that anatomic emphysema of the lung is rarely demonstrable clinically with any exactness but that this, to a certain extent, is of no moment. The emphysema is not a primary affection but is the result of disturbances in the mechanism of the thorax, either in the innervation controlling respiration or in the bone and cartilage framework of the chest. When the respiration is affected by nervous or chemical influences, inspiration is deepened and one inspiration follows so close on another that the slower work of expiration is hindered, particularly as the mechanism controlling

expiration is not so strong as that for inspiration. Freund has called attention to the importance of rigidity of the upper part of the chest walls as a factor in emphysema, and the causal importance of bronchitis and asthma has long been recognized. Treatment of emphysema should aim to remove the cause by increasing the expiration, training in deep abdominal breathing, with special emphasis on expulsion of the air. It is amazing, Velden remarks, how little attention is paid to the breathing, especially the neglect of the factors for costal respiration. The young should be trained to breathe properly as a prophylactic measure against tuberculosis and emphysema. The aim is to mobilize the chest and keep it mobile so that the ventilation may be thorough. Velden doubts whether mechanical aids are of much account in training people to breathe properly or aid in treatment of emphysema. The personal cooperation of the physician in the exercises, a certain psychotherapy, are, he thinks, far more effectual. The mechanical devices confirm the patient in the idea that he does not have to exert volitional control of his breathing, which is the vital point in training at first. His experience confirms the great benefit from doing these breathing exercises in a full bath in cases of acute overdistention; the ventilation of the lungs proceeds much better under these conditions if the chest walls are not too rigid. Chronic bronchitis as a causal factor in emphysema seems to benefit by iodid but it must be given cautiously, for fear of toxic action on the thyroid, in intermittent courses, carefully watching the circulation and metabolism. If signs of a special toxic action in the larynx and bronchi become evident, it can be arrested by energetic calcium treatment, giving 4 or 5 gm. of calcium lactate in the course of the day. The methods in vogue to impede inspiration and promote expiration, such as inspiration of compressed air and expiration into rarefied air; Bruns' negative pressure respiration, and Kuhn's suction mask, owe their main efficacy to the fact that the patient is thereby trained in regular careful breathing. The suction mask has a curative influence on bronchitis by the hyperemia it induces in the bronchial mucosa. In some cases the emphysema is evidently the result of disturbances in the heart action alone or supplementing other factors; and heart tonics may be indicated although it must not be forgotten that the suction pump of the organism is not the heart but the thorax. Mobilization of the thorax walls and ample ventilation of the lungs may restore the heart action to normal. When the venous circulation is defective, throwing extra work on the right heart, with congestion in the abdominal vessels, transient benefit may often be realized by tying off the limbs as a bloodless substitute for venesection. This is proving a useful means to influence favorably states of acute weakness of the right and left heart manifesting itself in pulmonary edema. Velden has confirmed by extensive animal experimentation the effectual action of this method of retaining the blood in the periphery. The heart grew smaller, both the arterial and venous blood-pressure dropped, etc., and patients with emphysema disturbances felt relieved as soon as their limbs were thus excluded from the general circulation. To-day has reported similar benefit in congestion from cirrhosis of the liver, and Lilienstein has recently devised what he calls a "phlebostat" to accomplish this bloodless bloodletting. (It was described in THE JOURNAL, March 30, 1912, p. 982.) Velden consequently commends this measure as a simple and harmless means to relieve extra strain on the venous heart. It can be applied with any simple constricting band or tourniquet, to both arms and legs at the same time, applying the constriction so as to arrest the venous circulation but without interfering with the arterial circulation. By this means it is possible to drain as much as a liter of arterial blood into the limbs and hold it there. After half an hour the constricting bands are gradually loosened. The procedure can be repeated two or three times a day and both objective and subjective benefit be realized. He warns that in treating emphysema it is important to distinguish which are the main factors as an operation to mobilize the chest wall will do no good if the chest is already elastic, and measures to relieve the heart will fail if the trouble is due to the rigid chest walls.

St. Petersburg medizinische Zeitschrift

July 14, XXXVII, No. 13, pp. 193-204

- 56 Internal Causes of Skin Diseases. (Innere Ursachen bei Hautkrankheiten.) M. Hirschberg.
57 Banti's Disease. (Zur Kasuistik des Morbus Banti.) O. von Dehn.

Wiener klinische Wochenschrift

July 18, XXV, No. 29, pp. 1111-1146

- 58 Biologic Method for Differentiation of Acid-Fast Bacteria. II. (Ueber Auflösung der Tuberkelbazillen und anderer säure fester Bakterien im Organismus.) R. Kraus and G. Hofer.
59 Experimental Mercurial Poisoning. (Zur Vergiftung mit Quecksilber.) S. Skudro.
60 Improved Technique for the Meistagmin Reaction. R. Köhler and A. Luger.
61 Neuritic Complications in Cranial Nerves in Early Stage of Syphilis. (Zur Kenntnis der Hirnnervenstörungen im Frühstadium der Syphilis, speziell nach Salvarsan.) A. Zoloziecki and R. Frühlwald. To be concluded in No. 30.
62 Prophylactic Injection of Oil into the Peritoneum Not Effective. (Kann man durch Öl die Entstehung peritonealer Adhäsionen verhindern?) J. Novak.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 14, XXXIII, No. 84, pp. 865-880

- 63 Edema. F. Bottazzi.
64 Pathogenesis of Intraperitoneal Hernia of the Cecum. L. Paglieri.
65 Tropic Action of the Nervous System. (Sull'azione trofica del sistema nervoso.) A. Stefani.

Policlinico, Rome

July, XIX, Surgical Section No. 7, pp. 289-336

- 66 Pathogenesis of Large Femoral Hernia. (Sulla patogenesi delle ernie crurali voluminose con riguardo agli esiti lontani delle peritoniti ed epiploiti del sacco.) O. Cignozzi.
67 Pneumatic Tourniquet. (Studio sperimentale e clinico sopra l'applicazione di un apparecchio emostatico speciale.) E. Pomponi.

Riforma Medica, Naples

July 13, XXVIII, No. 28, pp. 757-784

- 68 *Disturbances in the Circulation After Muscular Exertion in the Tuberculous. (Perturbamenti circolatori provocati dal lavoro muscolare nei tubercolosi.) E. Tedeschi.
69 Estimation of Functioning of the Pancreas from Dosage of Amylase in the Feces. (Misura della secrezione pancreatica col dosaggio dell'amylase fecale.) G. Libertini.

68. **Circulatory Disturbances in the Tuberculous After Muscular Exertion.**—Tedeschi applied certain mild physical tests to determine the action of muscular effort on the blood-pressure, pulse, etc. He records the findings in seven healthy persons and then in twenty-six tuberculous persons. Some of the latter behaved like normal individuals, but in the majority the maximal blood-pressure rose and also the minimal, while the pulse-rate became faster. The tuberculous felt a sense of fatigue much sooner than the controls. The phenomena observed in the tuberculous indicate a transient increase in the tonicity of the vessels. These unstable and transient changes in the tonicity of the vessels suggest further that the vasomotor system in the tuberculous is subject to abnormal stimulation which may elicit abnormal and exaggerated reactions at times.

Hygiea, Stockholm

June, LXXIV, No. 6, pp. 625-736

- 70 Andreas Vesalius. E. Holmgren.
71 *By-Effects of Salvarsan. (Salvarsanets biverkningar.) J. Strandberg. (Salvarsan och acusticus.) N. Witt. (GOG, salvarsan.) M. Möller.
72 *Nodding Spasm in Children. (Om salaamkramp hos barn—Epilepsia vel eclampsia nutans.) K. O. af Klercker.
73 *Alcohol and the Community. (Alkohol och samhället. Beträkande angående de samhällsskadliga inflytanden bruket af rusdrycker medför jämte förslag till systematiska åtgärder för deras bekämpande i Sverige.) A. Key-Aberg and Others.

71. **By-Effects of Salvarsan.**—Strandberg found evidences of relapses affecting the nervous system in fifteen syphilitics treated with salvarsan; 161 of the patients were under observation for only four months, and it is possible that the true number is even larger. The acoustic or optic nerves were the ones affected and the symptoms of neuritis subsided under continued salvarsan treatment in some but not in all. One of the patients with syphilitic papillitis found his symptoms aggravated under the salvarsan so that after two injections mercury and iodid were substituted. Another patient was given elsewhere two intravenous injections of salvarsan with

a three weeks' interval. Two months later facial paralysis developed and the man of 31 became totally deaf and with impairment of vision from bilateral papillitis. No improvement was realized from three weeks of mercurial treatment, with iodid; the Wassermann reaction was negative. Strandberg accepts these neurorecurrences as too serious to be lightly dismissed, and says that the question as to the toxic action of salvarsan has not been decided by the evidence accumulated to date.

Witt reports nine cases of neuritic complications after salvarsan, affecting the acoustic nerve, and he insists on the necessity for expert examination of the ear before applying salvarsan in treatment. If a tendency is found to progressive otitis and catarrh, otosclerosis or acoustic neuritis, or if there is an inherited burden of deafness, he urges careful weighing of the pros and cons before starting a treatment which may localize the relapse in this organ even if it does not exert a toxic action on it.

72. **Nodding Spasm in Children.**—Af Klercker reports a typical case of salaam spasm in a little girl between 3 and 4. The nodding spasm had developed at the age of 2 months, without known cause except digestive disturbance; there was no inherited taint. At first the symptoms were ordinary convulsions and spasm of the glottis but they gradually assumed the nodding type. This gradual onset was observed in a number of the cases. He summarizes fifteen others from the literature, and tabulates them for comparison. Treatment can only be along the lines as for epilepsy; bromid is the main reliance, and he noted a favorable influence in his case and two other writers have mentioned the same, but Lange and Finkelstein have had a case each in which no benefit was apparent from bromid. The ultimate outcome was total idiocy in nearly all the cases on record and this may be anticipated within a few years. The earlier the nodding spasm develops, the graver the outlook. No case of actual recovery seems to be on record but there may be long intervals of freedom from the spasms and they may in time assume more the character of epileptic seizures. No survival beyond 17 is known.

73. **Alcohol and the Community.**—A committee was appointed by the Swedish Medical Association to study the question of alcohol from the medical, sociologic and legislative points of view. Their report fills 392 pages and is a valuable practical contribution to the subject. It concludes with suggestions for legislative action. Three members of the committee report in detail their respective cases of alcoholic psychoses and alcoholism in general, bringing out the factors which led to the habit of liquor drinking as well as the medical aspect of the cases, heredity, etc. A classification of habitual drinkers is proposed and the principles outlined for rational solution of the liquor problem.

Ugeskrift for Læger, Copenhagen

July 4, LXXIV, No. 27, pp. 987-1016

- 74 *Summer Diarrhea in Children and Its Treatment. (Børneko-lerinen og dens Behandling.) C. E. Bloch.

74. **Summer Diarrhea in Infants.**—Bloch comments on the epidemic of summer diarrhea last year at Copenhagen. Notwithstanding the extreme heat, the sickness was comparatively benign, only 100 of the infants dying during the month of August although there were over 3,000 sick. In his hospital practice he had fifty-eight exceptionally severe cases but only six of the infants died, a mortality of 10 per cent. He ascribes this favorable outcome to his method of feeding the infants. Nothing but water was allowed until the alarming symptoms had subsided, the coma, collapse, high fever and albuminuria; this generally took from one to three days. Then he gave the infant the ordinary milk mixture but without the usual 2 per cent. of cane sugar, diluting the milk with four parts water, then with three parts, and then two parts. This was generally borne by the end of the first day and he kept this up until all signs of intoxication had disappeared and the infant was ready to drink spontaneously. Then he returned to the sugar, one part milk to two parts barley water. The diluted milk without sugar seems to answer the same purpose as "albumin milk."

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THE CURRENT PROBLEMS OF PHARMACOLOGY AND THERAPEUTICS *

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I appreciate deeply the honor which the Section has conferred on me in selecting me as its chairman. On reflecting how I might express my gratitude by an efficient discharge of the duties of the office, I concluded that the best way would be to select an interesting program and to let the members do the talking. I shall therefore confine my remarks to a brief explanation of the program. In this, we have aimed to reflect the problems which are of current interest in this field of our profession. These problems are partly scientific and partly practical.

The chief scientific problem at the present time is undoubtedly the effective correlation of pharmacology and therapeutics. No one can honestly doubt that the rise of pharmacology or pharmacodynamics—of the scientific experimental investigation of drug action—has played the part of a powerful and predominantly useful ferment in therapeutics. It has not, however, reached the possible maximum of this usefulness. There is still a large field for investigation in scientific pharmacology; but there is also urgent need for pioneer work in applying the results of pharmacology to the problems of the practitioner. This requires not only a willingness to try new things, but also mutual sympathy, understanding and cooperation between clinical and laboratory workers. A number of papers on our program and in our joint symposiums illustrate these various sides of scientific pharmacology and practical therapeutics, and how the two may be rendered mutually helpful. The creation of the Committee on Therapeutic Research, by the Council on Pharmacy and Chemistry of the Association, promises to be a powerful factor in furthering this cooperation and merits the hearty and active support of the members of the Section. Several of the workers who are cooperating with the Committee will present papers and sketch the progress which has been made.

I would emphasize, however, that the progress of therapeutics cannot be delegated to a few investigators. Every member of our profession must participate in his own sphere, if the profession and the public are to obtain the practical benefits. Every practitioner must train himself to learn accurately the nature and effects of remedial measures, both by reading and by observation. This should naturally be begun in the medical schools, and I am happy to say that there has been great improvement in the teaching of this subject. In one direction,

however, there is much room for improvement, namely, in reducing the number of medicaments which the student is obliged to study. I would not be understood to mean that most of the drugs on the market are useless; but I do believe that in the present stage of our knowledge or ignorance we would be better off if we used fewer drugs and tried to deepen our knowledge of these. I may dismiss this important matter with these few remarks, because it will be fully dealt with by others, in one of the symposiums.

The standardization of drugs is another matter which is vital to the progress of therapeutics. Most important at the present moment is probably the progress of Pharmacopoeial revision. Professor Remington will report on this officially, and the members will be given reasonable opportunity to ask him reasonable questions. One of the symposiums has been arranged for the discussion of special problems in drug standardization. The same symposium will take up the ever-interesting problem of the relations between pharmacists and physicians, because its proper solution is essential to applying the drug standards.

Another problem which is becoming more urgent is the right solution of the patent and trade-mark puzzle, as applied to drugs. It may be an open question whether the granting of monopoly to the inventors or makers of materia medica products is of more harm or benefit to humanity. But that question is purely academic. The complete suppression of monopoly is not feasible at this time, although I hope that the members of our own profession will continue to adhere to the traditional ethics, whose existence has been more than justified by their results. As concerns manufacturers, the real problem is the regulation of monopoly, so that the public may benefit to the maximum degree by its desirable features—the encouragement of invention and progress; and so as to reduce to a minimum the undesirable features—the undue prolongation or extension of monopoly which discourages invention and progress, and the excessive financial profits and risks which spoil perspective and thereby hinder judgment. What is the proper solution. I for one am not prepared to say, and I am looking to the symposium on this subject for enlightenment. It is, perhaps, easier to judge which ways do *not* lead to a solution, and our Association may at least do good by exerting its influence to close these false passages.

There seems to be a fog over the whole subject, and it is not unlikely that the clearing of this fog may suffice to show the right way. I have seen it stated that the real trouble with our laws is their abuse—that they are so involved in technicalities that the victory tends to go to the longest purse, and that many abuses are permitted to stand merely because no one feels sufficiently interested to risk the money needed to fight them to a finish. If this is true, our Association should realize the duty

* Chairman's Address before the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

imposed by its influence and resources, and undertake to fight the abuses to a finish, in the interest of the public. But it is essential to know, first of all, what the abuses really are.

Although the greater part of the program happens to be taken up with pharmacotherapy, the equally important field of physical therapeutics has not been entirely neglected. The Section has to thank certain members of the American Roentgen Ray Society, and especially Dr. Clarence Skinner, for the symposium on that subject.

The members of the Section will notice that the program is well filled, and the officers hope that there will be a free discussion of the papers. It will therefore be necessary to limit the speakers to their allotted time, and to expedite business in every way as much as possible.

4327 Superior.

PRESENT STATUS OF THE LAWS RELATING TO PATENTS AND TRADE-MARKS *

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Some months ago the Council on Pharmacy and Chemistry appointed a committee to investigate and to report on the abuses connected with the patenting and trade-marking of medicines. This committee presented a preliminary report on the general subject of patents,¹ in which attention is directed to some of the complications that will be encountered in any attempt to equitably solve the patent and trade-mark problems as they present themselves at the present time. The committee has also submitted a second report,² discussing the reasons why the widely used names for some of the newer remedies should be recognized as being public property and not in any sense proprietary. These two reports are of necessity purely preliminary and as yet no attempt has been made to generalize or to offer specific suggestions other than that the problems involved are well deserving of careful consideration on the part of physicians who are at all interested in promoting the welfare of the nation.

It is generally recognized that there are two sides to all questions and there are perhaps few problems confronting us at the present time regarding which this truism is more applicable than this very question of patent and trade-mark legislation. Theoretically at least, patent laws are designed to advance our knowledge of the useful sciences and arts and thus to benefit the nation, and are based on the principle that, as a matter of equity, the people should not, even were it possible, appropriate the ideas of an individual without offering him in return some form of recognition for the benefits that may accrue from a practical application of his ideas.

That this principle was recognized as sound by the originators of our form of government is evidenced by the fact that the Constitution of the United States (Art. 1, Sec. 8) provides that "Congress shall have power . . . to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."

In compliance with this provision of the Constitution the federal Congress enacted a patent law in 1790, and

the first patent, which happens to have been for a process for making a chemical substance, potassium carbonate, was signed by George Washington, then President of the United States, on July 31 of the same year. The original law was amplified in 1836, somewhat revised in 1870 and consolidated with the revised statutes in 1874, since when it has been in operation substantially unchanged. The trade-mark law now in force is essentially that of 1905, though amended in 1907 and again in 1909. The existing copyright law was approved March 4, 1909, and includes provisions for registering prints and labels.

In compliance with the requirement of the federal Constitution that the exclusive right to writings and discoveries be secured to authors and inventors for limited times, Congress has provided that a patentee, his heirs or assigns, shall have the exclusive right to make, use or vend the discovery throughout the United States and the territories thereof for a term of seventeen years.

The trade-mark laws of the United States provide that a certificate of registration shall remain in force twenty years from its date, except that, in case a trade-mark be previously registered in a foreign country, such certificate shall cease to be in force on the day on which the trade-mark ceases to be protected in such foreign country, and shall in no case remain in force more than twenty years, unless renewed.

The law respecting copyright provides that any person entitled thereto, shall have the exclusive control of such right, which shall endure for twenty-eight years from the date of first publication and may be renewed for a further term of twenty-eight years.

During recent years there have been numerous suggestions looking to more or less radical changes in our patent laws and much has been written by inventors, patent attorneys and others who should at least be well informed on the subject, regarding the why of the proposed changes. That there is little or no unanimity in regard to the course to be pursued is evidenced by the differences of opinion that have recently been elicited in hearings before the committee on patents of the House of Representatives on H. R. 23417, "A bill to codify, revise and amend the laws relating to patents," and by the committee reports and articles published in the journals of the American Chemical Society.³

A careful perusal of the comments that have been made in print and otherwise suggests that many if not all of the contributors to the discussion appear to be in favor of retaining the essential features of the present laws unchanged. It has been asserted that our patent laws, although not perfect, are generally considered to be models of good patent legislation and that they have been followed more or less extensively in compiling the laws and practices of foreign countries.

It is generally acknowledged that our American laws were conceived in a broad and fair spirit and that they essentially involve a contract between the nation and an individual providing on the one hand that the author or inventor disclose the progress that he has made and thus enable others to get acquainted with his work and to improve thereon, while the nation, on the other hand, assumes to assure to the individual, for a period of years, the absolute control of his publication or the sole use of his invention, thus virtually securing to the inventor a monopoly on the article or articles involved. Recent court decisions, notably the one in the now famous A. B. Dick Co. case, clearly establish the right of the

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. THE JOURNAL A. M. A., Sept. 2, 1911, p. 780.

2. THE JOURNAL A. M. A., April 27, 1912, p. 1298.

3. Jour. Ind. Eng. Chem., 1912, iv, 318.

owner of a patent to dispose of his product in any way that he may see fit. Along this same line the point has also been made that nobody is compelled to buy a patented product and that the public at large is at liberty to confine its purchases to unpatented products if it so chooses.

In connection with medicine and medicines this one feature of our patent laws constitutes one of the gravest dangers so far as the possibilities of abuse are concerned. The establishing of a monopoly permits an excessive profit and this extra profit is a natural inducement to the manufacturer or dealer to encourage the use of the article irrespective of whether such use is beneficial or harmful. This latter fact has been all too well established and it is generally recognized that many of the more or less potent remedies, particularly hypnotics and sedatives, that have been introduced in this country under the protection of patent and trade-mark laws, have in reality proved to be factors for harm and the all too liberal use or the abuse of these remedies has been the direct or indirect cause of many premature deaths.

The recent discussions on the desired changes in our patent laws appear to suggest the desirability, if not the imperative need, for a radical change in the now existing legal machinery required to establish the validity of a patent. At the present time patent cases may be decided in any one of the nine Circuit Courts of Appeal and each court can give a final decision in a patent case but only so far as that particular circuit is concerned. Being independent of each of the other circuit courts its decision need not necessarily be recognized by all or any one of the remaining eight circuit courts and it has been pointed out that an infringer who has been beaten in one circuit can carry on his infringement in the adjacent circuit and drag on new suits forever and a day and thus postpone final decision as long as he is willing to pay for the necessary legal talent and keep the case in court.

In the hearings before the Committee on Patents of the House of Representatives referred to above some of the ablest patent attorneys of the country have acknowledged the shortcomings of our present system and have endorsed the frequently made suggestion to establish a court of patent appeals having jurisdiction for all parts of the country, which with common-sense rules of practice would furnish a ready means by which both the inventor and the public could find out whether a patent is valid or not. Another reform that has been suggested is a system of preliminary publication of the patent before the final award so that persons directly interested could file their objections much in the same way as is now done in connection with the issuing of trade-mark patents. In passing it might be noted that the one feature of the proposed changes in our patent laws to which strenuous objection has been made by manufacturers is the provision requiring that a patented article be manufactured or a patented process carried on in this country within a reasonable period of time, or in lieu thereof that the owner of the patent extend a license to any person demanding it. Essentially the same feature is included in the patent laws of Great Britain, Germany and Holland, and appears to be applicable in practice though it may at times work a hardship on an inventor who is unable to finance and exploit his invention satisfactorily.

Our present-day interpretation of the protection that is accorded by our American laws relating to trade-marks has been characterized as particularly vicious in

that it tends to restrict competition and to foster a species of perpetual monopoly in the manufacture and sale of articles that are usually of such a nature that they are considered necessities by the average man.

One of the most objectionable abuses in connection with trade-marks is due to the fact that the so-called trade-mark, usually an arbitrarily selected name, is not used, as the law intends a mark to be used, to indicate the origin or manufacturer of an article, but is in reality used as a generic title for the thing itself and as such would not be recognized in court on any ground but that of unfair competition. For instance any one of the many trade names for hexamethylenamin could be used by a physician as a synonym for the official title either by stating the fact or by appending U. S. P. or other designation, but it could not be construed as a synonym by the pharmacist in dispensing the article unless the physician clearly indicates that he is willing to have any make of hexamethylenamin dispensed when ordered by one of the trade-name synonyms. This particular feature of trade-mark abuse is well worth careful consideration on the part of physicians who have been misled and are being misled into believing that an article is distinctive or original when it in reality is but a simple mixture of well-known substances or a previously used article rejuvenated by applying to it a new name registered as a trade-mark. Such a name has few or none of the elements of a trade-mark and in accordance with established precedent would have no standing in court unless it were clearly shown that its use by others was evidently with fraudulent intent.

A more exhaustive discussion of this particular phase of the subject would require more time than can be devoted to it in a review of this kind and for the present I will content myself by briefly recapitulating the essential features of the present day status and needs of the patent laws as they occur to me.

The granting of patents, even the granting of patents on medicinal chemicals, is sound in principle and should be of benefit, directly as well as indirectly, to the nation.

For the protection of the inventor no less than for safeguarding the inherent rights of the public it would appear desirable to simplify the present legal procedure necessary to establish the validity of a patent and also to extend to patents generally the system of preliminary publication now used in connection with the registration of trade-marks.

So far as patents on medicinal chemicals may be concerned there appears to be a distinct need for sane conservatism in regard to the use of new remedies and physicians should endeavor to discourage the promiscuous use of potent new drugs by the laity, thus safeguarding the health as well as the lives of their patients.

The legal status of so-called trade-marks that are in reality but generic titles for well-known substances, or simple mixtures of such substances, should be clearly established by instituting a test case either in court of law or by applying to the Commissioner of Patents for the cancellation of the trade-mark registration on some one of the many articles now in use.

Twenty-Fifth and E Streets N. W.

An Ideal Portrait of the General Practitioner.—The ideal practitioner is he who, about to deal with man, has appreciated the meaning of man and has fitted himself to meet the varied problems man presents; . . . who lives clean and acts the golden rule, and who leaves in a grateful memory and an untarnished name his *monumentum aere perennius*. —Meara in *Boston Med. and Surg. Jour.*

THE RELATION OF THE PATENT AND TRADE-MARK LAWS TO MATERIA MEDICA NOMENCLATURE *

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Manufacturers of materia medica products engaged in the introduction of new products to commerce by advertising are subjected to an enormous expense which, in order to make the investment of capital remunerative, must be met by profit on sales. At the present time it costs no less than from fifty to a hundred thousand dollars in advertising before a new product can return a sufficient margin of profit to pay reasonable interest on the investment. Every new product introduced means an enormous outlay and a tremendous risk to the manufacturer. As this advertising is exclusively confined to the medical press, it means an enormous donation to the medical journals of the country.

Under such circumstances, it is not surprising that the manufacturing houses and medical press favor the continuance of materia medica monopoly, although this is contrary to the principles of fraternalism distinguishing the medical profession from the times of Hippocrates.

If the system of monopoly of materia medica products is to be continued, it becomes necessary for the medical and pharmaceutic professions and the public to consider the subject seriously, for at the present time the patent and trade-mark laws are being misused for the purpose of protecting such monopolies. The subject is so complex in its various ramifications that books might be written without exhausting it, and I am therefore confining my remarks simply to the question of the relation of the patent and trade-mark laws to the materia medica nomenclature. By clearing up this phase of the subject, much might be accomplished in removing some of the serious objections applying to the present system.

The plan adopted by manufacturers of patented materia medica products is to patent them under their long chemical names and register as trade-marks short and catchy coined names, the object being to monopolize their sales for the seventeen years permitted by the patent law and, by controlling their currently used names, to continue the monopoly indefinitely after the patents expire.

Now, as the object of the patent law is to promote progress in science and the useful arts by granting to inventors, for limited times, exclusive use of their inventions and discoveries, in exchange for the publication of full knowledge thereof, whereby science may be promoted and the art of their manufacture advanced, it is self-evident that a scheme of perpetual monopoly is in direct opposition to the principle on which the patent law is based.

Furthermore, the control over the name of a product after the patent for the same expires is an abuse of the trade-mark law, for the function of a trade-mark is to distinguish between brands and thereby promote legitimate competition.

Proper standardization of materia medica products requires the adoption of a definite and changeless nomenclature compatible with the science to which the invention pertains, and the name should be as descriptive of the product as possible. When the descriptive name is long and unwieldy, a shorter name should be adopted for convenience. Such names should be free to all who have

the right to make the product, and therefore, when the patent expires, should pass with the product to the public. This is good law as well as good sense, and has been so decided by the Supreme Court (in the Singer Sewing Machine case in 1895).

Yet the manufacturers, owing to necessity of longer-continued monopoly than the seventeen years permitted by the Patent Office are strongly opposed to relinquishing the control over the names of their products and are doing all in their power to circumnavigate the law. As each case must be fought out on its merits, a perpetual monopoly system has been established, which, as before said, defeats the objects both of the patent and trade-mark laws.

The remedy seems to be in the hands of the medical and pharmaceutic professions, as represented by the committee for revising the U. S. Pharmacopeia. If the Pharmacopeial Committee would issue an annual report giving a list of all the new products and supplying them with the names conformable with scientific nomenclature, the so-called trade names to be adopted as synonyms, this part of the problem could be solved.

Take as an example saccharin as listed by the house of Merck & Co. in "Merck's Index." The patent for benzoylsulphonic imid, or benzosulphinid, or anhydro-orthosulphaminebenzoic acid having expired, the name saccharin, although claimed as a trade-mark, has by the decision of the Supreme Court in the Singer Sewing Machine case, become public property. Merck & Co., recognizing this fact, listed the product in the index under the name saccharin and then added as synonyms the chemical names and all the trade names under which saccharin is known, as follows:

"Saccharin Merck—Refined.

"Benzoylsulphonic Imid; Garantose; Glusidum; Gluside; Glycophenol; Glycosin; Saccharinol; Saccharinose; Saccharol; Saxin; Sykose; Zuckerin; Glusimide; Aguearina; Tolnolsüss; Anhydro-orthosulphaminebenzoic Acid; Benzosulphinid (U. S. P.); Neo-Saccharin."

What I have said refers to patented products. The question will be asked immediately: What are you going to do about unpatented products? If the medical profession would live up to its ethical obligations and refuse habitually to employ secret or semisecret medicines, this problem would not be difficult to answer, so far as medicine and pharmacy are concerned. For it is a well-known fact in law that any person has a perfect right to manufacture and sell an unpatented product and to offer it under its generic or descriptive name, all claims of the so-called proprietary medicine houses to the contrary notwithstanding. If the Council on Pharmacy and Chemistry or the Committee for Revising the Pharmacopeia would publish processes for making unpatented products, and adopt correct nomenclature for them, publishing as synonyms the so-called trade names, the problem would be solved.

In this connection, the following statement made in 1890 by the members of the House Committee on Patents, Hon. Benjamin Butterworth, chairman, is of interest:

1. The registration of an alleged trade-mark does not make it valid. Registration is merely to give notice that the thing registered is claimed as a trade-mark. The validity of the claim can only be settled by the courts.

2. The use of a trade-mark in no wise restricts the free use by others of the article of merchandise to which it is affixed. It confers on the user no privilege to the exclusive use of an invention of the kind conferred by the patent law, otherwise

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

we should have the anomaly of laws diametrically opposing one another. The patent law grants the inventor the exclusive use of his invention for a limited time, and then only on the publication of exact knowledge of the invention (accompanying his application for patent) whereby the public may manufacture it when the patent expires. The use of a trade-mark, on the contrary, is unlimited in duration, and no publication of the invention is required when it is used on the same.

3. The public has a perfect right to manufacture and sell any article of commerce not patented, and to do so under its proper or generic name, whether a trade-mark is used in connection with the article or not. For this reason the courts hold that names describing the articles cannot be used as trade-marks on the articles they describe. Otherwise the use of trade-marks would be a hindrance to competition, while the proper use of trade-marks promotes competition by distinguishing between one brand of an article and another brand of the same article, thus stimulating manufacturers to improvement in processes and methods of manufacture for the purpose of excelling each other in producing a better quality of the same articles or at a lower price.

4. While not constituting itself an interpreter of law, the House Committee on Patents, as individuals, does not hesitate to affirm the position above described, and so instruct the associated press reporter present.

The following quotation from Browne on trade-marks is pertinent under the circumstances:

The policy that the mere use of a name to designate an article would give to those employing it the exclusive right to designate such article by such name, would be giving a copyright of the most odious kind, without reference to the utility of the application or the length of the title, and one that would be perpetual. Neither the trade-mark law, nor the copyright law, nor the patent law, affords any such right, or under the pretense of the same, allows any one to throttle trade under the alleged sanction of law.

The following quotation from the decision of the Supreme Court in the Singer Sewing Machine case, is also of interest:

The result, then, of the American, the English and the French doctrine universally upheld is this, that where, during the life of a monopoly created by a patent, a name, whether it be arbitrary or be that of the inventor, has become, by his consent, either express or tacit, the identifying and generic name of the thing patented, this name passes to the public with the cessation of the monopoly which the patent created. Where another avails himself of this public dedication to make the machine and use the generic designation, he can do so in all forms, with the fullest liberty, by affixing such names to the machines, by referring to it in advertisements and by other means, subject, however, to the condition that the name must be so used as not to deprive others of their rights or to deceive the public, and therefore that the name must be accompanied with such indications that the thing manufactured is the work of the one making it, as will unmistakably inform the public of that fact.

In this connection, the argument of the appellant in the case of Clinton E. Worden & Co. *vs.* California Fig Syrup Company in the Supreme Court of the United States, October Term, 1901, is of importance as showing to what extent the courts have supported the statement made in this paper that descriptive names cannot be trade-marks. The following is quoted from the argument referred to:

The words "syrup of figs" or "fig syrup," as applied to the medicine in question, are either descriptive or deceptive, and in neither event can they be appropriated as a trade-mark.

Section 991 of the Civil Code of California regulates the adoption of words and symbols as trade-marks, and provides that no words can be adopted as a valid trade-mark "which relate only to the name, quality or description of the thing or business or place where the thing is produced or the busi-

ness is carried on." This is merely the common-law rule as to trade-marks, and finds support in *Choynski vs. Cohen*, 39 Cal. 501; *Burke vs. Cassin*, 45 Cal. 467, and *Schmidt vs. Brieg*, 100 Cal. 673.

The leading case in this court is *Canal Co. vs. Clark*, 13 Wall. 311, where the rule is stated as follows:

"Nor can a general name or a name merely descriptive of an article of trade, of its qualities, ingredients, or characteristics be employed as a trade-mark and the exclusive use of it entitled to protection."

As illustrating the extent to which this rule has been carried, it will be interesting to note the subjoining list of words which have been held descriptive:

Iron Bitters, *Brown vs. Meyer*, 139 U. S. 540.
Sarsaparilla and Iron, *Schmidt vs. Brieg*, 100 Cal. 673.
Aromatic Schiedam Schnaps, *Burke vs. Cassin*, 45 Cal. 467.
Desiccated Codfish, *Town vs. Stetson*, 5 Abb. Pr. (N. S.) 218.
Antiquarian Book Store, *Choynski vs. Cohen*, 39 Cal. 501.
Ferro-Phosphorated Elixir of Calisaya Bark, *Caswell vs. Davis*, 58 N. Y. 223.
Cherry Pectoral, *Ayer vs. Rushton*, Codd. Dig. 229.
Tasteless Drugs, in re *Dick & Co.*, 9 O. G. 538.
Burgess' Essence of Anchovies, *Burgess vs. Burgess*, 3 De G. M. & G. 896.
Balm of a Thousand Flowers, *Fetridge vs. Wells*, 4 Abb. Pr. 144.
Club-House Gin, *Corwin vs. Daly*, 7 Bos. 222.
Extract of Night-Blooming Cereus, *Phalon vs. Wright*, 5 Phila. 464.
Liebig's Extract of Meat, *Meat Co. vs. Hanbury*, 17 L. T. N. S. 298.
Bees-Wax Oil, in re *Hathaway*, Com. Dec. '71, p. 97.
Invisible Face Powder, in re *Palmer*, Com. Dec. '71, p. 289.
Razor Steel, in re *Roberts*, Com. Dec. '71, p. 100.
Mammoth Wardrobe, *Gray vs. Koch*, 2 Mich. N. P. 119.
Parson's Purgative Pills, in re *Johnson Co.*, 2 O. G. 315.
Crack-Proof India Rubber, in re *Goodyear Rubber Co.*, 11 O. G. 1062.
Croup Tincture, in re *Roach*, 10 O. G. 333.
Cough Remedy, *Gilman vs. Hunnewell*, 122 Mass. 139.
Iron Stone Water Pipes, in re *Rader & Co.*, 13 O. G. 596.
Nourishing Stout, *Raggett vs. Findlater*, L. R. 17 Eq. 29.
Angostura Bitters, *Siebert vs. Findlater*, 7 Ch. Div. 801.
Julienne Soup, *Godillot vs. Hazard*, 49 How. Pr. 5.
Paraffine Oil, *Young vs. Macrae*, 9 Jur. N. S. 322.
Lackawanna Coal, *Canal Co. vs. Clark*, 13 Wall 311.
American Sardines, in re *Sardine Co.*, 2 O. G. 495.
Straight Cut, *Ginter vs. Kinney T. Co.*, 12 Fed. R. 782.
Homeopathic Specifics, *Medicine Co. vs. Wenz*, 14 Fed. R. 250.
Cramp Cure, *L. H. Harris vs. Stucky*, 46 Fed. R. 624.

An application of this doctrine to the facts in hand will show that the words "syrup of figs" and "fig syrup" cannot lawfully be appropriated as a trade-mark.

"The name of a secret preparation may be used by anyone for goods actually prepared according to the recipe, for they are the goods indicated by the name, whether prepared by the original inventor of the recipe or his successors in business or not. Until the secret is discovered or betrayed the goods of the original inventor or his successors can be the only goods to which the name is applicable, or which are denoted by it; but when other people can make them, the difficult question of fact arises, whether the name is merely that of the goods themselves, or that of the goods of the kind prepared or sold by the original inventor or his successors in business. This was well put by Fry, J., in the *Angostura Bitters Case*.¹ 'I cannot say,' the learned judge said, 'that Meinhard may not, if he can, make a bitter identical with the plaintiffs', and if he does, I cannot prevent him from selling it as Angostura Bitters.' It is to be observed that the person who produces a new article and is the sole maker of it has the greatest difficulty (if it is not an impossibility) in claiming the name of that article as his own, because until somebody else produces the same article, there is nothing to distinguish it from. No distinction can arise from using the name of the class, so long as the class consists of only one species, for then the name of the species and the name of the class will be the same."²

"There must be some word or sign, or device other than a generic name and words of descriptive quality."³

"So the words, 'Night Blooming Cereus,' were held to be invalid as a mark, being the proper descriptive appellation of the article."⁴

The same rule defeated the adoption of the words, "Desiccated Codfish."⁵

1. *Siebert vs. Findlater*, 7 C. D., p. 813.

2. Kerly, D. M.: *The Law of Trade-Marks*, Sweet and Maxwell, 1894.

3. Commissioner's decision, 1881, p. 97.

4. *Phalon vs. Wright*, 5 Phila. 464.

5. *Harris, Beebe & Co.*

In the case of the "Balm of a Thousand Flowers," Judge Duer of New York, says:

"It is only the seductive name that they claim as their exclusive property, and doubtless from the experience in its value in the extension of their sales, this, however, is a species of property which in my opinion is unknown to the law, and that can only be given to one by an infringement of the rights of all. . . . It has been repeatedly held that a trade-mark cannot be obtained in a name where it is the proper name for the article as in the case of Schnapps, the subject of the controversy in *Wolf vs. Goulard*, or where it has by general use become the proper name of an article which all manufacturers may use as in the case of Dr. Johnson's Yellow Ointment, Godfrey's Cordial, and Essence of Anchovies."

"Neither the trade-mark law, nor the copyright law, nor the patent law affords any such right, or, under the pretense of the same, allows anyone to throttle trade under the alleged sanction of law."

"No one can claim protection for the exclusive use of trade-marks or trade names which would practically give him a monopoly in the sale of any goods other than those produced or made by himself. If he could, the public would be injured rather than protected, for competition would be destroyed. Nor can a generic name or a name merely descriptive of an article of trade, of its qualities, ingredients, or characteristics, be employed as a trade-mark, and the exclusive use of it be entitled to protection."

"We of course understand that when a name is coined by one who uses it as a trade-mark on a particular article, if that name is originally a lawful trade-mark, its subsequent adoption by the public as a common appellative cannot take away the right already acquired."

But "When an article is made that was theretofore unknown, it must be christened with a name by which it can be recognized and dealt in, and the name thus given it becomes public property, and all who deal in the article have a right to designate it by the name by which alone it is recognizable."

"A word which is the name of an article, or indicates its quality, cannot be so appropriated. Every one has the right to manufacture the same article, and to call it by its name or descriptive character."

As stated in Circular No. 19, issued by the Librarian of Congress, "the copyright laws contain no provision under which protection can be obtained on a mere name or title. Entry cannot, therefore, be made in the copyright office for coined names; names of articles of manufacture; names of games or puzzles; names of substances; names of products, or names of medicines."

To sum up: Standardization of drugs is closely related to the present patent and trade-mark laws. The monopolies that depend for their existence on the protection of these laws, and the conditions that have been created by the large amounts of money which reach the medical press from the advertising of monopolized products, are serious impediments to the progress of standardization.

The first step in standardization is the selection of a name by which the drug is to be known and dealt in. For obvious reasons this name should be as descriptive as possible and in the case of a drug generally known by a trade name that name should be employed either as the generic name or a synonym. That there can be no legitimate objection to this plan is conclusively shown by the fact that the text-books are all adopting it; and in the quotations of legal opinions given herewith, the important fact is fully established that a trade name or brand name when used as the name of a product cannot be a trade-mark and should not be subject to monopoly.

I hope that the Section on Pharmacology and Therapeutics, working in cooperation with the Council on Pharmacy and Chemistry of the American Medical Association, will consider the subject and carry out the suggestion I have made for solving the problem of nomenclature relating to the newer materia medica in the manner above stated, namely, the suggestion that the pharmacopeial revision committee issue an annual list of new drugs giving proper names to them and including "trade" names as synonyms.

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ABSTRACT OF DISCUSSION.

ON PAPERS OF DR. STEWART AND MR. WILBERT

DR. S. SOLIS COHEN, Philadelphia: I have listened to many discussions. That is about as far as we have gone. All that the medical profession has to do is to refuse to use those drugs which are not handled conformably to the ethical standards of the profession. We are not dealing with the ideal condition—"ought to be"—but with the practical condition—"is." I can only repeat my published views as to an acceptable compromise between idealism and hard fact. Let us recognize the ethical right of chemists to patent the processes of manufacture of therapeutic chemicals, but nothing further. The substance itself should not be the subject of a patent, the name should not be privately owned. Once it is introduced into medicine, drug and name must be the common property of the profession subject only to limited process patent. Further, we should try to establish an international body for the determination of pharmaceutical names for new substances and tender to manufacturers and importers in the United States this *quid pro quo*: that if they will consent merely to patent the process, as indeed is now the law in Germany, and not to demand a patent on the product, and will, further, adopt the name given by this international committee as a free name, not trade-marked, not registered, not protected in any other way than by the general laws of the country covering substitution, adulteration, fraud and the like—if they will do that, then, on our part, we will admit into our Pharmacopeia their products of which the process only is patented, if we deem the substance of sufficient worth and importance. That seems to me the only solution to this question. No matter what arguments may be made before congressional committees or elsewhere concerning the patent question in general, let us put the prevention of infringement and establishment of the validity of patents aside and confine ourselves to the one clear issue. Let us make a concerted effort to amend the laws of the United States on that point so that here as in Germany no chemist shall hereafter obtain a patent on any product intended for use in medicine or property right in the name of such a product. The process of manufacture may be patented; the substance and the name must be free to the world. That is the one step requiring legislation. The other step, which merely requires concerted action on the part of scientific bodies here and abroad—products of which the process only is patented and of which the name shall be that which is given by an international scientific body—may, when worthy, be admitted to Pharmacopeias.

DR. TORALD SOLLMANN, Cleveland: Dr. Cohen's suggestion to cure the whole evil by refraining from the use of these substances reminds me of a method proposed to reduce the high cost of food, that is, for all humanity to abstain from eating for a month. The practical suggestions are such as the Section should carefully consider, to determine the best line of attack. I think no one questions that if Dr. Cohen's proposition is a feasible one, it would solve the whole problem.

MR. M. J. WILBERT, Washington, D. C.: I would like to see a test-case under the present trade-mark law. If an association such as this would take such a case before the Commissioner of Patents or one of the circuit courts, any one of the names that are being used, ostensibly as trade-marks, but, in reality as generic titles, could be declared null and void and one case would settle all of them. I think that

6. *Canal Co. vs. Clark*, 13 Wall. 323.

7. *Celluloid Co. vs. Cellointe Co.*, 32 Fed. Rep. 98.

8. *Leclanche Battery Co. vs. Western Elec. Co.*, 23 Fed. Rep. 227.

9. *Phalon vs. Wright*, Am. Tr. Cas. 308.

the sooner such a thing is done the better it would be for American medicine, as it would compel manufacturers to use, as they should, a genuine valid trade-mark to distinguish their products from other products of the same kind.

PROF. H. P. HYNSON, Baltimore: I think that Dr. Cohen's suggestion, that the medical profession be asked not to encourage something which they believe to be altogether wrong, is the most practical. I believe that the profession is generally opposed to the unethical handling of drugs, but they are not united in their action.

PROF. W. A. PUCKNER, Chicago: Three or four years ago I was present at a consultation of members of the Committee on Patents and Trade-Marks of the American Medical Association and legal authorities. It seemed the general impression at that time that it would be impossible to amend the patent law to prohibit product patents. Under our law, it was stated, it would be exceedingly difficult for the patentee to secure the rights granted in a process patent. Further, it was thought that it would be most difficult, if not impossible, to amend the law so that process patents only would be recognized.

DR. F. E. STEWART, Philadelphia: When I was chairman of the Committee on Legislation of the American Pharmaceutical Association, it was urged by the representatives of the German chemical houses that a law similar to the German process patent law could never be passed and enforced in this country, as it would be unconstitutional. In Germany the burden of proof is thrown on the person who infringes on a patent. "In this country," say the objectors, "every man is considered innocent until he is proved guilty, and it is impossible for a patentee to prove that his patent is being infringed unless the patent covers the product as well as the process. He has no right to send an inquisitor into the laboratory of his competitor to determine whether the process used by his competitor is an infringement or not." In the report of our committee we suggested that if the government should conclude to limit patents to processes only, the burden of proof might be thrown on those claiming to have invented new processes for producing the same products by compelling the inventors of alleged new processes to divulge them by applying for patents, so that the novelty in each case might be determined by the Patent Office. President Taft, in a recent message to Congress following the decision of the Supreme Court of the United States, handed down March 12, 1912, urged that the procedure under the patent laws be simplified and that the burden of proving the invalidity of a patent be placed on him who would infringe on it. It is not likely that the President, who is a very able constitutional lawyer, would make this request if such a law would be unconstitutional.

DR. S. SOLIS COHEN, Philadelphia: It might be well in presenting this question before the House of Delegates or Board of Trustees to request manufacturers and importers to act in cooperation with the American Medical Association concerning this necessary legislation. That at all events would separate the sheep from the goats and tell us who are reputable manufacturers desiring the advancement of medicine and pharmacy and who are merely despoilers of the sick.

[Several motions and amendments were made, the outcome of which was that the Section's delegate was instructed to lay the matter before the House of Delegates with the request that the House attempt to secure legislation forbidding patents on materia medica articles and permitting patents only on processes of manufacture. The House referred the matter to the Council on Health and Public Instruction.]

Factors in the Production of Abnormality.—The infections which arise in the first years of life and especially the inflammations of the gastro-intestinal tract, the result of unsuitable alimentation during the lactational period, are the most important factors in determining the majority of cerebropathies, and in this way a crowd of idiots, imbeciles and epileptics is produced who encumber asylums and are an enormous drain on the internal economy of the country.—Lugaro in "Modern Problems in Psychiatry."

THE INFLUENCE OF PATHOLOGIC CONDITIONS ON THE ACTION OF DRUGS *

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There is no doubt that much confusion has resulted in the past years from the attempt to transfer the results of pharmacologic experiments directly to the practice of therapeutics. The pharmacologist, by repeated experiments and careful analysis of his results, obtains facts and reaches conclusions which appear to be beyond contradiction. Yet when the clinician, applying the knowledge so acquired, arrives at results at variance to those of the pharmacologist, he is at a loss to understand the seeming discrepancy and very naturally views the laboratory work with some skepticism.

The main difficulty lies in the assumptions drawn from pharmacologic experiments. These as a rule are carried out on normal animals; the drugs are given usually in large dosage and in such a manner that they quickly reach the tissue to be acted on. If the exact conditions of the experiments are defined and if the work is carefully done, then the results obtained stand as facts which may be confidently expected in all experimental or clinical studies carried out under similar conditions. But, in clinical cases, the conditions are rarely those of the laboratory experiment. Often, it is true, a drug is employed in therapeutics for the purpose of acting on a function or tissue not in itself abnormal, and of affecting indirectly through this action the primary pathologic state, as, for example, purgatives in dropsy. In such instances the pharmacologic knowledge of the drug can be applied directly; the action differs in no wise from that seen in an experiment on a normal animal. But in many other cases, the action to be elicited is a direct one on the diseased tissue itself, and the conditions may vary considerably from those of the animal experiment. It is unlikely, even here, that the actions are different in kind from those in normal animals. They may differ markedly, however, in intensity and ultimate effect. Most of the vital organ functions are complex ones in that they involve a number of factors which normally work in harmonious equilibrium. In disease one may become predominant, another may cease to exert influence.

In the mechanism of diuresis, for instance, there are to be considered a permeable membrane, vessels capable of a certain degree of constriction and dilatation, a volume of blood of fairly definite concentration. A diuretic may affect any one of these factors with a common result and their relationship one to another remains but little changed. If a pathologic condition arises, however, for example, affecting the power of the vessels to dilate, the resulting effect of the diuretic—that is, diuresis—may be greatly increased over the normal, or may be entirely absent. And yet no new type or kind of action has occurred. The difference in the result means simply that one factor has responded more actively or less actively to the drug than is the case normally.

It is obvious then that the results of drug-action in normal animals are often incomplete so far as a direct therapeutic application is concerned and that they must be supplemented by experiments in which the conditions obtaining in disease are reproduced.

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

In studying these differences in action in pathologic conditions it is by no means necessary to rely wholly on animal experimentation. Many of the most important facts in therapeutics have been brought to light by accurate clinical observation. It is rare, however, that an ultimate analysis of these facts can be obtained at the bedside. The work of Cushny on the therapeutics of digitalis, which is an example of what may be accomplished clinically, was made possible chiefly by his thorough understanding of correlated laboratory experiments. Where it is possible to produce a pathologic condition such as exists clinically, then undoubtedly the study of drug effects becomes far more accurate, easy and rapid. But the final proof must eventually be obtained by clinical application.

It is out of the question here to cite more than a very few instances of the differences in drug action referred to. But these, I trust, will emphasize the importance of the subject. First, there may be considered such relatively simple phenomena as abnormal absorption and excretion.

It is well known that a dilated and atonic stomach, with greatly delayed emptying power, is of fairly common occurrence. Very few drugs are absorbed by the stomach and the time required for them to enter the circulation is dependent largely on the quickness with which they reach the intestine. A slow passage from the stomach to the intestinal absorbing surface not only delays the onset of action of a drug, but also lessens the intensity of action. For the dosage assigned to any drug presumes that it shall exist in the circulation in a definite concentration.

Again, it is a known clinical fact that in cases of ascites, especially that from liver cirrhosis, drugs such as diuretics may have little or no effect. Experiments performed many years ago have shown that the toxicity of certain drugs given by the stomach is greatly lessened if the abdominal cavity contains a large amount of fluid. When the fluid is withdrawn, the toxic action comes on quickly. The effect of the fluid is to prevent the drug being taken up by the circulation.

With regard to excretion, it has been shown that curare, a drug ordinarily producing no symptoms when given by the mouth because of its rapid elimination, may produce death if its passage of excretion, the kidney, is blocked. According to Meltzer and Lucas,¹ magnesium sulphate given subcutaneously to nephrectomized animals induces complete narcosis, although in the same dosage it is entirely without this action in normal animals. In this connection, a paper by Boos² reporting a number of cases of magnesium sulphate poisoning in man is of interest, since it is not improbable that impaired renal function was a factor in several of his cases.

Finally, some interesting work by McCrudden³ on excretion may be mentioned. It is a wide-spread custom among the laity to treat snake bites by the internal administration of alcohol, or such intestinal irritants as senega. Alt has shown that the poisons from certain snakes are excreted in part, at least, by the gastro-intestinal tract. McCrudden, working with morphin, was able to show that the excretion of this drug by the intestine was greatly increased if intestinal irritants, such as rum, quillaja and senega, were given. Probably this effect on morphin excretion applies to all substances

excreted by the intestine, and, if so, may be an explanation of the benefits derived from elaterium in uremia.

A pathologic decrease in the volume of blood may influence the action of drugs. Thus, experimentally, after a severe hemorrhage, a dose of strychnin which ordinarily would produce at most only a slight increase in reflex irritability may bring on typical convulsions. These disappear when the withdrawn blood is reinjected, so that the stronger effect is due to the greater concentration of the poison. It is quite possible that this experimental fact may at times be of practical importance. Wiggers⁴ has shown that a number of drugs lose certain of their characteristic actions after hemorrhage. The vagus-center loses irritability, so that slowing of the heart no longer occurs after epinephrin or digitalis.

The difference in action of drugs on the central nervous system is generally only one of degree of effectiveness. Thus, it is well known that when certain types of pain exist, these may be relieved by doses of morphin too small to induce any effect in a normal individual. Similar effects are seen in the influence of morphin on cough. In these cases, the action consists in reducing the excessive irritability of a brain center to its normal level. The antipyretics lower a normal temperature only when given in dangerous dosage, whereas, when fever is present, a decided fall may be obtained by relatively small doses.

The most popular field at present for experimental work along these lines is the circulation. Pharmacology has done its full share in explaining the action of drugs on the normal circulation. Therapeutics, however, has advanced comparatively little. The action of strychnin, for example, has been worked out in great detail. Its effects in therapeutics are a matter of controversy among clinicians. In normal animals, strychnin fails to elevate the blood-pressure appreciably, unless given in doses which may be considered above the therapeutic limit. Experiments carried out in my laboratory, in which a pathologically low blood-pressure had been induced by such varying procedures as shock, hemorrhage, diphtheria toxin, nitrites and chloral, have shown that the drug is effective only in cases in which a low blood-pressure is brought about by a partial depression of the vasomotor center, such as may be produced experimentally by chloral. This is what might reasonably be anticipated, since the action of the drug consists in increasing the irritability of this center and so making it more responsive to outside stimulation. A careful study of the records of clinical cases improved by strychnin would undoubtedly show that these cases are ones in which a depressed vasomotor center was the operating factor.

With regard to the action of drugs which lower blood-pressure, it has been shown that their effect in abnormally high pressure is in general not especially different from that in the normal.⁶ The action is somewhat later in coming on and is more prolonged, due probably to a slower absorption, but the percentage fall of blood-pressure is quite comparable to that in a normal animal. Cases have been reported in which no fall occurred after the nitrites, but as yet no explanation of this lack of effect has been given.

The difference in the result of drug action on the normal and on the diseased heart is quite striking. For example, in a normal animal, digitalis produces a distinct cardiac slowing, with an increase in both systole and diastole. In cardiac incompen- sation, with a normal

1. Meltzer and Lucas: Jour. Exper. Med., 1907, ix, 298.

2. Boos: Magnesium Poisoning; A Study of Ten Cases, THE JOURNAL A. M. A., Dec. 10, 1910, p. 2037.

3. McCrudden: Arch. f. exper. Path. u. Pharmacol., 1910, ix, ii, 374.

4. Wiggers: Jour. Pharm. and Exper. Therap., 1911, ii, 395.

6. Wallace and Ringer: THE JOURNAL A. M. A., Nov. 13, 1909.

rhythm, Cushny⁷ found a slowing in only 30 per cent. of the cases studied by him. Apparently, the vagus-center has either lost its irritability or else no longer exerts a controlling effect on the heart-rate. It is well known that fever lessens the response of the vagus-center to drug stimulation, and, as has been mentioned, anemia of the center by hemorrhage and probably by insufficient circulation through cardiac weakness has a similar effect. In arrhythmias present in animals, digitalis often completely restores the rhythm to its normal sequence. In arrhythmias in man from auricular fibrillation, it also brings about improvement, and here a typical slowing almost invariably occurs.

Experimental evidence shows, further, that the strengthening effect of digitalis on the contractions of a weakened heart is much more marked than on a normal heart. Similarly, camphor, which has an uncertain effect on a normal heart, acts as a strong stimulant to one weakened by chloral. Again, the increase in diastole occurring in a normal heart from digitalis gives place to a lessened diastole in a dilated heart.

Finally, the rise in blood-pressure seen in normal animals after digitalis may be replaced by a fall in cases of cardiac incompenation.⁸ The explanation given for this unexpected result is that with a deficient circulation a condition of asphyxia occurs which induces a strong vascular constriction. With improvement of circulation, the asphyxia lessens and the vessels accordingly dilate.

A considerable amount of work has been done lately to determine the effect of pathologic states of the kidney on the efficiency of diuretics. In normal animals a diuresis can practically always be obtained from the administration of one of the caffein group or of sodium chlorid. It occurs to a slight effect, or not at all, from digitalis. In many cases of nephritis, all of these drugs produce a diuresis of much greater degree than occurs in normal animals. In other cases, however, no diuresis at all follows. Here is a seeming contradiction between a pharmacologic experiment and clinical experience which without further knowledge is difficult of interpretation. An analysis of the pharmacologic action of diuretics has shown that accompanying diuresis there is a quite evident enlargement of the kidney-volume due to a dilatation of its vessels, and the conclusion has been drawn, for the caffein group at least, that the vascular dilatation is responsible for the diuresis.

Experimentally, two types of nephritis may be induced: one a glomerular type, which may be induced by cantharides, in which the vessels are involved to such an extent that they have lost the power of further dilatation; the other a tubular type, caused by such irritants as chromates and uranium, in which a vascular involvement becomes marked only in the later stages. In the glomerular nephritis, all of the commonly used diuretics, caffein, digitalis, sodium chlorid, are without effect in increasing the flow of urine.⁹ In the later stages of tubular nephritis the same lack of effect occurs. One of the necessary factors in the diuresis, the capability for vascular dilatation, has been removed from the influence of drug action. In the early stages of tubular nephritis, on the other hand, all of the diuretics mentioned are effective. The vascular factor has become more active than normally, in that the vessels are hypersusceptible; a greater dilatation occurs than in a healthy kidney, and consequently a greater diuresis results.

One more example may be given. In a non-pregnant cat, epinephrin produces an inhibitory effect on uterine movement. Given to a pregnant animal, epinephrin, instead of inhibiting uterine movement, promotes strong contraction.¹⁰ Apparently, the difference depends on an altered condition of the uterine muscle which renders it more susceptible to the motor and less to the inhibitory impulses coming through the sympathetic nerves.

I have given only a few examples of the effects of pathologic conditions on drug action. The experimental field is a large and comparatively new one. It is a fitting corollary to the usual pharmacologic experimentation and is the one step needed to bring pharmacology and therapeutics into their proper relationship.¹¹

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ABSTRACT OF DISCUSSION

DR. S. SOLIS COHEN, Philadelphia: Many laboratory contributions, valuable as they are, which have been based on experiments with normal animals under normal or abnormal conditions, are inapplicable and even misleading at the bedside. Pharmacologic observations can be made scientifically at the bedside if not as well as in the laboratory, yet, within their limits, as precisely. For example, there is a fruitful series of researches which can be carried out without risk to the patient, in studying the effect of remedies on the blood-pressure in certain cases of infection, and especially in pneumonia. Since Gibson called attention to the prognostic and therapeutic importance of the ratio between blood-pressure and pulse frequency in pneumonia, I have been using various pressor agents in the treatment of cases of pneumonia, and many interesting differences in their action from that attributed to them on the basis of pharmacologic experiment can be made out. Not only that, but the difference in different patients is sometimes quite marked; also the differences in the same patient at different stages of the pathologic processes and moreover, according to the other treatment that is used at the same time. Here again is another great field of clinical research: the association of remedies—the modification of drug influence not alone by disease, but by other therapeutic measures instituted before or after or in conjunction with the drug under study. I have, for example, found the intramuscular injection of quinin and urea hydrochlorid most useful in acute lobar pneumonia. The fall of temperature it produces is sometimes accompanied with a very marked fall in blood-pressure; but this can be averted and the blood-pressure made to rise far beyond the level which it occupied before it was disturbed by the use of coincident injections of cocain hydrochlorid. Here, too, is another modification of the action of a drug by disease. I have given by injection—and it has been absorbed—as much as 150 grains (10 gm.) of quinin and urea hydrochlorid in twenty-four hours, to a pneumonia patient without producing the slightest symptom of cinchonism, without tinnitus or deafness, without amanosis, without any irritation of the retina as verified by the ophthalmoscope—in a word, without one symptom of quinin intoxication. It is quite evident that the condition of the patient has modified very considerably the action of that drug. I think it is a chemical neutralization, but the subject is still *sub judice*. Now the same condition which modifies the action of quinin in pneumonia—or some other condition—modifies likewise the action of digitalis: because if any drug is disappointing as used by the ordinary method in pneumonia it is digitalis.

DR. OLIVER T. OSBORNE, New Haven, Conn.: Physicians for a long while have ridiculed laboratory investigations because such investigations did not meet clinical conditions. On the other hand, the laboratory men ridicule a great many treatments used empirically because they do not follow the pharmacologic findings. Each should respect the other's work: the more we understand each other the better we shall understand

7. Cushny: Am. Jour. Med. Sc., 1911, cxli, 469.

8. Meyer and Gottlieb: Experimentelle Pharmakologie, Ed. 2, 1911, p. 270.

9. Hedinger: Deutsch. Arch. f. klin. Med., 1910, c, 395.

10. Cushny: Jour. Physiol., 1906, xxxv, 1.

11. An extensive bibliography on this subject is given by Salant, circular No. 81, U. S. Dept. of Agriculture, Bureau of Chemistry.

the true actions of drugs in disease. As a general working rule it is a pretty bad plan to give to a patient, who is in a serious condition, an amount of any drug, which we know to be active, and which ordinarily would be considered semi-toxic, if not actually toxic. In a recent discussion at another meeting there was a question of what would revive a man under certain conditions of spinal anesthesia. Previous to the spinal anesthesia there was a morphin and scopolamin injection given, and I objected to the conclusions as to the action of the drugs used for the revival of the patients as it would be hard to tell just what they were combating. A surgeon held that it did not make any difference if we gave a toxic dose so long as the man revived, because he was dying any way. My answer was that the medical men like to know of what the man died; the surgical men do not care.

DR. EGBERT LEFEVRE, New York: I think it may be said that a change has taken place in the point of view of both the clinicians and the pharmacologists in regard to the explanation of drug action. Clinicians, before the advent of pharmacology, accepted any explanation of drug action that had sufficient authority back of it. With the introduction of pharmacology, many of the accepted explanations of drug actions did not square with the laboratory experiments, and clinicians found that it was difficult, if not impossible, to apply to the treatment of patients the data gained by animal experimentation. This at first aroused antagonism between the clinician and the pharmacologist. As Dr. Wallace has said, the pharmacologist is chiefly concerned with the action of drugs on normal physiologic processes. I think that we have been asking of the pharmacologist a great deal more than we have a right to ask. Clinicians are chiefly concerned with the pathologic physiology and the action of drugs on the altered physiology. Dr. Wallace has shown how this pathologic physiology disturbs certain drug action, and it emphasizes the necessity for the clinician studying the perverted physiologic processes in his patients and then apply the knowledge gained in the pharmacologic laboratory to correcting these disturbed processes. Our attention has been centered too much on the pathologic changes in organs as a result of disease, rather than in the changes that have occurred in the physiologic processes, and our therapeutics have suffered accordingly.

DR. HORATIO C. WOOD, JR., Philadelphia: The clinician should bear in mind that pharmacologists alone cannot answer their questions as to what drugs will do in diseased condition. It is rare indeed that a pharmacologist has an opportunity like that which Dr. Cushny had of studying the action of digitalis in diseased conditions of the heart. The ordinary pharmacologist has little or no clinical material at his command. If clinicians wish to improve their drug therapeutics, they must work out their own salvation. The pharmacologist, of course, can give them suggestions, can give them advice and start them on the way, but, after all, the testing of these problems must rest in the hands of the clinician and one reason I believe that more advance has not been made by the body of clinicians is their carelessness in observation and in recording. Just recently I read a paper on the value of various methods of treating high arterial tension in which there were long records of the results of various drugs and various physical measures in cases of high arterial tension. The reporter in no single instance mentioned the cause of the high arterial tension, nor did he mention the doses in which he employed his drug, and while the paper was suggestive, it was very much injured by what every scientific investigator recognizes as fundamental principles in reporting his experiment. Clinicians who have an opportunity of making these studies should report them and report them accurately with the necessary details so that we can draw the necessary deductions.

DR. JOSEPH L. MILLER, Chicago: Every physician has felt for a long time that the pharmacologist must be able to apply pharmacology in the laboratory to animals in which the disease has been experimentally produced. I should differ somewhat from Dr. Wood in saying that the clinician must work out his own salvation. It seems to me that the only way is for the pharmacologist and clinician to come together and compare notes; not to have the pharmacologist in the laboratory working only with diseased animals, but both the pharma-

cologist and clinician at the bedside, the pharmacologist with special training on physiologic action of drugs and the clinician, on the other hand, with special training in the diagnosis and ordinary course that the disease takes; by combining these two types of knowledge I believe that we can really make some progress.

DR. WILLIAM SALANT, Washington, D. C.: The literature of this subject has been fully treated in a paper which I published recently in *THE JOURNAL*. It is taken for granted by the vast majority of pharmacologists that a drug will behave the same in health and in disease. The action of antipyretics and of cardiac stimulants shows that this is not the case. In experiments which I performed lately with caffeine in pathologic conditions, as after removal of the kidneys, I found that, contrary to expectation, the toxic dose that would be tolerated under this condition—I studied it entirely on rabbits—is slightly greater after the removal of the kidney than it is in the normal animal. Furthermore, I found that if smaller doses are given at proper intervals, nephrectomized rabbits can stand about 30 per cent. more than they could if the dose was given at a single injection. Since one channel of elimination has been removed, when a sufficient amount to make up a toxic dose is given, that animal ought to succumb—but it did not. Similar experiments were performed by Dr. Meltzer and myself with strychnin. We injected into nephrectomized rabbits in divided doses three to four times the fatal amount without causing the death of the animal. I think that pharmacologists should devote a great deal more attention to this phase of pharmacologic action than has been done in the past. To my mind it is absolutely necessary before we try a drug on the human being that we should study its effect first on the normal animal, and then we should study its action on an animal in which the same condition has been induced as is intended for use in therapeutics.

DR. THOMAS F. REILLY, New York: A fact sometimes overlooked is that we jump from normal animals to diseased human beings. As long as the treatment of symptoms is all that we can expect from drugs, we must use experimentation, first, on normal animals to find the danger limit and results, and then on healthy human beings who are paid or who volunteer for such purpose. When we find that an agent produces effect on healthy human beings in the production of a pathophysiologic effect we may expect a similar effect in disease. The homeopaths give out their vials among their students and get reports, and really they are on the right basis as far as experimentation is concerned. If their reports are colored by imagination that is their fault. It would be better to try new remedies on normal human beings and then on patients.

CANDY MEDICATION *

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CHICAGO

Ancient medicine was nasty medicine; the medicine of the future will be pleasant. The dawn of the day of pleasant medication is already with us. May this contribution, like the song of chanticleer, usher in the sunrise of the new day!

The pill, the capsule and the cachet have fairly well solved the problem of administration of medicines to adults; but the child, for whom pleasant medication is especially necessary, is not helped by these means. When one witnesses the struggling of the average child against the average medicine, one cannot but wonder whether at times the struggle does not do more harm

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Pharmacologic Laboratory of the College of Physicians and Surgeons of Chicago.

than the medicine can do good, and wish that we had other means of administering medicines to children. And many a petted child that has grown up into a sensitive woman who believes she cannot swallow a pill, cannot and will not take medicine. It so happens that just these are excessively fond of candy. Surely, if we could present to them our medicines in the form of perfect candy, it would solve one of the most difficult problems in the administration of medicine. Another use for candy medication is in the treatment of the insane, who frequently will not take medicine but may take it in candy form.

Attempts at candy medication have been numerous enough; but, with few exceptions, have thus far not been successful. The official representatives of medicated candy, the troches, are surely not very popular; and, with the exception of the troches of santalin, they are also surely not very pleasant. No candy medication can be successful that is not a perfect candy. Many times did it happen, in my researches on candy medication, that I had prepared what seemed to me a rather pleasant sort of candy. Friends tasting it would agree that it was not bad. But, when tried on a real child, it was a failure, simply because it had a slight degree of bitterness or of saltiness that would not be objected to by an adult or even by a healthy candy-hungry youngster. But the sick child is critical and suspicious. And it must be admitted that, when we administer medicine in candy form, we are practicing a species of fraud — pious fraud though it be.

Another reason for the failure of the troches is that they do not disintegrate rapidly enough, and a sick child will usually not suck candy as a well child would. The advantage of slow disintegration for throat medication is only then obtainable in those of sensitive palate when the lozenge is perfectly pleasant; such a pleasant lozenge is the slippery elm lozenge, which we have been using with success and pleasure as throat demulcent in cases of sore throat and of cough due to pharyngeal irritation. For all other purposes, candy medication to be successful must not only be perfectly pleasant but must also disintegrate rapidly in the mouth so as not to require sucking or chewing.

Several years ago, I took a course of instruction with a candy-maker, in the hope of finding in the confectioner's art some new form of pleasant administration for medicine. I made sulphur taffy and cod-liver oil chocolate creams; but these and a large number of other attempts were unsuccessful. I finally decided, as the result of these studies, that the candy form most suitable for purposes of medication was the "fondant." This, however, has the disadvantage of becoming hard with age. Free from this objection, and closely similar to the "fondant" is a rather lightly compressed tablet made of finely powdered cane-sugar. And so I came to choose the tablet form as the best and most convenient for candy medication — a form which has already been in successful use for some years for the administration of calomel and of phenolphthalein.

My search has been to devise a perfect candy form for as many different important medicaments as possible; and thus far I have succeeded with about twenty, not including the previously mentioned santalin troches and slippery elm lozenges, or the calomel candy tablets or those of phenolphthalein, all of which should, however, be counted as available candy medicines.

Nothing is easier than to produce a candy tablet from a tasteless substance given in very small doses. Thus it is easy to make candy tablets of calomel, of yellow

iodid of mercury, of arsenic trioxid, of tartar emetic, of nitroglycerin, of claterin, of scopolamin (hyoscin). For instance, should 100 tablets of a substance whose dose is to be 1/100 grain, each tablet to weigh 3 grains, be desired, the following formula may be used:

Active ingredient	1 grain
Cacao butter	9 grains
Powdered sugar	290 grains

Talcum, not to exceed 3 per cent., may be added to prevent sticking of the tablets to the punches. This addition is not necessary when the tablet contains a considerable amount of insoluble powder.

The ingredients are thoroughly triturated and are then compressed in the tablet machine. The 3 per cent. of cacao butter, as suggested by Schleimer¹ admirably serves the purpose of a cohesive agent for prescription quantities of tablets.

A few drops of solution of carmin, of tincture of curcuma, or of 1 per cent. malachite green may be added, if coloring be desired. The flavor should always be sprayed on the finished tablet by means of an atomizer; for, if the volatile oil be incorporated with the powder, it is liable to impart to the tablet a sharp or bitter taste.

Insoluble substances that are given in larger doses, such as bismuth subnitrate, chalk, magnesia or reduced iron, require at least twice the volume of sugar to keep the insolubility of the powder from being noticeable. In tasting tablets of reduced iron, persons who have gold teeth or metallic fillings in their mouth will notice a "metallic" taste due to the generation of an electric current by contact of dissimilar metals and the liberation of the products of electrolysis. As children's mouths are usually free from metal, the reduced-iron candy tablets are very readily taken by them. The saccharated iron carbonate will be found entirely unobjectionable even by those who have gold in their mouth.

Insoluble substances that have a slight taste, such as tannalbin, phenacetin, digitoxin, are best disguised by the addition of 10 per cent. of powdered cacao to the sugar. Chocolate tablets can usually be compressed without the necessity of adding cacao butter.

The most tasteless form of quinin I have been able to find is aristochin, which is considerably less bitter than euquinin. The slight bitterness of aristochin is almost entirely overcome by the addition of a small amount (2 or 3 per cent.) of sodium bicarbonate and of cacao and sugar in the proportion previously mentioned.

The only sufficiently tasteless salicylate I have been able to find is salophen, which is easily made pleasant by the mere addition of sugar, and, perhaps, better still by the further addition of cacao.

Of soluble substances very few are suitable for candy medication. Sodium bicarbonate, 1/2 grain to 4 grains of sugar, makes a fairly palatable tablet, especially if flavored with peppermint. Hexamethylenamin, which has a sweetish taste, can be made into a fairly pleasant chocolate tablet.

For the salines I have not been able to devise a perfect candy form. I have therefore selected sabromin and sajodin, which are the most tasteless representatives of bromids and of iodids, respectively, that I know of, and which are easily put up in the form of palatable tablets, especially by the use of cacao.

One objection that can be urged against candy tablets is that children might poison themselves by eating too many of them at one time. This is indeed a serious

1. Schleimer, A.: National Druggist, February 1909, p. 54.

objection, which can, however, easily be overcome by prescribing not more tablets than could be taken at one time without danger.

I believe that, in the candy tablet, Dr. Robert M. Fuller's invention has reached its highest utility. I even venture to hope that some day candy tablets may be official in the Pharmacopeia, perhaps instead of the troches. The main reason that has been urged against the admission of tablets to the Pharmacopeia was that tablets required complicated machinery and that different triturations require different kinds of treatment—that indeed the tablet machine needs an expert manipulator. While this is true, when a large variety of all possible substances that may enter tablets is contemplated, it is not true regarding candy tablets. I have shown how simple it is to make them; and now that such cheap and yet practical tablet machines, as the Whitall Tatum Co.'s and the Stokes Co.'s are on the market, the expense of the equipment ought not to be deterrent. With the aid of these machines, it does not take any more time or trouble to make prescription quantities of tablets than it takes to make as many pills or capsules; and any pharmacist is able to make them.

I feel that I have undoubtedly not nearly exhausted the list of medicaments for which perfect candy form is possible, and would be grateful for suggestions of other medicinal agents that might be put up in candy form. I also welcome frank criticism of the specimens¹ submitted.

Thanks are due to Dr. I. E. Kohn and Mr. George N. Hiskey for their help in this research.

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ABSTRACT OF DISCUSSION

DR. C. L. GRABER, Cleveland: I had a little trouble with my samples, of which I have eaten as many as I dare; I notice that they crush in my fingers when I try to handle them. The question would naturally arise as to whether they will stand placing in an ordinary pill-box or envelope for dispensing. Will they deteriorate rapidly when exposed to atmospheric conditions? Have any of these samples a tendency to run together in a warm room, say, in a temperature of 90 or 95 F.?

DR. F. E. STEWART, Philadelphia: One objection to candy medication was not brought out. When I was a small boy I was very fond of apple sauce. My father often waited me to take a Dover's powder and used apple sauce to disguise it, consequently I lost my relish for apple sauce. Is not it taking an unfair advantage of the children to use candy as a disguise for medicines, so that they will lose one of the joys of life?

DR. THOMAS F. REILLY, New York: I believe that children associate a round tablet with medicine just as most people do. The success of phenolphthalein as a purgative from the drug-maker's standpoint, is due to the fact that they changed the shape. Phenolphthalein preparations are made in various forms. The tendency in the past has been to make the tablets too small; if they were made larger I think we could get more flavor in the tablet and less of the disagreeable medicament. For many years it has been the custom of homeopaths to carry with them a large number of sugar tablets and when at the patient's home to drop one or two drops of the medicament they intend using on the tablets. There is no question that the success of homeopathy is due to pleasant medication. The average American child, ruling the house as he does, will not take our medicine; the mother will say the child simply will not take the medicine; she reasons that it is better for the child to take the homeopathic medicine rather than take no medicine. This is the main reason for the success of the homeopath among children and women. The fact that the

average American stomach of to-day will not stand medicine that could easily be taken a generation ago, has been the cause of a great deal of prejudice against medicine. The same thing is true of different races. It is impossible to give disagreeable medicine to the Frenchman, whereas you can give a horrible-tasting medicine to a German with none but the best results. In fact, many of them seem to think that unless the medicine is disagreeable there will be no effect. Many of us know that disagreeable medicine will not be taken by our patients and consequently the shelves are full of bottles from which the patient has taken one dose and that is the last of it.

DR. BERNARD FANTUS, Chicago: Regarding the imperfections of the specimens presented, I may say that they were made in a hurry and under somewhat unfavorable circumstances and with rather imperfect apparatus. I know that some of them are altogether too soft; but this is very easily remedied by merely compressing the tablets somewhat more forcibly. As to the shape, I think Dr. Reilly's suggestion is a very excellent one. As a matter of fact, I tried to get a rectangular punch for the little tablet machine at the College of Physicians and Surgeons and, finding some difficulty in obtaining one, chose the circular form. Other shapes would, however, be better than the ordinary tablet form. I see no reason, except the manufacturer's convenience, for the use of tablets for any other purpose than as candy medicaments. A pill or capsule that any druggist can make is as good as any tablet, except for the purpose of candy medication. I have enjoyed the use of candy medication in private practice to such an extent that I felt urged to present it to the members of the profession. I am known among some of my little patients as the "candy doctor" and this is certainly not to my disadvantage.

PRACTICAL APPLICATION OF THE ROENTGEN RAY TO THE MANAGEMENT OF MALIGNANT GROWTHS*

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NEW HAVEN, CONN.

I shall not go into a technical exposition of this subject, but shall restrict myself to an endeavor to show the relation which the *x*-ray bears to the treatment of cancer, as indicated by our experience with it revised to date. The general practitioner and the surgeon should know what can be accomplished with this force in connection with their cancer cases; but it is, of course, not to be expected that they will apply it personally, hence the subject will be dealt with from a general educational standpoint only.

The first step to be taken in such a consideration of the subject should be to prove that the *x*-ray is capable of affording positively valuable aid in the treatment of this disease. Strange as it seems to those of us who have worked with the agent for a dozen years, there are still many, many practitioners of medicine and surgery who doubt that the *x*-ray is of value in the treatment of cancer. I shall therefore report briefly a case which demonstrates, in a striking manner, the curative powers which are claimed for it by the forty or fifty competent roentgenotherapeutists in the United States. I have used the term "competent" roentgenotherapeutists intentionally and advisedly. Much injustice has been done the *x*-ray in its relation to cancer therapy by the very frequently unsatisfactory results, the many times entire lack of results, and occasionally the positively evil results which have followed attempts at its use by those incompetent to apply it.

1. A collection of specimens may be obtained on request from Dr. Bernard Fantus, 719 Ashland Blvd., Chicago.

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

The following case was first reported by me to the electrotherapeutic section of the International Electric Congress at St. Louis, in September, 1904, and I have selected it for citation because of its conclusive character. The clinical diagnosis was made under auspices particularly well calculated to effect conviction. The clinical diagnosis was subsequently confirmed by repeated microscopic examinations. For ten months before she came under my care the patient was under treatment and observation by one whose statements are entitled to the profoundest respect, and he considered it a hopeless case. The progress of the case since has been under observation of this same character and the patient is well to-day, eight years after her last treatment.

History.—The patient was a school-teacher, aged 39, on whom hysterectomy and ovariectomy had been done in 1898, for what was supposed to be a fibroid tumor of the uterus; no microscopic examination was made. About two and one-half years after this operation she noticed a hard tumor in the lower abdominal wall in the region of the cicatrix. There was no pain and no discomfort but rapid growth. She consulted Dr. Maurice H. Richardson of Boston, who referred her to Dr. W. B. Coley of New York, for treatment by the erysipelas toxins. During the next ten months she was treated with the toxins which caused the growth to decrease in size during the earlier part of this period, but they then lost their power and at the end of this time, in January, 1902, when she was referred to me by Dr. C. A. Bevan of West Haven, the mass measured 10 inches from side to side at the level of the anterior superior spines of the ilia, 8 inches vertically in the median line, and about 5 inches anteroposteriorly in the median line. Microscopic examination of sections removed from the tumor while she was under Dr. Coley's care demonstrated it to be fibrosarcoma and the mass was rapidly increasing in size. The patient was losing flesh, markedly cachectic, very weak, and complained bitterly of pressure symptoms.

Treatment.—Roentgenization was begun Jan. 28, 1902, and during the next four months the patient received forty-six applications. Her general condition commenced to improve at once but the tumor itself had increased somewhat on the right side, but decreased slightly on the left side; on the whole, the tumor was slightly larger at this time than it had been when we started, and the only feature about the case that encouraged me to continue the treatment was the marked improvement in the general condition.

The patient then went to her home in Massachusetts for a short visit and when she returned a decrease of about 20 per cent. in the size of the tumor was noticed, which made it necessary for her to shorten her waist-bands and the fronts of her skirts to keep them from dragging on the ground.

From June 17 to September 3, a period of two and one-half months, she received thirty-one roentgenizations. Her general health continued to improve, the tumor steadily decreased in size, and at the end of this period she resumed school-teaching, which had been interrupted for about a year and a half.

Course.—To make a long story short, the whole treatment of this case extended over a total period of two years and three months, during which time she received 136 applications of the Roentgen ray, more than half of which were given during the first eight months. She received her last roentgenization May 20, 1904, at which time no trace of the tumor was discoverable, nor had it been, according to the testimony of her family physician, for several weeks previously. The fact of its disappearance at this time was confirmed by examination by Dr. C. A. Bevan of West Haven, Conn., and in July by Dr. W. B. Coley of New York, so that this patient has been entirely free from any evidence of recurrence for eight years.

The fact once established that the x-ray is capable of influencing malignant processes favorably, its relation to the treatment of cancer may be approached from two points of view, namely, that of malignant processes involving the skin only and of those involving more deeply located structures.

CUTANEOUS CANCER

In the vast majority of cases of malignant disease involving the skin only, the feeling among roentgenotherapeutists is practically unanimous that the method of election as regards treatment is roentgenization exclusively. Thousands of cases have been treated in this country and Europe and I now feel justified in stating that there are at least as few recurrences under this method as under any other; if recurrence does occur it usually yields readily to further roentgenization, which cannot be stated of other methods; the scarring is less than that following other methods and the cosmetic result in such scars as do occur is usually better; and the pain following the application of pastes is entirely eliminated, as is also the onus of surgical extirpation which is a bugbear in connection with many patients.

The foregoing does not apply to cancer of mucous membrane, however. While enough cancers of the tongue, for instance, have been cured by roentgenization to demonstrate that the x-ray is often also capable of influencing happily and positively malignant processes occurring in this situation, yet the method of election here still remains radical extirpation primarily, to be followed by roentgenization.

SUBCUTANEOUS CANCER

In more deeply located malignant processes—of which mammary carcinoma constitutes, perhaps, the most common type—the exact therapeutic place of roentgenization is still open to discussion. The subject may be considered under three heads: (1) the employment of the x-ray to the exclusion of the knife, (2) preoperative roentgenization, and (3) postoperative roentgenization.

Roentgenization Exclusively.—Although many cases of deeply located cancer, especially mammary carcinoma, have been made to disappear by this treatment and have not recurred after the lapse of many years, yet the contingent risks are such that most of us do not feel justified in advocating it except in carefully selected cases. To my mind the most important of these risks is the delay involved. By the time the x-ray may have demonstrated its inability to control the process in a given case, extension of the growth may have cost the patient his chances of being successfully operated on. Recent developments, however, give ground for the belief that there may be more to say in this connection in the future.

Preoperative Roentgenization.—This method is advocated by some roentgenotherapeutists for cases in which the malignant process has extended far enough to render complete extirpation impossible. By suppressing the peripheral extensions, the case may be transformed from an inoperable into an operable one. While this plan is not recommended by many, yet excellent results have been reported by trustworthy men and the method cannot be finally passed on at this time.

My preference as regards the handling of such cases is to extirpate as much as possible of the malignant tissue, primarily and immediately, and then to apply the x-ray at once, in the hope that it will take care of what has remained. My reasons for advocating this method rather than the preoperative application are as follows:

1. Vigorous x-radiation of a malignant growth will frequently produce more or less general toxemia and it does not seem logical to me to run the risk of provoking vital depression just before the patient is to undergo an operation.

2. Effective radiation of parts containing malignant tissue causes fibrous tissue to take the place of the malig-

nant tissue, and frequently results in such a fusion of tissues and obliteration of normal tissue distinctions and relations as seriously to embarrass the operator during the ablative procedure.

3. If the ray is capable of influencing happily the total original mass of such a growth it should surely be capable of producing a much greater beneficial influence after the mass has been materially reduced in size by partial extirpation.

4. Effectual preoperative radiation involves delaying extirpation for weeks, during which time the neoplasm is constantly threatening further extension. It seems to me distinctly inadvisable, to say the least, to subject the patient, by election, to such an ominous risk.

Postoperative Roentgenization.—Whatever their attitudes as regards the application of the before-mentioned methods of *x*-ray administration in cancer, I believe I am justified in saying that roentgenotherapeutists are universally agreed that the ray should invariably be thoroughly administered after every operation for cancer, and without waiting for recurrence to manifest itself. By thorough administration I mean a course of from twenty-five to thirty roentgenizations lasting from ten to twenty minutes each, this duration to be determined by the type of generating apparatus employed, the time interval between the applications, distance between anode of tube and surface of region to be treated, etc. The reasons for taking this radical position are as follows:

1. In my opinion, it is not justifiable, in a disease so difficult to manage as cancer, to omit the application of any measure which has demonstrated that it increases our power over the disease.

2. It is impossible to tell, at the time of operation, in which cases recurrence is going to take place; hence, in order to be sure that the cases which *will* need it will be treated, it is necessary to apply the measure in every case.

3. Early recurrences are frequently internal, hence undiscoverable until such organs and tissues have been involved as to render absolutely useless the application of any remedy at present known.

4. Many recurrences are more vicious and resistant to roentgenization than the original lesions.

These last two reasons explain why many cases are hopeless under roentgenization, though the patients might have been saved had the remedy been applied immediately after the operation, before internal metastasis had occurred, and while the malignant foci were microscopic in size.

5. When the *x*-ray has been thoroughly and skilfully applied immediately after the operation, it is known that everything has been done that offers the patient a chance of recovery, and if the case eventuates unhappily neither physician or patient, nor the patient's family or friends will have cause to reproach themselves for having left undone something which might have altered the outcome had it been applied at the proper moment.

Prominent among the objections which have been urged against prompt, routine, postoperative radiation by surgeons, general practitioners and patients, are the following:

1. Many patients will thereby be subjected to the treatment who would have no recurrence anyway; such patients would be treated unnecessarily.

This objection loses its force when we recall that the only way in which we can be sure of treating those cases in which recurrence will take place is by raying *every* case, even though this involves unnecessary treatment in some cases. Properly applied *x*-ray treatments do no

harm, even if they are unnecessarily given. On the other hand, much harm, in many cases irreparable harm, follows delaying *x*-radiation until recurrence has manifested itself.

2. The expense involved in *x*-ray treatment is considerable, and it may seem unjustifiable to inflict it on a patient who has not demonstrated that he is going to need it.

The desirability of preventing recurrence is so great that the expense involved becomes a negligible factor. If recurrence takes place the original operation might just as well not have been performed at all. The money spent on any measure which offers a reasonable promise of diminishing the chances of recurrence, then, is as well spent as is that spent on the operation itself.

The answer to the first objection applies here also, viz., that by the time the patient has demonstrated that he is going to need the *x*-ray for recurrence, it will frequently be too late for the procedure to be of use to him, and the saving of his money will have been a profitless procedure.

SUMMARY

The subject, then, may be summarized as follows:

1. The *x*-ray has demonstrated that it is capable of exercising a powerfully curative influence over many cases of malignant disease, hence its routine addition to extirpative measures will increase the number of curable cancer cases.

2. It is impossible to tell beforehand which cases will need roentgenization and which will not, or which will respond happily and which will not; hence the only way to be sure of treating all cases that will need it and all that will respond is to treat all cases.

3. There is reason to believe that many postoperative recurrences are more resistant to the *x*-ray than the original growth; also it is easier for the *x*-ray to influence microscopic foci of malignancy than those of larger size; hence roentgenization should be recommended as soon after extirpation as is consistent with the safety of the tissues involved in the operation wound and before recurrence has manifested itself.

4. To urge the use of the *x*-ray, therefore, either alone or in combination with extirpative measures, is imperatively the duty of the medical advisor of a cancer patient.

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ABSTRACT OF DISCUSSION

DR. GEORGE E. PFAILER, Philadelphia: Roentgen therapy and therapeutic results have not been thoroughly recognized because the work done has not been done generally by men thoroughly competent. There are in use to-day in America over 20,000 machines. Any one who is familiar with the work knows that there are probably not over twenty experts in this country. That means one in 1,000 competent to be classed as an expert. To become an expert does not simply depend on buying a machine and turning on the switch. Men become competent by much hard work, by reading the literature (and there are volumes on this subject), by careful observation and testing and by studying with other men who have established good technique and get good results. I have a patient with an osteosarcoma of the fibula which has not been treated for six years. She is well, married and raising a family. I believe that generally if we have a carcinoma that can be removed fully and completely, it ought to be extirpated at once, but sometimes there are cases which are entirely hopeless from the surgical point of view. One patient had a carcinoma which was extending across the chest from one posterior axillary line to the postaxillary line on the other side above the clavicle to down below the costal border; there was an

open ulcer the size of my hand. I told the patient's husband there was not more than one chance in a thousand. I began treatment at his request. To-day the ulcer is healed; all the evidence of the carcinoma is gone, except in the right breast which had not been amputated, and there it is reduced to one-fourth of the original mass. The left breast was amputated. There was a recurrence which extended back to the spinal column on the left, into the axillary line on the right side. To-day I can find no evidence and it is only nine months since I started treatment. With such results in hopeless cases we are bound to sit up and take notice. I believe every patient, as soon as able to leave the bed, should have a course of postoperative treatment. This reaches the smallest amount of tissue that has to be contended with, including some of the metastases that were there before the surgeon operated. If one waits for some visible evidence one will simply have that much more tissue to control. I have used the tubes from 6 to 8 inches long and I do not think it makes much difference what size the tube is. The exposure depends on the strength of the current, the penetration quality of the tube and the distance the tube is from the patient. All those factors must be worked out before the length of exposure can be determined. Each case is a law unto itself. I give from 20 to 60 or 80 milliamperes minutes.

DR. W. B. SNOW, New York: I think the cases cited by Dr. Pfahler, in which it was impossible to operate, seem rather to indicate that there are many other cases in which an operative procedure might be omitted. Why it should be necessary to operate in every case, if it be possible to obtain the results which he has reported, is a question. I have seen many of these cases in the early stages of the process become arrested in their growth. I might say, furthermore, that it is impossible unless a section is made to be positive that a tumor of the breast is carcinoma or sarcoma. I believe many patients are operated on and breasts removed in which no cancerous growth existed and for that reason unless section is made it seems to me far better to use the ray before anything is done. Leduc, the eminent French scientist and *x*-ray authority, took the attitude in a recent number of the *Archives of the Roentgen Ray*, that the tumor is not the extent of the carcinomatous growth, that no one knows the limitation of the outlying disease cells, and that to operate is to open up the lymphatic channels for dissemination of the process into other parts. The recurrences that have manifested themselves so frequently in very early cases in which nothing has been done by Roentgen postoperative treatment indicate the truth of this statement. Leduc went so far as to say that where surgeons were given selected cases for operation and other cases which they rejected were turned over to the Roentgen ray treatment, in the latter the length of life was far in excess of that in patients receiving the operative treatment. He therefore asserted a great preference for the Roentgen ray treatment. When recurrence has taken place following operation there is strong evidence that it would have been better if there had been no operation. If a radical operation is done and recurrence takes place extension into the mediastinum is certain to occur. I think that each of us has seen numerous cases in which the patients would have lived much longer without operation than they did. We as physicians and surgeons in our families shrink from operations. The Roentgen ray offers an additional defense, but I believe unquestionably that the preoperative raying is indicated in all cases, because it prevents the likelihood of dissemination from the operation. Furthermore, I believe that the postoperative ray should also be employed, as Dr. Pfahler says as soon as the patient can leave the bed. No delay for four or five days is justifiable. Further, if preoperative raying has not been done the dissemination which has taken place in the interval might lead to recurrence. It is certainly a well-established fact from the experience of those who have done scientific work in the past that the Roentgen ray has established itself on a footing which makes it impossible to gainsay its place in the treatment of malignant growths.

DR. EDWARD HOLMAN SKINNER, Kansas City, Mo.: I do not think that *x*-ray therapy is on a safe and sane basis. We should not pay so much attention to Leduc's article; it lacks

in conviction what it exploits in words. I have seen many cases of breast cancer and for therapeutic possibilities I use a classification based on the pathologic life-history of such neoplasms. For instance, if a scirrhous carcinoma is thoroughly removed, there may never be any recurrence either with or without postoperative irradiation. I do not obtain the results which so many claim in cases of medullary carcinoma. We should begin to report radiotherapeutic results and failures on a definite pathologic classification. No method of therapeutics is established when only a limited number can get good literary results, and a large number obtain few actual results.

DR. ALFRED L. GRAY, Richmond, Va.: I have always maintained that there should never be any preoperative treatment of an operable cancer of the breast for the following reasons: First, the fact that from 80 to 90 per cent. of breast tumors are malignant; second, there is always a stage in the malignant growth beyond which, if it is allowed to continue, the end is inevitable; third, if that growth be removed in proper time we will not have a recurrence. I am in favor of the postoperative treatment of all malignant tumors. But I do not think we are ever justified in treating an operable case, except skin cancer, with the *x*-rays. I therefore cannot agree with Dr. Snow that many of the patients with breast tumors should not be operated on.

DR. BYRON C. DARLING, New York: What would be the effect of preoperative treatment over different lengths of time—a week, two weeks, a month, two months? What would be the action of the *x*-ray on the tissue? What fibrous condition of the tissues is this treatment apt to produce and of how much embarrassment is it to the surgeon to operate on this fibrous tissue later? Is it detrimental to the after-healing of the wound?

DR. CLARENCE E. SKINNER, New Haven, Conn.: The embarrassment to the surgeon will depend on the degree of fibrosis which has taken place and the number of the blood-vessels and vital organs that are involved in the ramifications of this fibrosis. The interference with the healing will depend on the degree of radiation which has been applied. I have seen extensive fibrosis in several cases and some surgeons have complained to me bitterly of the difficulty infused into the operation by this condition. Indeed, one surgeon has requested me, when I intend to send a patient to him later for operation, not to irradiate the case until after the operation because of this difficulty. There is a practical point involved in some cases.

COMPARATIVE STUDIES IN CANCER AND NORMAL TISSUE FERMENTS*

WALTER W. HAMBURGER, M.D.
CHICAGO

During the past few years, several investigators have devised a number of new biologic tests for the diagnosis of malignant disease. Among these may be mentioned the glycyltryptophan test of Neubauer and Fischer,¹ the silk-peptone test of Kuttner and Pulvermacher,² the amino-acid determination of Barlocco,³ and Woodyatt and Jacque,⁴ and the incoagulable nitrogen estimation of Morris.⁵ While these several tests differ in minor details, they are all based on the supposed activity of proteolytic or peptolytic ferments contained within the cancer cells.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* One of a series of studies from the Morris Institute for Medical Research on proteolytic ferments, the others appearing in the *Journal of Experimental Medicine*, 1911-1912.

1. Neubauer and Fischer: *Deutsch. Arch. f. klin. Med.*, 1909, xevii, 499.

2. Kuttner and Pulvermacher: *Berl. klin. Wehnschr.*, 1910, No. 45.

3. Barlocco: *Berl. klin. Wehnschr.*, 1910, No. 33.

4. Woodyatt and Jacque: Presented before a meeting of the Department of Medicine, Rush Medical College, November, 1911.

5. Morris: *Arch. Int. Med.*, 1911, viii, 457.

While in many instances it has seemed that these measures have been of diagnostic value, in others the results have been directly at variance with the clinical and pathologic findings. As a result, a wide divergence of opinion has arisen as to their clinical value, some commending them highly, others pronouncing them valueless. In the attempts to make these methods more reliable, several modifications have been suggested and new data added, all of which, however, without materially increasing the uniformity of the results.

If one examines these clinical reports carefully, one is struck by the meagerness of the facts concerning the ferment itself. One searches fruitlessly for exact data concerning the nature of this cancer ferment, regarding its biochemical classification, its relation to substrate and split products, its relation to similar ferments found normally in body cells and body fluids, the influence of external factors, etc. In these papers the language employed and the conditions described are clinical, but the phenomenon concerned is biochemical. Naturally between the two there is a wide gap of assumption. In other words, the effort is made to apply a single biochemical fact to a wide range of clinical problems, without due appreciation of the biochemical principles involved.

In view of these facts it was decided to direct this research toward the ferments themselves and to devote the preliminary work toward the development of an adequate biochemical technic, for from the experience gained from a study of the relations of pepsin to so-called antipepsin in this laboratory last year,⁶ it was found by use of a carefully controlled technic that true antipepsin could not be demonstrated in animal serum. The conclusions reached at that time were as follows:

1. Fresh and inactivated animal serum under proper conditions will bind pepsin quantitatively in weak acid solution and will prevent it from digesting protein even after the addition of free hydrochloric acid in excess.

2. This binding and inactivation of pepsin cannot be considered as due to a specific antipepsin.

3. The phenomenon has been named "pepsin deviation" in analogy with the deviation described for other ferments, notably trypsin.

4. The ability of animal serum to deviate pepsin has been responsible for most, if not all, of the published accounts of antipepsin.

5. By the use of a technic elaborated to control pepsin deviation it has been found impossible to demonstrate normal antipepsin in the blood-serum of the dog, cat, guinea-pig, beef, horse, rabbit and man.

THE PROBLEM AS PRESENTED BY THE LITERATURE

Through the work of Müller,⁷ Petry,⁸ Emerson,⁹ Neuherg,¹⁰ Buxton and Shaffer¹¹ and others, it is now generally accepted that cancer cells contain proteolytic ferments which differ in some fashion from the ferments contained in normal tissue cells. Up to most recent time these differences could be summed up under two headings; first, that cancer cells underwent autolysis more rapidly than normal tissue cells; second, that cancer ferments possessed the power of heterolysis or the ability to attack foreign protein, a power never demonstrated in normal cell ferments.

Although these assumptions have been vigorously assailed by other investigators (Hess and Saxl,¹² Kepinow,¹³ Lieblein,¹⁴ etc.), Blumenthal¹⁵ does not hesitate to draw far-reaching conclusions regarding the action of ferments in tumors, asserting that their infiltrative growth and the cachexia which they produce are dependent entirely on the above characters of ferments, as pointed out by Ewing.¹⁶

Most recently, Abderhalden¹⁷ and his associates, from carefully conducted experiments on synthetic polypeptids, concluded that, while cancer cells in many instances split polypeptids and particular peptones the same as normal tissue cells, in others a distinct difference could be determined. Thus in the use of the tripeptid *D*-alanyl-glycyl-glycin, the pulp of normal tissues and some tumors split off *D*-alanin, while other carcinomas of man and animals split the tripeptid in an atypical way—liberating *D*-alanyl-glycin, a substance never produced by normal cell ferments. Abderhalden believed, therefore, that the ferments of some malignant tumors differ in their structure and configuration from the corresponding ferments of normal cells.

What constitute the corresponding ferments of normal cells and what facts are known concerning them? Sal-kowski first called attention to the self-digestion of organs under the term "autolysis" and later through the work of Hofmeister, Müller, Jacoby, etc., it became evident that a whole group of interacting and activating catalytic processes were concerned. Although none of these autolytic ferments have been isolated in a pure state, they appear to consist in part of true proteases, ferments capable of hydrolyzing genuine (native) protein, and in part of ereptases, ferments which take up the digestion of the split products of protein digestion—peptones, polypeptids, etc.—at the point where protease has left off. It is with these latter ferments, the ereptases of normal cells, that the analogous cancer ereptase must be compared; for although both cancer cell and normal tissue cell contain other ferments, it is on these ereptases that the clinical tests referred to have been based, and it is with the comparative study of these ereptases that the present paper is concerned.

The nature and characteristics of the ereptases of normal cells have been exhaustively studied by many investigators, and a large number of observations made concerning their specificity, their split products, the influence of reaction and other external factors, their physiologic and pathologic significance, their presence in individual organs, etc. A detailed consideration of this work would lead us too far afield. For this report it is sufficient to state that they act best in the natural organ juice (*Press Saft*) as soon as a slight acidity has occurred; that they are activated by weak acids 1/12 to 1/130 normal) in particular by lactic acid; that they are inhibited by alkalies (stronger than 0.26 per cent.).

SOURCES OF ERROR IN SOME OF THE PUBLISHED REPORTS

From certain preliminary experiments with the juice expressed from cancer and normal tissues, it was thought that the presence of blood or blood-serum which had not been entirely removed might be a factor in the results. An inquiry into the literature revealed some interesting facts, that while the earlier investigators had apparently

6. Hamburger: Jour. Exper. Med., 1911, xiv, 535.
7. Müller: Ztschr. f. klin. Med., 1889, xvi, 496.
8. Petry: Ztschr. f. phys. Chem., 1899, xxvii, 398.
9. Emerson: Deutsch. Arch. f. klin. Med., 1902, lxxii, 415.
10. Neuherg: Berl. klin. Wehnschr., 1905, xlii, 118.
11. Buxton and Shaffer: Jour. Med. Research, 1905, xlii, 543.

12. Hess and Saxl: Wien. klin. Wehnschr., 1908, 33.
13. Kepinow: Ztschr. f. Krebsforsch., 1909, vii, 517.
14. Lieblein: Ztschr. f. Krebsforsch., 1910, ix, 609.
15. Blumenthal and Wolff: Med. Klin., 1905, xi, 166, 364.
16. Ewing: Arch. Int. Med., 1908, i, 175.
17. Abderhalden: Ztschr. f. Krebsforsch., 1910, ix, 226.

not attempted to remove all blood-serum from the organs, the later ones, recognizing this possible source of error, washed the organs as well as possible with water of salt solution. For instance, Salkowski and Petry make no mention of freeing the organs from blood. Somewhat later, however, Blumenthal and Wolff mention washing the tumor with water to remove blood-coloring matter, and still more recently Buxton observed that the presence of blood from which the tissues could not be freed by the methods used in animal experiment would always be a disturbing element in the examination of the cell products of tumors; finally, Abderhalden, in the best recent piece of work, washed the tumors with 0.85 per cent. sodium chlorid until the wash-water had become colorless.

While in the later work the organs were washed free from blood-coloring matter, they were not effectually freed from all trace of blood-serum, as will be shown later. The importance of thus removing all trace of serum may be judged from the fact that several investigators (Vernon,¹⁸ Delezenne and Pozerski,¹⁹ Opie and Barker,²⁰ Abderhalden and Oppler²¹) have shown that blood-serum contains an ereptic ferment. The presence of this serum ereptase in expressed tissue juice might, therefore, account for the ereptic action attributed to the

Various substrates were used. Casein and inactivated beef-serum served as native proteins to test for the presence of protease. With the exception of a very slight hydrolysis of casein in one of the tumor-juice experiments, no evidence of proteolytic action was found.

A 2 per cent. Witte's peptone was used to test for ereptase, the increase in the production of amino groups, as estimated by the formol titration of Sørensen²² serving as an index (amino index). The use of peptone as a substrate and the application of the formol method for the quantitative estimation of ereptic action was first suggested by Dr. R. T. Woodyatt, to whom I desire to give credit at this time.

Tryptophan was tested for by the drop by drop addition of bromin water to a small quantity of the mixture previously acidified by a few drops of 3 per cent. acetic acid.

The experiments were performed as follows: 10 c.c. of the organ juice or 0.05 gm. washed cell emulsion was added to 50 c.c. of the peptone solution in an Erlenmeyer flask; 10 c.c. of the mixture were then removed for control and titrated with tenth-normal sodium hydroxid for total acidity and amino groups; 2 c.c. toluene were then added to each flask, after which they were placed in the incubator. At varying intervals thereafter 10 c.c. of the

TABLE 1.—EXPERIMENTS WITH THE JUICE OF NORMAL TISSUES

Tissue Juice From	Control		24 hours		7 to 14 Days		Increase in Formol Titration (Amino Index) in		Tryptophan
	Acidity	Formol Titration	Acidity	Formol Titration	Acidity	Formol Titration	24 hours	7-14 Days	
Kidney	10	12	9	54	..	..	42	..	++++
Liver	11	20	18	51	14	56	31	36	++++
Spleen	10	12	14	32	12	48	20	36	+++
Stomach fundus mucosa..	10	17	10	36	..	..	19	..	+++
Pyloric mucosa	7	12	7	22	7	42	10	30	+++
Fundus serosa	8	10	7	18	7	48	8	38	++
Pyloric serosa	7	11	6.5	19	6	40	8	30	++

organ, if the latter were not freed entirely from all serum present.

THE METHODS USED IN THIS RESEARCH

Tumors obtained as soon as possible under aseptic precautions from the operating or autopsy room were washed free from macroscopic blood with water or Locke's solution. The tumor was then divided with a meat-grinding machine, twice the volume of Locke's solution added and the juice filtered through one layer of sterile gauze. The filtrate was then centrifugalized and the supernatant fluid poured off for control, while the sediment, consisting of individual cells or small groups of cells, was thoroughly washed three times with Locke's solution, as in the method of washing leukocytes.

Normal organs were obtained from rabbits and dogs. The dogs were exsanguinated by bleeding from a carotid cannula, while perfusing with Locke's solution through a cannula inserted into the femoral vein. After the organs (liver, kidneys and spleen) had been removed they were still further washed by a cannula inserted directly into the afferent vessels. The organs were then divided, filtered, centrifugalized and washed as with the tumor tissue. Blood-serum was obtained from beef, hog, horse, dog and rabbit.

flask contents were removed and titrated as before, and the degree of digestion expressed in cubic centimeters of tenth-normal sodium hydroxid per hundred.

THE NATURE AND CHARACTERISTICS OF THE PROTEOLYTIC ENZYMES FOUND IN THESE TISSUES

In Table 1 are collected the experiments with the juice of normal tissues, the organs being arranged in the order of their ereptase content. In this series the organ cells were not washed separately, the organs being merely washed *in toto* and freed from blood-coloring matter as much as possible and the expressed tissue juice used. The column marked "control" serves as a basis of comparison of the acidity and the formol titration figures; the succeeding two columns show the increase in the formol titration due to ereptic digestion. The explanation of the formol figure in the "control" column lies in the fact that Witte's peptone does not consist solely of peptone, but contains besides a number of free amino groups, as well as proteoses, albumoses, etc. The next two columns show the actual increase in formol titration (amino index) in twenty-four hours and in seven to fourteen days, respectively. The last column shows approximately the degree of tryptophan present.

In this series, as was found constantly, kidney ereptase predominates, ereptase of liver was less, and of spleen least. In the four portions of the stomach, the fundus

18. Vernon : Jour. Physiol., 1905, 32, 33.
19. Delezenne and Pozerski : Compt. rend. Soc. de biol., 1903, March 7, May 30.
20. Opie and Barker : Jour. Med. Research., 1907, ix, 207.
21. Abderhalden and Oppler. Ztschr. phys. Chem., 1907, liii, 294.

22. Sørensen, S. P. L. : Enzymstudien, Biochem. Ztschr., 1907-1908, vii, 45.

mucosa contained most ereptase, while the mucosa throughout contained more than the serosa. It may further be noted that at the end of seven to fourteen days the formol figures for all tissues approached approximately a level, somewhere between 30 and 40, probably because of the fact that at a certain concentration of amino groups, ereptase is inhibited and further ereptic action prevented—an expression of antiferment (anti-ereptic) action.

In Table 2 are grouped the experiments with the juice of tumor tissues.

In this series, the two tumors of the type of carcinoma contained most ereptase, the scirrhus containing less and the sarcoma still less. This is of interest in connection with the results of Abderhalden and Rona,²³ and Hess and Saxl, who found by the use of an entirely different technic that those carcinomas belonging to the group of adenocarcinoma split glyceryl-tyrosin similarly to normal tissue, while those composed of connective tissue stroma (scirrhus carcinomas) caused no splitting. It is further of interest to note that from the standpoint of the degree

one may say in general that the ereptase of animal serum appears identical, differing only quantitatively, the serum containing less than the solid tissues. The further observations on serum ereptase, the relation of acids, alkalies and chloroform and the presence of the ferment in the albumin or globulin fraction of the serum, as well as the results of other observers are not directly related to the present problem and will be reserved for separate publication.

With the demonstration of an apparently similar ereptic ferment in normal organs, tumors and blood-serum, the question arose, Are the ereptases of normal and cancerous tissues to be regarded not as true intracellular ferments, but merely as ferments of the blood-serum which had not been entirely removed by washing? While the earlier experiments suggested that such might be the case, the later tests with more careful washing of separated cells showed conclusively that normal and cancerous cells contain true intracellular ereptases whose activity first becomes evident after autolysis has freed them from the cells. This may readily be seen

TABLE 2.—EXPERIMENTS WITH THE JUICE OF TUMOR TISSUES

Tissue	Control		24 Hours		7 to 14 Days		Increase in Formol Titration (Amino Index) in		Tryptophan
	Acidity	Formol Titration	Acidity	Formol Titration	Acidity	Formol Titration	24 Hours	7-14 Days	
Adenocarcinoma breast ...	7	10	8	37	7	54	27	44	++++
Carcinoma breast	9	10	11	34	8	44	24	34	+++
Scirrhus carcinoma breast.	9	13	8	31	15	49.5	18	36.5	+++
Sarcoma tibia	7	9	9	17	8	16	8	7	++

TABLE 3.—SERUMS TESTED FOR EREPTASE

Animal	Control		24 to 48 hours		7 to 14 Days		Increase in Formol Titration (Amino Index) in		Tryptophan
	Acidity	Formol Titration	Acidity	Formol Titration	Acidity	Formol Titration	24 Hours	7-14 Days	
Hog serum	7	13.5	6.5	26	11	33	12.5	19.5	+++
Horse serum	9	13	10.5	23	8	33	10	20	+++
Rabbit serum	8	15	10	26	..	32	11	..	++
Man serum	10	18	12	22	12	32	4	14	+++
Beef serum	13	13	7	18	..	..	5	..	+
Dog serum	8	8.5	8	11	10	20	2.5	11.5	

of peptone-splitting, cancer ereptase stands midway between liver and spleen ereptase, so that one could not accept either increase or decrease of catalytic activity as an evidence of ferment specificity. Tryptophan formation was constant in both normal and cancer ereptase experiments and paralleled closely the amino figures. As a general conclusion it appears clear, therefore, that from the standpoint of quantitative amino group and tryptophan formation, as well as from the extent of their production, cancer ereptase and normal tissue ereptase cannot be distinguished.

The presence of an ereptase in blood-serum was demonstrated by use of the same technic as that employed in the series of normal tissue and cancer juice experiments. Table 3 contains the results of a number of serums tested for their ereptase content.

In this series hog- and horse-serum showed the largest content of ereptase, dog- and beef-serum the least. Compared with the ereptase of normal organs and tumors,

from the accompanying protocol (Tables 4 and 5) taken from an experiment on some comparative determinations of the ereptases of blood-serum, washed liver and washed kidney cells, all obtained from the same animal (dog) at the same time.

These results show the prompt increase in the formol titration figure by kidney and liver juice in fourteen to forty-six hours, contrasted with the slow increase by the washed kidney and liver cells. It is probable that the presence of more ereptase in the organ juices is responsible for this prompt hydrolysis of peptone and that in the process of dividing and grinding the organ, the ferment is liberated. It seems probable, also, that the slower peptone digestion by the washed cells is due to the fact that the contained intracellular ferments are first liberated and capable of activity when freed from the surrounding cell protoplasm through the slower process of autolysis. These results confirm the relatively small content of ereptase in blood-serum, and finally and most interestingly, they show how by combining washed cells and serum a degree of digestion occurs at the end

23. Abderhalden and Rona : Ztschr. phys. Chem., 1907, liii, 308.

of 120 hours approximately equal to the maximum degree obtained by organ juice.

In view of the presence of ereptases in normal and malignant tissues and in blood-serum, it would not be surprising to find them distributed elsewhere in the body fluids. It may be remembered, in this connection, that Warfield²⁴ described a peptid-splitting ferment in saliva and in mother's milk. In accordance with these facts some preliminary tests with pleuritic and ascitic fluids were made with the result that ereptase could also be demonstrated in these secretions. It would appear, therefore, that ereptase has practically a universal distribution not only in normal tissues and fluids, but in pathologic tissues and secretions as well.

One may be permitted in closing to speak for a moment of the evident relationship between the ereptase of blood-serum and body fluids and those of the fixed tissue cells and leukocytes. In the latter regard Jobling and Strouse²⁵ in this laboratory showed recently that so-called leukoprotease consists in part, at least, of ereptase. It would seem likely, therefore, that although as

TABLE 4.—EREPTASES OF BLOOD-SERUM AND WASHED KIDNEY CELLS IN DOG

Tissue	Increase in Formol Titration (Amino Index) in		
	14 Hours	46 Hours	120 Hours
Kidney juice (dog).....	42	51	51.5
Washed kidney cells (dog)...	11	29	50
Dog serum	3	8	16
Washed cells plus serum....	20	42	48.5

TABLE 5.—EREPTASES OF BLOOD-SERUM AND WASHED LIVER CELLS IN DOG

Tissue	Increase in Formol Titration (Amino Index) in		
	14 Hours	46 Hours	120 Hours
Liver juice	22	34	45
Washed liver cells (dog)....	7	18	26
Dog serum	3	8	16
Washed cells plus serum....	11	29	43

yet direct experimental proof is wanting, an intimate relationship exists between these ubiquitous peptone-splitting ferments. And finally it would also appear likely that future work will show that these tissue ereptases play an important rôle in the body economy, particularly in the mechanism of intermediate metabolism and parenteral protein digestion.

Assuming that the ereptic ferments of cancer and normal tissues cannot be distinguished in their ability to hydrolyze peptone and produce tryptophan, are we to conclude that all tests based on the presence of these ferments are of no clinical value? I believe not, for although the stomach, for example, does contain ereptase in common with all other organs, the probabilities are that this ereptase is not *secreted* into the stomach contents, at least to any appreciable degree. On the other hand, it seems likely that a rapidly growing stomach cancer with its ready tendency to break down, with its ulcerating exuding surface, would discharge its own

intracellular ereptase, together with the ereptase derived from the blood-serum, directly into the stomach juices. In accordance with this conception, a method of procedure as that of Barlocco or of Woodyatt and Jacque, allowing of the quantitative measurement of all the amino groups in the aspirated stomach contents, would be of greater value than the qualitative detection of one single one such as tryptophan. For with such a method it would be of little import should a moderate degree of peptone-splitting occur from the ereptase of swallowed saliva, from the trypsin of regurgitated chyme or from the ferments of blood or bacteria, providing that the degree of hydrolysis by the tumor ereptase was definitely in excess.

In this regard we should remember that similar quantitative methods are of the greatest clinical value; for example, the Widal test, in which only the agglutination of typhoid bacilli by highly diluted serums is said to be positive.

CONCLUSIONS

1. The ferments of cancer tissue, on which the glycyL-tryptophan and less well-known biologic tests are based, belong to the group of ereptases.

2. The ereptases of cancer tissue cannot be distinguished in their ability to split peptone and form tryptophan from the ereptases found in normal tissue cells, blood-serum, saliva, mother's milk, pleuritic and ascitic fluids and leukocytes.

3. It appears likely that these several ereptases are identical and that the ereptases of blood-serum, leukocytes, saliva and other body fluids are derived from the fixed tissue cells.

4. Compared quantitatively, most cancer tissues contain less ereptase than normal kidney (dog) and normal liver (dog), although slightly more than normal spleen (dog), and distinctly more than blood-serum (various animals).

5. While blood-serum contains relatively less ereptase than most tissues, the last trace of serum must be removed if one wishes to work solely with the tissue ferments. To accomplish this, repeated washing of individual cells, with an isotonic solution (after the method of washing leukocytes) has been found to be necessary.

I desire to thank Dr. Jobling for continued interest and encouragement during the progress of this work.

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ABSTRACT OF DISCUSSION

DR. GEDIDE A. FRIEDMAN, New York: I have heard a paper from the Mayo clinic about the value of the glycyLtryptophan test by Dr. Smithies, a man who had a very large experience with this test. His conclusions are practically those that I gave in a paper a year ago, although they were based on much smaller material. In his cases of gastric cancer the test was positive in only about 33 per cent. The tryptophan test was positive in only 7 per cent. of his cases. The latter test is an old one, recommended first by Erdmann and Winternitz, but very soon disproved by others. I believe that so far we have to rely on the history and routine laboratory findings, which in the majority of cases enable one to make a diagnosis of gastric cancer.

DR. WALTER W. HAMBURGER, Chicago: The qualitative test for tryptophan alone has not much clinical value, but it is of some significance in connection with other findings. Work on a quantitative method of amino-acid determination is now well under way, but the results are not ready for publication at the present time.

24. Warfield: Johns Hopkins Hosp. Bull., 1911, xxii, 242; Jour. Med. Research, 1911, xxv, 235.

25. Jobling and Strouse: To be published in Jour. Exper. Med. September, 1912.

ACETONURIA

ITS RELATION TO POSTOPERATIVE VOMITING IN SEVEN
HUNDRED CASES OF ETHER ANESTHESIA *

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In 1907, a patient on whom I had operated for acute appendicitis with abscess, eighteen hours after operation developed great restlessness, vomiting, convulsions and coma. She was treated by injection of normal salt solution by rectum and intravenously, hot packs and stimulation; and fortunately she recovered. Although not recognized at the time, the condition was later thought to be due to acid intoxication, but no examination of the urine for acetone or diacetic acid was made. About a year later two other cases of this kind occurred among Dr. F. F. Simpson's patients, and in these acetone was present after operation. Both of these patients recovered under similar treatment except that sodium bicarbonate was given by bowel. Ether was the anesthetic used in all three cases.

These cases led Dr. Simpson to have the urine examined for acetone and diacetic acid both before and after operation. Since this routine examination has been made no further serious cases of acid intoxication have occurred in Dr. Simpson's service at the Allegheny General Hospital. Much has been written on this subject since that time, and there seems to be some difference of opinion in regard to the significance of postoperative acetonuria. For example:

Rice¹ in 1908 found acetone in the urine of 90 per cent. of 202 cases reported, but in only 10 per cent. of these were there any symptoms attributable to it, and at about the same time Wallace and Gillespie² reported a very marked decrease in the secondary vomiting when the percentage of acetone cases was diminished.

In order to ascertain whether in our experience at the Allegheny General Hospital there is any connection between the ordinary postoperative vomiting and acetonuria this series of cases has been collected. It includes about an average of abdominal operations, pelvic operations of all kinds, appendix, gall-bladder, kidney cases and a few plastic and rectal cases. Only those cases having a complete record both before and after operation were included. This practically limited the cases to abdominal sections as only in these was there an accurate record of the postoperative vomiting. Each patient had a special nurse day and night for forty-eight hours after operation.

Any patient who vomited at any time during the forty-eight hours was included in the postoperative vomiting class. In practically all cases, the ether was given by the open drop method, by Dr. W. C. Maxwell, an expert.

The urine was tested usually the day before operation, and after the operation a specimen of the first urine voided was tested and later the complete twenty-four hour specimen. In no case was diacetic acid found without acetone and, although not tested for in about 25 per cent. of cases, it was thought safe to consider those without acetone negative for diacetic acid also. This agrees with the experience of Rice and others.

LEGAL'S QUALITATIVE TEST FOR ACETONE

Take 1½ inches of urine in a tube with about 1/15 as much acetic acid. Then add about 8 or 10 drops of freshly prepared sodium nitroprussid solution, shake well and add ammonium hydroxid. A purple color indicates acetone.

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.
1. Rice: Boston Med. and Surg. Jour., clix, No. 2, p. 48.
2. Wallace and Gillespie: Lancet, London, 1908, ii, 1665.

QUANTITATIVE TEST FOR ACETONE

Distil 100 c.c. of urine for about fifteen minutes, allowing the distillate to pass through a cooling box over into a flask containing distilled water. Be sure to have end of tube, running from flask of urine through cooling box to flask containing distilled water, immersed. Then take the flask of distilled water and distillate and add iodine solution (iodine sol. n/10 12.685 c.c., KI 25.37 gm., aqua dest. q.s. 1,000 c.c.) 10, 15 or even up to 50 c.c.; be guided in amount by the color reaction in qualitative test. Then add concentrated sodium hydroxid solution (U. S. P.) until color disappears, followed by concentrated hydrochloric acid until color reappears; then add a few drops of boiled starch as an indicator. Then titrate with sodium thiosulphate solution (sodium thiosulphate sol. n/10 24.8 c.c., aqua dest. q.s. 1,000 c.c.); take reading when blue color disappears, after which multiply the reading by 0.0967 to give amount of acetone in 1,000 c.c. of urine.

GERHARDT'S DIACETIC ACID TEST

Take 1½ inches of urine plus 10 drops of tincture ferrie chlorid, shake and if a reddish brown color is obtained, take another specimen of urine and boil, then again add 10 drops of tincture ferrie chlorid and if a yellowish-brown color still appears, diaetic acid is positive; if a yellowish-brown color, diacetic is negative.

VOMITING

In Table 1 is shown the average vomiting in all cases and the influence of acetone, and acetone and diacetic acid both before and after operation.

TABLE 1.—SHOWING THE VOMITING IN ALL CASES AND THE RELATION TO VOMITING OF ACETONE AND DIACETIC ACID BEFORE AND AFTER OPERATION

	Numbers	Per Cent.	No Vomiting		Vomited.		Number of Times Vomiting Occurred	Onset of Vomiting After Anesthesia in Hours	Duration of Vomiting from Anesthesia in Hours.
			Number	Per Cent.	Number	Per Cent.			
Av. for all cases..	700	.....	105	15.00	595	85.00	6.44	6.02	27.63
BEFORE OPERATION									
No acetone	588	84.00	90	18.85	498	84.69	6.27	4.85	25.99
Acetone present ..	100	14.29	15	15.00	85	85.00	6.9	11.1	31.74
Acetone and diacetic acid present	12	1.71	0	0	12	100.00	7.2	4.5	28.5
AFTER OPERATION									
No acetone	151	21.55	32	21.19	119	78.81	5.14	5.91	20.32
Acetone present ..	392	56.00	51	13.3	341	86.7	6.79	6.05	30.9
Acetone and diacetic acid present	157	22.45	22	14.00	135	86.00	6.7	6.02	25.88

It was found that 85 per cent. of all patients vomited at least once, some time during the first forty-eight hours; the average number of times vomiting occurred was 6.44, the onset 6.02 hours, and the duration 27.63 hours after operation.

BEFORE OPERATION

In those without acetone the proportion vomiting was practically the same as the average, and the severity but slightly less.

Those with acetone present were slightly above the average in all respects but the difference is again not marked. Only twelve of the 700 patients had both acetone and diacetic acid. These all vomited after anesthesia, slightly more than the average but the duration was not so great as those with acetone alone. These are too few in number to enable us to draw any conclusions.

AFTER OPERATION

Acetone or both acetone and diacetic acid were found in 549, or 86.45 per cent, of all cases. This practically agrees with the findings of Rice,¹ previously quoted.

In the 21.5 per cent. without acetone the vomiting was less frequent than the average, practically 79 per cent. as compared with 85 per cent. On referring to Table 1 it is seen that the vomiting was less frequent and less severe in those without acetone than in those with acetone or with both acetone and diacetic acid.

TABLE 2.—SHOWING THE PERCENTAGE OF POSTOPERATIVE ACETONURIA IN THE NON-VOMITING AND VOMITING CASES

	Total Cases		No Acetone or Diacetic Acid		Acetone		Acetone and Diacetic Acid	
	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
No vomiting	700	100	151	21.55	392	56.00	157	22.45
Vomited	105	15	32	30.48	51	48.57	22	20.95
	595	85	119	20.00	341	57.31	135	22.69

Table 2 shows the proportion of acetone and diacetic acid after operation among those who did not vomit and those who did. Among the former 30 per cent. were free from acetone and in the latter, or those who did vomit only 20 per cent were free from acetone. This would seem to show that the presence of acetone or of acetone and diacetic acid either before or after operation increased to some extent not only the liability to post-operative vomiting, but also the duration and severity.

We were not able to determine any relation between the amount of acetone present and the severity of the vomiting. Not all the patients had a quantitative test made. One patient with 0.899 gm. acetone per 1,000 c.c. of urine, the greatest amount found, and diacetic acid, also, did not vomit at all.

As I have already stated, there were no cases of acid intoxication among those patients. In order to determine whether there was any connection between the more severe cases of vomiting and the presence of acetonuria, I collected the cases in which the vomiting lasted more than twenty-four hours after operation. This is shown in Table 3. In a total of 285 cases the

TABLE 3.—SHOWING THE RELATION BETWEEN DURATION OF VOMITING, IN PROTRACTED CASES, AND ACETONURIA, AND ALSO THE RELATION WHEN THE ONSET OF VOMITING IS LATE

	Number	No Acetone or Diacetic Acid		Acetone		Acetone and Diacetic Acid	
		Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
Total	700	151	21.55	392	56.00	157	22.45
Vomiting lasting more than twenty-four hours	285	41	14.38	183	64.21	61	21.41
Onset of vomiting more than twelve hours after operation	79	22	27.85	40	50.63	17	21.52

proportion of those free from acetone is below the average. On the other hand in those patients in whom the vomiting began late, in 79, more than twelve hours after operation, those free from acetone were in greater proportion than the average. This would seem to indicate that when vomiting does occur it is liable to be more prolonged when acetone is found in the urine.

CAUSES OF POSTOPERATIVE ACETONURIA

In order to determine whether there was any relation between the length of anesthesia, or the amount of ether, and the acetonuria, I divided these cases into half hour periods (Table 4). In a general way, there was a gradual

TABLE 4.—DURATION OF ANESTHESIA IN RELATION TO ACETONE AND DIACETIC ACID *

	Total	No Acetone or Diacetic Acid		Acetone		Diacetic Acid and Acetone	
		Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
All cases	700	151	21.57	392	56.00	157	22.43
30 min. or less; average	67	7	10.45	41	61.19	19	28.36
24.5 min.; 3.4 oz.							
31 to 60 min.; average	326	57	17.48	195	59.81	74	22.7
43.4 min.; 5.57 oz.							
61 to 90 min.; average	189	48	25.39	107	56.61	34	18.5
73.5; 7.85 oz.							
Over 90 min.; average	36	7	19.44	16	44.44	13	36.11
98.6; 9.12 oz.							

* Record of anesthesia incomplete in eighty-two cases.

increase in the number of cases free from acetone as the length of anesthesia and the amount of ether increased.

We are forced, therefore, to look for some cause for acetonuria outside of the anesthetic itself. Ewing³ in 1908 showed that acetone compounds are "derived mainly from the fat tissues and to a less extent from the food," and "that the complete combustion of fats requires the simultaneous katabolism of carbohydrates, in the absence of which there is a defective and possibly abnormal course of fat combustion lodging in the acetone compounds." Frew⁴ has more recently emphasized the importance of carbohydrate starvation.

In the preparation of patients for operation, it is our custom in Dr. Simpson's service at the Allegheny General Hospital to put them on liquid diet for the entire day before operation and this includes practically no carbohydrates, the diet consisting of broths and milk entirely. They are also given a purge of castor oil or more recently compound cathartic pills. It would seem that possibly this starvation, particularly of carbohydrates, caused a disturbance of the metabolism of the fats with the production of acetonuria.

Waugh⁵ in the discussion of Frew's paper says that he has abandoned the pre-anesthetic purge and restriction of diet. He reports over 2,000 chloroform anesthetics in children without a single case of acid intoxication.

In order to overcome this carbohydrate starvation, for a time glucose was given before operation but no decided difference was noticed in the post-operative vomiting. The majority of the patients objected strongly to the glucose when given by mouth and it was impossible to give it by rectum on account of the purge, so that this was abandoned.

DURATION OF ANESTHESIA IN RELATION TO VOMITING

This is shown in Table 5. There is a gradual increase in the percentage of those who vomited as the duration of anesthesia increases. This difference is not great but is definite and uniform and would seem to show that the longer the anesthesia the greater the liability that vomiting will follow it.

3. Ewing: Arch. Int. Med., 1908, ii, 330, 448.
4. Frew: Proc. Royal Soc. Med., 1912, v, No. 5, p. 60.
5. Waugh: Proc. Royal Soc. Med., 1912, v, No. 5, p. 73.

TABLE 5.—DURATION OF ANESTHESIA IN RELATION TO VOMITING

	Total	No Vomiting		Vomited	
		Number	Per Cent.	Number	Per Cent.
30 minutes or less.....	700	105	15.00	595	85.00
31 to 60 minutes.....	67	13	19.4	54	80.6
61 to 90 minutes.....	326	47	14.42	279	85.58
Over 90 minutes.....	189	22	11.65	167	88.35
	36	4	11.11	32	88.89

TREATMENT

As acetonuria seems to be due to carbohydrate starvation it would seem that patients should have this form of food before operation. Glucose was not satisfactory and the other forms of carbohydrates have not been tried on account of the liability of forming gas in the intestine. In a large proportion of abdominal cases it is necessary to pack off the field of operation and this is impossible unless the intestine is empty.

For the acetonuria itself large doses of alkalies, sodium bicarbonate, by bowel, by mouth if possible, or lavage with sodium bicarbonate solution, seems to be rational and in this series of cases has been of undoubted value in many cases.

CONCLUSIONS

1. Vomiting occurs in a large percentage of cases after anesthesia.
2. The liability to vomiting is increased when acetone is found in the urine.
3. Protracted vomiting is best treated by sodium bicarbonate by bowel and by lavage. These patients need careful watching on account of the liability of acid intoxication.
4. Acetonuria is due to faulty metabolism and increased by carbohydrate starvation.
5. Acetonuria has no relation to the length of anesthesia.
6. The duration of anesthesia has only a slight influence on vomiting.

I want to express to Dr. F. F. Simpson my appreciation of his kindness in permitting me to review these cases, the great majority of which were his, only a few of them being my own, the laboratory work was done under his direction.

200 Ninth Street.

ABSTRACT OF DISCUSSION

DR. JOHN M. SWAN, Rochester, N. Y.: The conclusions reached by Dr. Chalfant seem to me to point to disturbed metabolism as the cause of the acetonuria after anesthesia. It would be interesting if Dr. Chalfant could tell us whether the patients who had acetonuria after operation were the same ones who showed an increase in acetone before operation. I am inclined to think that such a study would show that the patients with excess of acetone before operation would have an excess afterward, and that the vomiting would be more troublesome in such cases than in patients with no acetonuria before operation and little afterward. The method by which Dr. Sutter determined the amount of acetone in the urine of the patients just referred to is as follows: The twenty-four-hour specimen was measured, and 250 c.c. were distilled until the distillate amounted to 50 or 70 c.c., which would represent all the acetone in that urine. The distillate was put into a graduated cylinder and treated with Lugol's solution three times the ordinary strength. The iodoform produced by the action of Lugol's solution on the acetone in the distillate was dissolved with ether. The total amount of ethereal extract was measured and 10 c.c. of that extract were evaporated to

dryness in a weighed glass dish. From the weight of the iodoform in the 10 c.c. of ethereal extract the amount in the entire ethereal extract was calculated, and this was expressed as acetone.

DR. S. A. CHALFANT, Pittsburgh: Of the patients who had acetonuria before operation, the proportion not vomiting is shown to be 15 per cent., which is the same as the 15 per cent. of all cases, so that the influence of acetone before operation did not seem to be very important.

TREATMENT OF TUBAL PREGNANCY

WITH SPECIAL REFERENCE TO IMMEDIATE OPERATION FOR RUPTURE, BASED ON A STUDY OF TWO HUNDRED OPERATIONS * †

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NEW YORK

Gynecologists are agreed as to the necessity of immediate operation in unruptured tubal pregnancy; it is in the ruptured variety that opinions differ with regard to the indication for immediate operation.

While I have always maintained that tubal pregnancy is a surgical disease, requiring surgical intervention as soon as possible, I have never insisted, and do not now, that an unruptured tubal pregnancy must be rushed to operation; on the contrary, there is no particular danger or risk to the patient if, for some good reason, the operation is postponed for a short time, provided, however, that the patient is kept under close observation and is so situated that an operation can be performed at once in the event of rupture. On the other hand, it is in ruptured tubal pregnancy, especially when it is accompanied by shock and collapse, that I advocate and urge the immediate operation.

My object in presenting this paper is to offer an earnest plea for the general recognition by abdominal surgeons of the dictum that hemorrhage into the peritoneal cavity must be sought for and checked as soon as diagnosed; and that opening the abdomen of a patient profoundly shocked and anemic from abortion or rupture of a tubal pregnancy does not *per se* offer any graver risk than opening the abdomen for any other intra-abdominal condition; and, furthermore, that delay in operating, no matter how slight, means increased risk, greater danger and probably death to the patient. This plea is based on a study of 200 operative cases.†

That patients do die of hemorrhage, the result of ruptured tubal pregnancy or abortion, will be seen from the following case, which is reported in detail:

CASE 1.—*Patient*.—B. F., aged 28, called at my office with Dr. M. J. Katz, July 8, 1911. Patient had been married seven years and had three children; the last child was 9 months old; she was still nursing. She did not menstruate for four months subsequent to her delivery, and, after menstruating twice, had amenorrhea for two months. Then for six weeks she had irregular uterine bleeding and pain in lower abdomen.

Examination.—She was examined at a clinic on the previous day and a diagnosis of "tumor" was made. The patient was well nourished and in good physical condition. Her pulse was normal and strong. On vaginal examination I felt a large.

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

† Because of lack of space this article is abbreviated by the omission of the table of cases. The complete article appears in the Transactions of the Section and in the author's reprints.

elastic, fluctuating mass on the left side, but did not stop to make a thorough bimanual examination for the reason, as I stated² to the physician, that, as the case was very suggestive of tubal pregnancy, further manipulation might cause a rupture. I advised immediate transfer to the hospital.

The patient experienced no pain or discomfort while being examined, and left the table in good condition. The physician and myself then spent some time in trying to persuade her to go directly to the hospital for operation. After a little while the physician left, and the patient and her husband retired to the waiting-room to think the matter over. On entering the waiting-room a little later, I noticed a change in the patient; she was feeling faint and was complaining of pain in the abdomen, and although her pulse remained unchanged, I realized that I was dealing with the condition I dreaded all these years, namely, a rupture occurring in a tubal pregnancy while under examination in my office.

Treatment and Course.—The patient was at once placed in the recumbent position, and a hypodermic of morphin administered. Her pulse remained good and unchanged for some forty or fifty minutes. It was my intention, as soon as the shock subsided somewhat, to accompany her in an ambulance to the Polyclinie Hospital, situated some distance from my office; but instead of improving, her condition became alarming; her pulse grew constantly weaker, and in spite of stimulation she was rapidly sinking.

Realizing that there was no further time to be lost I phoned to Mount Sinai Hospital (eight blocks distant from my office) for an ambulance. The patient was taken at once to the operating-room, and expired just as the incision was made by one of the surgeons operating at the time and a two months' fetus extracted from the abdomen. Death occurred in less than two hours from time of rupture.

This tragic death made a profound impression on me, and suggested the question as to how many of the patients whom I had seen brought to the operating-table in a similar state of shock and collapse might have gone the way of this woman, had they not been subjected to immediate operation.

This case teaches a valuable lesson, inasmuch as it establishes beyond doubt the all-important fact, which is after all the crux of this controversy, that it is impossible for a practitioner or a specialist, unless he be possessed of second sight, to determine in advance from the signs, symptoms, and condition presented by a given case of tubal rupture or abortion, as to whether the patient may rally from the shock, or die pending an operation.

I had occasion to study a large number of patients in shock and collapse due to this affection, and yet there was not a single feature in this case, viewed in the light of my past experience, that should have led me to suspect that rupture would be followed so rapidly by a fatal issue. If I had any guide to go by, I would certainly not have temporized and wasted forty or fifty precious minutes, when, I am convinced, an operation at the earliest possible moment would have saved the patient's life. I must frankly confess that in this instance I had for the first time departed from my invariable rule of dispatching these cases with all haste to the operating-table, because I was somewhat encouraged by the claims of some prominent observers that internal hemorrhage very rarely kills. "Never again."

The following history of a patient operated on at Beth Israel Hospital, in December, 1902, which I previously reported,² tells a different story:

CASE 2.—Patient.—A woman, 29 years old, married nine years, had two children and two miscarriages. After amenorrhea of five weeks, patient began to have pain in the pelvis and uterine bleeding.

Operation.—On the day of admission to the hospital, she called at Dr. D. J. Hyman's office for treatment, and while waiting in the reception room, fainted and went into collapse. The doctor had her taken at once to the hospital where I was operating at the time. On admission her pulse was imperceptible, and the heart-sounds very faint; patient was unconscious. Without having her clothes removed, the patient was placed on the operating-table, her abdomen scrubbed and disinfected, and opened without anesthesia. The peritoneal cavity was found to be full of clots and fresh blood, the result of a ruptured right tubal pregnancy.

Course.—When regaining consciousness, some hours later, the patient was surprised to find herself in bed, and did not recall anything that transpired since she left the doctor's office. She made a rapid recovery, thanks to her quick transfer and immediate operation.

Case 2 is not exceptional. It is one of a large series of patients suffering from various degrees of shock or collapse on whom the immediate operation was performed. In no instance did the severity of the shock or collapse militate against undertaking the immediate operation; on the contrary, the greater the shock the more haste was employed in rushing the patient to the operating-table.

The technic has been practically identical in all operations. The abdominal route is invariably employed: The patient is placed flat on her back; the abdomen is prepared in the usual manner; previous vaginal examination determines the side affected; median incision is made; the entire hand is introduced into the abdominal cavity, and directed at once toward the affected side; the mass is grasped, enucleated, and drawn into the wound. By firmly grasping the outer border of the broad ligament, further hemorrhage will be checked. No attempt is made to wipe away the blood or clots before the gravid tube is delivered at the wound, the steps of the operation having been carried out by touch only; but previous to tying off the pedicle sufficient blood is wiped away with damp pads to expose the pedicle clearly to view. The operation is completed in the usual manner. Before closing the abdomen, it is my habit to mop out as much of the blood and clots as possible with damp gauze-pads.

When the patient is in extreme collapse, intravenous saline infusion is given simultaneously with opening the abdomen. The large majority of the patients begin to improve as soon as the anesthetic is applied, but if the patient's pulse does not improve materially before removal from the operating-table, an intravenous infusion is given.

The following detailed reports of Cases 3 and 4 illustrate the results obtained in deferring operation in ruptured cases:

CASE 3.—Patient.—S. S., aged 28, married. After amenorrhea of two and one-half months patient began to bleed and had colicky pains in left pelvic region. For several weeks she had a number of attacks of pain and fainting spells. One week before admission she had a severe attack of pain and went into shock, from which she partly rallied. During all this time she was under the care of a midwife, and was seen at different times by a number of physicians, two of whom, to my knowledge, advised operation. The advice was finally accepted when the patient was almost in *extremis*.

Operation and Course.—On admission to Beth Israel Hospital, July 19, 1909, patient was in condition of collapse; pulse was imperceptible; patient extremely blanched and weak. Laparotomy revealed a large quantity of dark clots and old blood, and a still bleeding ruptured right tube. Intravenous infusion was administered. The pulse greatly improved after operation, but the patient went into secondary collapse about twenty hours later, and expired in spite of active stimulation.

2. Am. Jour. Obst., 1908, lviii, No. 1.

The operation was delayed so long in one case that the patient's resistance and reserve strength were completely exhausted by the protracted and continuous bleeding and shock, and by the consequent severe vasomotor paralysis; as a result she did not respond to the usual stimulation, as did all of my other patients operated on during shock and collapse. I undertook the operation in spite of giving an almost fatal prognosis, in order to live up to the principle which I had laid down for myself in all these years: not to refuse operation to patients in this condition as long as they were alive.

I cite this case because it is a practical demonstration of the truth of what I said on the subject of delayed operation in tubal abortion or rupture, in my paper of four years ago;² and my experience since then amply justifies me in emphasizing (1) that the presence of blood in the peritoneal cavity is an important factor in the element of vasomotor paralysis and shock; (2) that the longer the patient is allowed to bleed from a rupture or abortion, the greater the depression, and the more profound is the shock, and this is regardless of the amount of blood lost. Likewise, the recuperative power of the patient after operation depends more on the duration of the hemorrhage and of the shock than on their severity. In my experience, the time that has elapsed since rupture and bleeding have occurred is a better guide to the rallying power of the patient than the character of the pulse and the intensity of the shock and anemia.

These clinical facts also coincide with the following observations made by Crile³ in his experimental work: "A given amount of loss of blood when the animal has been already reduced by surgical shock caused more depression than an equal amount earlier, when the compensating vasomotor mechanism was more active," and again, "even though the loss of some blood did not at the time produce an appreciable effect, if these small losses were repeated, the animal the more readily succumbed to shock."

The syndrome which accompanies an internal hemorrhage ranges and merges from the stage of syncope to that of shock, and finally to the still more severe form of collapse, and depends largely on the duration of the condition. Hence, the earlier the hemorrhage is checked and the vasomotor disturbance arrested, the quicker will the patient rally and convalesce. Furthermore, I have found a greater tendency to secondary shock when the interval between rupture and operation was prolonged than when the operation was performed soon after rupture.

The above clinical observations which, in my opinion, substantially prove the fallacy of the theory of deferring operation in this condition, are in accord with the following statement by Adami:⁴

Loss of blood is followed by a rapid fall in the specific gravity of that still remaining in circulation, and a similar rise in the specific gravity of the tissues. In other words, the actual or relative loss of blood in a great part leads to a protective passage of body-fluid into the blood-vessels tending to preserve the circulation. This loss of fluid on the part of the tissues explains the development of the symptoms of shock and collapse.

DEFERRED OPERATION IN A TERMINATED RUPTURED TUBAL PREGNANCY

CASE 4.—*Patient*.—R. R., aged 40, married twenty-four years, had eleven children and one abortion; last child was 4 years old. Bleeding, with cramps and pain in lower

abdomen, had been present for four weeks before admission; patient had two syncopal attacks one week before admission; also slight chills and fever. On admission to Beth Israel Hospital, May 24, 1908, temperature was 100.5; pulse 100; abdomen somewhat distended; slight rigidity on right side; small mass in right iliac fossa.

Examination.—Vaginal examination showed uterus slightly enlarged, but pelvis free. Two days after admission curettage confirmed diagnosis of terminated extra-uterine pregnancy, and expectant plan of treatment was decided on. From May 24 to June 5 temperature ranged from 100 to 103; pulse from 100 to 124, gradually growing weaker in quality. Pain in abdomen increased in severity; mass in right iliac fossa grew larger; there was restlessness and sleeplessness. On June 5 patient's condition became so grave that operative interference could no longer be delayed.

Operation.—This showed uterus, adnexa, omentum, appendix and intestines matted together, and several old infected blood-clots in peritoneal cavity. The right tube was found to be the seat of rupture. Intestines, and especially the cecum and appendix, were very much injected and extensively adherent. The right adnexa and appendix were removed. Drains were inserted. The condition of the patient was not materially affected by the operation, but she gradually grew weaker, and died on the sixth day after operation, from a low form of septic peritonitis.

In the other case of terminated tubal pregnancy the patient paid the penalty of procrastination; the case is the first and only one in all my experience that I have treated intentionally, though reluctantly, on the hibernating plan.

It was about that time that the pendulum began to swing toward the doctrine of delaying operation, especially in terminated and infected cases. The case presented marked abdominal symptoms and other features which seemed to justify a trial of the expectant plan of treatment. As chance would have it, the patient did not improve, but grew gradually worse, and after waiting twelve days it simply became a question of permitting her to die without an operation, or having her probably die in spite of one, and I chose the latter, regretting all the time that I took any chance at all—I use the word chance advisedly—by not operating on her when admitted.

While I admit that an infected terminated ruptured tubal pregnancy may run a favorable course and the patient improve pending an operation, or even recover after a delayed operation, I am just as firmly convinced that the indication for immediate operation is even more urgent in infected cases, whether terminated or otherwise, than in non-infected cases. In a number of operations I have found a complicating inflammatory condition in the same tube with the tubal pregnancy or in the opposite tube, and the patients have made an uninterrupted recovery.

It is obvious that infection complicating tubal pregnancy should be treated on the same surgical principles as infection in other parts of the body, viz., the focus of infection should be removed as soon as possible. In this connection I might add that blood-clots left in the peritoneal cavity are prone to become infected through the intestinal walls, and in order to avoid this possibility it is a good rule invariably to remove them by mopping with damp gauze pads when performing the immediate operation.

When I reported 110 cases of tubal pregnancy² four years ago, including many patients in shock and collapse, several of whom were unconscious, with no death in any of the cases of rupture, and only one death in a case without rupture—due to hemophilia—I offered

3. Crile: *Surgical Shock*, 1899, pp. 138 and 145.

4. Adami: *Principles of Pathology*, i, 585.

then what I considered the strongest proof in favor of immediate operation. Since then I have operated in ninety additional cases, about 85 per cent. of which were ruptured or abortions. The immediate operation was done in eighty-eight cases, with no death, which lends additional force to my contention for the immediate operation. The deferred operation was performed in two cases, which I have reported in detail above, and both patients died. In the first I was forced to undertake the operation after the patient had been treated for shock for about a week, and gave a fatal prognosis before operating. The second was an infected patient treated on the expectant plan because the case at first seemed to justify a trial of this method. In other words, the only two deaths I have to report after operation for rupture occurred in the very cases treated on the lines recommended by the champions of the deferred operation, and, in my opinion, present even a stronger argument in favor of the immediate operation than do all the recoveries following immediate operation.

SUMMARY

In 200 operations for tubal pregnancy of every variety there were three deaths: one death following *immediate operation* in an unruptured tubal pregnancy; one death following *deferred operation* for ruptured tubal pregnancy; and one death following *deferred operation* for terminated ruptured tubal pregnancy with infection. In other words, we have a record of *one death* in an unruptured case after *198 immediate operations*, and *two deaths* in *two deferred operations*.

In all immediate operations for ruptured tubal pregnancy there was no death. In two deferred operations for ruptured tubal pregnancy, both died. The percentages are as follows: Total number of operations 200, with three deaths, giving 1.5 per cent. death-rate; immediate operation (ruptured) over 150 cases, giving no death-rate; deferred operation (ruptured) two cases, giving 100 per cent. death-rate.

When we note the above figures and the striking contrast between the result of the immediate operation and that of the deferred operation, and also take into consideration the death before operation of the patient in whom a rupture occurred in my office, the conclusion is inevitable that the immediate operation is a safe, sane and absolute life-saving procedure in tragic cases of tubal pregnancy, and that the longer an operation is delayed the graver is the prognosis to the patient.

Time will not permit my taking up for consideration the relative morbidity, or the comparative advantages or disadvantages of the immediate and of the deferred operation.

I can only endorse the conclusions deduced by Dr. Emery Marvel of Atlantic City in his article on immediate operation.⁵ He tabulates the ill effects of the delayed operation as follows:

- Greater loss of blood.
- Possible loss of life occasioned by hemorrhage.
- Increased shock depression.
- Recurrent hemorrhage producing worse condition than first.
- Operation fraught with greater difficulties.
- More extensive pathology.
- Increased discomforts measured by time and intensity.
- Crippled organs with deficient functions.
- Protracted invalidism.

There is one feature, however, that especially impressed me and to which I wish to call attention; it

is the rapid, smooth and uninterrupted convalescence, and the peculiar freedom from postoperative complications that attended all my operations for tubal pregnancy, whether ruptured or otherwise.

When I compare the postoperative course in my entire series of tubal pregnancy with that of my other abdominal operations, I have no hesitancy in saying that operation for tubal pregnancy is attended by no greater risk than opening the abdomen for other conditions; on the contrary, I am convinced that tubal pregnancy offers the least surgical risk of all abdominal affections.

I regard the operation for tubal pregnancy so free from risk that I feel perfectly justified in doing conservative surgery on the affected tube when it is feasible and possible, with the full knowledge that by so doing the patient is subjected to a possible recurrence. The following case is a good illustration.

CASE 5.—*Patient*.—L. R., aged 29, married nine years, has one child, 6 years old; was admitted to Beth Israel Hospital, June 14, 1911. Three days before admission patient was suddenly seized with severe abdominal cramps, and fainted. She was admitted in a condition of extreme shock; pulse was imperceptible; and she was immediately sent to operating-room.

First Operation.—Laparotomy disclosed abdomen filled with blood, result of ruptured tubal pregnancy on left side; pin-hole perforation still bleeding. The left tube and ovary were removed. During the operation an intravenous infusion of 12,000 c.c. saline solution was given. Patient was discharged sixteen days after the operation.

Second Operation and Course.—Eight months later this patient was again admitted to Beth Israel Hospital (Feb. 15, 1912). On the day before admission, patient was seized with a severe attack of pain in lower right abdomen, felt faint, and vomited. On admission the temperature was 99.6; pulse 90; respiration 26. There was pain and tenderness in the right ovarian region. The uterus was pushed to the left by a soft cystic mass filling the right fornix. Laparotomy revealed free and clotted blood in abdominal cavity, the result of tubal abortion, with a six weeks' gravid sac protruding from the fimbriated extremity of the right tube. In spite of the possibility of recurrence the fimbriated end of the tube only was resected, and ovary left intact. The patient was discharged nine days after operation.

To quote from a recent paper by Dr. Charles A. Stillwagen,⁶ of Pittsburgh, Pa., one of the advocates of deferred operation for ruptured tubal pregnancy, who says:

As a matter of fact, many surgeons operating for ruptured tubal pregnancy, Deaver, Harris, Ladinski and others, report a low operative death-rate. Surgical advancement has made their results possible. But even if it were the rule for skilled operators in well-appointed hospitals to show the very best results in immediate operation, it would still be a very dangerous impression to be abroad, that all cases of tubal pregnancy must be rushed pell-mell to abdominal section.

In answer to this I wish to say that, while I appreciate the compliment this writer pays me, I lay no claims to any particular surgical advancement or special skill in these operations, for I have not changed in the slightest my technic or method since my earliest tubal pregnancy operations, seventeen years ago. But I do believe that the results I have been able to attain were due to my invariable rule to operate in these cases as soon as they could be rushed to the operating-table.

I have repeatedly urged that the first and best aid that can be rendered by the internist in ruptured tubal pregnancy is to make arrangements with all haste and dis-

5. Marvel, E.: Am. Jour. Obst., 1912, lxx, No. 1.

6. Stillwagen, A.: Am. Jour. Obst., 1912, lxx, No. 1.

patch for the transfer of the patient to the nearest hospital, after giving a hypodermic of morphin; and I am greatly indebted for the cooperation of the practitioners who, profiting by the teachings of myself and others, have recognized the urgent necessity of the immediate operation and have acted on this principle. The detailed plan of treatment elaborated by the advocates of deferred operation is very well and good, but after operation, and not before.

In my anxiety that no time be lost in the transfer to the operating-table of patients suffering from ruptured tubal pregnancy, I have, on a number of occasions, refused to see the patients at home when summoned in consultation by physicians, but have insisted that they be taken immediately to the hospital.

As an instance of practicing what one preaches, I will cite the following from a large list of similar cases:

CASE 6.—*Patient*.—R. P., married. Jan. 22, 1912, after amenorrhea of six weeks, at about 10 p. m., while at theater on the lower East Side, had several fainting spells, with pain on right side. She was prescribed for by a physician who was called in by the management, and sent home, in the upper part of the city (a distance of about six miles) in a taxicab. When seen by me with Dr. Charles Phillips, about three hours later, patient was in complete collapse; pallor was extreme, and pulse at times imperceptible at wrist.

Operation and Course.—Realizing the urgency of an immediate operation I advised her transfer to the nearest hospital, a few blocks away, instead of to one of the more distant hospitals with which I am connected. At the physician's earnest solicitation that I remain in charge of the case, I compromised by having her admitted, through the courtesy of Dr. S. Marx, to the Red Cross Hospital, a short distance from her residence. Without shaving, or any further preparation of the abdomen, except application of iodine, the operation was performed by Dr. Marx and myself. The abdominal cavity was filled with red blood; right tube was the seat of pregnancy, with rupture about 1 inch from fimbriated extremity; rupture was still bleeding. Infusion was given. Patient returned to bed with pulse of 120, full and strong. About six hours later, secondary shock: pulse over 140, feeble and thready, to guard against which, on account of it being a neglected case, I had cautioned the house staff at the time of operation. Under active stimulation pulse improved, and the patient entered on an uninterrupted convalescence.

From my added experience I can only reiterate what I said in my previous paper on ectopic gestation:² that it is my firm belief that the results obtained by me after immediate operation in extreme collapse support my contention that, no matter how profound the collapse of the patient, the urgent indication is to check the hemorrhage, and if the operation be performed with the ease and rapidity that is possible in the hands of specialists, the additional shock, if any, will be so slight that it cannot be held responsible for a single death.

Gynecologists do not stand alone in regarding shock as a contra-indication to operation, but general surgeons as well look on shock as a bugbear in connection with operations. Dr. Ellsworth Elliot, Jr., of New York, in his article on perforation of the stomach and duodenum,⁷ calls attention to it in the following statement:

It is well to emphasize the fact that shock, when present, is no contra-indication to immediate operation in the above conditions. This statement is again at variance with the more or less wide-spread belief that under such circumstances operation should be deferred until the shock has subsided. Every hour of delay in diagnosis, or of delay in operation after the diagnosis had been made decreases the chances of the patient's recovery.

I would like to see the word "delay" entirely eliminated from the lexicon of treatment of tubal pregnancy, for while there may be a slight justification in postponing operation in a few isolated cases, the teaching and agitation of this doctrine of delay, which, I regret to say, is not generally understood or sufficiently analyzed, have exerted a most baneful influence by raising a false sense of security in the minds of internists who, in consequence, procrastinate with a condition that demands the most urgent surgical interference; and the inevitable result has been an increased mortality and morbidity in the treatment of tubal pregnancy.

I hope to see the indication for immediate operation for ruptured tubal pregnancy accepted as the rule; and that gynecologists and surgeons will unite in impressing on the men who see these cases first, the necessity and advantage of immediate operation, because it is on the promptness of their decision to refer cases of ruptured tubal pregnancy to a hospital for operation that the fate of these patients largely depends.

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ABSTRACT OF DISCUSSION

DR. BROOKS WELLS, New York: I have operated in only a little more than half of the number of cases. Dr. Ladinski is able to report, including eight of serious shock from hemorrhage and have had no deaths following operation. I have seen two women bleed to death from ruptured ectopic and know of other unpublished cases. Naturally, my own inclination is to operate on all of these patients as soon as proper environment can be secured. It would seem that we should accept Dr. Ladinski's conclusions. You will agree that nearly all cases of ectopic pregnancy may be recognized by the physician in general practice before serious rupture has occurred and from the history of slight menstrual irregularity and unusual pelvic pain. In these cases the indication is plainly to operate as soon as a skilled surgeon and proper surroundings can be secured. Operation done before rupture or before serious bleeding is not ordinarily difficult and should be followed by almost no mortality. Delay for from one to several weeks so that the patient's general condition may improve means, in my experience, increased morbidity with added danger from adhesions or sepsis. Where the patient is in desperate collapse from sudden hemorrhage the question of procedure must always be largely influenced by the personal equation of the physician in charge. Hospital environment is desirable, yet immediate removal to hospital is often too dangerous to be allowed. Without adequate surgical training or skill it is undoubtedly safest to wait, as many of these patients recover from most desperate conditions while abdominal surgical intervention by the unskilled is too often attended by disaster. Yet the skilled surgeon who refuses operation because of alarming conditions cannot by so doing shift his responsibility in the event of the patient's death. My own rule in cases of dangerous collapse is to operate as soon as ready unless some improvement is shown during the time of waiting for necessary preparation. Keep the patient warm on the table, use light ether anesthesia, a moderate Trendelenburg position, get in quickly, tie off the tube *en masse*, scoop out only clots easily reached, close the abdomen, give hot water by rectum and expect the patient to get well. It is ideal to make the diagnosis and remove the cause before rupture has occurred. It is good surgery to operate in all cases as soon as proper environment and skill can be secured. In the absence of proper skill and environment the waiting policy will give the lowest death-rate.

DR. S. M. BRICKNER, New York: I endorse the position taken by Dr. Ladinski so far as the immediate operation in ruptured tubal pregnancy is concerned. If we had more diagnostic skill in the direction of differentiating the condition of the tubes in cases of tubal pregnancy, the majority of cases of tubal abortion could safely be left to themselves. They are

7. Elliot, E.: Ann. Surg., 1912, iv, No. 4.

the cases in which eventually we have either a small hematocoele or in which blood is free in the abdominal cavity and is quickly absorbed. In a series of 122 cases of tubal pregnancy of all varieties in our hospital, two patients died; both cases were ruptured tubal pregnancy. In one case the patient was brought into the hospital moribund, operated on without an anesthetic, and died on the table. In the other case an erroneous diagnosis of ordinary abortion was made. The patient was curetted by the house-surgeon and three hours afterward went into profound collapse, and when I saw her one hour later she was gasping. Although the abdomen was quickly opened and the vessels ligated, the patient died. I have had the opportunity of watching two patients in the ward with all the clinical symptoms of tubal pregnancy who, without doubt due to the repeated examinations made, started to bleed and went into collapse in three or four hours after admission. Both were operated on as soon as the symptoms of collapse and shock appeared. We have no hesitation in operating under these conditions. Six years ago, I quoted in this Section the dictum of Werth, who says that an unruptured tubal pregnancy must be regarded in the light of a malignant neoplasm and demands immediate operation. I endorse completely the attitude taken by Dr. Ladinski.

DR. WALTER P. MANTON, Detroit: I endorse Dr. Ladinski's attitude in this matter. This subject was fully discussed at the meeting of the American Gynecological Society a couple of years ago and I there stated my own belief in immediate operation. It is not always possible to operate on a patient within an hour or so after rupture takes place, but I believe that in all cases just as soon as a qualified surgeon can be secured or the patient can be taken to a hospital, in both unruptured and ruptured tubal pregnancy, operation should be done at once. Whether the bleeding comes from the ruptured tube or from the tubal ostium is unimportant; operation should be done as quickly as possible.

DR. L. J. LADINSKI, New York: With tubal abortion as with uterine abortion we cannot tell in advance whether we are dealing with a case of pending, incomplete or complete abortion. It is not only difficult to differentiate between tubal abortion and tubal pregnancy, but it is also difficult to diagnose the variety of abortion. The worst intra-abdominal hemorrhage I have seen was from a tubal abortion. I have pointed that out in a previous paper. This is because the hemorrhage from a tubal abortion may be slow and insidious, and the patient becomes somewhat accustomed to it and does not show the effects of it until she is practically collapsed, whereas the bleeding from a rupture is, as a rule, very rapid and the evidences are at once noticeable. I can only repeat that not only are the chances for the patients better by the immediate operation, both for ruptured and unruptured, and for tubal abortion, but I am firmly convinced that the mere agitation for delaying operation has undoubtedly cost many a life. In fact, the very patient in whom a rupture occurred in my office and whom I allowed to wait for about an hour, instead of having her transferred at once to the hospital, I believe would have been saved had I not been imbued with the idea that possibly there was some ground for the belief that patients do not die of an intra-abdominal hemorrhage. Up to that time I had very rarely seen a death from intra-abdominal hemorrhage due to tubal pregnancy. The cases of the two patients who died after delayed operations, which I reported, compared with the 197 cases of patients operated on promptly who recovered, emphasize the wisdom of immediate operation.

The Practice of Medicine as a Fine Art.—Both in diagnosis and in treatment, one skilled clinician of long experience may be, and often is, much more accurate when not using elaborate scientific methods than is another who is using them. The scientific physician in treating a case of pneumonia may pin his faith down entirely to the use of a vaccine, and perhaps deprecate the use of other methods; the more artistic physician may use the vaccine but will most certainly not rely on it only, but on many other means, some of which may seem trifles to the scientist.—Ernest S. Reynolds, in *British Medical Journal*.

DRAINAGE OF THE KIDNEY BY INCISION FOR BACILLUS COLI COMMUNIS INFECTION IN PREGNANT AND PARTURIENT PATIENTS

WITH REPORT OF CASES *

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Infection of the kidney during pregnancy by the *Bacillus coli communis* has been frequently brought to the attention of the profession, and the literature of the subject has become considerable. The limits of space and time forbid an extensive literary review of this subject.

Abundant clinical observation shows that the right kidney is most usually involved. The anatomic explanation for this lies in the relation of the right ureter to the intestine, and the comparatively easy access of the infective germ from the intestine to the pelvis of the kidney. Some observers have recognized ascending infection, the infective germ first gaining access to the bladder through the urethra and then passing upward along the ureter to the pelvis of the kidney. In all cases the *B. coli communis* is the principal agent of infection. Mixed infection with staphylococci or with streptococci may be present.

No predisposing cause has yet been clearly demonstrated for this complication. It has not been found more frequently in contracted pelvis, but is unquestionably most often seen in ill-nourished patients in whom the functions of the intestine are sluggishly performed and in whom there is chronic intestinal stasis.

The chief symptoms of the condition are indefinite pain in the right side of the dorsal region and in the right lower abdomen. It is often impossible to differentiate this pain from the pain of subacute appendicitis. As the infection becomes well developed the pain is more frequent, and in some cases chills develop. The patient's nutrition is manifestly at fault.

Examination of the urine shows acid reaction, more or less serum albumin, epithelium from the pelvis of the kidney, and abundant *B. coli communis*. The significant clinical points in the urinary findings are the acid reaction and the abundant presence of the infective germ. At operation on one of my patients the *B. coli communis* was found in blood taken from a diseased kidney.

The significant feature in diagnosis is the high leukocytosis. In one of my cases it was 29,000, and in a case reported by French¹ at Guy's Hospital the leukocytes were 25,000 per c.c. of blood. A pure culture of the *B. coli communis* can usually be obtained from the urine.

In thin patients with relaxed tissues the affected kidney can usually be distinctly palpated and is evidently enlarged.

In mild cases the disease tends to recovery if the patient's diet be limited to milk, and pure water be used abundantly. Rest and free action of the bowels are indispensable. Mild cases do not tend to abortion, and in the puerperal period mild cases do not commonly result in general septicemia.

When infection is overwhelming, and mixed infection is present, the kidney may be riddled with abscesses, and pyemia and septicemia develop. In pregnancy abortion

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. French: *Brit. Med. Jour.*, May 2, 9 and 16, 1908.

follows, and in the puerperal period septicemia may develop.

The medical treatment of the condition consists in a differential diagnosis, between pyelonephritis from infection by the *B. coli communis* in the right kidney, and appendicitis. This diagnosis may be difficult and practically impossible. Fortunately, the treatment for both conditions, if mild, is practically the same. Rest in bed, a milk diet, and abundant use of pure water, with purgation, are sufficient. If the *B. coli communis* be obtained in pure culture from the urine, the use of hexamethylenamin is often beneficial.

When the disease does not yield to these measures, the obstetrician must remember the danger of the development of nephritic abscess. Drainage of the kidney must then be employed. This may be done by catheterizing the ureter and by irrigating the pelvis of the diseased kidney. If there is doubt as to which kidney is involved, catheterizing the ureter should give the desired information. The fluid injected may be salt solution or any of the less noxious antiseptics, in considerable dilution. The objection to this method of treatment lies in the fact that it is possible to add to the infection by this manipulation, that the drainage is but temporary, and the action of the antiseptic solution so applied is comparatively brief.

Drainage by nephrotomy or lumbar incision has the merit of enabling the operator to make a positive diagnosis and to apply surgical principles of treatment in a prompt and efficient manner. The kidney should be exposed by the usual lumbar incision, brought up to the surface of the wound, and several stitches of chromicized catgut passed through its capsule and through the edges of the wound to retain it in position. The kidney is then incised along its convex border and the finger passed through the kidney substance to the pelvis, when an opening large enough to permit free drainage should be made by the use of the finger. A gauze drain is then inserted to the pelvis of the kidney and carried out through the center of the wound. This is gradually removed, and if desired the kidney may be irrigated from the fistulous tract, which gradually closes.

The obstetrician may be unable to demonstrate the existence of pus in the fluid which comes from the kidney in this operation. The kidney is enlarged and hyperemic and the blood is so abundant that unless abscess be present a small quantity of pus may be overlooked. Cultures taken from the blood which comes from the kidney will demonstrate the presence of infection.

If the operator is in doubt regarding the condition of the appendix, appendectomy should be added to the operation. Unless drainage of the appendix site is necessary this wound should be completely closed after the removal of the appendix, and its presence does not complicate the patient's recovery.

CASE REPORTS

CASE 1.—R. M., aged 23; third pregnancy; ill-nourished; gave a history of an illness of over two weeks. She was pregnant about seven months. There had been continuous pain over the right abdomen, with vomiting and several chills. Pulse and temperature were considerably above normal, but high fever was absent. A leukocytosis of 26,600 was present. The urine was acid and swarming with the *B. coli communis*. The germ was obtained from the urine in pure culture. The left kidney could not be palpated, but as the patient was ill-nourished and her tissues relaxed, the right kidney could be distinctly outlined.

Medical Treatment.—Rest in bed, milk diet, hexamethylenamin, purgation, and the copious use of water, failed to mitigate

the patient's sufferings. The advent of chills suggested the necessity for operation.

Operation.—Jan. 11, 1911, the right kidney was exposed by the usual lumbar incision. The organ was much enlarged and dark-bluish in color. Retention stitches of chromicized catgut were passed through the two extremities of the capsule and the kidney incised along its convex border. An abundant flow of dark blood followed. The finger of the gloved hand was then passed cautiously through the kidney substance to the pelvis and the opening dilated sufficiently to permit the ready introduction of a gauze drain. The blood taken from the kidney at the time of operation showed the presence of *B. coli communis*. The lumbar wound was then closed at its extremities, leaving the center open for drainage.

Appendectomy.—As no pus was visible, and as abscess could not be seen and the patient's pain had extended over the entire right abdomen, the appendix was then exposed by the usual incision and removed. It was somewhat enlarged and catarrhal, but otherwise normal. The patient improved immediately following the operation, the leukocytes diminishing to 10,000. On Feb. 5 following, when the kidney wound was almost closed, the patient came into spontaneous labor and gave birth to a female infant 46 cm. long, and weighing 5 pounds 8 ounces. Mother and child made an uninterrupted recovery and were discharged from the Maternity Department of the Jefferson Hospital in good condition.

CASE 2.—E. C., aged 21; in second pregnancy at about six months, was referred to the Maternity Department from the examining room of the General Hospital, having been sent by a physician who supposed she had typhoid fever. His diagnosis was based on moderate rise in pulse and temperature, a mild toxemia, and some slight disturbance of the intestine.

Examination.—The red blood cells were 4,500,000, leukocytes 20,000, color index 0.8 plus, hemoglobin 75 per cent. The urine was acid, containing abundant *B. coli communis* in pure culture. The patient's illness was of indefinite duration and she had been treated for typhoid fever for over a week before admission. Neither kidney could be palpated, and the patient's pain was so indefinite that it gave little information concerning her condition.

Operation.—At operation the right kidney had been so elevated by the uterus and its contents that it was brought to the surface of the wound with considerable difficulty. The kidney was enlarged and dark-bluish in color. It was anchored in the wound by stitches passed through the capsule, the convex surface of the kidney was incised, and the finger passed through the pelvis. A free discharge of dark blood mixed with a seropurulent fluid followed. A gauze drain was inserted and the appendix then removed through the usual incision. The appendix was postcecal but not adherent nor perforated. It was removed without difficulty and the wound closed. The patient made an uninterrupted recovery, the leukocytes speedily diminishing to 15,800 and the wound gradually closing. Between five and six weeks after the operation the patient was well, the leukocytes 10,600, and the wound healed. She was discharged as she preferred to be confined at home.

There are several points of practical interest connected with the subject of renal surgery in pregnancy. Pousson's interesting paper presented before the French Congress of Gynecologists in 1910,² gives a considerable collection of these operations. In sixty-six patients in whom nephrectomy had been done and who subsequently became pregnant, fifty-nine were delivered at term, most of them nursing their children, and one becoming a wet-nurse. Pinard removed a tuberculous kidney, the patient afterward passing through a normal pregnancy. In eight of Israel's cases of tuberculous kidney with nephrectomy, fifteen pregnancies subsequently developed uncomplicated, followed by normal labor. Hartmann reported 113 renal operations on women, thirty-five during pregnancy, and seventy-eight followed sooner or later by pregnancy. Among the thirty-five he included

2. Pousson: Ann. de gynec. et d'obst., October, 1910, p. 674.

Cragin's vaginal nephrectomy for the removal of a displaced cystic kidney in the pelvis which was obstructing labor. Normal delivery occurred the next day. In Twyman's experience, in twenty-six nephrectomies during pregnancy, one patient died of eclampsia on the second day, the other had phlebitis before the nephrectomy. In the remaining twenty-four, pregnancy went to full term in twenty-two. In four out of five nephrectomies in pregnancy gestation was uninterrupted. The fifth patient died on the second day after premature labor. In one nephropexy and one incision into a perinephritic abscess during pregnancy, there was no premature delivery or other complication.

There is abundant evidence that the removal of one kidney does not make subsequent pregnancy impossible. Thus, in seventy cases a single kidney carried the patient through pregnancy, which was sometimes repeated. In three nephrectomies, one patient had miscarriage, one became pregnant twice going to full term, and one three times. It is also found that bilateral decapsulation does not prevent subsequent normal pregnancy and labor.

It is noticeable that in these cases interference with the uterus was followed by disastrous results.

In a recent extensive review of the subject Burnett³ calls attention to an interesting point in diagnosis. When the infection is by *B. coli communis* only, the urine remains clear, acid in reaction, and free from ammoniacal odor, because this germ does not split up the urea into ammonia. If staphylococci and streptococci be present cystitis develops, the urine becomes alkaline, ammoniacal in odor, with mucus, lymph and pus cells.

Another interesting point in differential diagnosis lies in the fact that hematuria in these cases is rarely present. On the contrary, in pernicious toxemia of pregnancy hematuria is often present in severe cases. This condition may be mistaken for appendicitis, malaria, pleurisy, or the passage of a renal calculus.

In the treatment of this condition serum has been unsatisfactory, because the *B. coli communis* does not develop an antitoxin. Autogenous vaccines have not proved very valuable except in ameliorating the symptoms. This statement is borne out by the experience of French, who treated a patient after operation by vaccines prepared from cultures of the *B. coli communis* obtained from the patient's urine. The injections were made at intervals of about two weeks, the dose consisting of the products of 500,000,000 bacilli. The patient steadily improved, but the pyuria persisted.

The extreme rarity of tuberculosis of the kidney in pregnancy renders the confusing of this condition with *B. coli communis* infection very unlikely. At Guy's Hospital there has been no case of pregnancy with tuberculous kidney in the last twenty years.

Sondern⁴ in eighteen cases found operation necessary in four. In his experience it was possible to rule out tuberculosis and gonorrhea by the study of the bacilli found in the urine.

CONCLUSION

This contribution to the literature of the subject is made with the hope of directing the attention of obstetricians to two points: first, that the existence of pregnancy does not forbid surgical treatment in this condition; second, that surgical treatment is indicated as soon as other measures fail to produce improvement; experience shows that drainage by nephrotomy is the safest for mother and child. This was brought forcibly to

my mind by a recent case seen in the Jefferson Hospital in consultation with a surgical colleague.

The patient, a young primipara, had high temperature and repeated chills. Operation was urged, but declined, the patient subsequently giving birth to a dead child, and making a tedious recovery.

250 South Twenty-First Street.

ABSTRACT OF DISCUSSION

DR. CURTIS F. BURNAM, Baltimore: Dr. Davis has brought up a question which I have often wondered about, i. e., how these kidneys would close after doing nephrotomy with a pregnant uterus below. One case that I saw was unsatisfactory, as a permanent fistula persisted and the kidney was ultimately lost. We ought to distinguish clearly cases of pyelitis from those of pyelonephritis, and those that occur before the third month of pregnancy from those in the later months. We see a good many cases with pyelitis of pregnancy within the first three months and when it is a pyelitis alone, often the only symptom is a continuous fever resembling typhoid, and the blood instead of showing increased leukocytosis shows normal. Often there is little pus in the urine, and a casual examination of the urine would lead one to discard the belief that there was infection in the kidney. Sometimes these cases have a malaria-like fever. In the early cases the plan of treatment which we have followed has been to put the patients on a milk diet, abundant water and rest in bed, then to give the only urinary antiseptic which I believe is capable of destroying bacteria—hexamethylenamin. At the April meeting of the American Urological Society I reported the results of my experiments, showing that its virtue in the urine is dependent on the liberation of free formaldehyd, and that when this liberation does not take place it is useless to continue the drug. The infection is sometimes bilateral. It has been our custom in the more resistant cases to catheterize the kidney daily or every other day, and irrigate with formaldehyd 1:2,000 solution. When this fails to relieve, the next step is to induce miscarriage. I can conceive of how difficult and dangerous the induction of labor must be in the later months, but I have seen no ill results from induction in the early months. The hexamethylenamin which may have been ineffectual beforehand immediately clears the cases up.

DR. C. S. BACON, Chicago: I had accepted the rule as well established that such patients should not be operated on because, as a rule, they improve and become, practically speaking, well after labor, and the cases are very rarely so serious as to demand any operation. I should like to ask what the final result of the operation is. Practically all the cases are chronic infections. I believe that the infection frequently starts in infancy as a colon-bacillus infection ascending from the vulva.

DR. H. D. FURNISS, New York: In the literature of many of these cases of pyelitis in pregnancy there has been a history of antecedent cystitis in most. In the statistics of twenty-five patients who had died from other causes but who had cystitis (Sugimura), there was involvement of the lower end of the ureter that caused a certain amount of obstruction, and this inflammation extended through the lymphatics. In the treatment of these cases of pyelitis the best results are from ureteral catheterization. In a number simply the passing of the catheter relieves. If this fails, irrigation is advisable. In addition to that it is necessary to look after the bladder condition to relieve the hyperemia and obstruction. If more attention were paid to vesical irritation in early pregnancy in cystitis, we would avoid cases of subsequent, severe infection. The cases that Dr. Davis has cited of nephrotomy with discharge for a month or two afterward speaks for some obstruction lower down, as the kidney would close soon if there is good drainage into the bladder through the ureter. I think in all these cases there will be found some obstruction in the lower end of the ureter, and in the majority of cases it is of inflammatory origin.

DR. WILLIAM LINDER, Brooklyn: I want to call attention to a condition of unilateral infection of the kidney of hematogenous origin occurring in pregnant women. The condition

3. Burnett: Jour. Obst. and Gynec. Brit. Emp., July and August, 1910.

4. Sondern: Bull. Lying-In Hosp., New York, 1909, No. 1.

is one of exceptional interest and, among other things, must be differentiated from pyelitis of pregnancy. One is an ascending, the other a descending or hematogenous infection caused, in the vast majority of cases, by the colon bacillus. The lesion is cortical, consisting of numerous miliary abscesses of the kidney underneath the capsule. The onset is acute and the condition must be differentiated from an upper abdominal condition, as cholecystitis, perforated gastric or duodenal ulcer. There is extreme tenderness at the corresponding costovertebral angle, sudden rise in temperature, nausea and vomiting, and upper right rectus rigidity. Microscopically, one finds a few white blood-cells and a few red blood-cells, differing from pyelitis, in which there is considerable pus found under the microscope. One patient had frank hematuria followed by anuria in twenty-four hours. The patients were all treated medically for several days without improvement. Nephrectomy is the only cure. In six consecutive cases, I found the lesions so extensive that nephrectomy seemed the only rational procedure. In four cases the lower pole was involved and here a partial nephrectomy was sufficient. In two cases the capsule of the kidney was stripped and enveloped in iodoform gauze for drainage. In not one case was pregnancy interrupted and all the twelve patients recovered.

DR. EDWARD P. DAVIS, Philadelphia: In answer to Dr. Bacon's question; the urine became normal and the patients got well. There was no evidence of abnormal position or condition of the kidney. There was no pain on palpation. Regarding the question of cystitis in these cases; when there is a cystitis there is a mixed infection, with alkaline urine containing pus, and these phenomena were absent. The reason the wounds did not close quickly was that we did not let them close. We repacked and irrigated, using as an index the leukocytosis, condition of the urine and the patient's pulse and temperature.

THE OCCURRENCE OF GENERAL PARALYSIS IN WOMEN *

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My desire is to draw attention to the occurrence of general paralysis in women and to present the results in one of the New York state hospitals from that standpoint.

For years it has been stated that this disease was much more common in men, the ratio being variously given as from 1 to 4 to 1 to 7, and the percentage from 3 to 6. It is our contention that general paralysis is nearly, if not quite, as common in women as in men, especially in the city, and I shall endeavor to point out how and why we arrived at this radical view. Most of the work has been done in the past three years, but the conclusions are drawn from a period of four years, during which time 2,800 women have been admitted and 639 lumbar punctures done.

If we go back over the annual reports of the New York State Commission in Lunacy, beginning, say, with the fiscal year of 1907, we find that the occurrence in women is given as about 6 per cent., and no change is apparent until the fiscal year 1909 and 1910, when we find the figure has risen to 8.4 per cent. On further analysis of this report, however, we find the only hospital in the state reporting any material increase, is the state hospital at Central Islip. In the Central Islip reports, we find for the year ending Sept. 30, 1908, that the figure is 6.2 per cent.; for 1909, it is 13.4 per cent.; for 1910, it is 20.4 per cent.; and although the final figure

for the last fiscal year is not yet at hand, it will be in the neighborhood of 20 per cent., i. e., there was a rapid increase over a period of two years; since then the figure has remained about stationary at 20 per cent. Incidentally, there has also been an increase in the cases diagnosed cerebral syphilis and psychoses accompanying nervous diseases; the report for 1908 shows 0.5 per cent. in this organic group, whereas in 1910 it is 2 per cent., i. e., the increase of general paralysis has not been by changes of diagnosis in the organic group, but has been essentially from the so-called functional groups.

In October, 1909, at an interhospital conference at Ward's Island, New York City,¹ I referred to the increase at Central Islip, and in Dr. Smith's annual report for the year 1910² will be found the following: "I am strongly of the opinion that general paralysis is far more frequent in women than has hitherto been believed. To this end, nearly all patients of foreign tongue are tested in their own language for speech and writing defects. Our investigations have shown that any form of mental complex can be present in general paralysis." These two citations, so far as I know, represent the first assertions that the percentage of general paralysis in the female could in any way approximate the percentage in the male.

It has long been accepted as a fact that general paralysis is much more common in cities than in the country districts. A very careful review of insanity in Orange County, N. Y., by Dr. Woodman,³ shows that 75 per cent. of the paretics were from the three small cities of that county. Our admissions are almost exclusively from New York City and a certain excess over the rest of the state was expected; we found, however, many diagnostic difficulties. Our admissions represent the lowest element of city life and the percentage of foreign-born is very high with the consequent large numbers who do not understand or speak English.

For example, some time ago a fiscal year with 745 female admissions was reviewed, and it was found that 63 per cent. of the patients were foreign-born, 40 per cent. of whom had been ten years or less in the country.

When we recall the important symptoms of general paralysis, we find, in prominent positions, speech and writing on the physical side and memory on the mental. One can, therefore, readily see the difficulties in diagnosis on an admission service showing such a high percentage of foreign-born; of importance also is the large percentage of illiterates. The development of the psychosis is also of great diagnostic value. Many of our patients are never visited; many have no friends. They are often living apart from their relatives, and their visitors, when they come, either because of lack of knowledge, or as is perhaps more often the case, because of their own ignorance and poor observing powers, give us an incorrect account. There is also a great deal of intentional deceit. A patient presenting an hallucinosis, a delusional system, a depression, or any one of the various complexes, naturally directs our attention to his more prominent symptoms, his visitors do the same, and the finer changes in conduct, moral sense, judgment, reasoning, etc., which are often prominent early symptoms in the educated or in those holding responsible positions, are either not shown by our class of patients or are not noted by their friends and relatives. The same applies to memory; in the humdrum existences of

1. State Hospital Bulletin, March, 1910, ii, No. 4, p. 780.

2. Annual Report of the Central Islip State Hospital, 1909-10, p. 8.

3. State Hospitals Bulletin, December, 1910, iii, No. 3, p. 321.

* Read before the New York Neurological Society, May 7, 1912.

such persons time relations are often lost normally. Then it is hard to gauge the former educational, emotional and other levels of the patient, i. e., to tell if they are deteriorating or not.

Therefore, in the investigation of our cases, we have come to lay great stress on any neurologic sign, on atypical mental pictures and on memory defects.

To refer again to the superintendent's report and to the efforts that are made to examine for speech and writing difficulties, it has been our custom to call freely on interpreters and to endeavor in all cases to establish whether or not the speech and writing are abnormal, regardless of the mental complex. I have perhaps been unusually fortunate in having available the services of several reliable interpreters.

The difficulties, some of which I have enumerated, gradually led to the increased use of lumbar puncture, and the presence of even a few suggestive physical or mental signs became sufficient to justify a puncture. Lately, of course, the Wassermann findings have been given their place in the complex. It was not until 1908 that lumbar puncture was taken up by us to any degree. During that year there were, on the female reception service, about thirty punctures, and you will recall that the percentage of general paralysis that year was 6.2. There were ninety-five punctures in 1909, 181 in 1910 and 192 in 1911. Of course, numerous patients were punctured more than once but such repeated punctures are not included in the above figures.

To review, we see thirty punctures in 1908 with 6 per cent. of paresis, ninety-five punctures in 1909 with 13 per cent. of paresis, 181 punctures in 1910 with 20 per cent., 192 punctures in 1911 with 20 per cent. It is also interesting to note that of 233 clearly positive punctures on which I have Wassermann reports for both blood and spinal fluid, the Wassermann reaction was positive in the blood-serum, or in the spinal fluid in 204, or 87.5 per cent. I do not, however, wish at present to go any further into the discussion of lumbar puncture or the Wassermann reaction, but to go back to the superintendent's report and to the statement that any form of mental complex can be present in general paralysis. As illustrations I would like to quote the following cases.

CASE 1.—Illustrating the Korsakoff complex: The patient, K. N., was a widow, aged 41. Alcoholism was given in the commitment paper as the etiology; commitment also reported the presence of hallucinations of sight and hearing, mistakes in identity, "rambling talk and fabrication in the manner of a chronic intoxication psychosis. There was marked tenderness along the deep nerve trunks of both upper and lower extremities." These same mental features were demonstrated after commitment but physically the patient showed exaggerated reflexes; Romberg sign was present, with defective speech and tremors. Lumbar puncture and the Wassermann were positive. The patient died ten days after admission and the diagnosis of general paralysis was confirmed post mortem.

CASE 2.—Illustrating an excited manie phase: M. H., a widow, aged 36, was found on Broadway in a highly elated state, partially disrobed, giving exhibitions of fancy dancing. The commitment reports constant excitement with elation, singing and shouting. The initial mental examination showed her to be in an excited elated state, very talkative, distractible to things heard and distinctly flighty, confused and partially disoriented. Blue suggested, she remarked: "Yes I am true blue—I am American-born—my three husbands is American-born too—my mother was true blue too—she was on the stage—I have been on the stage too—since I am 5 years old—I am going on the Hippodrome—\$500 a week—it is a good thing. I have good lungs—you have to holler in New York to get anything." Peaches suggested, she remarked: "Champagne—I would like a drink—whisky if nothing else—have

you got any in your hip pocket?" Physical examination was very difficult owing to the excitement. The pupils did not react very well. The deep reflexes were increased but a lumbar puncture was not done and the patient was transferred to a disturbed ward. She improved, became quiet and orderly, developed insight and requested her discharge. After three months, however, there was a relapse. She failed rapidly and died seven months after her admission. The diagnosis of general paralysis was made post mortem.

CASE 3.—Illustrating other phases of manie depressive: A. B., German, married woman, aged 37, had had, approximately seven years ago, an excited phase of short duration. December, 1909, following a suicidal attempt, she was admitted to Central Islip State Hospital. No neurologic signs were made out. The patient was depressed and dazed; her replies were slow and delayed. She was disoriented and confused. After two weeks, she began to show some distractibility but continued bewildered; she complained that things seemed changed. After another two weeks, well-marked improvement was apparent. She seemed to make a good recovery and was discharged two months after admission with the diagnosis of manie depressive. One year and six months later the patient was readmitted, this time in a very excited condition, showing marked distractibility and flightiness. Shown money, she remarked: "Oh—what you got this time—an English piece—what is it, Canada—I can't read it without my glasses—this English—no—what do you want to test me for—oh a quarter—oh listen you don't want to give me money after all you done for me—well Dr. M. I suppose you want to know it of me again—I—we moved—well I was four weeks in a boarding-house—you know Mr. B. sold everything and he got a regular loafer—sold the furniture—he got \$180 for a \$700 flat—he works so hard—you know, doctur, he was married before." etc. Physically, however, there were marked speech and writing defects. The patient was tremulous and the deep reflexes were exaggerated. There was at first some improvement but she gradually failed, became bed-ridden, very ataxic, partially paralyzed and died one year and nine months after the second admission. The slide from the lumbar puncture showed an uncountable number of cells; the Wassermann was positive in both blood-serum and spinal fluid. The diagnosis of general paralysis was confirmed by autopsy.

CASE 4.—Illustrating a præcox complex: C. S., a single, temperate, negro woman, aged 37, was admitted to Central Islip in 1904. Duration prior to admission was given as one and one-half years. The patient at that time described hallucinations of hearing, taste and common sensation. She thought she was being followed by a white man who threw electric currents on her and attempted to poison her because of jealousy. Her persecutory ideas were fairly well systematized but she was quiet; she was emotionally inconsistent. Her memory was good. For some months she sat about, most of the time indifferent and apathetic, occasionally a little depressed. She took no interest in the ward happenings. Later, in 1904, the patient began to work and she seemed not to have any new hallucinatory experiences; her former ideas were retained, however. She remained the same for about two years and was one of the industrious ward workers. She then at times showed elation, again irritability. She was suspicious, gradually became more silly and noisy but continued a good worker. During all these years she was regarded as a case of dementia præcox, slowly deteriorating. Finally her history was accidentally reviewed and it was noted that the deep reflexes were not obtained on admission. This led to the making of a new neurologic status, which showed pupillary reaction to light to be slow and limited; at times there was a rotary nystagmus; the knee-jerks were much exaggerated; the other deep reflexes were normal; there were slight deviation of the tongue to the right, twitchings about the corners of the lips, fine tremors of the tongue, closed eyelids and outspread fingers. Speech was fairly good, writing irregular but education limited. The lumbar puncture and Wassermann reaction were both positive.

It may appear to some that I have laid too much stress on lumbar puncture, but I do not want to be

understood as saying that lumbar puncture or the Wassermann reaction, or both, are by themselves sufficient for the diagnosis of general paralysis; they are only two points in the diagnosis—two very important points—but there must be other neurologic and mental signs; the case must be reviewed in its entirety. The actual pleocytosis of the spinal fluid has not been of so much value *per se* as it has been in directing our attention to the probability of an organic basis and thereby inciting us to more careful physical and mental examinations, they in turn resulting in our rapid and marked percentage increase.

THE DIAGNOSIS OF DIVERTICULITIS OF THE LARGE BOWEL

A CLINICAL REVIEW OF TWENTY-SEVEN CASES*

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Our earlier experience at St. Mary's Hospital with diverticulitis of the large bowel has been reported in former articles.¹ The clinical similarity of diverticulitis and carcinoma has been emphasized. The condition has been placed clearly on a definite pathologic basis, and the possibility of the development of carcinoma on diverticulitis has been demonstrated. A more detailed analysis of the symptoms and the physical findings in a group of personally observed cases has not, however, been made, and it is with the idea of determining whether or not a more or less definite clinical picture presents itself that this review is undertaken.

From Jan. 1, 1902, to Jan. 1, 1912, twenty-seven operations for diverticulitis of the large bowel were performed at St. Mary's Hospital, Mayo Clinic, and the cases were studied clinically and pathologically. This number includes only those cases in which the operation was done primarily for this condition. One of them has been previously reported by Graves² and eight by my associates and myself.¹ The entire group has been reviewed from an anatomic standpoint by McGrath,³ and the reader is referred to his paper for the details of the pathologic diagnosis. In four additional cases diverticula with slight pathologic change were found as a secondary condition, and in one other case an anastomosis was made subsequent to a resection for diverticulitis of the sigmoid elsewhere. Moreover, in seven instances a condition suggesting diverticulitis was found at operation, but diverticula could not be demonstrated positively. In all, then, thirty-nine cases have been observed which were either positively proved to be diverticulitis or in which this condition was strongly suspected at operation.

Of the twenty-seven cases which come directly under our consideration, twenty-two were in the sigmoid or the sigmoid and descending colon, while two occurred in the rectum, one in the transverse colon near the hepatic flexure, one at the hepatic flexure, and one at the anal ring. Carcinomatous degeneration had taken place in five of the twenty-two specimens from the sigmoid. The

remaining seventeen cases of simple inflammatory lesion occurring in the sigmoid constitute the most important group for a consideration of the clinical manifestations which may differentiate the condition and assist us in arriving at a clinical diagnosis, and these will therefore be considered first. During the same period of time there were 120 operations for carcinoma of the sigmoid. The relative frequency of diverticulitis and carcinoma is, therefore, as one to seven.

SYMPTOMATOLOGY IN NON-MALIGNANT LESION OF THE SIGMOID

Preoperative Diagnoses.—Only three of the seventeen cases were diagnosed as carcinoma. From a clinical standpoint it was thought that the rest might be inflammatory. One was diagnosed as acute appendicitis; in this case the appendix was in reality inflamed, but the abscess was secondary to a perforating diverticulitis of the sigmoid. Four of the patients, all women, presented pelvic tumors and these were in every instance believed to be inflammatory clinically. In them bowel symptoms were absent except for severe constipation which is so common a complaint in women especially with pelvic disease. Two cases were diagnosed simply as "tumors of the sigmoid" and this implied a doubt as to their malignancy. In seven instances diverticulitis was recorded in the clinical history as the diagnosis of preference, though it is true that in one of these the diagnosis had been made pathologically at a former operation elsewhere. The point for emphasis, however, is this: that there must have been something in the clinical picture which in all cases save three led the physician to doubt in some measure the existence of malignancy.

Age.—In this group of seventeen the youngest patient was 40 years of age and the oldest 73. The average age was a little less than 54 years. There were five between 40 and 49 years, eight between 50 and 59, three between 60 and 69, and one was over 70. The time of greatest frequency was from 45 to 60 years, nine, or more than half, occurring in this period.

Sex.—Five patients were females and twelve males.

Occupation.—This is of fraternal interest only in that three of the patients were surgeons.

Weight.—In general, the type of patient was uniform. An inclination to at least an "enviable" obesity was noted. Even though the patients were neither tall nor heavy, the ratio of weight to height was increased. In seven instances the weight was accurately noted and its average was 180 pounds. Three more were described as stout. Only one patient weighed less than 150 pounds, and, though short of stature, was not lacking in a suggestion of abdominal rotundity.

Nutrition.—In all but three instances the nutrition was noted. It was either good or excellent. By this it is meant that the patients were well nourished and of sound flesh and good color. The loss of weight varied from 5 to 30 pounds and averaged less than 10 pounds, and those showing marked loss of weight were originally very heavy.

Pain.—Fourteen of the seventeen patients gave a history of abdominal pain of considerable severity, two of very slight pain, and one of a sense of uneasiness, distress and gas in the region of the navel and across the lower abdomen. In eight the pain was crampy in character and of varying severity; in seven it was spoken of as an ache and differently described as dull or deep or as a distress or pressure, while in two tenderness only was complained of. Nine, or a majority of the patients,

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Mayo, Wilson and Giffin: Surg., Gynec. and Obst., July, 1907. Wilson and Giffin: Am. Jour. Med. Sc., November, 1909. Wilson: Ann. Surg., February, 1911. Giffin: Ann. Surg., April, 1911.

2. Graves: Boston Med. and Surg. Jour., March 16, 1911.

3. McGrath: Surg., Gynec. and Obst., June, 1912.

gave a history of very definite localization to the course of the descending colon and sigmoid flexure at various times. In eight of the cases, however, the pain was never thought by the patient to localize itself definitely in the left lower quadrant but was referred to the lower abdomen, though examination invariably demonstrated that the tenderness was definitely in the left iliac fossa. All of the females, five in number, and two males gave a history of pelvic pain also. In these seven the mass was found to be adherent in the pelvis, and in one it was partially intussuscepted into the rectum.

The total duration of abdominal pain varied from twenty days to five, eight and twelve years. In this great variability in the length of the history of pain the condition resembles other inflammatory lesions of the abdomen. In ten, or a majority of the cases, the total duration of abdominal pain was longer than one year. In two it was less than one month; in five less than a year.

In ten instances attacks of low abdominal colic had occurred and were of moderate severity in all but two: in these they were extreme. Seven had had no attacks, and the complaint was of a more nearly constant character. In those cases having attacks of pain, the duration of the attack varied from a few hours to a few days, most of the attacks lasting from two to four days.

In eight instances a history of abdominal pain preceded the discovery of a mass by periods varying from three months to twelve years. In five of these the period was longer than one year and in four longer than two years. If it can be determined with a reasonable amount of certainty that there is a long history of abdominal pain, especially occurring in attacks and with definite localization, this may be regarded as evidence in favor of a diagnosis of inflammatory lesion. If, in addition to this, there is a history of the previous formation of a mass and its subsequent disappearance the diagnosis is strongly confirmed. One of our patients gave a history of having noted a mass with an attack eight years previously and this had disappeared.

Vomiting, Diarrhea and Constipation.—Vomiting was not an important symptom. It occurred in three cases during attacks of colicky pain. Similarly, diarrhea was noted twice and then for a few days only at any one time. Constipation was complained of in a majority of the cases and was of more than moderate severity in nine of the seventeen. In eight of these it seemed to amount to a chronic obstruction from the clinical standpoint. Pathologically, eight showed evidence of moderate or marked narrowing of the bowel; five a slight narrowing. No instance of acute obstruction was seen.

Manual Examination.—In all cases a mass could be felt in the left lower quadrant or in the pelvis. In males the bimanual examination by rectum enables one to obtain a very clear idea of the size and outlines of the tumor. In women the left pelvic mass was a constant finding and in one case it was adherent low in the culdesac.

Blood Count and Temperature.—Leukocytosis might be considered as evidence in favor of diverticulitis. In three cases only was the leukocyte count recorded. It was 13,000, 14,000 and 20,000. In eight cases a reasonably accurate estimate of the fever during attacks of abdominal pain could be obtained from the patient. It varied from 99.5 to 104.

Bladder Examination.—In three instances only were vesical symptoms noted. One patient had complained of frequency and tenesmus for two years. Feces and gas

had been passed by urethra for one year. The cystoscopic examination revealed two fistulas in the roof of the bladder which, from their appearance, seemed to be inflammatory. They were neither rigid nor indurated. This evidence helped materially in making a correct diagnosis of the condition. The other two patients complained merely of difficulty in starting the flow or of imperfect control.

Rectal Examination.—The proctoscopic examination was negative in all cases of simple inflammatory lesion save one in which the tumor had become partially intussuscepted into the rectum. The instrument was inserted from 6 to 15 inches in seven of the cases. The fact that pathologically there is no ulceration within the bowel in most of the specimens makes it unlikely that definite changes can be recognized even when one is able to insert the proctoscope sufficiently far. X-ray plates of the colon after the injection of bismuth from below were negative in two cases.

Blood in the Stools.—A fact of the greatest importance in the differentiation of diverticulitis of the sigmoid from carcinoma seems to be a history of the absence of the frequent passage of macroscopic blood and bloody mucus in the stools. The occurrence of bleeding and its constancy in carcinoma are so striking that more emphasis than otherwise may be placed on its absence in diverticulitis. Carcinoma is essentially a mucosal involvement, whereas the most constant process in these cases is extramucosal, a true peridiverticulitis. Of the seventeen cases reviewed, one only gave a history of macroscopic blood and in this instance there was a partial intussusception of the sigmoid into the rectum which alone would satisfactorily account for the variation.

The preceding discussion refers to the group of seventeen cases of non-malignant lesion of the sigmoid. The remaining five cases of diverticula of the sigmoid showed carcinomatous degeneration and gave a history of abdominal pain for nine months, one year, four, five and twelve years, respectively. Three of the group gave a long history, suggesting the possibility of a preceding inflammatory lesion. The frequent passage of macroscopic blood occurred in all but one of the five cases showing malignancy; in this one there was marked chronic obstruction.

In the two cases in the colon near the hepatic flexure the clinical histories were in no way definite. One was carcinomatous. The two cases in the rectum gave symptoms and findings suggesting carcinoma. One specimen on pathologic examination did not show carcinomatous degeneration. Here again the patient having a simple peridiverticulitis presented a mass which was very hard and adherent and gave no history of the passage of macroscopic blood, while the duration of the symptoms was three years. The patient having a carcinomatous lesion gave a seven months' total length of history with the passage of blood during this period.

The one case of diverticulitis of the anal ring was clinically in all respects similar to anal fistula.

Five of the twenty-seven patients died, one of these of cerebral hemorrhage forty days after operation, and another of nephritis on the twenty-first day (autopsy). The direct mortality was therefore three, or approximately 11 per cent.

COMPARISON WITH CASES REPORTED

A review of the literature has been made for the purpose of comparing the clinical data obtained with our

own observations. A satisfactory description of diverticula demonstrated at operation or in the surgical or post-mortem specimen in addition to a clinical history was essential in order to make the review of definite value. These requirements were not met by most of the reports and consequently it was possible to obtain only thirty-six cases for tabulation, and in most of these the clinical data were not complete. The age of the patient, the character of the pain, the nutrition, and the demonstration of a mass correspond very closely to the findings in our own series. Twenty-four of the thirty-six patients were between 45 and 60 years of age. Six instances of acute perforation with general peritonitis occurred. In twenty-seven of the remaining thirty, a mass in the left iliac fossa was demonstrated clinically. In only three of the thirty-six was a history of macroscopic blood in the stools noted. In three it was definitely stated that no blood had been seen, and it is likely that so important a point would generally be recorded if positive.

Similarly, for purposes of comparison, 100 consecutive histories of carcinoma of the sigmoid from our own files were reviewed. Of this number seventy-four gave the frequent passage of blood and mucus in the stools as a most prominent and constant symptom; in seventeen no definite statement was made, while in nine, with severe obstruction, it was stated positively that blood and mucus had not been seen.

SUMMARY

In the light of these findings, then, it would seem that a probable clinical diagnosis of diverticulitis of the sigmoid may be made in certain cases. Given a patient with a tumor of the sigmoid, the points in the evidence which would favor a diagnosis of the chronic proliferative type of diverticulitis are as follows: (1) the absence of those shadows of malignancy in the general picture; (2) a tendency to obesity and the maintenance of good nutrition; (3) a long history of attacks of low abdominal pain localizing in the left lower quadrant; (4) a history of the former formation of a mass and its subsequent disappearance; (5) a failure to obtain a more or less continuous history of the frequent passage of macroscopic blood in the stools; (6) the demonstration of vesical fistulas which, on cystoscopic examination, appear to be inflammatory, and (7) the failure to demonstrate malignancy positively by sigmoidoscopic examination.

In carcinoma of the lower bowel there is usually an early loss of flesh. Pain is not a prominent feature until obstruction advances, and the mass is often found before pain has been complained of at all. Tenderness to pressure is a late finding. The relative frequency must also be kept in mind. In our experience carcinoma of the sigmoid has been only seven times as frequent as diverticulitis.

The other inflammatory forms of perisigmoiditis cannot be positively differentiated. A diagnosis of appendicitis in cases of transposition of the viscera should not be difficult. If non-rotation of the colon exist, a radiographic or fluoroscopic examination after a bismuth meal would be necessary. It must not be forgotten that a pelvic tumor may be a sigmoidal tumor and the possibility of diverticulitis is to be considered. Pelvic inflammatory disease may be closely simulated. In fact, diverticulitis should be carefully considered in the diagnosis of all tumors of the left lower abdominal quadrant and of the pelvis.

NOTE.—I am indebted to Dr. Alexander Archibald for assistance in the tabulation of histories.

ABSTRACT OF DISCUSSION

DR. ALFRED STENGEL, Philadelphia: I think that the condition described is more common than is generally thought. I remember a patient from Philadelphia who was operated on in my presence by one of the Mayos in Rochester, Minn. Since that time I have seen at least half a dozen cases. The possibility of diagnoses in these cases I think should be more carefully considered. The case which led to the first publication by Dr. Mayo and his assistants showed the difficulty in making a diagnosis of cancer of the sigmoid; there was found a tumor in the region of the sigmoid. The onset of the trouble was very acute and followed after a condition of perfect health. There was an absence of usual conditions; there was no blood or mucus in the stools. There was sufficient evidence, however, to arouse a doubt as to the presence of cancer, notwithstanding the age of the patient and the presence of a tumor.

Operations have been performed on patients who presented a definite tumor and there has been found only a diverticulum filled with fecal matter, and sometimes an inflammatory mass. The mucous membrane itself shows no ulceration or any surface lesions. I have no doubt that many of these cases go on to abscess formation or to a spontaneous discharge of pus from the bowel. I have in mind a case that was under Dr. Deaver's care in Philadelphia. A man was seized with symptoms, especially pain in the left lower quadrant of the abdomen, at which point a mass developed. The patient apparently made a good recovery after the discharge of pus from the bowel. This is not a proved case, but taken in conjunction with what subsequently arose, it teaches that we should not temporize with regard to any surgical procedure; these cases are very formidable. In many cases there is required a removal of a large portion of the sigmoid flexure or the descending colon, and these are not trivial operations by any means. One of my patients who was operated on, showed a diverticulitis at necropsy.

THE TREATMENT OF PULMONARY TUBERCULOSIS BY COMPRESSION OF THE LUNG *

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Some of the foremost specialists in Europe are treating pulmonary tuberculosis by injecting nitrogen into the pleural cavity until sufficient pressure is obtained to drive the lung up into the smallest possible mass. The lung is then held well compressed by the nitrogen until it heals, when the nitrogen is absorbed and the lung reexpands and resumes its functions.

The method has been used in advanced and hopeless cases when nothing else availed, cases that at autopsies show the well-remembered typical picture of such conditions. There are the white, gaping, cross-sections of thickened bronchial and vessel walls held out by the caseous, greenish, blackish infiltrations through which constantly ooze the liquefying contents of an infinitude of disintegrating foci. How is it possible for such a lung to recover? If we could tie off the vessels and remove the whole mass of poisonous materials the patient might live. Whatever surgery may do in the future, it does not at present attempt the removal of an entire lung. To-day the best we can do to imitate surgical methods is to fill the pleural cavity with nitrogen until the lung is so closely compressed that it is practically obliterated and removed.

In uncomplicated cases the compression of the lung is not a difficult undertaking and requires no surgical skill or training. A fine hypodermoclysis needle may be

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thrust through the tissues into the pleural cavity and the nitrogen injected just as any solution would be injected. This was done by Forlanini,¹ who first proposed the method in 1882. In 1898 Murphy² published his independent conception of the same theory. Murphy made a small incision through the skin, and pierced the pleura with a medium-sized, blunt aspirating needle.

Brauer³ makes a free incision, retracts the tissues and examines the surface of the pleura. If it is smooth and glistening and the motion of the lung beneath is seen, the pleura is pierced with a blunt Salomon catheter. This is the only safe way to produce a pleural cavity. If the operator cannot see where the point of the needle is, he may make mistakes that will cost the patient dear. It may be that the needle pierced only the endothoracic fascia and did not go on through the pleura but stopped in the endothoracic space, and if the nitrogen is turned on it will cause an emphysema running up into the neck and face, down the arm and into the fingers, over onto the other side or down to the hip. The needle has been known to enter the abdominal cavity, a band of pleural adhesions, the interstices of the lung, a bronchus or a blood-vessel.

Sangman used a manometer to show the changes in intrapleural pressure caused by different positions of the chest-wall. When the chest-wall is pulled away by inspiration, the pressure in the pleural cavity falls. As the chest-wall sinks back, the intrapleural pressure rises. If the manometer does not show these respiratory changes in pressure, the needle is either stopped or it is not in the pleural cavity. The danger of gas embolism is so great that the nitrogen should never be turned on unless the manometer shows good respiratory excursions. How much nitrogen shall be used and how often must it be put in?

A standard of pressure is established in each case and then is maintained as evenly as possible. To heal to the best advantage, a lung must be kept from expanding, and therefore a good deal of pressure is necessary and desirable. If too much pressure is used, the digestion, the circulation and the nervous status of the patient may suffer. No more pressure may be used than can be well borne by the mediastinal pleura; if this stretches, then extra pressure does not mean compression of the lung but bulging of the mediastinal pleura over to the other side, and this causes distress and impedes the action of the other lung. If the pleura yields and allows the nitrogen to escape, it will oppress the heart, choke the throat and alarm the patient. The pressure may also force the nitrogen back through the track of entry and cause subcutaneous emphysemas, sometimes remarkable in their extent.

If 4 cm. of positive water-pressure is found sufficient to keep the lung well compressed and is well borne by the patient, just enough nitrogen is put in to bring back the amount of pressure to the standard. A record curve is kept of the pressure and an attempt is made to have this as even as possible. To do this the fillings must be made frequently until the pleura begin to lose the power of absorption because while this continues there is a steady loss of nitrogen with a corresponding fall in pressure and tendency on the part of the lung to expand. If the loss of pressure is insignificant, the interval is lengthened; if it is too great the interval is shortened.

RESULTS OF COMPRESSION

As the lung gets smaller and smaller, the walls of cavities and abscesses are closely approximated and their foul, decomposing contents are forced up through the bronchial tubes and out through the mouth. The pressure of the nitrogen squeezes out the filthy, poisonous contents of the lung and makes it clean and dry, just as you would squeeze water out of a sponge.

The two factors on which the recovery of a compressed lung depend are these: First, the lung is made clean and dry and kept so; second, fibroblasts shoot out from the injured walls of bronchi and vessels, and organize tuberculous lesions into scars, thus obtaining an anatomic recovery of the most durable nature. Autopsies have shown that in such recoveries the suppurating walls of abscesses and cavities appear only as linear scars, and throughout the whole of the lung not a trace of active tuberculosis can be found.

As the tuberculous processes are extinguished and no more toxins are produced, the temperature becomes normal, the night sweats cease, and the cough lessens. In uncomplicated cases the results are comparable to the drainage and cleansing of any other surgical condition, and often they are equally precise. We have had at Highlands Camp Sanatorium seven cases of high temperatures which had persisted for from six to eighteen months and which nothing could reduce; after a few weeks of compression the temperature has remained persistently normal. A common result is the disappearance of tubercle bacilli so that there is no more danger of infection either to the patient or to his surroundings.

When should the method be used? If all else has failed, if symptomatic and tuberculin treatment cannot arrest the process, then the attempt to save the patient by compressing the lung would seem to be amply justified. The contra-indications are, any complication sufficient in itself to inhibit recovery, and too great an involvement of the other lung.

Over 600 cases have already been reported with about 40 per cent. of recoveries. All of these were advanced and hopeless cases and the causes of failure were not so much in the method itself as in the inability to use it. The pleural surfaces may be so adherent that a pleural cavity cannot be produced. A small pocket may be gradually enlarged or resist all pressure. Pleural bands may hold the lung out so that it cannot be compressed and the pleural vessels may be so engorged and multiplied as to resemble a malignant neoplasm.

Even if we succeed in compressing the lung, we may have to give up the attempt because a tuberculous process flares up in the other lung, or in the intestines or kidneys. There is danger of injuring the lung and causing an abscess, and of infecting the pleura when the needle is withdrawn. Empyema may be caused by infection of the track of entry. Gas embolism, the greatest danger of all, may be avoided by Brauer's method and careful attention to the manometer.

What does the method accomplish and by what means? The pressure of the nitrogen immobilizes the lung and gives it complete rest; the edematous infiltrations characteristic of pneumonic and progressive cases are restrained. There is a vigorous connective-tissue infiltration that secures an anatomic recovery of the most durable nature so that the danger of a relapse as far as the compressed lung is concerned is minimized. The "bilious attacks" and "colds" that so often retard recovery do not affect a compressed lung, so that each day

1. Forlanini, C.: *Primi tentativi del pneumotorace artificiale nella tisi polmonare*, Gazz. med., 1894.

2. Murphy, J. B.: *Oration on Surgery*, THE JOURNAL A. M. A., July 23, 1898, p. 151.

3. Brauer, L., and Spengler, Lucius: *Beitr. z. klin. d. Tuberk.* (Brauer's), 1910, xlv, No. 1.

adds its quota of recovery. In typically successful cases the results are almost spectacular. The temperature falls, the cough lessens, the tubercle bacilli disappear, and the patient gains in weight and strength. Patients with high fever, drenching night sweats, profuse, purulent expectoration, profound cachexia and exhaustion are saved as by a surgical operation.

We have had thirty-one cases. Six patients are dead, and three have not been under treatment long enough to afford data to report; ten are still uncertain, five because of lack of time; ten are improving, and in two cases the lung has expanded, resumed its function, and there have been normal breath sounds and resonance for over a year.

ABSTRACT OF DISCUSSION

DR. SAMUEL ROBINSON, Boston: I have been much interested in the treatment of pulmonary tuberculosis by compression of the lung from a surgical point of view. In twenty of the forty-five cases in which I have performed injections I have made an incision of the pleura. I regard the needle method as a simple procedure and one which should be employed by internists. Dr. J. B. Murphy, of Chicago, described this treatment in 1898; the late Dr. Lemke continued the work and reported a series of cases; the Germans and Italians have been employing the method since 1900.

Dr. Lapham's enthusiasm about the method might exert an undue influence. I do not think that we should be led to believe that 40 per cent. of the cases of the second-stage tuberculosis are cured by this method. Without doubt, the disease is arrested in a certain number of patients, but I cannot believe that the percentage is as high as stated by Dr. Lapham. I have had considerable experience with this treatment and am impressed with the systematic relief almost universally resulting. Tuberculin has in many ways been disappointing and it is fair to say that the pneumothorax treatment offers more chances of relief than any other treatment in this group of cases. Success depends largely on perseverance both of the physician and the patient, and it is not advisable to start the treatment except with the promise of continued cooperation.

My surgical experience in the thorax has developed in me a greater respect for the pleural cavity than that possessed by many internists. The needle should be introduced with the greatest caution and a manometer used as a guard against air embolism. Respiratory excursions should be carefully watched. The pleura are always opposed, if not adherent, and the needle therefore must stop at just such a point in order that the nitrogen may enter the pleural spaces. Frequently it must be withdrawn and another site selected. From a surgical point of view I recommend this method and believe it to be a safe procedure in the hands of competent persons.

DR. S. ADOLPHUS KNOPP, New York: It should be remembered that in speaking of any new and untried treatment it is unwise to neglect to speak of the importance of the hygienic, dietetic and climatic treatment of a disease like pulmonary tuberculosis. Perhaps it was merely lack of time that made Dr. Robinson omit these essentials of modern phthisiotherapy. I have been overwhelmed with awe and admiration while hearing the wonderful report of 40 per cent. of cures in advanced cases of pulmonary tuberculosis! To hear such a report is surely a delight to anyone who works with this class of cases. My own statistics are far, far inferior; I have never had, nor ever heard, of such results. We must, however, pause for a moment and consider the meaning of the word "cure." At Washington last week, one of the most interesting subjects that were brought up for discussion was this word "cure" as applied to pulmonary tuberculosis and whether it should be accepted at all. "Why not speak only of arrested cases?" said some. "There is no sure cure," said another. The term "arrested" seemed

to be considered a safer expression than "cured." While I would not wish to abandon the word "cured" in our nomenclature, I agree with those who said that we should be very careful before using the words "absolute cure" in pulmonary tuberculosis. It would seem best not to speak of absolute cure unless the patient has remained for at least two years without tubercle bacilli in the sputum, without any physical signs except those which are caused by cicatrized condition in the lungs, and, of course, with no cough and with freedom from all other symptoms. When it is said that cures are obtained within three or four months in 40 per cent. of advanced cases by the method described, I am a little apprehensive, and I should like to ask Dr. Lapham just what she means by "advanced cases" and by "absolute cures." As a rule, the advanced cases are bilateral. I do not think that I would like to inject nitrogen gas in cases in which both lungs are involved. I would be willing to try this treatment when assured that the diseased condition is confined to one side. I would also be willing to try it in an uncontrollable hemorrhage which can be localized, but I do not think we can resort to artificial pneumothorax as a routine treatment.

While I do not wish to be misunderstood in questioning the accuracy of the statements of Dr. Lapham, which are remarkable and probably due to a very wise selection of cases, I plead for conservatism in making public such statements as that with the new treatment 40 per cent. of absolute cures can be obtained. We need much, much more experience with artificial pneumothorax, more data by many observers, before we speak numerically of results in a condition so difficult to treat and to cure as pulmonary tuberculosis in advanced stages.

DR. CHARLES L. MINOR, Asheville, N. C.: The conservative attitude taken by Dr. Robinson is wise, for too great claims for the new procedure now would only retard its acceptance. It seems to me that the procedure offers us an excellent means of ameliorating the condition in advanced and hopeless cases for which we can now do nothing. Even if we do not take as optimistic an attitude as Dr. Lapham as to the results the method can yield, it should still be a great addition to our resources.

DR. FRANCIS M. POTTENGER, Monrovia, Cal.: This method of treatment is one that offers relief to a certain class of patients which has hitherto baffled our skill. I would not expect, however, to cure in 40 per cent. of hopeless cases. Cases for artificial pneumothorax should be carefully chosen and the operation should be done with caution. I believe it is possible by this method to make more comfortable and prolong the lives of a certain percentage of patients.

I have been watching this operation with great interest for several years, and while I have not come to its use, I am convinced that it has considerable merit in certain cases. To become too enthusiastic is dangerous to any measure or remedy. In the use of this method we must not forget that there is suddenly thrown on the heart a considerable increased burden, and that it is the heart that bears the brunt in tuberculosis. The shutting off of a large portion of lung tissue in patients who are already seriously crippled because of lack of lung increases the burden on the heart in a manner that cannot be looked on otherwise than seriously. Therefore, it seems to me that the suggestion made by Dr. Robinson that the gas should be injected cautiously and not too much at a time is very timely. It certainly would be most unfortunate to collapse one lung entirely if the other was not in good condition.

I feel that there is no place for pessimism in the treatment of tuberculosis. Those of us who followed this work in recent years have certainly seen enough to make us optimistic; at the same time we must keep our optimism tempered with judgment, and realize that we may do all that a remedy and measure can do and still not cure the patient. We should consider this method carefully and watch the result of its employment both as to its immediate effect and its after consequences, before giving judgment.

DR. MARY E. LAPHAM, Highlands, N. C.: Dr. Robinson has spoken of the difficulties attending the compression of the

lung. If you will read the reports I think you will agree with me that the cause of failure is not in the method itself but in the inability to use it. The pleural surfaces may be too adherent to produce a pleural cavity, or possibly only a small pocket can be formed which pressure cannot distend, or the surface of the lung may be so held out by adhesions that it cannot be compressed, or the pleural vessels may be so multiplied and engorged as to constitute a veritable angioma fairly comparable to a malignant neoplasm. In these cases the lung cannot be compressed because we have waited too long. Even if we are able perfectly to compress the lung and obtain good results, we may find later on that the attempt must be relinquished because an unsuspected process flares up in the intestines or in the other lung. Once more we have waited too long and the method fails because it is too late. I fully agree with Dr. Knopf as to the value of hygienic and dietetic treatment. I used the word "symptomatic" as it is used in Switzerland, meaning thereby all measures that are not medical or surgical. We have had four bilateral cases in which we compressed the second or last lung attacked. The process had dragged itself through the first lung, scarring as it went, but the second lung broke down into disintegrating foci. We compressed the cavities of these second lungs with marked success while depending on the functional capacity of the scarred first lung. The action of the heart must be carefully watched. It is often distressed at first but eventually benefited. One of the four patients had a pulse of 140, very irregular and intermittent. The patient was cyanotic and suffered a great deal from crises of dyspnea. During the first forty-eight hours after nitrogen was injected there was a good deal of pain and sleeplessness but after that the pulse began to be less frequent and stronger and within two weeks was 84, and at present is 72. The respirations, which were 36 to 40, are now 22. In this second lung there were three cavities and the patient was exhausted by the continuous efforts to empty them. These cavities are well compressed and the patient is only expectorating about a teaspoonful in the morning, after which he hardly coughs at all through the day.

BACTERIOLOGY OF EPIDEMIC SORE THROAT*

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BALTIMORE

In view of the wide-spread interest in the so-called septic sore throat prevailing in epidemics in various centers of the country, and in view of the fact that a diversity of opinion seems to exist as to the bacterium causing the infection, some describing the organism as a pneumococcus, others as a "peculiar streptococcus," it seemed important to record the morphologic and cultural characteristics of the organism isolated during the recent epidemic in Baltimore.

Outbreaks of sore throat attributed to milk and cream have been reported in England since 1881, of which a good résumé is given by Swithbank and Newman,¹ who conclude: "We think it safe to assume that a year never goes by in which there are not outbreaks of sore throat or tonsillitis due to cream or milk." In this country, however, only a few epidemics have been reported.

As the symptoms and complications have been described during these outbreaks, reference will be made only to the bacteriologic findings.

In 1897, a small epidemic occurred at Anglesey² at which time the milk was examined bacteriologically and staphylococcus and *Streptococcus pyogenes* were found.

In 1902, during the epidemic occurring at Lincoln,³ Dr. Klein isolated a "special organism"⁴ from the throat by means of swabs.

In 1911, during the Boston epidemic, Dr. Darling⁵ reported that many cultures were taken from throats as well as from secondary foci of infection and that the "organisms usually found were streptococci, often associated with staphylococci or pneumococci."

During the past winter an epidemic occurred in Chicago and Baltimore. In the former Dr. Rosenow and Dr. Davis⁶ isolated an encapsulated hemolytic streptococcus, occupying a position between the ordinary hemolytic streptococcus and the *Streptococcus mucosus*, which always acidified and sometimes coagulated milk. In the Baltimore epidemic, Dr. Hamburger⁷ reported the finding of a non-capsulated streptococcus which always coagulated milk. During the same epidemic Dr. Hirschberg⁸ reported forty-three cases which he attributes to an infection by the pneumococcus.

A few cases from sources which could leave no doubt as to the etiologic relationship of the organisms isolated would be more important than a large series of throat cultures in which a mixed infection would make it difficult to determine which organism caused the disease. Opportunities were offered to obtain cultures from the peritoneum, blood, suppurating glands, and peritonsillar abscesses. A short history of these cases and the source of the cultures is therefore deemed expedient.

CASE 1.—A young woman, aged 37, had a rather mild attack of tonsillitis with patches on the throat. The glands of the neck were enlarged to about the size of the end of the thumb. To the patient the temperature never seemed over 100, and the throat and glands seemed to get better after an illness of four days' duration. On the sixth day, however, the patient was seized with acute general cramp-like pains in the abdomen accompanied by nausea. She was therefore taken to the hospital.

On admission, the temperature was 104, and the leukocyte count 17,700. The throat was reddened, especially the pillars; the glands were enlarged and tender. The heart and lungs were clear. The abdomen was slightly distended, moving very little on respiration; there was general rigidity and tenderness, with no localizing area. An exploratory operation was performed twenty-four hours after admission to the hospital. A general acute peritonitis was found. Two days later the patient died. Culture was obtained from the peritoneal exudate.

CASE 2.—A child, aged 2, had an illness beginning with sore throat and swelling of the lymph-nodes in the neck. Three days later the abdomen became swollen and the patient suffered from pain and obstinate constipation. The temperature ranged from 104 to 105. The following day the abdomen was still tender and rigid, peritonitis was apparent, and the patient's condition seemed desperate.

On the fifth day the patient was taken to the hospital. There was a scarlatinal rash over the chest, abdomen and back. Operation was deemed inadvisable, but a blood-culture was made from the arm, and a pure culture was obtained on blood-agar, milk, and glucose bouillon. The child died on the afternoon of the fifth day.

CASE 3.—A child, aged 2½, had an illness which began with a sore throat. Three days later the tonsils were enormously swollen and the cervical lymph-nodes were very large. The throat gradually improved and most of the lymph-nodes subsided. One gland on the right side just above the middle of the

3. Brook, W. H. B.: *Lancet*, London, 1902, ii, 1391.

4. Unable to find any other reference in the literature.

5. Darling, E. A.: *Boston Med. and Surg. Jour.*, 1911, clxv, 904.

6. Rosenow, E. C., and Davis, D. J.: *THE JOURNAL A. M. A.*, March 16, 1912, p. 773.

7. Hamburger, L.: *THE JOURNAL A. M. A.*, April 13, 1912, p. 1109.

8. Hirschberg, L. K.: *THE JOURNAL A. M. A.*, April 20, 1912, p. 1189.

* From the Medical Clinic, Johns Hopkins Hospital.

1. Swithbank and Newman: *Bacteriology of Milk*, 1903, London.

2. Grey-Edwards, C., and Severn, Walter D.: *Brit. Med. Jour.*, 1897, ii, 339.

clavicle suppurated, and was opened twenty-three days after the onset of the disease. A pure culture was obtained from the pus of this gland.

CASE 4.—In an adult, illness began on March 9 with chilliness, headache, nausea and slight sore throat, which was inflamed and showed follicular patches. Three days after onset the condition became much worse, the throat very sore and the patient had difficulty in swallowing. There was marked edema of the peritonsillar tissue, and the glands of the neck were much enlarged. The throat was incised in several places on the fifth day and a pure culture was obtained from the serous fluid.

CASE 5.—A child, aged 3 months, when first seen had red edematous areas over both shoulders about 2 to 3 cm. in diameter. The shoulder-joints were not involved, but the neck was stiff. These masses were more edematous than red, and a surgeon was called in consultation. Three days later the left elbow became involved, and in two days more the swelling had extended to the wrists, and by this time had a well defined margin. The case terminated with multiple abscesses in the axillæ and wrists from which pure cultures were obtained. The temperature was never very high, nor was a history of sore throat recorded.

BACTERIOLOGIC FINDINGS

The strains isolated were compared with two known strains of pneumococci, with two strains of streptococci

Capsules were demonstrated in three strains (Cases 1, 2 and 3) even after they had been on artificial mediums one month. These capsules were distinctly of the streptococci type as described by Buerger.⁹ Cases 4 and 5, and the two strains isolated from puerperal infections by means of blood-cultures did not give capsules in cultures which had been on artificial mediums for one month.

No attempt was made to determine the minimal lethal dose chiefly because thus far there has been no established standard of virulence for streptococci, and it was felt that nothing could be gained along this line. Animals, however, were inoculated with each strain to see if capsules could be obtained by passing the strains through an animal and staining the smears obtained from the heart's blood. An emulsion was made from a twenty-four-hour growth of an average blood-agar slant in 1 c.c. of sodium chlorid, and 0.2 to 0.3 c.c. inoculated into mice subcutaneously. Mice inoculated with organisms from Case 4, and Streptococcus C and Streptococcus J, respectively, died within twenty-four hours. The mouse inoculated with organisms from Case 4 showed very few organisms in the blood. No capsules could be demonstrated. The mouse inoculated with organisms "Streptococcus C" showed numerous cap-

TABLE 1.—SUMMARY OF BACTERIOLOGIC FINDINGS

Strains.	Milk Acid.	Milk Coagulated.	Bouillon Turbid.	Bouillon Clear with Flocc. Sed. 48 Hours.	Growth in Gelatin at Room Temperature.	Hemolysis on Agar Plate.	Morphology in Glucose Broth.	Capsules in Cultures Isolated 4 Weeks.	Capsules from Heart's Blood.	Precipitation on Glucose-Serum Agar.	Fermentation of Inulin.	Per Cent. Acid Formed in 72 Hours.				
												Glucose.	Lactose.	Raffinose.	Mannit.	Salicin.
Pneumococcus B.....	++	++	++	0	0	0	Usually pairs...	+	+	0	+	1.4	1.4	1.4	0.0	...
Pneumococcus G.....	++	++	++	0	0	0	Only pairs....	+	+	0	+	1.4	1.4	1.4	0.0	...
Streptococcus B.....	++	0	0	++	++	++	Long chains...	0	0	++	0	1.2	1.0	0.0	0.4	+
Streptococcus J.....	++	0	0	++	++	++	Long chains...	0	0	++	0	1.0	0.8	0.0	0.0	0.0
Streptococcus C.....	++	0	0	++	++	++	Long chains...	0	0	++	0	1.2	1.0	0.0	0.0	0.0
Case 1.....	++	0	0	++	++	++	Long chains...	+	+	++	0	..	0.6	1.0	0.0	0.0
Case 2.....	++	++	0	++	++	++	Chains of 50 prs.	+	+	++	0	1.1	1.0	0.0	0.0	0.0
Case 3.....	++	++	0	++	++	++	Chains of 25 prs.	+	+	++	0	1.0	1.1	0.0	0.0	0.0
Case 4.....	+	0	0	++	++	++	Chains of 50 prs.	0	0	++	0	1.0	0.6	0.0	0.0	0.0
Case 5.....	..	0	0	+	+	+	Chains of 10 prs.	0	0	+	0	1.2	1.0	0.0	0.0	0.0

isolated from puerperal infections, and with a strain of streptococcus obtained from the cerebrospinal fluid in a case of meningitis following otitis media. Table 1 gives a summary of the bacteriologic findings.

Morphology.—In smears obtained from the surface of a twenty-four-hour growth of blood agar slants, the cocci appeared as spherical or flattened pairs, often forming short chains. Five strains of pneumococci obtained from cases of lobar pneumonia and five strains isolated during the epidemic from the cases described above were inoculated into glucose bouillon. Smears were made at the end of twenty-four hours, and care was taken not to break up the chains by manipulation on the slide. None of the pneumococcus strains appeared in chains longer than six pairs, and were usually in twos. The strains isolated during the epidemic formed long, twisted chains of fifty pairs or more in some instances. In keeping with this finding is the behavior in bouillon as shown in Table 1. The Streptococcus brevis and the pneumococcus produce a uniform turbidity in bouillon, while the Streptococcus longus leaves the bouillon clear with a flocculent precipitate at the bottom of the tube.

All the cultures were strongly Gram-positive.

sulated cocci in the blood. The mouse inoculated with organisms "Streptococcus J" showed numerous organisms in the heart's blood, but no capsules could be demonstrated by any method. A mouse inoculated with organisms from Case 5 died in four days. Numerous organisms were found in the heart's blood, but no capsules could be demonstrated. A mouse inoculated with culture of Streptococcus B died in four days. Few organisms were found and no capsules could be demonstrated. A twenty-four-hour growth of a small blood-agar slant of cultures from Cases 1 and 3 was inoculated intravenously into rabbits weighing 1,300 gm. each. A rabbit inoculated with organisms from Case 1 died in two days. A few capsulated organisms were found in the heart's blood. A rabbit inoculated with culture from Case 3 died in four days. Numerous organisms were found in smears from the heart's blood. Capsules were readily demonstrated, showing the streptococcus type of capsules.

Cultural Characteristics.—On blood-agar plates, a clear zone of hemolysis was produced several millimeters in diameter. There never was a suggestion of green tinge

9. Buerger, Leo: Jour. Infect. Dis., 1907, iv, 426.

to the surrounding medium or to the colonies. The colonies were rather larger than one usually finds in cultures of the *Streptococcus pyogenes* and often gave a suggestion of white and rather dry appearance.

On serum glucose agar a marked precipitation occurred with the strains isolated during the epidemic, also with the two strains from puerperal infections and the strain from the cerebrospinal fluid, but none with five known pneumococcus strains.

The reactions in milk are indicated in Table 1. In bouillon a diffuse clouding occurred at first which at the end of twenty-four hours had largely settled to the bottom into a flocculent precipitate with some flakes floating through the medium. The supernatant fluid became entirely clear in thirty-six hours.

No growth occurred on potato. All of the cultures grew on gelatin at room temperature except the two pneumococcus strains.

Inulin was not fermented. None of the strains isolated was dissolved by fresh beef bile.

We thus have a coccus, growing in long chains, producing a clear zone of hemolysis on blood-agar, precipitating serum-glucose agar, not fermenting inulin, often possessing capsules of the streptococcus type. All the strains fall into the hemolytic or pyogenes group of Schottmüller.¹⁰

RELATIONSHIP OF THIS STREPTOCOCCUS TO OTHER STREPTOCOCCI

The question naturally arises as to whether we are dealing with a new type of streptococcus, or whether we are dealing with the usual type of *Streptococcus pyogenes* of a more virulent type.

If we adopt the classification of Schottmüller, the strains isolated fall into the ordinary *Streptococcus pyogenes* group which is characterized by the clear zone of hemolysis which the colonies produce on blood-agar.

If we now wish to separate further this group we may apply the so-called Gordon tests. In 1903-4 Gordon¹¹ grouped the streptococci by their ability to ferment the various carbohydrates, glucosids and polyatomic alcohols. To these tests he added the clotting of milk and the reduction of neutral red under anaerobic conditions.

In 1906 Andrews and Horder¹² analyzed 228 strains pathogenic for man by applying these tests and adopted the classification given in Table 2.

According to this classification the *Streptococcus pyogenes* group would be divided into two groups:

1. The usual *Streptococcus pyogenes* group which does not clot milk or ferment raffinose.
2. The *Streptococcus angiosus* group which usually clots milk and often ferments raffinose.

The *Streptococcus pyogenes* group is usually associated with suppurations, erysipelas and septicemias.

The *Streptococcus angiosus* group is especially associated with inflamed throats, scarlatinal and otherwise. It is also found in malignant endocarditis, peritonitis and otitis. This group also corresponds to the *Streptococcus scarlatinae* of Klien and the *Streptococcus conglomeratus* of Kurth.

The *Streptococcus salivarius* and the *Streptococcus fecalis* groups are relatively avirulent, short-chained varieties obtained from the saliva and the feces, respectively.

These do not cause a hemolytic zone on blood-agar and are often associated with chronic endocarditis.

Andrews and Horder conclude: "We find that we can more readily 'place' a streptococcus and surmise its source and probable virulence by aid of the Gordon tests than in any other way."

Applying to our strains the Gordon tests we find that strains from Cases 1, 2 and 3 either coagulate milk or ferment raffinose, which would place them into the *Streptococcus angiosus* group. Strains from Cases 4 and 5 behaved exactly like the ordinary *Streptococcus pyogenes*, i. e., did not coagulate milk or ferment raffinose. Our Case 5 may have been one of atypical erysipelas, but the clinician in charge considered it to be of the type which was associated with the Baltimore outbreak of sore throat.

PRESENCE OF A CAPSULE NOT A SUFFICIENTLY DISTINGUISHING FEATURE

Davis¹³ suggested a new classification of streptococci in which he separated the *Streptococcus pyogenes* from the strains isolated during the epidemic. The only distinguishing point is the presence of a capsule which he was able to demonstrate in the epidemic group and which he termed *Streptococcus epidemicus*. That this is not a

TABLE 2.—CLASSIFICATION OF HORDER *

	Milk Clotted.	Acid in Saccharose.	Acid in Lactose.	Acid in Raffinose.	Acid in Inulin.	Acid in Salicin.	Acid in Mannite.	Growth on Gelatin at 20 C.	Morphology in Broth.	Hemolysis on Blood Agar.	Pathogenicity for Mice.
<i>S. pyogenes</i> ..	0	+	+	0	..	±	..	+	†	+	+
<i>S. salivarius</i> ..	±	+	+	±	..	±	..	±	‡	0	..
<i>S. angiosus</i> ..	±	+	+	±	..	±	..	+	†	+	+
<i>S. fecalis</i> ..	±	+	+	±	..	+	+	+	‡	0	..
<i>Pneumococcus</i>.	±	+	+	+	±	..	..	0	‡	0	+

* Horder, T. J.: Quart. Jour. Med., 1908-9, ii, 289. Table modified to include the intermediate varieties.
† Longus; ‡ Brevis.

sufficient distinction is shown by the fact that Buerger⁸ was able to demonstrate capsules in at least 25 per cent. of all the strains of streptococci coming to the laboratory during routine examinations. Strains from cases of otitis media often have capsules, as is also shown in *Streptococcus C* of this series. In the Baltimore epidemic no reports of cases have thus far been published in which evidence has been submitted to prove that any of the strains were pneumococci.

Judging from the behavior in milk of bacteria in the cases reported and from Cases 1, 2 and 3 in this report it would seem to be indicated that many of the cases belong to the *Streptococcus angiosus* group, and that the behavior of the streptococci from these cases was not very different from that of the streptococci complicating severe cases of scarlet fever. Cervical adenitis is the most frequent complication of scarlet fever, and fulminating cases of scarlet fever associated with sore throat are also seen in which the picture is that of a septicemia.

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11. Gordon, M. H.: Report of the Local Government Board, 1903-4, xxxiii, 388.
12. Andrews, F. W., and Horder, T. J.: Lancet, London, 1906, II, 708, 775.

13. Davis, D. J.: THE JOURNAL A. M. A., April 27, 1912, p. 1283.

RHEUMATISM

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MARSHFIELD, ORE.

If we were able to abandon the word "rheumatism" for more specific interpretation of the actual causes which give rise to a group of symptoms that go to make up the picture of this affection, material advancement would be made in the conception and treatment of this type of human ailments. The terms "neuralgia," "anemia," "dyspepsia," etc., were applied in the early days of medicine, to a certain group of symptoms; many of these vague terms have been replaced by names indicating direct causes of these conditions, and we hope that before long rheumatism will be given a more scientific place in medicine.

In the consideration of rheumatism too much attention has been given to secondary symptoms, as arthritis, endocarditis, pericarditis, etc. There the *materies morbi* has been sought and treatment directed for relief. To make confusion worse, every ache, pain and swelling of the articular structures has been called rheumatism until experience has proved the contrary; some affections of the joints that were not rheumatic underwent resolution, but the diagnosis was never changed. A short time ago I read a very able article by a foreign writer on tuberculous rheumatism. Why should not tuberculous arthritis be called by its real name rather than tuberculous rheumatism? The general use of the word "rheumatism" precludes it being synonymous with arthritis, for we have muscular, cerebral and peritoneal rheumatism. The word "rheumatism" has been badly overworked, and charges mountain-high have piled up against this obscure affection; it has served the interest of doubtful physicians; it has assumed the responsibility of malingering and played the rôle of fraud; it has been a financial pillar for the patent-medicine manufacturer and has upheld the quack; it has been a haven for stupidity and has contributed to the mockery of science.

Rheumatism has always been described as a disease or an affection characterized by certain symptoms. Much work has been done to fix the responsibility on some specific agent, but so far efforts in this particular have not been conclusive, though it would seem that opinion is now firmly established that a microbial infection is the cause. The preponderance of evidence, although lacking in positive proof, supports the belief that the group of symptoms called rheumatic fever is caused by infection; and in view of all the present facts in connection with the disease, no other theory is capable of explaining the phenomena associated with this common affliction. Much valuable labor has been lost in not giving sufficient scope of interpretation to the clinical picture of these cases; too often it has been taken for granted that all articular symptoms of a painful character arise from a common source, and forthwith the case is classified as rheumatic.

The symptoms of articular rheumatism are so constant that a strong belief grew up that there was a single cause; but when the symptoms are examined none of them is found to be pathognomonic. Tuberculous arthritis is often mistaken for rheumatic arthritis; the local picture is practically identical in the beginning and medical history is replete with cases of tuberculous arthritis that have been treated for rheumatism a long time before their true nature was recognized. Gonorrhea, syphilis, osteomyelitis, periostitis from streptococcus or staphylococcus and other infections cause symp-

toms not easily distinguished from rheumatism. The sour odor of the perspiration in rheumatism has nothing characteristic about it; the sweating is produced by low blood-pressure caused by the absorption of toxins. I think more than a single cause can produce the classical symptoms of rheumatic fever. Some infections no doubt have the power to set up an inflammation more severe in one kind of tissue than in another, and the same infection may on different occasions show itself in a mild and anomalous manner. I have seen typical cases of rheumatism follow infectious tonsillitis; I have seen equally typical cases associated with an enterocolitis. Recently I have treated two cases and seen another in consultation that presented the classical picture of rheumatic fever, and one of the patients developed endocarditis. In all of them the picture was the same; the rheumatic manifestations were secondary to an enterocolitis. The enterocolitis was characterized by considerable abdominal distention without tenderness, the passage of a large amount of intestinal mucus, a tendency to constipation, temperature variable but reaching a maximum of 104, soft pulse and sweating.

INVOLVEMENT OF THE INTESTINAL TRACT

The most noticeable symptom in all these cases was the passage of large amounts of intestinal mucus; the articular symptoms kept pace with it and did not disappear until the mucus had left the stools. During the course of these cases there occurred exacerbations and remissions of mucous discharge, which was associated with an increase and diminution of the rheumatic symptoms, clearly indicating that the intoxication producing the rheumatic manifestations was traceable to the morbid processes going on in the intestinal tract. I regret that it was not possible to make a systematic study of the intestinal dejections during the progress of these cases for the purpose of isolating the nature of the bacteria causing the enterocolitis. One of these cases has remained under my observation; it has been interesting to note that any disturbance of intestinal digestion is associated with arthritic symptoms, and that it is only by a close adherence to a suitable dietary that a painful condition of the joints is avoided. I think that the intestinal involvement in this case would go unnoticed by the patient if she had not been instructed as to the source of her rheumatic symptoms.

A short time ago I saw an elderly man about 80 who had suffered from rheumatism for thirty years. He had been compelled to use crutches and canes to go about for twenty years, and this period of his life had been made miserable by painful and stiff joints. My service in his case was called for the purpose of bolstering up a failing heart, but I obtained a history in his case which afforded material for reflection. He cautioned me not to give him anything that would act as a strong physic, for the reason that it would set up a troublesome diarrhea that would be hard to check; he further said that he had been subject to looseness of the bowels for a long time and that food would frequently pass through him undigested and associated with much mucus and rectal tenesmus. His mind was not clear on the question as to the relationship between the rheumatic symptoms and the intestinal trouble except as to their coexistence.

In looking over the literature on rheumatism one is impressed with the little space devoted to the discussion of any direct relationship existing between intestinal disturbances and rheumatic fever. The former is generally treated as a complication of the latter, though by implication much importance is attached to their relationship

In the treatment of rheumatism a proper diet is held as essential by almost all authors; in prophylaxis they hold that hygienic and dietary measures should receive first place; specific articles of diet are mentioned as being repugnant to the best interest of these patients and a general admonition is given to avoid any article which is liable to disturb the digestive system. In my experience the subjective symptoms associated with intestinal involvement in cases of rheumatic fever are rarely severe enough to call for much comment on the part of the patient, and unless special inquiry is made into the significance and relative importance of such manifestations, they will be attributed to complications.

In laying so much stress on the primary involvement of the intestinal tract in certain cases of rheumatic fever and the importance of directing the principal treatment to this tube, it would seem that I am dealing with a few isolated cases which should have no weight or influence in the determination of a well-recognized cause. It does not seem possible that the importance of primary intestinal infection in a common disease like rheumatic fever would have escaped the attention of many acute and careful observers, and for this reason I have much timidity on offering it as a sound suggestion; but the infection enters the body at some place and having a tendency to recur it is rational to conclude that a *locus minoris resistentie* must afford the seat of invasion; it may be the tonsils, pharynx or some other part of the alimentary canal. The point which I want to bring out most is the importance of examining the entire alimentary canal to ascertain the seat of invasion, for the purpose of more intelligent management of these cases. I feel that a more systematic study directed toward locating the initial source of the infection will lead to a better understanding of rheumatic manifestations, simplify treatment and reduce complications.

THE ACTION OF PREDISPOSING CAUSES

Heredity is mentioned as one of the predisposing causes of rheumatism. On the theory of the infectious character of the disease, predisposition is explainable on the grounds that certain families without question possess vulnerability that is not seen in other families, and no doubt this predisposition is not limited to one kind of bacterial life. It is impossible in our present light of organic construction and metabolic activity to give a qualitative or quantitative definition to that peculiarity which we group under the term predisposition to certain diseases; but general observation teaches us that some individuals do not attain, in the process of their development, a normal grade of tissue construction which enables them to offer substantial resistance to a hostile environment.

Other predisposing causes are cold and dampness. The manner in which these act is in depressing the resistance of the individual. Both cold and dampness favor heat radiation from the body and bring the temperature below normal with a consequent reduction in antagonism to bacterial life. The truth of this is so well exemplified in the catching of an ordinary cold that it seems hardly necessary to dwell at length on the part played in the reduction of temperature in the provocation of some diseases. For an individual to maintain his best resistance the temperature must be constant and normal; reduction of temperature decreases physiologic activities and the standard of resistance, under which circumstances bacteria gain a foothold. It does not follow that every time one suffers a reduction

in temperature, disease of some sort will follow. The presence of bacteria in sufficient numbers possessing a certain virulence is necessary. In reviewing the clinical picture of chronic cases of rheumatic fever, that is, those cases which show recurring symptoms after an acute attack, I am led to believe that the patients still harbor bacteria that caused the acute attack. Errors in diet, exposure to cold or dampness, fatigue, etc., provoke these attacks; under these unfavorable circumstances the resistance of the patient is diminished and lurking bacteria are offered less opposition. Latent tuberculosis and other dormant infections manifest themselves in certain conditions; in a like manner the bacteria causing rheumatic fever may remain dormant an indefinite time and show their presence only during perverted metabolic processes of the patient.

Recurring aches and stiffness of the muscles and joints generally spoken of as rheumatic can often be traced to various causes that have no relation whatever with rheumatic infection. I have in mind a patient who has always lived a sedentary life and who has been a sufferer from supposed rheumatism for twenty years. Examination of this case disclosed that the patient had persistent low temperature ranging from 97 to 98.2 F., and when his temperature was brought up to normal by stimulation or supplying artificial heat his symptoms would disappear. He had been fed on remedies for rheumatism without relief until the whole gamut of the Pharmacopeia had been exhausted. This patient obtained almost complete relief by spending a few months in a warm climate, meanwhile taking much physical exercise, which increased the efficiency of his heat mechanism and established a higher temperature range.

METHOD OF RESEARCH

In the interpretation of rheumatic symptoms two general divisions of the subject should be made. First, are the symptoms caused wholly by local morbid processes? Second, do they arise from metastasis? Before any intelligent study of the phenomena can be undertaken these two questions must be settled. Very clearly work of this character will, at times, involve much time, patience, observation and laboratory investigation; but the grave importance of a clear understanding as to all the facts demands that no physician should be contented with empiric treatment when handling an infection causing rheumatic fever. No mild and harmless infection is bringing about such manifestations, and it is the duty of a physician to locate accurately the source of absorption and if possible the kind of infection. If a careful inquiry is made into all the symptoms presented in cases of rheumatic fever I do not think one will fail to find some source of infection from which absorption is taking place; and having entered the circulation it makes its presence more pronounced by affecting sensitive and susceptible tissues and perhaps creating secondary foci. There is not sufficient evidence at hand to justify a theory that rheumatic infection like malarial infection gains entrance to the circulation and in that medium finds conditions suitable for its growth and liberation of toxins; but there is substantial reason for believing that the mucous surfaces are the seat of infection from which absorption occurs, and I am reasonably sure that further observations will show that the intestinal mucosa furnishes a large list of these infections. The arthritic, endocardial and pericardial involvements should be viewed as secondary results or the local manifestations of bacteria, their toxins or both acting on susceptible tissues.

REPORT OF CASES

While I was preparing this paper two more cases have come to my attention confirming the theory of primary intestinal infection in rheumatic fever:

CASE 1.—The patient was a girl, aged 17, whom I saw in consultation with Dr. Walter Culin, of Coquille, Ore. At first she had prodromal symptoms lasting two months which were characterized by general lassitude, indefinite mild chills and constipation. When the acute symptoms were precipitated the intestinal involvement was quite pronounced. Her attending physician thought at first he was dealing with a case of ptomain poisoning but as the case progressed arthritic symptoms developed and since that time it has presented the appearance of typical polyarthritis of rheumatic fever. The temperature in this case has been as high as 106 but when I saw the patient about two weeks after being confined to bed, there was a temperature of 101, respiration twenty-four, meteorism, constipation, stools showing considerable mucus, polyarthritis and sweating, with no enlargement of the spleen or cardiac involvement.

CASE 2.—The patient, a man aged 36, has chronic rheumatism. This patient at the age of 6 years had a very severe attack of inflammatory rheumatism and he informs me that he has had light recurring spells ever since and they are preceded by what he terms bilious attacks. He has a tendency to constipation and requires the continual use of physic to regulate his bowels. Two years ago this patient had an attack of rheumatic purpura which covered a considerable portion of the body; this condition was finally cleared up by the use of active purgatives continued over several days.

CONCLUSIONS

In the absence of any personal information to the contrary, I believe that I am presenting two original ideas in this report:

1. In many cases of rheumatic fever the initial seat of the infection is in the intestinal tract, from which absorption of bacteria and their toxins occurs; on entering the circulation these cause peripheral symptoms in susceptible tissues.

2. Chronic or recurring attacks are or may be due to the continuance of the bacteria of rheumatic fever in the intestinal tract in an attenuated condition and are aroused to activity by dietetic, hygienic environmental errors of the patient which cause a reduction in metabolic activity and natural resistance.

TRANSPLANTABILITY OF MALIGNANT TUMORS TO THE EMBRYOS OF A FOREIGN SPECIES*

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It appeared early in the development of modern surgery that tissues of lower animals could not be ingrafted into human beings. The extent of this barrier between species was not fully appreciated until the discovery of the transplantability of tumors. It was soon demonstrated by experiment that tumors of lower animals not only fail to grow when inoculated into another species, but often fail or give only slight growth, when grafted into a different variety of the same species. For example, the tumors of the white mice usually fail to "take" when inoculated into the gray or brown mouse. Recently Rous¹ has reported a tumor of a pedigreed chicken, from the first inoculations of which tumors resulted in none

other than blood-related individuals; and only after the malignancy had become greatly increased by repeated transfer did growth take place in other varieties of chickens.

The idea of the specificity of transplanted tumors has become so firmly established among students of cancer research that the fact of a new growth of any kind proving transferable to another species is considered evidence against the growth being a true neoplasm. The views entertained of genital tumor of the dog transplanted to the fox, and a tumor of the hare successfully inoculated into the rabbit, serve as examples of this.²

Ehrlich³ was the first to demonstrate that while tumors of one species cannot be transferred, in the true sense of the word, to a foreign species, yet such tissue when introduced into a closely related species may survive for a short time (from eight to ten days) and the cells actually multiply. If the tissue during this period is returned to the original species, it seems unaffected by its sojourn in the foreign host and is capable of producing an actively growing tumor. If, however, the graft is allowed to remain, or is transferred to another host of foreign species, it soon dies and is absorbed. These observations are accounted for by Ehrlich on the theory that tumor cells lack proper receptors to combine with the food elements of the foreign species and die from lack of nourishment. He considers that enough specific food is carried along with the graft from the original host to account for the temporary survival and growth. When this supply is exhausted the cells quickly die.

We reported last year⁴ the successful inoculation of the Rous chicken sarcoma into the developing chick embryo. In the course of this study the important observation was made that the tumor grew well in the developing pigeon or duck embryo, whereas in the adults of these species it quickly died and was absorbed. This fact suggested a wide difference between the embryo and the adult in their reaction to foreign tissues. The embryo, we might say, either provides a food substance utilizable by these tissues, which is lacking in the adult, or else lacks a defensive mechanism against such an invasion, which is possessed by the adult. The following results, obtained with tissues of a more distantly related species, constitute another and much more remarkable instance of similar kind.

Following the technic described in former papers,⁴ I inoculated a fine hash of the Jensen rat sarcoma into the outer membrane (fused chorion and allantois) of five-day to seven-day chick embryos; these were then incubated from ten to twelve days, that is, to within two days of hatching. When the shell was removed and the membrane cut and turned back, in a high percentage of instances the egg was found to have, at the point of inoculation, a rounded globular mass, suspended from the membrane by a broad flat pedicle. The masses varied in size from 0.2 to over 2 cm. in diameter. The consistency was that of a firm jelly, varying in color from pinkish-gray to red. The surface was smooth and glistening, with numerous large dilated vessels coursing over it, and smaller vessels were visible in the semitranslucent substance of the tumor itself. On section the masses were found to be solid and composed throughout of this pinkish-gray, somewhat translucent tissue, with small

* From the laboratories of the Rockefeller Institute for Medical Research.

1. Rous: Jour. Exper. Med., 1910, xii, 696.

2. Von Dungern and Coca: Ztschr. f. Immunitätsforsch., 1909, ii, 391. Von Dungern: Munchen. Med. Wchnschr., 1912, lix, 238.

3. Ehrlich, P.: Arb. a. d. k. Inst. f. exper. Therapie, 1906, No. 1, p. 84.

4. Murphy, J. B., and Rous, P.: Tumor Implantations in the Developing Embryo; Experiments with a Transmissible Sarcoma of the Fowl, THE JOURNAL A. M. A., March 11, 1911, p. 741; Jour. Exper. Med., 1912, xv, 119.

areas of hemorrhage in some cases. The tissue was quite moist and friable.

In the rat the Jensen tumor is made up microscopically of characteristic large spindle-cells, with a clear vacuolar nucleus and a fairly deep-staining protoplasm. The cells lie close together, with little stroma, or intercellular substances. Thin-walled blood-vessels are fairly frequent, and occasionally mitotic figures are seen. The cells of the new tumors grown in the chick embryo have an almost identical structure with those of the tumor grown in rats. The cells, however, are not so compact, in some cases forming only a loose network, with clear spaces between. Mitosis is extremely frequent, almost every field showing some stage of this process, and as many as five such figures have been seen in an area taken in by the oil-immersion lens. The blood-vessels filled with nucleated chicken blood-cells are numerous, budding out from the membrane in large tufts. There is practically no stroma, except a slight amount carried with the vessels. The surface of the mass is covered with a continuation of a thin layer from the chick membrane.

The results in the adult chicken are very different. Here the tissue of the Jensen sarcoma is so quickly destroyed that few of its cells remain intact after twenty-four hours. That in the embryo the rat cells retain their biologic characters is shown by the fact that the tissue, when returned to the rat after a sojourn of from ten to twelve days in the chick, causes an actively growing tumor of the Jensen type.

The results obtained up to this stage of the experiment, that is, the active growth of cells in a foreign species over a period of from ten to twelve days, might possibly be accounted for in the same manner that Ehrlich explains the survival and slight growth of the mouse sarcoma in the rat. The results are hardly comparable, however, when it is considered that in the embryo the cells at the twelfth day are still in a state of active growth, with no indication of degeneration or of a defensive reaction on the part of the host; while in the Ehrlich experiments only the outermost cells survive, and there is a marked defensive reaction on the part of the foreign host. The next experiments remove any doubt as to the untenability of the Ehrlich theory in explaining the case.

It was found that the tissue of the tumors formed in the membranes of the chick by the inoculations with the Jensen rat sarcoma would continue to grow if implanted in another developing chick embryo. The tumors resulting from the second series of inoculations were similar in every respect to those of the first. In like manner a third and fourth successful transfer could be made. This is the stage I have at present reached, with a total of forty-six days of continuous growth of the rat tumor in the chick embryo. The tumors at this stage are similar to those of the original inoculation. The cells retain their form and structure unaltered, are fairly compact, and show numerous mitoses. No degeneration or irregularity of the division figures occurs. Tissues from the second and third transplantation series when returned to the rat caused actively growing tumors. No inoculations were made from the fourth series into rats, as the tissues were needed for other purposes.

It would naturally be expected that after so long a dependence on a foreign food there might be some change in the direction of an adaptation on the part of the rat cells to the new conditions. That this change cannot be marked, however, is shown by the fact that the rat tissue, grown for so long a period in the chick embryo, is almost as quickly killed when introduced into the adult chick as

is the tissue taken direct from the rat. There is, perhaps, a slight difference in the reaction on the part of the adult to such inoculations. This point will be discussed in a subsequent paper.

A variety of other tissues have been found to grow quite as well as the Jensen tumor when inoculated into the chick. I have grown in this way, for periods varying from seven to twelve days, chick embryonic tissue, rat embryonic tissue, a sarcoma, a carcinoma and a chondroma of the mouse, and the Flexner-Jobling adenocarcinoma of the rat. The rat embryonic tissue and the mouse sarcoma and carcinoma were successfully reinoculated into the original species after growth in the foreign embryo.

CONCLUSION

It is here shown conclusively that mammalian tumor tissue can live and grow actively in the chick embryo, although in the adult chicken it quickly dies and is absorbed. By transfer from one embryo to another the mammalian tissue can be kept growing continuously in the avian host for as long as forty-six days, and probably indefinitely. This proves beyond doubt that the mammalian cells are able to utilize the food supplied by the avian embryo. Whether the phenomenon is dependent solely on this factor, or whether the absence of a defensive mechanism in the embryo plays the more important part is a subject which is being studied and on which a report will be made later.

Sixty-Sixth Street and Avenue A.

THE WATER PURIFICATION WORKS OF THE BALTIMORE COUNTY WATER AND ELECTRIC COMPANY*

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Probably there is no body of professional men that more fully realizes the value of pure drinking-water than does the medical fraternity. The physician can wholly appreciate what pure water-supply means to any community and the part it plays in the prevention of certain infectious diseases. For this reason it is believed that the description of the water purification plant of the Baltimore County Water and Electric Company will be of particular interest as it shows to what extent a privately owned water company has carried its purification work in safeguarding its consumers against disease.

The filtration plant of this company is situated at Avalon, Baltimore County, Md., which is about 9½ miles southwest of Baltimore, and the water filtered is pumped thence to a dozen or more suburban places in the immediate vicinity of the city. The plant is novel in many respects but particularly in that there are both slow sand and mechanical filters which are operated daily under identical conditions. This fact has afforded an opportunity for studying the relative values of the two types of filters, a condition which, so far as is known, exists at no other place in the country, except on an experimental scale.

The unfiltered water is drawn during the greater part of the year from Rockburn Branch, a small spring

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

stream in Howard County. This stream, which is only 2 miles in length, flows through a sparsely populated territory and empties finally into the Patapsco River. The water is usually clear and contains but a small amount of suspended matter and color although whenever there are heavy rains it becomes quite turbid, because of surface washings from the steep hills near by. When there is not enough water in this stream to supply the filters the deficiency is taken from an impounding reservoir about one-half mile above the plant. The reservoir water comes partly from springs and partly from infiltration from the Patapsco River through the reservoir banks. The quality of this water, although not seriously polluted, could not in its raw state be considered safe for drinking at all seasons of the year. The raw water runs to the plant and on the slow sand beds by gravity, but is raised to the mechanical filter by a centrifugal pump which is operated by a vertical direct-connected Wagner motor.

The slow sand filters consist of two units, having a combined filter area of approximately one-half acre and a capacity of 1.25 million gallons per day. Each unit is operated independently of the other so that either may be cleaned while the other is in service. The sand beds are 34 inches in depth and rest on 16 inches of crushed stone and gravel. The filters are equipped with the usual regulating devices for maintaining a constant head of water on the sand and a uniform rate of flow through the beds.

For the past two years the cleaning of the beds has been done by the Brooklyn method, which is accomplished by allowing water to flow over the sand while men rake the surface. To facilitate cleaning by this method each unit was divided into sections or channels 4 feet wide across the width of the bed by means of pine boards imbedded in the sand and rising 6 inches above the surface of the bed. The head of water necessary is obtained from unfiltered water on the other slow sand unit which is in service. Cleaning the filters by this method has given entire satisfaction and is much cheaper and requires less time than scraping and removing the *Schmutzdecke*.

The filtered water from both units empties into the clear water well and is mixed with the filtered water from the mechanical filters. The average length of time between cleaning of the beds during 1911 was thirty-seven days and sixteen hours. These beds are operated during the whole year excepting when the turbidity of the raw water is greater than 100 parts per million, during which times they are out of service. High turbidities plug the bed so rapidly that it was found that it was not economical to operate the beds at such times. The chemical and bacterial efficiencies from these filters have been excellent as will be seen from the accompanying table.

MECHANICAL FILTERS

There are two mechanical filters each having approximately 200 square feet of filter area and combined filter capacity of 1,025,000 gallons per twenty-four hours. The depth of the sand in these filters is 34 inches and it rests on 8 inches of gravel. The gravel prevents the sand from being washed into the collecting system at the bottom of the beds. The rate of flow through the filters is kept constant by automatic controllers and each unit is equipped with a gauge which registers the height of water on top of the sand and also indicates when the bed is dirty and requires cleaning. The filters are washed with filtered water under a pressure of 20 pounds per

square inch and the sand is agitated by compressed air under 3 pounds' pressure. In connection with the filters there is a sedimentation basin holding 160,000 gallons, or about four hours' supply for the filters. The alum which is used in this process of filtration is applied to the water in the form of a solution as the water enters the sedimentation basin. As it requires four hours to pass through here, there is ample time for the alum to unite with the alkaline salts in the water, which is necessary to form the coagulant, and sufficient time for sedimentation. The treated water from the basin flows directly on the filter beds where the final purification takes place.

Hypochlorite of lime is used on these filters and is applied to the water as it passes from the basin just before the water reaches the filters. The bleaching powder is fed to the water in a 0.5 per cent. solution, through a graduated orifice which is calibrated to read in grains of bleach per gallon of water filtered. The amount used varies from 0.04 to 0.1 gr. per gallon of water or from 0.2 to 0.6 parts per million of available chlorine. Hypochlorite of lime is used, not because the filters have failed to produce adequate bacterial purification, but because it was found by actual operating tests that it was much more economical in the operation of the plant. By the use of hypochlorite it was possible to reduce the amount of alum necessary to obtain high bacterial efficiencies, which thereby increased the length of runs between cleaning the filters and reduced the quantity of water necessary to clean the beds.

The length of time between cleaning the beds varies from ten to forty hours directly according to the amount of suspended matter in the unfiltered water. The alum applied to the water is regulated according to the turbidity present and like the hypochlorite of lime solution is fed through a graduated orifice calibrated to read in grains per gallon of water filtered.

In the mechanical filter-house is a sample pump which is operated constantly and delivers water from each filter unit as well as the raw and treated water so that samples of water for analytical purposes may be taken at any time.

The company maintains its own laboratory for chemical and bacteriologic analysis of the water. The laboratory has many novel features the chief of which, perhaps, is the electrical operation of practically all the apparatus used, much of which was especially designed for the particular need of the work at hand.

Samples of the unfiltered and filtered water are analyzed many times each day for a thorough knowledge of the water so as to maintain the filters at their highest degree of efficiency.

The chemical and bacteriologic work is all done according to the standard method of water analysis compiled by the American Public Health Association. The routine culture medium for determining the number of bacteria per cubic centimeter is nutrient gelatin and the plates are incubated at 20 C. For special work agar-agar and Endo's medium are frequently used.

Owing to the great number of *Bacillus coli* determinations that are made, these are only presumptive tests; but the determinations are made according to the standard methods. Such tests I believe to be quite as valuable for routine work in testing the efficiencies of filters as the more lengthy determinations. All *B. coli* samples are incubated at 40 C., which temperature has a tendency to eliminate all bacteria other than organisms that are capable of growing under these conditions.

The accompanying table gives the results of the average chemical analyses of the unfiltered and filtered water during the past four years.

It has been impossible to compile with any degree of accuracy the mortality or morbidity rates from typhoid fever among users of this water. The reason for this is that many of the consumers conduct business in Baltimore where the water-supply is unfiltered, and many have private shallow well-supplies which they persist in using, although a recent investigation undertaken by the company showed that 90 per cent. of these well-supplies are seriously polluted. As far as is known, not a single case of typhoid fever has ever been traced to the use of this supply.

CONCLUSION

It will be seen from the table given herein that both systems of filters have produced high bacterial efficiencies, and the results in general have been quite uniform irrespective of the great fluctuation in the quality of the raw water. Careful interpretation of these results shows that either method when properly operated is capable of producing safe drinking-water, but it depends on local conditions as to which installation will be more economi-

TABLE SHOWING AVERAGE RESULTS OF THE CHEMICAL ANALYSES OF THE RAW AND FILTERED WATER OF THE BALTIMORE COUNTY WATER AND ELECTRIC COMPANY

	Unfiltered Water	Filtered Water	
		Mechanical	Slow Sand
Color	23.0	0.0	3.5
Odor	None	None	None
Alkalinity	23.0	17.0	24.0
Turbidity	65.0	0.0	1.0
Total residue at 230 F.	100.0	65.0	66.0
Volatile residue	35.0	17.0	21.0
Ignited residue	65.0	48.0	45.0
Chlorin	3.90	3.95	3.90
Nitrogen as free ammonia.....	0.0620	0.0240	0.0150
Nitrogen as albuminoid ammonia...	0.1883	0.0640	0.0470
Nitrogen as nitrates.....	0.4170	0.4300	0.4700
Nitrogen as nitrites.....	0.0030	0.0008	0.0007
Sulphates calculated as SO—			
Required oxygen	2.71	0.75	0.78
Dissolved oxygen—			
Iron	1.24	0.32	0.31
Carbon dioxid (CO).....	3.0	4.00	3.0
Hardness	35.60	37.92	35.89

cal. The cost of filtration by the slow sand method at Avalon is \$8.85, and by the mechanical \$9.16 per million gallons. These figures represent interest on investment, depreciation, operation and operating management. These comparative costs cannot be taken entirely as a criterion as it must be remembered that there is no sedimentation basin in connection with the slow sand plant, and that the filters are cut out of service when the turbidity of the raw water is above 100 parts per million.

ABSTRACT OF DISCUSSION

DR. C. HAMPTON JONES, Baltimore: The outskirts of Baltimore, a large territory, are covered by neither one of the two water-supply plants, and while nothing can be shown concerning typhoid fever yet the bacteriologic result will certainly warrant one in believing that any typhoid infection that might be in the raw water has been effectually removed.

MR. A. H. WEHR, Baltimore: We have endeavored to ascertain the number of typhoid cases in our area, but we do not have a local health department as efficiently conducted as is that in our city under Dr. Jones' direction, and we have to rely, to a very large extent, on the general information which the state board of health has; further than that, there are a great many people in our immediate territory who

still rely on their local wells; some of them are some little distance removed from the public water-supply, because it is a suburban or rural community. For that reason we cannot take the returns and apply them directly to our conditions, but I think the typhoid situation in the suburbs of Baltimore is in very good condition. I do know that, in towns in our territory which previously had to depend on local water-supplies and have had typhoid epidemics, since the introduction of our public supply they have had no such epidemics, so that all we can say is, that so long as there is no typhoid, we can at least take unto ourselves a certain amount of credit for eliminating it.

A NEW REGULATING DROPPER FOR ETHER OR CHLOROFORM, USABLE ON ANY CONTAINER

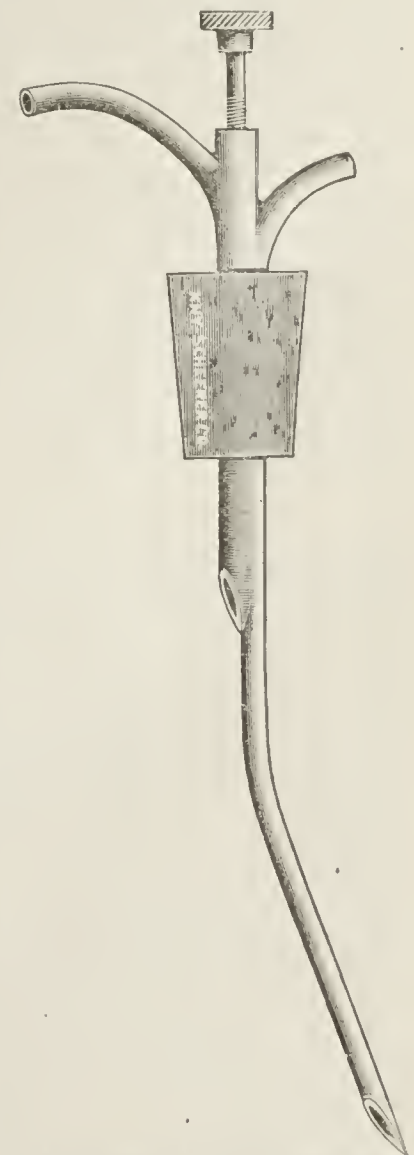
FRANK WILCOX PINNEO, M.D., NEWARK, N. J.

Surgical anesthesia combines in large measure both science and art; science in the profound effect of anesthetics, art in the great difference, in safety and well-being of the patient, between skilled and thoughtless administration.

The present time is demanding a finer discrimination between methods. The aim is to approach the "ideal anesthesia," one factor in which is perfectly even administration. Success in the prevailing use of the drop method with ether is hampered by intermittent application of the anesthetic, whereas there should be a steady dropping of the ether. But no suitable dropper has been hitherto made which combines efficiency with simplicity and availability for universal use. The one shown herewith has been designed to fill this need of regulating.

It is a double tube—inlet for air, outlet for anesthetic—with a needle valve in the latter, so placed that a finger easily screws it down to any degree of frequency of drops or opens it to a full large stream. Quickly punched through any cork it has the following advantages:

1. It can be used in any bottle or ether can.
2. It accomplishes an evenness of administration necessary to a perfect anesthesia.
3. It economizes ether, as wasteful evaporation is minimized.
4. It increases efficiency as ether when dropped on the mask is better volatilized and warmed.
5. It allows pouring ether when used for other methods.
6. It can be used for chloroform, which demands even greater accuracy in dropping.
7. It is, therefore, useful in obstetrics, the physician adjusting the drop before entrusting it to his assistant (often unskilled).
8. It has no bottle, or other part necessary to it, which, if broken or lost, destroys it.
9. It is so inexpensive and easily carried by mail that it has universal usefulness.



A regulating dropper for ether (or chloroform), usable on any container.

LOCALIZED GANGRENE FOLLOWING THE USE OF
QUININ AND UREA HYDROCHLORID

H. H. RIGHTOR, M.D., HELENA, ARK.

For some time I have been using the 1 per cent. solution of quinin and urea hydrochlorid, marketed in ampoules, as a local anesthetic, with very satisfactory results.

In the following instance the results might have been very disastrous.

R. C., a white man, aged 20, had just recovered from gonorrhea and was a splendid subject. The ordinary technic for the use of local anesthesia in circumcision was pursued. A rubber catheter was tied around the penis and the quinin solution injected in the line of the proposed skin and mucous membrane incision. The prepuce was removed in the usual way, and the skin sutured to the mucus membrane without the removal of any of the membrane. There was absolutely no sensation, faintness or nausea following the operation. The next morning the penis was very much swollen and of a violet hue; there was still no sensation. The patient left for his home in the country to return on the fifth day, at which time the discoloration was still present and there was still no pain. The silkworm sutures were removed at this time.

I saw the patient forty-eight hours later. There was a very foul odor, and a well-marked localized gangrene extending exactly to the end of the line of infiltration on both the mucous and the cutaneous sides of the incision. There was no suppuration at any time. With tissue forceps this gangrenous area was lifted out *en masse*, leaving a raw surface about an inch wide in the region of the frenum and one-half inch wide for the remainder of the circumference of the penis.

Fortunately no considerable amount of the prepuce had been removed, so that in a few days I was able again to approximate the skin and mucous membrane, except under the frenum. This line of sutures held and in a week was practically well, except for a short distance where the edges could not be approximated.

CLOSED EMPYEMA OF THE ETHMOID AND FRONTAL
SINUSES PRODUCING MARKED EXOPHTHALMOS

F. H. BRANDT, M.D., BOISE, IDAHO

The infrequency with which the ethmoid and frontal sinuses take part in producing displacement of the eyeball prompts me to report the following case which illustrates the extent to which this can occur without serious injury to the eye structures:

History.—The patient, Mr. J. P., aged 34, consulted me March 1, 1912, for an enlargement and displacement of the left eye, giving the history of having been taken ill with severe pain in this eye after a cold of two or three days' duration. This pain lasted three days. Since then the eye had been comfortable except for the gradual development of the swelling with its accompanying symptoms of congestion and conjunctival irritation, which has been going on for seven weeks altogether.

Examination.—The eye protruded three-quarters of an inch forward, 1 inch to the side and about three-quarters of an inch downward. The conjunctiva was greatly injected, almost venous in character; the cornea was clear and the iris functioning, but the pupil was more dilated than on the other side. Ophthalmoscopic examination showed the papilla to be mottled and its outlines indistinct; the arteries were contracted while the veins were distended and tortuous; one could well make out the swollen papilla by the course of these veins. Vision was very blurred, only 20/70. The field of vision for red and white was concentrically contracted. From these findings I diagnosed some process pushing out the eyeball. Examination of the nose seemed quite negative at first, except for a large middle turbinate on the left side; there was apparently no discharge from the middle meatus. Not being satisfied, I punctured the middle turbinate, and found a discharge of pus. The tentative diagnosis was an ethmoid abscess.

Operation.—Resection of the middle turbinate and entire removal of the ethmoid, which had undergone necrosis to a large extent, and perforation of the orbital plate were done under local anesthesia. An unsuccessful attempt was made to go into the frontal sinus. The cavity was loosely packed with xeroform gauze, which was removed the next day.

The result of this operation was a gradual return of the eye into its socket; it returned very promptly toward the median line, but a slight forward and slightly downward dislocation still persisted; as the discharge from the nose had about cleared up I sent the patient home with instructions to report should more displacement recur or a swelling appear above the eye. About a month after the first operation, a tumor about the size of a small hazel-nut was seen just below the orbital ridge and just outside of the supra-orbital notch.

The next step was a radical frontal sinus operation—the usual curved incision and removal of the floor of the sinus far enough back so that all parts of the sinus could be reached; no opening was made above the orbital ridge, as the upper part of the sinus could readily be reached from below. A perforation was found in the floor corresponding to the tumor below the ridge. The sinus was thoroughly curetted and the frontonasal duct enlarged, which, by the way, was only a little slit. The entire cavity was packed with iodoform gauze, with the strip protruding into the nose and the incision was closed with the exception of a small drain at the lower angle. The gauze was slowly removed through the nose in the course of a week, and a rubber tube, provided with a collar to keep it in place, was substituted therefor.

The external wound healed by first intention and the eyeball has returned to its normal place. Drainage through the nose was carried on very effectively, and the rubber tube was left in for two months, at which time there was no discharge, outside of some mucus. Diplopia did not occur following the last operation. The vision, as far as I can tell, has returned to about normal; the patient sees 20/30, which is a little less than in the right eye. The color fields are also a little smaller than on the other side. Bacteriologically the case showed nothing distinctive.

Interesting points in the case might be summarized as follows:

1. Absence of pain outside of the first three days.
2. No lasting rise of temperature. For two days it was 99.5 F.
3. Absence of permanent injury to the eye.
4. Absence of facial deformity following the operation.

POSTOPERATIVE HICCUP

WILLIAM F. DOOLITTLE, M.D., CLEVELAND

The following briefly described experience with a case of persistent singultus attending an appendectomy has some features of practical interest.

F. F., man, aged 38, American, machinist, developed an ordinary attack of appendicitis for which I operated at the end of thirty-six hours, when the symptoms were becoming more marked in spite of medical remedies. After removing the enlarged congested appendix containing considerable pus distal to a stenosed lumen, the abdominal incision was closed in the usual manner. The effects of the ether passed off uneventfully except for some slight irritation of a former mild bronchial catarrh which had come on in the line of his work.

On the second day, however, the patient developed a marked attack of hiccup which became more frequent and, under the circumstances, soon began to take his strength to a very noticeable degree. He had never previously been specially troubled with this disturbance. This diaphragmatic spasm ceased when the patient fell asleep, only to reappear as obstinately as ever on his awakening.

Various remedial agents were used in turn: oil of amber, Hoffmann's anodyne, ether sprayed on the epigastrium, inhalation of nitrite of amyl, counterirritation over the diaphragm, holding of the breath, psychic effect of fright, etc. There were no noticeable results.

On the third day of the attack, with the clonic spasm at its height, I passed a stomach-tube on the theory that its passage through and dilatation of the esophageal opening of the diaphragm might have a beneficial reflex effect on the phrenic and sympathetic nerves of that organ.

As the tube reached the stomach no pentup gas or fluid escaped, but the hiccup happily ceased immediately and the tube was promptly removed. In about an hour, however, the attack returned, but was instantly relieved by reinserting the stomach-tube. It remained away only two hours, but again yielded at once to the treatment. The fourth and final attack, after the lapse of about two hours more, was likewise overcome.

The further convalescence was complete and uneventful.

9510 Euclid Avenue.

A CASE OF ASYMMETRICAL, BILATERAL HERPES ZOSTER

CHARLES A. MOBLEY, M.D., VAN WYCK, S. C.

History.—The patient, a German-American woman, aged 66, gave a history of rheumatism and heart disease. I was called to see the patient on the morning of June 9, 1912. The previous day the patient had suffered with severe burning pains on the face and neck, and on awakening that morning had found a vesicular eruption in this region.

Examination.—The typical vesicular eruption of herpes zoster was found following the course of the left facial and the posterior auricular nerves, with scattered patches on the side of the neck and in the hair. None passed the median line of the head. The contents of some of the lesions were puriform. The temperature was 100; pulse 90. A mitral regurgitant murmur was heard on auscultating the chest.

From twenty-four to thirty-six hours after the first eruption the patient experienced a burning sensation in the right side of the chest, and shortly afterward vesicles developed along the course of the intercostal nerve at the seventh interspace. The majority of the lesions of this second eruption on the right side were hemorrhagic. Temperature at this time was 102; pulse 110. The lesions on the left side of the face and neck were still present.

Remarks.—An eruption of herpes zoster occurring on both sides of the body at the same time, and at different body planes, seems so rare from my search of the literature on the subject that I feel justified in reporting this case.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

NEOSALVARSAN.—Neosalvarsan is a mixture of sodium 3-diamino-4-dihydroxy-1-arsenobenzene-methanal-sulphoxylate, $\text{NH}_2\text{OH}\cdot\text{C}_6\text{H}_5\cdot\text{As}:\text{As}\cdot\text{C}_6\text{H}_5\cdot\text{OH}\cdot\text{NH}(\text{CH}_2\text{O})\text{OSNa}$, with inert inorganic salts. The arsenic content of three parts of neosalvarsan is approximately equal to 2 parts of salvarsan.

Neosalvarsan is prepared by precipitating a salt of 3-diamino-4-dihydroxy-1-arsenobenzene with sodium methanal-sulphoxylate and dissolving the precipitate in alkalis. From the resultant solution neosalvarsan is obtained by the addition of alcohol or acetone, or by evaporation of the solution in a vacuum.

Neosalvarsan is an orange-yellow powder possessing a peculiar odor. It is very unstable in the air. Neosalvarsan is readily soluble in water, yielding a yellow solution which is neutral toward litmus. Upon standing the aqueous solution becomes dark brown forming a brown precipitate.

A freshly prepared aqueous solution of neosalvarsan (1 in 100) yields a precipitate on the addition of mineral acids.

If silver nitrate test solution be added to an aqueous solution of neosalvarsan (1 in 100) a brownish color should be produced quickly followed by the formation of a black precipitate.

If ferric chloride test solution be added to an aqueous solution of neosalvarsan (1 in 100) a violet color should be produced which soon changes to a dark red.

If to 10 c.c. of the aqueous solution of neosalvarsan (1 in 100) 5 c.c. of diluted hydrochloric acid be added and the mixture heated, the irritating odor of sulphur dioxide will be evolved. If to 10 c.c. of the aqueous solution of neosalvarsan (1 in 100) 5 c.c. of diluted hydrochloric acid be added, the precipitate collected on a filter and treated with zinc dust and warm, diluted hydrochloric acid in a test tube, and if paper moistened with a 5 per cent. cadmium chloride solution be held in the mouth of the tube, the paper should be stained yellow within a few minutes (distinction from salvarsan.)

If to 10 c.c. of the aqueous solution of neosalvarsan (1 in 100) 5 c.c. of diluted hydrochloric acid be added, the precipitate removed by filtration, 2 c.c. of barium chloride test solution added to the filtrate, the mixture allowed to stand for 12 hours, the precipitate of barium sulphate removed by filtration, 5 c.c. of nitric acid added to the filtrate, the mixture boiled and evaporated to dryness, the residue should not be completely soluble in 50 c.c. of hot water slightly acidified with hydrochloric acid.

The arsenic content of neosalvarsan may be estimated according to the method described in Reports of the Chemical Laboratory of the American Medical Association, vol. iii, p. 97.

Actions and Uses.—Since neosalvarsan is merely a soluble compound of salvarsan, its actions and uses are the same as salvarsan, which see.

Dosage.—Neosalvarsan is said to be tolerated better than salvarsan, and consequently may be employed in larger doses. The average single dose for men is 0.75 gm. (12 grains) with 0.6 gm. (9.5 grains) and 0.9 gm. (14 grains) as the minimum and maximum doses. For women, 0.6 gm. (9.5 grains) as the average, 0.45 gm. (7 grains) and 0.75 gm. (12 grains) as minimum and maximum. Children may be given from 0.15 gm. (2 grains) to 0.3 gm. (5 grains). 1.5 gm. (22 grains) for men and 1.2 gm. (19 grains) for women should be regarded as a maximum dose.

Neosalvarsan may be administered by intravenous or intramuscular injection, the former being considered decidedly preferable, but, owing to the danger of infiltrations, it must not be administered subcutaneously. For intravenous injections 25 c.c. of freshly distilled water should be used for each 0.15 gm. of neosalvarsan. For the intramuscular injection 3 c.c. (45 minims) of freshly distilled water should be used for each 0.15 gm. (2½ grains) of neosalvarsan, this yielding an approximately isotonic solution.

Solutions should be freshly prepared, from freshly distilled, sterile cold water, or, if this be unavailable, with well boiled and cooled tap water.

Solutions of neosalvarsan must be injected immediately after their preparation. Neosalvarsan solution must not be warmed and the temperature of the injection fluid should not be above 20 to 22 C. (68 to 71.6 F.).

Manufactured by Farbwerke vorm. Meister, Lucius and Brüning, Höchst, a.M., Germany; (Victor Koechl & Co., New York). German patent No. 245,756. U. S. patent applied for. U. S. trademark.

Neosalvarsan, Dose 1.—Each sealed tube contains neosalvarsan, 0.15 Gm. (2 ⅓ grains).

Neosalvarsan, Dose 2.—Each sealed tube contains neosalvarsan, 0.3 Gm. (4 ⅔ grains).

Neosalvarsan, Dose 3.—Each sealed tube contains neosalvarsan, 0.45 Gm. (6 ⅞ grains).

Neosalvarsan, Dose 4.—Each sealed tube contains neosalvarsan, 0.60 Gm. (9 ⅓ grains).

Neosalvarsan, Dose 5.—Each sealed tube contains neosalvarsan, 0.75 Gm. (11 ⅞ grains).

Neosalvarsan, Dose 6.—Each sealed tube contains neosalvarsan, 0.9 Gm. (13 ⅞ grains).

SALOQUININE (See N. N. R. 1912, p. 195).

Manufactured by the Vereinigte Chlminfabriken, Zimmer & Co., Frankfurt a.M., Germany, (Merek & Co., New York).

ARTICLES ACCEPTED FOR N. N. R. APPENDIX

Kalle & Co., New York.

Menthol-Iodol.—A mixture of iodol, 99 parts, and menthol, 1 part. Trademarked in Germany. No U. S. patent or trademark.

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[For other information see second page following reading matter]

SATURDAY, SEPTEMBER 14, 1912

A NEW THEORY OF PROTEIN METABOLISM

The story of metabolism cannot fail to hold the attention of any group of men whose interests center in the functions of the living body; for it involves the special factors that dominate the activities of the organism. It is still much too early for profitable speculation on the causes of the complex and obscure changes which determine these reactions. After forty years of untiring effort in this field the master student of nutrition, Carl Voit, had to content himself with saying, in 1902, that "the unknown causes of metabolism are found in the cells of the organism." The chemical dynamics of the cell are still the subject of controversy and hypothetical discussion.

There are facts as well as theories of nutrition. We know that the nitrogen of our protein intake is soon represented by certain relatively simple nitrogenous end-products in the excretions. What are the transformations which have been experienced in this interval? That is one of the leading questions in the study of metabolism.

There was a time, not very long ago, when it was supposed that ingested protein was absorbed in a form little altered beyond the point of a thoroughly soluble and diffusible product. When the difficulty of detecting the absorbed material in the blood-stream beyond the alimentary wall began to manifest itself, recourse was had to the theory of regeneration. The products of absorption were assumed to be reconstructed into typical protein, in which form the ingested material is sent on its way through the blood-stream. When the newer knowledge of the digestive processes brought an appreciation of the profound cleavage which the protein molecule presumably undergoes in the alimentary tract prior to its absorption, a new set of problems was presented. Instead of proteoses or peptones the amino-acid degradation products now had to be followed and accounted for in their migrations from the intestine. Here again the newer products could not be satisfactorily demonstrated in the portal blood, and the hypothesis of a resynthesis of blood-proteins from the digestion fragments in the passage through the intestinal wall became a logical necessity. This point of view has been vigorously championed by Abderhalden.

The fact that there is no evidence of the increase of coagulable protein in the blood, such as would be demanded by the hypothesis of immediate regeneration, has likewise proved to be somewhat of a stumbling-block. Thus the way was opened for another hypothesis, that of deamination. The discovery of relatively larger quantities of ammonia in the intestinal wall and portal blood than are found in other tissues warranted the belief that the protein fragments become denitrogenized in the course of their absorption, and perhaps further in the liver; so that the liberated ammonia nitrogen finds a speedy conversion into urea in the liver. The organism is thus rapidly rid of the undesired nitrogen, leaving the non-nitrogenous residue for useful application as a source of energy. This explanation has proved to be an attractive one in recent years.¹

The student of the problems which have here been reviewed will readily discover that the lack of suitable analytic methods for the detection of small quantities of the various conjectured products of absorption has added to the uncertainty. Professor Folin and his co-workers in the Harvard Medical School have devoted much attention to this matter. The outcome of their efforts has been the perfection of technic designed to facilitate the following of the amino-acids and ammonia through the tissues and the circulation.² The result of their application has been to convince the investigators that no special deamination process is located in the intestine, and that the ammonia in the portal blood is very small in amount and represents the absorption of ammonia produced in the intestinal lumen, chiefly by putrefactive bacteria. This dispels one hypothesis.

Equally surprising are the further conclusions³ that the amino-acid products of digestion actually do pass into the circulation and that they are not held back by the liver but transported on to the other tissues. The accuracy of this account depends on the validity of the methods of analysis employed, and these still await confirmation from other sources. The positive findings are nevertheless decidedly more attractive, and in this case teleologically more reasonable, than the negative evidence on which the regeneration hypotheses have been based. We may, for the present, believe that the food protein reaches the tissues in the form of amino-acids and that those amino-acids which are not needed for the rebuilding of broken-down body material are not rebuilt into either protein or protoplasm, but are broken down and their nitrogen converted into urea.

Obviously no theory of this sort would be complete without some demonstration of the actual connection between the food amino-acid and the excretory urea. This has now been shown by Folin to exist. The rapid absorption of digestion products is followed by the appearance of urea in the tissues and the circulating

1. Compare Mendel, Lafayette B.: *Theorien des Eiweissstoffwechsels*, *Ergebn. d. Physiol.*, 1911, xi, 418.

2. The details are described in the *Jour. Biol. Chem.*, 1912, xi.

3. Folin and Denis: *Protein Metabolism from the Standpoint of Blood and Tissue Analysis*, *Jour. Biol. Chem.*, 1912, xi, 161; xii, 141.

blood. There is, as yet, no positive evidence that deaminization and urea formation represent a specialized process confined to some particular organ. The absence of any apparent localization is in itself a strong indication that there is none; so that in view of their dominant rôle the greatest amount of urea is presumably formed in the muscles, according to Folin.

One other important finding deserves notice here. Ingested creatin and creatinin have not been observed to occasion a production of urea such as occurs when amino-acids are absorbed. This absence of demonstrable urea formation is in itself an argument against the hypothesis that these two products are extensively destroyed in the body. The fact is further in harmony with the current belief that the story of creatin and creatinin in metabolism, like that of the purins, must be sought in a different chapter from that which ends with the genesis of urea.

THE PROTECTIVE FERMENTS OF THE BLOOD AND A NEW TEST FOR PREGNANCY.

For some years Abderhalden has been occupied with the study of the way in which the animal body protects itself against foreign substances that gain entrance into its interior. He had the idea that the processes involved were essentially metabolic in nature, and was thus led to investigate the occurrence of certain ferments in the blood-plasma under normal and experimental conditions. The results of these investigations are summarized and discussed by him in a recent monograph.¹ In view of their importance and interest, a brief statement of the principal results may be warranted.

Generally speaking, the substances taken into the body as food are subjected to various kinds of fermentative action, both before and after absorption from the digestive tract, whereby they are split up and rendered not only harmless but fit material for the purposes of nutrition and growth. The cells themselves harbor a number of ferments that can split fats, reduce carbohydrates and break up proteins and protein derivatives. While practically every cell in the body can carry on digestive processes, the blood-plasma of man and of many animals normally does not possess any digestive powers, at least for proteins, so far as is demonstrable with the methods now in use. It seems as if foreign substances requiring rapid cleavage normally do not enter the blood. This being the case, Abderhalden set to work to determine whether the blood-plasma acquires any new fermentative properties when foreign substances are introduced into the blood directly without first going through the digestive tract. Various protein substances were injected into dogs and rabbits, and invariably the plasma of animals so treated rapidly acquired the power to split proteins and peptones, but not fats and carbohydrates. The action of the newly formed ferments is seen very clearly by

means of the polariscope, which shows that in digestion-mixtures made with the serum of injected animals the rotatory effect on light differs from that of mixtures made with normal serum. The digestive action of the serum of injected animals is demonstrable in other ways also.

The appearance in the blood of proteolytic and peptolytic ferments having been shown to follow the parateral introduction of proteins, the next step naturally was to find whether similar results follow the injection of foreign, non-protein substances. The experiments on this point gave results confirmatory of those already obtained by Weinland, namely, that the injection of cane-sugar into the dog induces the appearance in the blood of invertin. Other sugars, notably milk-sugar, are also changed by the serum of dogs injected therewith, and such serums, as well as the serums of dogs injected with starch, invert cane-sugar also. It is remarkable that invertin should appear in blood-plasma as early as fifteen minutes after the intravenous injection of cane-sugar.

In the case of fats the conditions were found to be more complex; homologous fats appear to increase the fat-splitting power of the plasma, and the question whether foreign fats exercise a specific effect must be studied further.

As the ferments in question attack the substances which call them into the blood and thus no doubt protect the body, Abderhalden, like Heilner, designates them as protective ferments. Their origin and their relation to anaphylaxis, to the antibodies of the immunologist and to the ferments described by Vaughan in the serum of guinea-pigs injected with foreign proteins are questions that cannot be discussed now, but it may be pointed out that according to Abderhalden's work the proteolytic and peptolytic protective ferments do not seem to be nearly so narrowly specific in their range of action as the bodies concerned in the anaphylactic and other reactions of immunity are believed to be. It may be, however, that other methods of study will give different results; future investigations, no doubt, will throw light on these and other questions. Even as the matter now stands, it is clear that the presence in the plasma of protective proteolytic ferments may have a significance quite similar to that of antibodies because in both cases it concerns a reaction to the entrance into the body of foreign proteins. Thus Dick² has shown that in pneumonia the blood-serum contains ferments that digest the pneumococcus, and Abderhalden has discovered that in pregnancy the blood contains ferments that digest proteins and peptones derived from the placenta. He was led to this discovery by the conception that certain cells of the body may harbor constituents which are peculiar and foreign to the blood and which therefore on entrance into the blood lead to the production of special ferments. In order to test this possibility he made experiments with

1. Abderhalden, Emil: *Schutzfermente des tierischen Organismus*, Julius Springer, Berlin, 1912.

2. Dick: *Jour. Infect. Dis.*, 1912, x, 384.

the serum of pregnant women and animals, as it is known that in pregnancy cells and fragments of the chorionic villi commonly enter the blood. The ferments discovered in this way appear to be largely specific for the placenta. By examination in a large number of pregnant women, Abderhalden has shown that such ferments are constantly present in pregnancy; they appear in the first month, and eight days after abortion or birth at term they are no longer demonstrable by the methods used (polariscope, appearance of peptone in the dialysate of mixtures of placental material and serum of the pregnant); similar ferments are present also in the serum of pregnant animals. The injection of animals, male as well as female, with placental tissue, extract or juice, produces ferments that digest the injected material. Here then we have a new test for pregnancy that promises to be of practical value. In one case of extra-uterine pregnancy the test gave a positive result. This method also furnishes us with a new means for the study of vomiting of pregnancy and of eclampsia. Indeed, it is altogether likely that Abderhalden's work on the ferments of the blood-plasma will prove of service for the study of a wide range of problems in pathology.

MORPHIN VERSUS THE COMBINED OPIUM ALKALOIDS

It is a logical endeavor on the part of those who are interested in the rational use of drugs to supplant crude concoctions of variable or uncertain activity by well-defined, isolated chemical compounds, the so-called active principles of the pharmacist's products. The increasing substitution of pure alkaloids and their salts for the older tinctures and extracts of pharmacologically active plants bears witness to the tendency of the times and gives promise of a more satisfactory and dependable therapeutic procedure. In certain cases, however, the results from the use of the isolated "principle" have been observed to be not entirely identical with those which attend the administration of corresponding galenical products or the crude drug itself. This is notably true of opium, the therapeutic efficacy of which is somewhat different from that of its chief alkaloidal ingredient morphin.

W. Straub has undertaken to throw some light on these differences. It is probable, *a priori*, that they would be due to the minor alkaloids of opium; but, to quote Straub: "It is improbable, *a priori*, that it is necessary, in order to improve the action of morphin, to drag in the whole of the two dozen alkaloids of opium (*dass zur Vervesserung der Morphin Wirkung alle zwei Dutzend Alkaloide mitgeschleppt werden müssen*); it is much more probable that only the most active or the most abundant of the alkaloids need to be considered."

It is well known that in addition to morphin, opium yields a series of alkaloids including narcotin, papaverin, codein, narcein and thebain, diminishing in abundance in the order indicated. Morphin makes up about 10

per cent. of the opium and narcotin 6 per cent., while the others are represented in relatively small amounts. In the proportions in which they are likely to be used in opium products, narcotin, papaverin and narcein may be regarded as practically inert. Even for the active codein relatively little effect is to be expected from the limited quantity which is present here. The conclusion from these facts is that we can scarcely explain the characteristic "opium effect," in contrast with the action of its contained morphin, on the basis of a simple summation of the dosage of its contributory alkaloids.

There are ways in which one substance may augment the action of another without merely adding its own specific potency to that of the second. A compound inert in itself may modify the sensitiveness of the organism to other substances; in other words, it may fortify their efficiency by rendering the individual peculiarly receptive or by other less apparent means. Herein seems to lie the superior efficiency of the combined opium alkaloids, according to recent observations by Straub.¹ Using narcotin, the most abundant companion of morphin, in doses too small to produce typical pharmacologic effects of themselves, he has found that it modifies and greatly increases the effects of morphin. This was demonstrated for a variety of manifestations peculiar to the action of this drug. In cats narcotin lessened the excitant effect of morphin; in rabbits it lessened the depression of the respiratory center; in mice it may almost double the toxicity of morphin. These researches have made it probable that the practical differences between opium and morphin are mainly due to the narcotin. H. Caesar,² working with Straub, has made comparable trials with the other alkaloids associated with morphin in opium and found that these do not produce an equal reinforcement of the features under discussion, at least when used in quantities suggested by their natural occurrence in opium.

They do have complex modifying effects, however, which are further complicated by any changes in their relative proportions. Since these proportions vary enormously in different samples of opium, and still more in its galenical preparations, and since the influence of these variations can neither be foreseen nor calculated, Straub and Caesar suggest the employment of a simple mixture of equal parts of morphin and narcotin in place of the opium. This proportion was found much more favorable than that existing naturally in opium (1 part of morphin against from 0.075 to 0.9 parts of narcotin, Brihl).

Straub's discovery of the peculiar pharmacologic interrelation of these two alkaloids marks a step in progress; but it still remains to be seen whether the morphin-narcotin mixture has any special advantage over morphin or opium in therapeutics.

1. Straub, W.: *Pharmakodynamische Wirkung des Narkotins im Opium*, Biochem. Ztschr., 1912, xli, 419.

2. Compare Caesar, H.: *Toxizitätsänderungen des Morphins bei Kombination mit anderen Opiumalkaloiden*, Biochem. Ztschr., 1912, xlii, 316.

DIPHTHERIA VACCINE AND DIPHTHERIA CARRIERS

An extremely vexing problem for health authorities and physicians is presented by bacillus-carriers, particularly carriers of typhoid fever and diphtheria. Typhoid carriers may harbor bacilli for years, during which time each is a menace to the community in which he lives. Diphtheria carriers may have bacilli in their throats for months, and are in a way even a greater menace than the typhoid carriers because of the greater ease with which the organisms may be distributed. In view of these facts, the work by Hewlett and Nankivell¹ is opportune; their results, if substantiated, may help to solve the problem of the diphtheria carrier.

By a series of observations the authors demonstrate that of the current methods of handling such carriers complete isolation has been most successful. Local and internal treatment give poor and unsatisfactory results. Thus, with a view to reaching the deeper tonsillar crypts not touched by local treatment, iodine was given until iodism resulted, but without success. As it had been found that with the disappearance of the diphtheria bacilli an increase in the non-virulent organisms in the throat occurred, inoculation of the throat with such organisms was attempted in two cases, but in vain. Finally, it was undertaken to prepare a vaccine, and this yielded the best results of all.

Bacillus diphtheriae was grown in Roux bottles on serum or blood-agar; the growth was collected and washed several times in physiologic salt solution and centrifuged; the bacteria were then ground in intense cold by the Macfayden method and filtered through a Berkefeld filter. Sterile salt was added to the filtrate to make a solution containing either 2 mg. or 5 mg. per cubic centimeter of the ground bacteria.

In the earlier cases doses of from 0.5 mg. to 1 mg. were given. Later an initial dose of 2 mg. was given and after a week 5 mg., if the swabs showed bacilli still present in the throat. Usually only a slight reaction with redness around the site of injection resulted. In one case nausea, malaise, fever and a more general reaction were produced. One of the authors injected himself first with 2 mg. and then with 5 mg. and sustained only slight reaction. After the vaccine is kept for some time there is less local and general reaction, but the strength is lost to a large degree after three months. It is harmless to guinea-pigs, which after injection acquire considerable immunity to living diphtheria bacilli.

Of five diphtheria patients injected with this vaccine while a membrane was still present in the throat, four showed no bacilli after two weeks and one showed none after a month. This may have been merely a coincidence, but the children selected were of the weaker, physically less robust type that tend to become carriers. In thirteen chronic carriers injections of the vaccine were followed by disappearance of the bacteria in a comparatively short time. In six patients so treated the

bacteria failed to disappear altogether, but there was a marked diminution in number. During the course of the investigation Hewlett and Nankivell found that scarlet fever patients who at the same time harbor the diphtheria bacillus are likely to become carriers, while those with diphtheria subsequently becoming infected with scarlet fever do not become carriers.

Practically simultaneously and for the same purpose, Petruschky¹ has used injections of bacteria killed with chloroform and washed. He was successful with seven chronic diphtheria carriers, and was able to establish an active immunity by the injection of 0.1 c.c. of a suspension of dead bacteria followed four or five days later by the same quantity of a suspension ten times stronger. He emphasizes that such injections may be given for protective purposes, including the immunization of chronic carriers and school children carrying diphtheria bacilli in their throats.

In view of the difficulties of long isolation and of the failure of other methods of treatment, this work is of great interest. We have, however, few cases on which to base a judgment. The treatment of diphtheria with antitoxin has yielded magnificent results; perhaps its prevention with vaccine may prove equally effective in limiting the spread of the disease through carriers, if not in protecting individuals directly.

RECENT JAPANESE INVESTIGATIONS ON RICE
BRAN IN RELATION TO DISEASE

We have frequently taken occasion to refer to the experimental production of multiple neuritis in animals by the use of exclusive diets of polished rice, and to the relationship of this outcome to the etiology of beriberi in man.² Reference has also been made to the attempts to isolate from the millings of rice a chemical compound which will avert the onset of the symptoms or act as a curative agent when the disease has already manifested itself.³ The subject is of such serious importance and the prospect of experimental success so promising in view of the preliminary results already achieved that this field of study has quite naturally attracted investigators to it speedily. In the Far East, in particular, at the very home of the difficulties in their application to human nutrition, the problems have been attacked vigorously and effectively by scientists of various nationalities. The latest report, from the Agricultural College of the Imperial University at Tokyo⁴ brings new confirmation of the probability that some definite chemical compound can be isolated which will exhibit the curative and prophylactic properties that are the sub-

1. Petruschky: *Deutsch. med. Wchnschr.*, 1912, xxxviii, 1319.

2. The Etiology of Beriberi, *THE JOURNAL A. M. A.*, Oct. 7, 1911, p. 1213; The Probable Cause of Beriberi, *THE JOURNAL A. M. A.*, June 15, p. 1859; The Effects of Exclusive Feeding—Experimental Scurvy, *THE JOURNAL A. M. A.*, July 20, p. 198.

3. The Relation of Rice to Certain Diseases, *THE JOURNAL A. M. A.*, Feb. 24, 1912, p. 557.

4. Suzuki, V., Shimamura, T., and Odake, S.: Ueber Oryzanin, ein Bestandteil der Reiskleie und seine physiologische Bedeutung, *Biochem. Ztschr.*, 1912, xliii, 89.

1. Hewlett and Nankivell: *Lancet*, London, 1912, clxxxiii, 143.

jeet of such lively physiologic speculation. The active agent is present in alcoholic extracts of rice polishings. By special methods of precipitation and concentration the Japanese investigators have partly succeeded in isolating a substance which promises to furnish a product of specific potency, the exact chemical structure of which can be ascertained in due season. The name "oryzanin," which suggests the relationship of the substance to rice, has been proposed for the new product already separated in what the chemist would call a crude form. Among its decomposition products destined to give some insight into its structural make-up, pyridin, carbon dioxide, cholin and dextrose have been detected. Of course such incomplete data are too scanty to give any very definite conception of the chemical character of oryzanin; but they encourage the belief that the prospect of a solution in the near future is no longer purely visionary.

Like the product separated by Funk at the Lister Institute in London, the crude oryzanin will resuscitate pigeons which have been fed on polished rice until they show symptoms of peripheral neuritis. The potency of the product already available (which will presumably be increased by a more successful purification) is best indicated by the fact that quantities of from 5 to 10 mg. per day suffice to prevent the onset of the typical malnutrition which polished rice invariably induces in pigeons. The proportions here mentioned constitute only $1/2,500$ to $1/5,000$ of the daily food intake of the animals.

These curative effects are not confined to pigeons alone. Other species are affected by a prolonged inadequate rice diet and can be protected from dangerous symptoms by the addition of oryzanin or alcoholic extracts of rice bran to their food. Arguing that the small content of inorganic constituents can play no significant part in the restoration of nutritive equilibrium thus established, the Japanese investigators go so far as to assert that oryzanin includes a compound indispensable for the maintenance of life. They have fortified themselves in this belief by feeding small animals with mixtures of isolated food-substances—proteins, fats, carbohydrates and inorganic salts—without nutritive success until the rice product was added in small amounts to the dietary. The recent experiments of Osborne and Mendel⁴ in this country show, by the success with which rats were maintained on mixtures of isolated foodstuffs over long periods of time, how cautious one must be about drawing sweeping conclusions regarding the deficiencies in dietaries. It may well be that the chemical compound still masked in the crude product called oryzanin is one of a type widely distributed in nature; for it has been found that various plant materials—barley, wheat, oats, beans, etc.—will avert the dangers of milled rice. The usefulness of animal products is still somewhat more doubtful, although alcoholic extracts of meat

and of milk have already furnished some suggestive positive experimental results.

On the basis of our present knowledge it would show a lack of critical insight to maintain that there is only a single type of malnutrition and a single prophylactic agent. Without accepting the extreme deductions of Suzuki, Shimamura and Otake regarding the exceptional life-saving virtues of the product they have investigated, we can nevertheless welcome the advent of a period when the investigation of these unique nutritive properties is being put on a more substantial experimental basis. For, after all, the problems involved are chemical ones; and not until they are treated with the cooperation of the biologic chemist can they be expected to attain a successful solution.

Current Comment

TYPHOID AND THE CARELESS MILKMAN

An epidemic of twenty-eight cases of typhoid fever, with fifteen additional suspects, on the route of one small dairyman near Philadelphia directs attention to several interesting points. Typhoid fever is propagated from one case to another, and milk is its most perfect medium. A careless dairyman, careless consumers and a case of typhoid fever along the route make a combination that spells an inevitable epidemic of that dread disease. The dairyman in question did not possess enough clean bottles to supply milk to all his customers each day, so as he passed along his route he gathered up bottles which were set out for him, which of course had collected dirt, flies, bacteria and miscellaneous filth, and filled them from his bulk supply as he passed along. His first bottle customer had typhoid fever and used as a source of water-supply a spring, the overflow from which was the source of water for the family of the next customer, who also bought loose milk from the dairyman. Typhoid soon developed in the latter family and in a short time there were twenty-eight cases of the disease in the forty families served by the dairyman, with a possible additional fifteen who were suspected of having it. The rapid spread of the disease in this circumscribed area resulted in an investigation by the state health board, and in a few hours the epidemic was traced to this dairyman and his method of distributing the milk, which was known to his customers. The dairyman, a member of his family and his hired man were included among the victims. The loss in time, money and suffering from this epidemic is obvious and need not be dwelt on here. This typical instance, however, serves to call attention to the individual, community and national carelessness which makes such a thing possible. It also illustrates the ease with which a well-informed health organization can trace out the source of such an epidemic and apply the measures necessary to stop it, or which would have prevented it if applied in the first instance. Although, through another instance of carelessness or indifference, only about 60 per cent. of the area of the United States has adequate vital statistics laws, the figures are suffi-

4. Osborne, T. B., and Mendel, L. B.: Feeding Experiments with Isolated Food Substances, Publication 156, Carnegie Institution of Washington, 1911.

ciently well worked out to show that we possess the unenviable distinction of having a death-rate from this filth-fostered disease which is among the highest. As tabulated in a recent article,¹ compared with other countries, the United States stood as follows with reference to deaths per million from typhoid fever during the period from 1905 to 1908; Spain, 362; United States (in the registration area), 288; Italy, 283; Austria, 156; Servia, 147; Belgium, 122; Ireland, ninety-one; England and Wales, eighty; Scotland, seventy-four; Netherlands, seventy-two; Prussia, sixty-one; German Empire, fifty-three; Switzerland, forty-six. It behooves us speedily to readjust conditions so that our death-rate may make a more creditable showing, and epidemics similar to the small one referred to may be prevented.

MALARIA AND THE DEVELOPMENT OF THE SOUTH

The portion of our country east of the Mississippi and south of the Ohio—the South—is one of the most important and rapidly developing areas of the United States. Its development is taking place in spite of the handicap of preventable diseases; but these are yielding to the scientific spirit of Southern physicians and the energy and enterprise of Southern citizens. Hookworm is rapidly being eliminated and the intensive study of pellagra is bound to overcome that serious but less wide-spread disease. Recent agitation and action concerning these two diseases have placed them in the lime-light almost to the exclusion of the older and better-known disease, malaria, which is still a tremendous menace and handicap to industrial progress. Its importance, however, as a source of enormous economic and health waste has not been lost sight of, and at the last meeting of the Southern Medical Association a commission was appointed to study the question of the prevention of malaria in the South and to create and set in motion machinery for its complete eradication. This commission has as its head Capt. Charles F. Craig of the Army Medical School, and among the experts on tropical diseases in its membership is Dr. C. C. Bass, the discoverer of the method of cultivating the malarial plasmodium. As an evidence of the vast importance of malaria as a source of mortality and morbidity, involving tremendous economic waste, Dr. Graham E. Henson of the commission, taking the records of Birmingham, Mobile and Montgomery, the three largest cities of Alabama, and studying the death-rate from malaria in those cities, has estimated that in Alabama last year there were over 70,000 cases of malaria with over 770 deaths, and that the economic loss would total over \$2,000,000. Considering the decrease in the earning-power of all those afflicted with the disease and its consequences, it is probable that this estimate is far too low; and when all the states having malaria are considered, the great importance of this question is at once apparent. It becomes not only a question of local health administration but one of the most important conservation problems with which any section of this country has to deal, and deserves the consideration of Congress and the support of the national government more than do some other problems of conservation.

While the material resources of the country ought to be conserved, they are secondary in importance to the human resources which make them valuable. The work of this commission, which originated wholly within the medical profession, will be of inestimable benefit to the South, and it should be encouraged and supported by the local and national governments until malaria in the South has been as completely exterminated as yellow fever. This is possible, but it is a much greater and more expensive task than the eradication of the latter disease, and the burden of it should be borne by the whole people.

THE BEGINNING OF THE END

F. L. Dunlap—better known to the public as “Mc-Too Dunlap”—has resigned from his position in the Bureau of Chemistry to take a commercial position at a higher salary than the government paid him. Dunlap, it will be remembered, was the plastic gentleman who took advantage of his chief's absence from Washington to prefer charges against him in the sensational attempt of the “interests” to oust Dr. Wiley from the Department of Agriculture. How trivial and unfounded the charges were is now history. The American public is to be congratulated on Dunlap's resignation. We trust that it marks the beginning of the end of a régime that has made effective work in the Bureau of Chemistry impossible. When McCabe, the self-confessed tamperer with official documents, and Wilson, the well-meaning but superannuated department head, also feel the spirit of resignation moving within them, a nationwide sigh of relief will go up from those who have suffered from the comparatively unfettered machinations of the food-dopers, “patent-medicine” fakers and drug adulterators.

ANAPHYLAXIS AND HEART-BLOCK

Despite the obscurity and uncertainty which still attend the interpretation of many of the striking features of the phenomena spoken of under the term anaphylaxis, the study of these responses has already been full of fruitful suggestions in various domains of pathology. It has furnished a working basis for the investigation of hitherto obscure manifestations of diseases like asthma and hay-fever, and has given clues to potent possibilities in the direction of treatment or prophylaxis. Among the newest indications of the rôle which this unique hypersensitiveness and the consequent anaphylactic reactions may play is their suggested relation to certain types of heart-block or disturbances in the coordination of the heart-beat. Dr. John Auer,¹ of the Rockefeller Institute in New York City, has described peculiar anatomic changes in localized portions of the heart musculature in rabbits which have succumbed to an anaphylactic seizure after being sensitized with horse-serum. Since these transformations involved some of those portions of the heart which are known to be concerned with its conduction processes, it seemed possible that under these conditions the organ might show an upset in the coordination of the beat.

1. Auer, John: Anaphylaxie als eine Ursache von Koordinationsstörungen des Herzschrags beim Kaninchen, *Zentralbl. f. Physiol.*, 1912, xxvi, 363.

1. In the *Military Surgeon*, Aug. 31, 1912.

This is precisely what Auer found. Disturbances in the cardiac rhythm attended not only the fatal cases of anaphylaxis, but also some of those in which recovery supervened. The behavior of the heart in these instances was comparable with what is observed in cases in which there are marked inequalities in the number of auricular and ventricular beats, so that 3:1 or 2:1 rhythms, for example, become established. Added interest centers in the fact that similar muscular alterations are observed in the heart after administration of lethal doses of digitalis, strophanthus and other poisons. The relation of these substances to disturbed heart-rhythm is known; and it is not at all unlikely that the heart-block which they have been observed to occasion may be attributable, as in the case of anaphylaxis, to morphologic changes which the drugs induce in the cardiac tissue. At any rate there is food for reflection in the analogies presented.

HIGHER PRELIMINARY REQUIREMENTS

Immediately following the creation of the Council on Medical Education in 1904 as a permanent committee of the American Medical Association, that Council began an active campaign for higher standards of admission to medical colleges. The standard advocated was a reading knowledge of a modern language aside from English, preferably German or French, and at least a year's work devoted to thorough courses in physics, chemistry and biology, this to be required in addition to a standard four-year high-school education. In 1904 only four medical colleges in the United States were requiring anything in advance of the high-school education, but since that time the number has increased until now forty-five medical schools¹ are requiring these higher standards. Thirty of these schools are requiring two or more years of work in a college of liberal arts as a minimum, while fifteen are requiring but one year. Efforts were also made by the Council to encourage higher requirements of preliminary education by state licensing boards and as a result, ten states have now adopted the higher requirements. North Dakota, Iowa, Minnesota, Colorado and Indiana have adopted a requirement of two years of college work as the minimum, while South Dakota, Connecticut, Kansas, Utah and New York have adopted one year. Last June the House of Delegates adopted a report instructing the Council on Medical Education to omit from Class A, after Jan. 1, 1914, any medical college which did not require for admission of every student "at least one year of college credits in chemistry, biology, physics and a modern language, or two or more years in a college of liberal arts in addition to the accredited four-year high-school course." Last week word was received² that the New York Board of Regents had voted to require after Jan. 1, 1913, as a minimum for entrance to medical schools in that state, in addition to a four-year high-school education a year's work in physics, biology and inorganic chemistry respectively. The campaign still goes on, but already the general adoption of at least one year's work in physics, chemistry and biology

as the minimum standard of admission to medical schools in this country is assured within the next few years. With the adoption of this standard by the medical schools of the United States, preliminary requirements in this country will be on a par with those of other leading nations.

Medical News

COLORADO

Personal.—Dr. John F. Morgan, city physician of Fort Collins, has resigned and will remove to Carthage, Mo.—Dr. J. F. Dawson, Platteville, engaged in a pistol duel with four men who had robbed the Platteville postoffice, August 19.

Hospital Addition Completed.—The addition to St. Joseph's Hospital, Denver, which has been erected at a cost of \$100,000, is completed, and will be opened for patients as soon as the rooms are furnished. Twelve of the forty-four rooms have already been equipped.

Commission Disapproved Voucher.—The Civil Service Commission has declined to approve the pay voucher for Dr. A. P. Busey, superintendent of the State Insane Hospital, Pueblo, and of the State Home of Mental Defectives, Denver, because of an alleged technical irregularity in his dual appointment.

ILLINOIS

New Officers.—Aux Plaines Medical Society: president, Dr. F. L. Glenn; secretary, Dr. W. W. Dicker, both of Austin, Chicago. On August 28, the society held a joint meeting with the Fox River Medical Society at Mill Creek Park near Batavia.

Personal.—Dr. Clarence E. Pierce, O'Fallon, who has been critically ill with tetanus, is reported to be improving.—Dr. O. J. Roskoten, Peoria, has been elected vice president of the National German-American Alliance.—Dr. Jay H. Bacon, Peoria, has gone abroad.

Chicago

Noted Toxicologist Ill.—Dr. Walter S. Haines, professor of chemistry and materia medica in Rush Medical College, is reported to be critically ill in a sanatorium near Los Angeles.

To and From Europe.—Dr. and Mrs. Rudolph W. Holmes have sailed for Europe.—Dr. and Mrs. John McKinlock have returned from Europe.—Dr. D'Orsay Hecht has returned after a six months' study trip abroad.

INDIANA

Institution Superintendent Dies.—Albert E. Carroll, for many years superintendent of the School for Feeble-Minded Youth, Fort Wayne, who had been connected with the institution from his early youth in various capacities, and who was well known throughout the United States, died August 27, from pneumonia.

Personal.—Dr. W. F. Clevenger, Indianapolis, has returned from Europe.—Dr. Herbert M. Woollen, Indianapolis, has been elected president of the American Central Life Insurance Company.—Dr. W. J. Molloy has succeeded Dr. H. S. Bowles as secretary of the Muncie Board of Health.—Dr. William Shimer has succeeded Dr. J. P. Simonds as superintendent of the pathologic laboratories of the State Board of Health.—Dr. K. W. Kidy has succeeded Dr. Asa E. Fletcher in the laboratories as physician in charge of the demonstration of the Pasteur treatment and Dr. L. W. Barry has been appointed assistant pathologist at the laboratories.

KENTUCKY

Hospital Contract Awarded.—The trustees of the W. W. Massie Memorial Hospital, Paris, have awarded the contract for the reconstruction of the G. G. White property, which has been purchased for hospital purposes, to a Danville construction company. Work on the building is to be completed in four months.

Personal.—Dr. Frank E. Corrigan, Louisville, is reported to be critically ill as the result of a street-car accident last month.—Dr. Charles A. Nevitt announces that he will open a private sanitarium in Lexington about October 1.—Dr. H. P. Sights has been reelected superintendent of the Western State Hospital, Hopkinsville.

1. Listed in THE JOURNAL A. M. A., August 24, p. 636.

2. THE JOURNAL A. M. A., September 7, p. 811.

State Tuberculosis Commission Organized.—The State Tuberculosis Commission met in Frankfort, August 21, for organization. Gov. McCreary was elected president and Mrs. Desha Breckinridge, Lexington, vice president. The work of the commission will be done through five committees, executive, financial, publication, legislative and extension. Dr. R. T. Yoe and J. Bernhard Flexner were appointed a committee to select a secretary for the commission. Dr. Ernest Morris, of Henry County, was chosen temporary secretary.

MARYLAND

Baltimore

Personal.—Drs. E. Goetsch and J. Jacobsen sailed for Europe, September 3.—Drs. John M. T. Finney, Herman Brulle and William B. Wolf have returned from Europe.—Dr. Howard A. Kelly returned from his camp in Canada, September 2.—Dr. William Tarun has been obliged to give up practice and go to the Adirondacks on account of disease of the lungs.

MASSACHUSETTS

Floating Hospital Needs Funds.—The managers of the Boston Floating Hospital announce that \$11,000 more is needed for the expenses for the balance of the season.

Hospital Soon Ready.—The buildings of the new Peter Bent Brigham Hospital, an addition to the group of the buildings comprising the Harvard Medical School, are rapidly approaching completion and it is expected that they will be ready for occupancy about October 15.

Personal.—Dr. and Mrs. Samuel H. Durgin, Boston, have returned from Europe.—Dr. Arthur A. Howard, Boston, has accepted a position on Drake University Medical Faculty, Des Moines, Ia., in the pediatric department.—Dr. W. G. Kimball, Huntington, has been appointed medical examiner for Huntington district of Hampshire County.—Dr. Harry M. Cutts, Brookline, has been appointed medical examiner of Norfolk County.—Dr. John F. Croston, Haverhill, has been appointed medical examiner of Essex County.—A reception was tendered Dr. Paul A. Jaekmaul, the first graduate of the South Boston High School to be appointed to the staff of Carney Hospital, at the residence of Dr. William P. Hurley, South Boston, August 8.—Dr. John W. Coughlin, Fall River, has been appointed a member of the board of arbitration in the dispute between the Springfield and Worcester street car systems and their employees.

MICHIGAN

Sanatorium for Criminals.—The state pardon board will ask the legislature for an appropriation for a state tuberculosis hospital for criminals to be located at the State Reformatory, Ionia.

New Officers.—Upper Peninsula Medical Society at Menominee, August 9: president, Dr. Edward Sawbridge, Stephenson; secretary, Dr. H. J. Hornbogen, Marquette. Marquette was selected as the next meeting place.

Charitable Societies Combine.—The officers of the Calumet Associated Charities and the Calumet Branch of the Houghton Anti-Tuberculosis Society have been combined and are now located in the Orenstein Block, Red Jacket.

MINNESOTA

Cost of Care of Insane.—During the fiscal year just closed the state paid \$1,119,275 for the care of insane patients in the state hospitals at St. Peter, Rochester, Fergus Falls, Anoka and Hastings.

Tuberculosis Hospital for Lake County.—The commissioners of Lake County have advertised for bids for the construction of a sanatorium for tuberculosis to be located on the county farm, which is about five miles from Two Harbors. The building is expected to cost about \$3,000.

Leper Camp Not Wanted.—Dr. Henry M. Braeken, secretary of the State Board of Health, proposed the establishment of a colony for lepers on the campus of the University of Minnesota for educational purposes, stating his belief that there would be less danger from a colony of lepers than from a colony of consumptives. The regents of the University, on September 10, rejected the proposition, stating that it deemed the leper colony inadvisable.

To Check Trachoma.—Dr. Henry M. Braeken, secretary of the State Board of Health, has recommended that physicians of the White Earth Reservation be commissioned as special sanitary inspectors to report to the board all cases of trachoma and other reportable diseases among whites and mixed bloods not wards of the government. He also recommended

that a field officer be appointed to investigate trachoma, especially among children in the schools of the reservation, in the iron range towns and other territory.

Personal.—Dr. Robert M. Phelps, assistant superintendent of the Rochester State Hospital, has been appointed superintendent of the St. Peter State Hospital, vice Dr. H. A. Tomlinson, who is to take charge of the Inebriate Farm at Willmar about October 1.—Dr. Carlton Graves has been appointed a member of the library board of Aitkin.—Drs. Charles R. Ball and Auten Pine, St. Paul, and Dr. Franklin R. Wright, Minneapolis, have been appointed members of the consulting staff of the Minnesota Soldiers' Home.—Dr. J. Francis Schefeik, Minneapolis, has returned from Europe.

MISSOURI

Personal.—A banquet was given by local physicians, who are heads of departments and interns in the Kansas City General Hospital, in honor of Dr. L. W. Luscher, retiring head of the hospital, and Dr. R. E. Castelow, his successor. Dr. Luscher will spend a year in South America and then expects to return to practice in Kansas City.—Drs. L. C. Cook, Webb City, E. E. Holtzen, Sedalia, and Orville J. Sloan, Neosha, have been appointed first lieutenants M. C. N. G. Mo.

St. Louis

Personal.—Rev. Charles Keller, M.D., after the completion of a graduate course at Harvard Medical School, will sail for Honolulu, November 1, to take up work among the lepers at Molokai, T. H.—The office of Dr. Edward Henschel was burglarized recently and instruments valued at \$250 were stolen.

Infirmiry Opened.—The St. Louis Eye, Ear, Nose and Throat Infirmary was opened at 2329 Locust Street, August 1. Dr. Selden Spence is president of the staff; Dr. William H. Lueddle, secretary, and Dr. F. C. Simon, treasurer. The active staff also includes Dr. H. C. Creveling, John Green, Jr., E. T. Senseney, J. F. Shoemaker and F. E. Woodruff.

Ground for Tuberculosis Camp Broken.—On September 1, ground was broken for the Night and Day Tuberculosis Preventorium at Hahn's Grove. The estimated cost of the building will be about \$3,000. It is situated on a bluff overlooking the Mississippi River, in the heart of a heavily wooded tract about half a mile from the Broadway street-car line.

NEBRASKA

New Medical Building.—It is reported that splendid progress is being made in the construction of the new building for the University of Nebraska College of Medicine, Omaha. The building is to be two stories in height and about one hundred feet square.

Personal.—Dr. A. G. Emerson, Scotts Bluff, has been declared of unsound mind and committed to the State Hospital, Lincoln.—Dr. George P. Shidler, York, has been appointed a member of the insanity commission, vice Dr. George W. Shidler, deceased.—Dr. J. J. Hompes, Lincoln, has gone abroad.

NEW YORK

Personal.—Dr. G. T. Boycheff, Solvay, has returned from Europe.—Dr. Louis Hartman, Syracuse, who, while on a hunting trip in the north woods in July accidentally shot himself and had his left foot amputated at the Royal Victoria Hospital, Montreal, has returned to his home, convalescent.—Dr. John Tierney has been appointed assistant surgeon of the State Soldiers' Hospital, Bath, vice Dr. Alexander L. Smith.—Drs. James W. Putnam and J. W. Fitz-Gerald, Buffalo, are spending the summer in Europe.

Deaconess Hospital to be Dedicated.—The opening of the German Deaconess Hospital, Buffalo, will occupy the week of October 1. The first night will be donors' night; on the second night the members of the different societies connected with the hospital will be present; on the third night members of the different churches of the city will be invited to attend and the fourth will be known as "professional night" when the medical staff of the hospital will be in charge of the entertainment. The fifth night will be spent in preparation for the dedicatory ceremonies which will be held on October 6.

Poliomyelitis in Buffalo.—The presence of poliomyelitis in Buffalo has excited considerable alarm. During July sixty-two cases were reported with an increase the first part of August. A circular letter has been issued to the physicians of Buffalo by the health department, which gives a thorough and exhaustive study of the cause of the outbreak. Two wards have been set apart at the Ernest Wende Hospital for the isolation of infantile paralysis, and electric apparatus for diagnosis and treatment has been installed and two physi-

cians of the staff have been appointed by the health commissioner to supervise the city cases. The department is interested in the report of cases before they reach the paralytic stage and suggests that physicians who are called to see an obscure case, exhibiting symptoms of infantile paralysis, report the case promptly to the department, when one of the attending men will be detailed to look after and study the case. Early observations are of special value. Houses in which there is a case of infantile paralysis will be placarded, but absolute quarantine will not be insisted on unless indicated. The health department will work in conjunction with Dr. Wade H. Frost, U. S. P. H. Service, and will inspect every case reported and tabulate in detail all the statistical features. It will make, in addition to this, a clinical study of each patient especially as to resultant paralysis or impaired muscular power. The department bespeaks the cordial cooperation of every physician in the city in this effort to gain information regarding the cause, treatment and cure of the disease. All cases will be treated as strictly confidential, and all assistance rendered will be free of charge. The department furthermore agrees to assume complete control, free of charge, of any case on request of the attending physician.

New York City

Personal.—Among those returning from Europe recently are Dr. and Mrs. C. Cleveland, Dr. and Mrs. Alfred Hess, and Drs. C. F. Adams, W. H. Davis, P. H. Williams and O. J. Chase. —Dr. and Mrs. J. J. Rainey, Troy, have sailed for Europe.

On Lookout for Cholera.—Health officers at the port of New York have had orders to be on the watch for cholera on vessels arriving from southern Italy and Sardinia, following the receipt of a cablegram stating that there had been an outbreak of cholera in Sardinia.

Extension Course in Nervous Diseases.—A course of two weeks devoted to an extension course in nervous and mental diseases is being given at Fordham University School of Medicine. Several noted specialists from abroad are participating, among whom are Drs. Henry Head and Gordon Holmes of London; Dr. Carl Jung of Zurich; Dr. Alwyn Knauer of Munich; Dr. N. Achucarro of Madrid, and Dr. Colon K. Russel of Montreal.

Graduate Courses.—Prof. Dr. H. Straus, Berlin, will deliver a course of lectures October 12-14-15 on diseases of the stomach and kidneys and Prof. Dr. Carl von Noorden, physician in chief of the City Hospital, Frankfurt, Germany, a course on pathology and treatment of diabetes, radium therapy and arteriosclerosis, October 28-31 inclusive. These two courses will be delivered at the New York Post-Graduate Medical School.

Health Department Replies to Milk Commission.—The milk commission has sent several complaints regarding the milk-supply to the health department and has criticized the department for what seemed to be gross negligence. In the reply made by Commissioner Lederle it is stated that the health authorities have been doing their best to guard the milk-supply and called attention to the grading of the milk, and to the probability that the inferior milk found in restaurants, hotels and lunch rooms was of that Grade C which is permitted to be sold for cooking purposes. The reply states that while it would be desirable to have only bottled milk sold it is impossible at present to secure a sufficient supply of the better grades. The department also points out that thirty-one prosecutions against milk dealers have been sent to the corporation counsel since July 15.

OHIO

Cincinnati Personals.—Dr. George A. Fackler has been appointed president pro tem. of the Board of Health and Dr. Edward W. Walker, vice-president.—The houses of Drs. Harry Tounley and Samuel W. Craig were burglarized, recently.

Hospital News.—The trustees of Miami Valley Hospital, Dayton, have formally accepted a gift of \$25,000 to be used exclusively for the treatment of specific diseases.—An anonymous gift of \$10,000 has been received by the Hospital for Babies, Cleveland.

Campaign for Babies' Hospital.—The two weeks campaign at Cleveland for the babies' hospital fund brought the contributions to \$340,000. The plan of the committee is to raise one million dollars which is to be used for the building, equipment and maintenance of a hospital for children.

Personal.—Dr. E. A. Peterson has succeeded Dr. Harris G. Sherman as chief of the medical inspection bureau of the public schools of Cleveland.—Dr. L. W. Weaver, Columbus,

has been appointed assistant medical examiner for the Pennsylvania Volunteer Relief Department with headquarters at Fort Wayne, Ind.

OREGON

Personal.—Dr. E. A. Sommer, Portland, who has been seriously ill with an infected wound due to a needle puncture during an operation, is reported to be improving.—Dr. Wilson McNary, Portland, has been appointed superintendent of the Eastern Oregon Branch Insane Hospital, Pendleton, vice Dr. M. K. Hall, La Grande, resigned.—Dr. G. M. Wells, Portland, has returned from a trip around the world.

Physicians Denounce Quacks and Advertising.—At the regular meeting of the Portland Ad Club Luncheon, August 21, the program was in the hands of physicians, Dr. John F. Beaumont, presiding. Dr. J. Chris O'Day spoke on "Medical Advertising, Genuine and Spurious" and bitterly denounced quacks who advertised as "specialists in the treatment of men" and sharply criticized newspapers and periodicals which accept advertisements from this class. Dr. Walter T. Williamson urged the support of the masses of the people to the new medical bills pending.

PENNSYLVANIA

State Society Meeting.—The Pennsylvania State Medical Society will hold its annual meeting at Scranton, September 23-26; among the entertainments will be a concert at the exhibition hall, September 24, and the president's reception at Hotel Casey, September 25.

Sanatorium for Pittsburgh.—Ground will be broken this month for the Pittsburgh Municipal Sanatorium at Warners Station. The sanatorium is situated on a site above the Allegheny River about eight miles from the city. As present planned, the institution will consist of six buildings, covering about four of the thirteen acres of the site and will accommodate nearly two hundred patients, besides the administration force. The buildings to be erected consist of an administration building, two open pavilions for advanced cases, a service building and two large open-air cottages for patients in the early stages of the disease.

Personal.—Dr. Thomas Wray Grayson, Pittsburgh, has gone to Berlin for study.—Dr. Patrick F. Boyle, South Bethlehem, was operated on in the Jefferson Hospital, Philadelphia, for appendicitis, September 3.—Dr. E. J. Butler, Wilkes-Barre, who was thrown from his carriage and seriously injured, has resumed practice.—Dr. John W. Bealor, Shamokin, is recovering from an operation for gall-stones.—Dr. Henry R. Douglas has been appointed milk, dairy and meat inspector for the city of Harrisburg.—Dr. Thomas S. Blair, Harrisburg, has been appointed editor of the *Medical Council*, to succeed the late Dr. John Jay Taylor.—Dr. Dixon, on August 29, appointed Dr. W. D. Kline, Allentown, physician-in-charge of Tuberculosis Dispensary No. 51, to succeed the late Dr. Morris F. Cawley; Dr. Boyd B. Snodgrass, Rochester, physician-in-charge of Tuberculosis Dispensary No. 22, to succeed Dr. E. S. H. McCauley, Beaver, resigned, and Dr. F. W. Black, Robertsdale, Huntingdon County, as physician-in-charge of a new tuberculosis dispensary to be opened at Robertsdale.

Philadelphia

Personal.—Drs. Leon Felderman, C. P. O'Boyle and J. M. Rosenthal have resigned from the staff of the Municipal Hospital.

Hospital Dedicated.—The Frankfort branch of the Salvation Army dedicated the new Electro-Therapeutic Hospital and Dispensary with appropriate ceremonies, September 1.

WASHINGTON

Personal.—The office of Dr. W. W. Schwabland, White Bluffs, was destroyed by fire, August 11.—Dr. Charles B. Boudwin, Seattle, is reported to be seriously ill in the Seattle General Hospital following a tonsillectomy.—Dr. E. M. Anderson and wife, Spokane, have sailed for Europe.—Dr. Arthur P. Calhoun, Fort Steilacoom, was seriously injured in an automobile collision recently.

Advisory Staff.—Dr. B. H. Roark, Spokane, county physician of Spokane County, has presented the following list as a volunteer consulting staff to care for county patients: medicine, Drs. N. M. Baker, P. D. McCormack, W. J. Howells and H. E. Wheeler; surgery, Dr. H. B. Luhn, J. G. Cunningham, James M. Neff and Arthur T. R. Cunningham; eye, ear, nose and throat, Drs. R. A. Greene, S. B. Hopkins, E. M. Anderson and W. S. Frost; orthopedic surgery, Dr. C. L. Eikenbary, and pathology and bacteriology, Dr. M. M. Patton.

WISCONSIN

Hospital for Oshkosh.—Plans have been drawn for a new building for the Lakeside Sanatorium, Oshkosh, to be erected at a cost of \$50,000. The institution will be used as a general hospital and sanatorium.

Flower Day Announced.—The faculty and alumni of the Wisconsin College of Physicians and Surgeons announce that they will give a flower day for the benefit of their free dispensary at Fourth Street and Reservoir Avenue, Milwaukee, on September 21.

Personal.—Dr. and Mrs. A. G. Hovde, Superior, have returned after a year in Europe.—Dr. George T. Hegner, resident physician at the Emergency Hospital, Milwaukee, has resigned and will enter practice in Appleton, October 1.—Dr. and Mrs. William H. Bartran, Green Bay, have returned from Europe.—Dr. O. P. Schnetzky, Milwaukee, was thrown from his car recently and seriously injured.—Dr. Gustav Schmitt has been elected president of the Count von Steuben Monument Association.

GENERAL

A Clinical Week.—For the week preceding the meeting of the Mississippi Valley Medical Association in Chicago, October 22-24, and for the two days following the meeting, a schedule of clinics is being arranged, to include medicine, surgery, special branches and research work in laboratories.

International Gynecologic Congress.—A cable dispatch states that the sixth International Congress of Gynecology opened at Berlin, with a good attendance, September 9. The invitation of the United States to hold the next congress in this country was officially accepted, and Dr. J. Riddle Goffe of New York was chosen president-elect.

Austrian Otologist in America.—Dr. Erich Ruttin, assistant in the Royal University Ear Clinic, Vienna, is making a tour of the United States. He arrived in New York August 5, then went to Boston, and then to Niagara Falls to read a paper before the American Academy of Ophthalmology and Otolaryngology, and from there went to the Pacific coast.

Electro-Therapeutic Election.—At the annual meeting of the American Electro-Therapeutic Association in Richmond, Va., last week, the following officers were elected: president, Dr. F. Howard Humphris, London, England; vice-presidents, Drs. George E. Pfahler, Philadelphia, and E. C. Titus, New York City, and secretary, Dr. J. W. Travell, New York City.

Meeting of Colored Physicians.—The Negro National Medical Association held its fourteenth annual meeting in Tuskegee, Ala., August 20-21 and selected Nashville as its next place of meeting. The following officers were elected: president, Dr. J. A. Kenney, Tuskegee, Ala.; vice-presidents, Drs. D. A. Ferguson, Richmond, Va., and C. M. Wilkerson, Mobile, Ala.; secretary, Dr. Walter G. Alexander, Orange, N. J., and assistant secretary, Dr. E. P. Roberts, New York City.

Measures to Restrict Tuberculosis in India.—One of the prominent Parsees of Bombay has recently guaranteed an annual fund of \$5,000 for fifteen years to aid in the suppression of tuberculosis. At present there is no municipal tuberculosis hospital there, but public interest is being aroused and an active antituberculosis movement seems to have been inaugurated. The introduction of medical inspection of schools is also being considered.

The Study of Pellagra.—The National Association for the Study of Pellagra will hold its second triennial meeting in Columbia, S. C., October 3-4, with headquarters at the State Hospital for the Insane. The morning session will be devoted to addresses of welcome, the address of the president and business. During the afternoon session, the etiology, epidemiology and statistics of pellagra will be discussed, together with local history and diagnosis. In the evening an address will be delivered by Surgeon General Rupert Blue, U. S. P. H. Service. The work of the second day will consist of papers on laboratory investigations of pellagra and clinical features and miscellaneous aspects of the disease and in the evening there will be an exhibition of lantern slides illustrative of pellagra.

Unauthorized Insurance Agent Still Operating.—A warning was published in THE JOURNAL August 24, p. 661, quoting complaints from physicians that they had been victimized by a Sumner P. Hinckley, who represented himself as an agent of the Conservative Life Insurance Company of Wheeling, W. Va. It was the old story of physicians paying good money to a stranger. A letter from the company states that it has no license to issue insurance policies in Illinois, that Hinckley is not its agent, and that he is collecting money

under false pretenses. Since the previous notice was published, this man has been reported as operating in the following Illinois cities: Peoria, Chicago, Decatur, Danville, Rock Island and Rockford, and also in Toledo, Ohio. Warrants are out for his arrest, and it will be a service to those who have been victimized, as well as a protection to the profession in general, if anyone who learns his whereabouts will report him to the local police and show them this notice. The police will telegraph Sheriff F. G. Minor of Peoria, Ill., who holds a warrant for Hinckley. The telegraphic reply from Sheriff Minor will be an authorization to the local officials to arrest and hold the man as a fugitive from justice.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Aug. 31, 1912.

The Case of Plague in Liverpool

The case of plague in a boy admitted to a hospital in Liverpool with a diagnosis of appendicitis has been reported in a previous letter to THE JOURNAL. The boy has been treated with serum and is making a good recovery. Every precaution has been taken to prevent the spread of the disease; the boy's family has been isolated and all other persons connected kept under close supervision. An examination of the rats in the neighborhood is being systematically made.

The Declining Birth-Rate

The registrar-general's summary for 1911 which has just been issued again shows a fall in the birth-rate in England and Wales. The marriages registered last year numbered 274,577, corresponding to a rate of 15.2 per thousand of population. The number of births was 881,241, being in the proportion of 24.4 per thousand. The deaths numbered 527,864, or 14.6 per thousand. The marriage-rate was 0.2 per thousand above that in the previous year, but 0.3 below the average for the preceding ten years. A decline of 0.7 per thousand is recorded in the birth-rate when compared with that of 1910, which was the lowest on record; and last year's rate was 2.8 below the average of the preceding ten years. The death-rate was 1.1 above that in 1910, the lowest yet recorded, but was 0.8 below the average for the preceding ten years. Infantile mortality, measured by the proportion of deaths under one year to registered births was 130 per thousand, or twenty-five above the rate in 1910 and three above the ten years' average. This excess was confined to the third quarter of the year when diarrheal diseases were prevalent and the death-rate among infants was sixty per thousand. The deaths attributed to different forms of violence numbered 20,103, a rate of 0.26 per thousand of population, which is 0.1 below the average for the preceding ten years.

Vaccination Exemption

The increasing exemptions from vaccination since 1899, when the act came into force allowing parents who have a conscientious objection to vaccination to have their children exempted, is causing great concern to the public health authorities, because of the danger of an epidemic of small-pox. As an example, the case of the large metropolitan borough of Hackney may be taken. During the last year 5,413 births were registered and the number of children vaccinated accounted for only 47.4 per cent. The same tendency is shown throughout the whole of England and Wales. Thus the percentages of exemptions to births were as follows: 1908, 17.3; 1909, 20.9; 1910, 25.7; 1911, 28.2.

Women in the Medical Profession

Sir William Collins, Vice-Chancellor of the University of London, in distributing the prizes at the London School of Medicine for Women, showed the great strides in the professions made by women in recent years. The University of London was the first university in the United Kingdom to fling its doors wide open to women under the same conditions as men. There are now on its lists over 2,000 bachelors of arts, 600 bachelors of science, 180 masters of arts, 170 bachelors of medicine, eighty doctors of medicine, twenty-five doctors of science, six masters of surgery, four bachelors of law, four bachelors of divinity, three doctors of literature and two doctors of law—all women. He regarded with satisfaction the larger employment of educated women in administrative offices and secretarial duties especially in connection with higher education and university work. In the large asylums and in school administrative work there would be a large area of usefulness for qualified medical women. He believed that the advent of women in the medical profession

would operate in the direction of importing into it high ideals and aspirations after the true, the beautiful and the good, which would redeem it from a certain commercialism and materialism which are apt to beset it to-day.

A Tracheotomy Tube Worn for Fifty Years

At the Royal Society of Medicine, Dr. St. Clair Thomson showed a tracheotomy tube which had been worn by a woman, off and on, for sixteen years. Frequently the tube was not changed more than once in two years. Altogether, she had worn a tube for over fifty years. The patient did not suffer from bronchitis more than other old people and died of senility at the age of 81. While the value of nasal respiration cannot be questioned, this case shows what wonderful compensations Nature can accomplish and that in certain cases of laryngeal stenosis it may be wiser to put up with a tracheotomy tube than risk uncertain operations. In the discussion which followed, the case was mentioned of a coachman who wore a tracheotomy tube for seventeen years and drove about in all weathers. Sir Felix Semon corroborated the statement that tracheotomy tubes could be worn for an almost indefinite time without fear of bronchitis.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Aug. 23, 1912.

Treatment of Arterial Hypertension by Electric Stimulation of the Abdomen

Professor Doumer read an interesting paper on this subject at a recent session of the Académie des Sciences. He observed that intense voltaization of the abdomen exercises a manifest influence on the peripheral circulation, shown objectively by the lowering of arterial tension measured at the radial pulse in subjects with hypertension, and subjectively by diminution or even complete disappearance of the disturbances which accompany hypertension, such as noises in the head, cold feet and hands, vertigo, etc. Doumer believes that electricity acts not by directly producing vasodilatation but rather by modifying the pathologic conditions of the adrenals. He advises the use, by preference, of intense voltaization; but there is no objection to the additional use of faradization under the form of galvanofaradization. Alternating currents may also be used. The technic is the same as that for the treatment of mucomembranous colitis except that one of the electrodes is placed at the level of the eleventh or twelfth dorsal or the first lumbar vertebra.

Average Medical Expense per Family

Dr. Chapon has endeavored to ascertain by statistics drawn from his own practice and that of several colleagues the cost of medical service to the father of a family. He investigated the accounts of fifty families in moderate circumstances, each composed of four persons, for a period of ten years. The average annual medical expense per family was about \$8 (40 francs). In twenty families composed of five persons each there was an annual average of \$11 (55 francs); and in ten families of six persons each, an average annual expense of \$13 (65 francs), the minimum fee per visit being \$1 (5 francs) in each case.

The Reorganization of Medical Studies

The decree of July 29, changing the requirements of the *facultés de médecine*, removed medical natural history from the programs of examinations and substituted bacteriology or parasitology. In the *Semaine Médicale*, Prof. P. Vuillemin criticizes this reform, showing that bacteriology and parasitology do not contain the essentials of medical natural history. The new decree, he says, leaves no room for the organisms which are neither bacteria nor parasites: venomous animals, poisonous fungi, etc., with which physicians have been none too well acquainted hitherto, making the accidents which happen from these causes all the more deplorable. Moreover, the reform appears to him open to criticism from a more essential point of view. It confirms a fault of method which disturbs the equilibrium of our teaching system whose organization rests on the division of labor and the specialization of departments. Parasitology is not a simple science but a combination of natural history, pathologic anatomy, pathology and the other branches of medicine involved in the action of parasites. The same consideration applies even more strongly to bacteriology, a still more complex science since it embraces not only a part of parasitology, but also the study of the bacteria concerned in agriculture and industry, etc.

Campaign Against Alcohol in the French Colonies.

The government is engaged in fighting alcohol in French West Africa. A decree of August 2 raised the tax of alcohol in this colony from \$40 to \$43 (200 to 215 francs) for French alcohol, and \$51 (255 francs) for foreign alcohol.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Aug. 22, 1912.

Personal

Professor Quincke, formerly director of the medical clinic at Kiel, who has been living for some years in Frankfort a. M., celebrated his seventieth birthday August 26.

Prof. O. Müller, a former assistant of Professor Romberg, has been appointed his (Romberg's) successor in the chair of internal medicine at Tübingen.

Misleading Statements From Antivaccinationists

The antivaccinationists have continually endeavored to discredit vaccination and to oppose the requirement of compulsory vaccination because in some circumstances the consequences are injurious. For the dissemination of their propaganda they have begun to publish a special organ. As an illustration of this agitation some cases are cited in the semiofficial "Berl. Korr.," which are as follows:

Their paper, the *Antivaccinationist*, recently gave a letter from a public school teacher; this was reprinted by a Berlin paper with the remark that it was about time for the government to abandon its haughty negative standpoint and, at least, to accede to the modest demands of the antivaccinationists; namely, to allow an inquiry by an impartial commission into the action of compulsory vaccination. The facts in the case published were said to be as follows: The father of a boy had reported to the *Antivaccinationist* that his child, born of healthy parents and grandparents, October 8, 1905, was successfully vaccinated September 26, 1906. Bad results of the vaccination occurred as early as ten days afterwards: the enlarged pupils no longer reacted to light and shadow. After three months three carbuncles developed at the point of the vaccination, from which pus and black blood flowed after they were opened. Five years had passed since and the condition of the child did not improve. The right eye was blind, the left eye had a slight power of vision. To this account were added bitter complaints about the destruction of the happiness of the family, etc. At the end was given a pretended statement of a Magdeburg oculist, according to which the child would not have lost his vision if the vaccination had not been done.

Official investigations with reference to these statements gave the following facts: The child of the school teacher, who made a complaint on account of injury through vaccination, was vaccinated successfully in the ordinary way with unobjectionable lymph. The vaccinationist, who was consulted two weeks after the vaccination because the child could not see, found no pathologic condition of any kind on the vaccinated arm. The Magdeburg oculist who was consulted seventeen days after the vaccination established the existence of a congenital syphilitic affection and ordered an antisyphilitic treatment. Nothing was noted in his records about the ulcerative process. This diagnosis was soon after confirmed by two other physicians. Four weeks after the vaccination a pustule on the upper arm of the child was observed by a physician; this healed kindly in a short time. The physician found no connection between this pustule and the vaccination. Finally the claim of the father as to the statement of the physician was found to be incorrect; the physician had expressly referred the disease of the eye to a cause which was operative for a much longer time. The government has therefore imposed a fine of twenty marks on the teacher.

A second case is connected with a notice to the government from the association of opponents of compulsory vaccination (*Verein der Impfwanggegner*). In one Hanover newspaper this notice was made the basis of an appeal to the Reichstag that the latter body should abolish the unfortunate requirement for vaccination. According to the statement, the 2½-year-old child of a woman in Hanover-Linden died on the ninth day after vaccination. The cause of the death was given as blood-poisoning. The physician who was called to attend the child found pneumonia. After the child died, under symptoms of increasing heart weakness, a post-mortem was made which also gave this as the probable cause of death. The findings showed that neither the sickness nor the death of the child could be referred to vaccination.

In a third case vaccination was made responsible by the antivaccinationists (*Bergischer Impfgegnerverein*) for the death of a child. But the officially ascertained facts were completely contradictory to this assumption. The child was attacked with diphtheria and is said to have been sent by the attending physician to a hospital for operation, but died on the way. The mother gave vaccination as the cause of death, in response to printed questions on a card given to her by the antivaccinationists, although she very well understood that the child had died of diphtheria.

Diphtheria in Berlin and in the Empire

As the result of the interest which the increase of diphtheria during the past few years has excited, particularly in Berlin, official investigations have been instituted on the morbidity and mortality from diphtheria in the Prussian state and in the municipal district of Berlin from 1902 to 1911. They show the following facts: The number of cases of diphtheria in Prussia has risen from 54,848 in 1902 to 83,421 in 1910, and to 96,839 in 1911; likewise in Berlin it has increased from 1,485 in 1902 to 6,061 in 1910. On the other hand, the number of deaths has fallen in the period from 1902 to 1910 in the empire from 14,175 to 9,683, and in Berlin has increased from 239 to 695. Reckoned for 10,000 of population, the relative number of cases in the empire has increased from 15.41 in 1902 to 20.87 in 1910, and in Berlin from 7.68 in 1902 to 28.58 in 1910. The relative number of deaths has fallen in the empire from 4.05 in 1902 to 2.48 in 1910, while in Berlin during the same period it has risen from 2.25 to 3.11. From this it is evident that while in the empire the death rate has diminished (in 1876 it was 16.33), this is not the case in Berlin. As a consequence, it becomes increasingly necessary that the authorities, in view of the extensive epidemic in the metropolis of the empire, should enforce with the greatest strictness the sanitary regulations, particularly to make use to the greatest extent of isolation and disinfection, as well as to give information as soon as possible of the results of bacteriologic examination.

Influence of the Use of Alcohol

As a result of official investigation of the effect of the use of alcohol on the frequency and the character of crime, it is shown that there were in 1910 8,674 convictions on account of crime and offence against the imperial law, in which the criminal act was done in a condition of drunkenness, and further 190 convictions in which the criminal act could be referred to the habitual use of alcohol. Of the 8,864 persons convicted twenty-eight were women; 166 were under 18 years of age; 925 (33 per cent.) were married or widowed; twenty-four (0.3 per cent.) were divorced. In 150 cases no punishment could be imposed because the criminal at the time of committing the act was in a state of mental disturbance which prevented him from exercising his will.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Aug. 10, 1912.

A New Radio-Active Spring in Joachimsthal

In Joachimsthal in Bohemia, where are the most powerful of all radio-active healing springs, a new spring has been discovered. In searching the mine for pitchblend and radium, water-current was struck which proved to be four times as radio-active as the strongest hitherto known water. The new spring will be added at once to the baths of the *Kuranstalt* or sanatorium, owned by the government. The new water has 8,600 "Mache" units, while the next strongest spring has only 2,280 units.

Sale of Gastein Waters and Baths

The famous baths and waters of Gastein in the Alps, which have hitherto been the property of the Emperor of Austria, have been sold to the community of Gastein, which has been waiting for a long time to obtain possession of the springs. Extensive improvements will now be made, so that if necessary, over a thousand baths will be ready for use daily.

Reduced Requirements for Physical Fitness of Recruits for the Army

The new army bill, which has just now become law, is intended to increase the number of recruits; therefore, several relaxations of the previously strict and severe requirements of physical fitness of recruits have been made. Thus, formerly the man had to stand at least 155 cm. (5 feet) refooted, and had to have an expiratory circumference of

the thorax at the nipple line of at least 80 cm. (32 inches). The new law requires a minimum of 150 cm. (4 feet, 10 inches) and a circumference not below 75 cm. (30 inches). Slight anemia, neurasthenia and general weakness of a mild degree, which might be cured by proper food and treatment (in the opinion of the recruiting commission!) will no longer entitle the man to exemption from military service. Such recruits will serve as clerks or as personal servants of the officers, thus liberating others more fit for actual service. Persons engaged in industrial professions can be made recruits and be employed in their respective vocation in the army. The decision of the army physician acting at the recruiting commission is not to be at all binding for the recruiting officer. The physician is simply brought down to the level of an advisory person, even in matters purely medical. This feature will meet with justifiable opposition, for the fitness of the army is intimately connected with the fitness of the individual soldier, which nobody can judge better than the physician.

Anti-Alcohol Movement in the Army

We have in our army a section of officers and men who are strict abstainers from alcohol. In the Tyrol, in the mountainous districts where the Alps go down seldom below 3,000 feet, and where numerous military stations are situated from 4,000 to 5,000 feet high, are stationed a fair number of artillery and infantry regiments. Prolonged experiments have convinced the officers that whenever hard physical or mental work is to be done, or when the energy of the men is put to the severest tests (mountain-climbing, exploring snow and glaciers), absolute abstinence from alcohol is requisite for success. Thus these mountaineers or *Alpenjäger*, as they are called here, have been forbidden to drink any kind of alcohol, except when ordered by the physician, for instance, as a means of resuscitation after exhaustion. The officers of the general staff are also taught to abstain from drink and ere long we may be confronted with an order prohibiting alcohol in the army altogether. For continental ideas this would be an entirely novel departure from inherited customs.

Marriages

DELBERT LINSOTT JACKSON, M.D., Boston, to Miss Florence Lyon Fisher of Cincinnati, at the Pines, Lyons Falls, N. Y., August 29.

HENRY B. CARRIEL, M.D., Jacksonville, Ill., to JOY RICKETS, M.D., of South Bartonville, Ill., at Batavia, Ill., September 3.

CHARLES OLIVER BULGER, M.D., Greenfield, Ill., to Miss Pauline Smith of Fayette, Ill., at Chicago, August 14.

LIEUT. GEORGE BURGESS FOSTER, M. C., U. S. Army, to Miss Sara Ellis Thomas of Leavenworth, Kan., September 4.

HAROLD LADD LAMB, M.D., Sauk Centre, Minn., to Miss Grace Whiting of Spring Valley, Minn., August 7.

JOHN BERTON CARNETT, M.D., Philadelphia, to Miss Alice Adele Gemmill of Chestertown, Md., August 31.

WILLIAM ARMSTRONG DEWITT, M.D., Blossburg, Pa., to Miss Mary Day Treat of Wayne, Pa., August 28.

JOHN H. S. CONNOR, M.D., Boston, to Miss Alice V. Carmichael of Cambridge, Mass., September 4.

CARLYLE NEWTON HAINES, M.D., Sayre, Pa., to Miss Bertha Irene Barron of Ashland, Pa., September 4.

CAPT. WILLIAM A. DUNCAN, M. C., U. S. Army, to Miss Sue Ezma Ellis of Russellville, Ky., August 7.

WALTER BRADFORD METCALF, M.D., Chicago, to Miss Anna M. Jump of Houston, Del., August 28.

ERNESTINE DOYCHERT, M.D., Chicago, and Lionel E. Lawrence of New York City, August 13.

ROBERT PAYNE BECKWITH, M.D., to Miss Blanche Caldwell, both of Philadelphia, September 2.

LUCIA C. HOYER, M.D., Milwaukee, and Carl Frederick L. Henth, Jr., of Chicago, August 26.

EMMETT BLACK, M.D., West Brownsville, Pa., to Miss Jenkins of Pittsburgh, recently.

EDWIN CLYDE MORGAN, M.D., Clay Centre, Kan., to Miss Margaret S. Kehoe, August 28.

FRANK ALBERT BARTA, M.D., to Miss Emma Zacharias, both of Ord, Neb., August 20.

ERMY E. NOBLE, M.D., to MARY EVA GILL, M.D., both of Boston, August 20.

Deaths

William Daniel Lamb, M.D. Jefferson Medical College, 1846; first moderator of the town of Lawrence, Mass.; a member of the Massachusetts Medical Society; surgeon of Volunteers during the Civil War; for sixty-six years a practitioner of Lawrence; president of the common council in 1869; for many years coronor of Essex District; a member of the first school committee of the town and for twenty-five years a director of the Pemberton National Bank; died at his home, August 26, from senile debility, aged 88.

James Edward Newcomb, M.D. College of Physicians and Surgeons, New York City, 1883; a member of the Medical Society of the State of New York, the American Laryngological Association and New York Academy of Medicine; professor of clinical surgery in the department of laryngology and rhinology in Cornell University Medical College; consulting laryngologist to Roosevelt Hospital, New York City; died at his summer home in Lake Kushaqua in the Adirondacks, August 27, aged 55.

William James Parker, M.D. Bellevue Hospital Medical College, 1879; a member of the Medical Society of New Jersey and Association of Military Surgeons of the United States; surgeon of the Fourth Infantry, N. G., N. J., and later deputy surgeon general and surgeon general of the state; who was retired from duty about a year ago; a member of the staff of St. Francis' and the Jersey City Hospital; died at the home of his mother in Jersey City, August 25, from typhoid fever, aged 54.

Charles E. Gayer, M.D. Barnes Medical College, St. Louis, 1898; a member of the American Medical Association; president of the Colfax County (N. Mex.) Medical Society; a practitioner of Raton, N. Mex., for fourteen years; surgeon to the New Mexico-Colorado Coal and Mining Company, and superintendent of the Territorial Miners' Hospital, Raton; died in that institution, August 26, from acute dilatation of the stomach following an operation for appendicitis, aged 39.

Warren H. Hunter, M.D. Rush Medical College, 1896; a member of the Illinois State Medical Society; assistant professor of medicolegal pathology in his alma mater; for eight years physician of Cook County; and for four years chief coroner's physician; died in the West Side Hospital, Chicago, September 4, from septicemia due to infection received while conducting autopsies, aged 45.

Charles F. Hopkins, M.D. College of Physicians and Surgeons, Baltimore, Md., 1884; a member of the American Medical Association; for twenty years a practitioner and once mayor of Chinook, Mont.; local surgeon of the Great Northern Railway; health officer of Chouteau County; died at his home in Long Beach, Cal., August 18, from cerebral hemorrhage, aged 53.

Ernest Harold Sparrow, M.D. Harvard Medical School, 1906; a member of the Massachusetts Medical Society; formerly inspector of milk and vinegar for Cambridge, and house physician at the Cambridge Hospital; died at his home in Cambridge, August 27, after an operation recently performed at Johns Hopkins Hospital, aged 32.

Charles A. Wilkerson, M.D. New York University, New York City, 1875; a member of the Medical Association of the State of Alabama and a member of the council of that association; a leading practitioner of Perry County, and for more than twenty years a director of Judson College; died at his home in Marion, August 5, aged 58.

Lawson Harrill, M.D. Jefferson Medical College, 1861; a Confederate veteran; a member of the legislature of North Carolina from Wilkes County in 1878; state small-pox inspector during the epidemic of 1900; mayor and chairman of the school board of Statesville, N. C.; died at his home August 25, aged 74.

John D. Kotheimer, M.D. Cleveland (Ohio) College of Physicians and Surgeons, 1885; one of the founders of the Mahoning Valley Hospital; a member of the board of education of Youngstown, Ohio, from 1898 to 1900; died at his home at that city, August 10, from cerebral hemorrhage, aged 50.

Earl Philip Warren, M.D. College of Physicians and Surgeons, New York City, 1902; of Niagara Falls, N. Y.; died in the Memorial Hospital in that city, August 12, from ptomain poisoning, following an attack of typhoid, aged 39.

John W. Anderson, M.D. Southern Medical College, Atlanta, 1884; mayor of Ringgold, Ga.; died at his home, August 25, aged 49.

James Alexander Paterson, M.D. Queens University, Kingston, Ont., 1889; a member of the American Medical Association; for five years surgeon in the Northwest Mounted Police and later a practitioner of Winnipeg, Man., and Iron River, Wis.; died at his home in Iron River, June 27, from angina pectoris, aged 47.

Horace S. Lewars, M.D. University of Pennsylvania, 1890; a veteran of the Spanish-American War and for twenty-four years an officer of the National Guard of Pennsylvania; a practitioner of Philadelphia; died in the German Hospital in that city, August 26, from cerebral hemorrhage.

Howard G. Purnell, M.D. Jefferson Medical College, 1892; of Ansonville, Pa.; formerly a member of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; died in the Methodist Hospital, Philadelphia, August 9, from nephritis, aged 43.

Jeffrey Conway O'Connell, M.D. George Washington University, Washington, D. C., 1873; one of the oldest practitioners of Washington; an authority on the Gaelic language and literature; died at his home in Washington, August 28, from heart disease, aged 72.

Charles Casbrooke Denniston, M.D. Bellevue Hospital Medical College, 1875; formerly of Crookston, Minn.; died in Medford, Ore., August 23, from the results of a gunshot wound of the head, self-inflicted, while despondent on account of ill health, aged 60.

William C. Shackelford, M.D. University of Virginia, Charlottesville, 1858; University of Pennsylvania, Philadelphia, 1860; surgeon of the Second Virginia Infantry, C. S. A., during the Civil War; died at his home in Stony Point, Va., about August 26.

Henry Hoffman Miller, M.D. New York University, New York City, 1881; a member of the Hunterdon County (N. J.) Medical Society; died at his home in Whitehouse, N. J., August 27, from heart disease, following an attack of pneumonia, aged 58.

Lyman Ulysses Rentz, M.D. Southern Medical College, Atlanta, Ga., 1893; of Coconut Grove, Fla.; formerly of Brooksville, Fla. and Dupont, Ga.; at one time local surgeon for the Atlantic Coast Line; died in Valdosta, Ga., August 9, aged 42.

William Harold Vary, M.D. Hahnemann Medical College, Chicago, 1888; College of Physicians and Surgeons, Chicago, 1898; a member of the American Medical Association; died at his home in Oak Park, Ill., August 29, aged 49.

Charles Van Wye, M.D. Louisville (Ky.) Medical College, 1884; a veteran of the Civil War; for many years a resident of Lynn and Sullivan counties, Mo.; died suddenly in front of his office in Browning, Mo., August 26.

Benjamin F. O'Rear (license, Texas 1907, Fifth Judicial District Board, 1892); health officer of Marion County, Texas; a member of the State Medical Association of Texas; died at his home in Jefferson, August 6.

William Kirkwood Robinson, M.D. University of Maryland, Baltimore, 1893; a member of the American Medical Association; died at his home in Los Angeles, Cal., August 25, from malignant disease, aged 42.

David John Price, M.D. Hahnemann Medical College, Philadelphia, 1897; vice-president of the Shenandoah (Pa.) Medical Society; died at his home in Shenandoah, August 28, from cerebral hemorrhage, aged 38.

Henry Francis Borden, M.D. Harvard Medical School, 1869; a member of the Massachusetts Medical Society and one of the oldest practitioners of Brockton, Mass.; died in his home, August 8, aged 67.

Henry Smith Atwood, for nearly fifty years a practitioner of St. Louis, Mo., Pittsburg, Kan., and Galena, Kan.; died at his home in Galena, July 25, from senile debility, aged 84.

John A. McCreary, M.D. Medical College of the State of South Carolina, Charleston, S. C., 1886; died suddenly at his home in Williston, S. C., August 9.

Adam Walrath, M.D. Albany (N. Y.) Medical College, 1879; died at his home in St. Johnsville, N. Y., August 7, from cerebral hemorrhage, aged 50.

Robert L. Parkin, M.D. Detroit College of Medicine, 1896; died at his home in Romeo, Mich., August 27, from heart disease, aged 51.

Joseph N. Strange (license, Arkansas, 1903); of Hartford; was shot and killed in a pistol duel in Hartford, August 24, aged 45.

Horace H. Wolff, M.D. Baltimore Medical College, 1890; died at his home in Providence, R. I., in August, aged 47.

The Propaganda for Reform

CONVICTIONS UNDER THE FOOD AND DRUGS ACT*

WOOD'S SOOTHING SYRUP

William J. Wood, Trenton, N. J., shipped in interstate commerce a product called Wood's Soothing Syrup. Some of the claims made on the labels for this preparation were:

- "It is a sure cure for croup."
- "A preventive against taking cold."
- "For sick stomach and general debility."
- "For asthma and phthisis this extraordinary remedy affords immediate relief."

"Affords speedy relief in all cases of acute pains, gripings, severe vomiting, bowel complaints, teething, restlessness, sore throat, whooping cough, all coughs and colds, all throat, bronchial and nervous affections."

When analyzed by the government chemists, it was reported to be a watery-alcoholic solution of opium, aromatic bodies, sugar, inorganic salts and undetermined matter. It was declared misbranded, in that the amount of alcohol and opium was misstated on the label. W. J. Wood pleaded non vult and the court suspended sentence. — [Notice of Judgment No. 1322.]

RALSTON'S SELECT BRAN AND ACME DIABETIC FLOUR

The Acme Mills Company of Portland, Ore., who claim to be the "only authorized manufacturers for the Pacific Coast of Ralston Health Breakfast Foods," was charged with misbranding two products, "Ralston Select Bran" and "Acme Diabetic Flour." "Ralston Select Bran" was sold under the following claims:

- "Prepared as a beverage, it is the most refreshing drink that ever passed human lips."
- "The phosphorus contained in the bran is vitally necessary for the development and vigor of the human frame."
- "The drain on the system is replenished by the phosphatic nourishment contained in this simple but wonderful beverage."
- "It aids digestion, cures torpidity of the liver, gives tone and color to the complexion, brightness to the eye, and is both nerve and brain food."

Misbranding was alleged because, as a matter of fact, the phosphorus said to be contained in "Ralston Select Bran" was not "vitally necessary for the development and vigor of the human frame." Furthermore, the label represented that the product contained and had some special properties not common

* One hundred and forty-eight convictions previously reported in popular form, are issued in an illustrated pamphlet, "Convictions," price 6 cents.

to ordinary bran when, as a matter of fact, it was nothing more than ordinary bran. It was also declared misbranded because it did not aid digestion, cure torpidity of the liver, give tone and color to the complexion or brightness to the eye, nor was it a nerve or a brain food. In the words of the government report: It "had no virtues or properties beyond those of ordinary bran."

"Acme Diabetic Flour" was sold under the claim that it was "milled by special process to preserve gluten properties of wheat." While this statement was calculated and intended to give purchasers the idea that gluten was the principal ingredient of Acme Diabetic Flour, the analyses of the government chemists showed that the product did not contain any more gluten than is found in ordinary whole-wheat flour. It

was further declared misbranded, in that the stuff was sold for the use of those afflicted with diabetes, to whom starch is dangerous. Yet Acme Diabetic Flour contained 71.4 per cent. starch — an amount equal to that found in ordinary flour. The defendant was found guilty and filed a motion for a new trial. The motion was overruled and the court imposed a fine of \$50 and costs. — [Notice of Judgment No. 1507.]

DR. CALDWELL'S RHEUMATISM CURE

"John" W. Horter — the first name being a fictitious one — of New York shipped to the state of Tennessee a consignment of "Dr. Caldwell's Rheumatism Cure." This nostrum was sold under the following claims:

- "Sure to cure."
- "Cures by expelling the acids from the blood."
- "Restores the liver, kidneys and the skin to a healthy condition — thus effecting a permanent cure."
- "A certain cure for acute and chronic rheumatism in all its forms, gout, sciatica and lumbago."

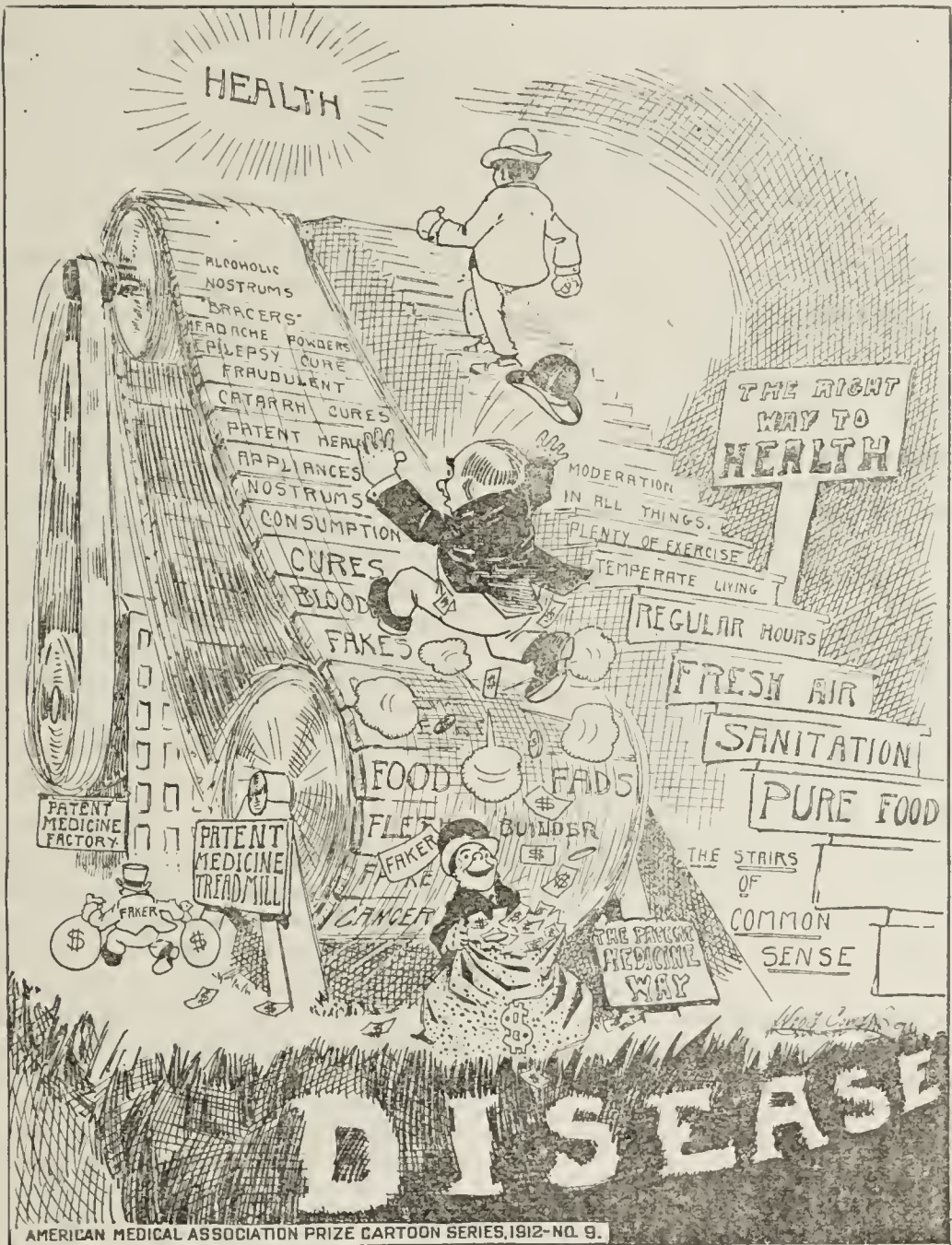
The stuff was analyzed by the chemists of the Bureau of Chemistry, who reported finding:

Alcohol Salicylic Acid Ammonia

Besides these, traces of bromids, a chlorid, an alkaloid (not identified), sodium and phosphorus were found. Misbranding was alleged in that while the preparation contained 14.5 per cent. of alcohol, no statement was made on the label to that effect. Horter pleaded guilty and was fined \$200. — [Notice of Judgment No. 1544.]

DR. CALDWELL'S ANTI-PAIN PILLS

Dr. Caldwell's Anti-Pain Tablets, put out by the Dr. Caldwell Medical Company, Poughkeepsie, N. Y., was another product shipped in interstate commerce by "John" W. Horter. These tablets when analyzed by the government chemists were reported to contain:



WHICH ARE YOU TAKING, THE STAIRS OR THE TREADMILL?

Acetanilid	51.4 per cent.
Caffein	12.3 per cent.
Corn-starch	23.2 per cent.
Camphor	present.

Although these tablets contained more than 50 per cent. acetanilid, the presence of this drug was not declared on the label. Hence the charge of misbranding, to which Horter pleaded guilty and was fined another \$200.—[*Notice of Judgment No. 1545.*]

HOFF'S CONSUMPTION CURE

Hoff's Consumption Cure was exposed in THE JOURNAL, Feb. 6, 1909, p. 489, and the matter appears in "Nostrums and Quackery." It is sold by Maurice C. Schlesinger, who does business under the firm name of Bendiner & Schlesinger, New York. The following claims were made for the stuff, either in or on the package in which it was sold:

"Prof. Hoff's Cure for Consumption."

"A positive remedy from the recipe of the author."

"Were the lungs alone affected, Professor Hoff's Consumption Cure could be relied on without the assistance of anything else to rid the system entirely of the consumption germs. But the kidneys, the stomach, the liver and the entire digestive tract are all weakened by Consumption, and are most likely to require at least a tonic treatment in order that the Professor Hoff Consumption Cure may take hold and do its work."

When analyzed by the government chemists, this nostrum was found to contain:

Morphin	Potassium
Cinnamic acid	Arsenic

The stuff was declared misbranded, first, in that it was not a "cure" for consumption or a "positive remedy"; second, that the presence of morphin was not declared; and third, in that it was not true that this drug would rid the system entirely of the germs of consumption, even if a tonic treatment were applied in conjunction therewith.

With the "cure" was a pasteboard box containing another nostrum labeled "Superlatone." This was the tonic supposed to be used in connection with the "consumption cure." According to the label, Superlatone contained iron. Analysis by the government chemists, however, proved this claim to be false, and Superlatone was, therefore, declared misbranded.

A third bottle came with the consumption cure, this being labeled "Adjunct Cough Mixture Used in Conjunction with Prof. Hoff's Cure for Consumption." When analyzed, this cough mixture was found to contain:

Alcohol	Codein	Chloroform
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As the presence of alcohol was not declared on the label, this preparation also was declared misbranded.

Bottle No. 4 that came with the cure was labeled "Concentrated Appolozzer's Mixture." While analysis demonstrated that this preparation contained nearly 8 (7.88) per cent. of alcohol, the label declared the presence of only 2.5 per cent. Misbranding was therefore alleged in this case also.

Package No. 5 in the "cure" was labeled "Kodal Tablets." These tablets were found to contain codein. Since there was nothing on the label to indicate the presence of this drug, this preparation, too, was declared misbranded. Schlesinger pleaded guilty to the government's charges, and the court imposed a fine of \$25.—[*Notice of Judgment No. 1551.*]

Correspondence

One Editor's Attitude Toward the Samuels Fraud

To the Editor:—Last fall a chronic diabetic patient came into my office and asked me for information concerning a certain nostrum which was administered by dropping the same into the eyes of the patient. [The Prof. Samuels fraud; see THE JOURNAL, Dec. 24, 1910 and "Nostrums and Quackery," p. 230.] The literature was extensive and the claims were extravagant. Every known disease, it was said, could be cured by this method, as the medicine followed the optic nerve directly into the brain and thus through the entire nervous

system to every part of the body thereby eradicating disease, purifying the system, etc. I asked the patient if he really thought such things were possible by the use of a medicine that must be mild enough not to irritate the delicate membrane of the eye. His answer was that Mr. Blank, naming a chronic asthmatic, whom I have treated at different times, had used a vial of the medicine and that it had completely cured him of his asthma. He used it during July and August, the time of year when he was seldom troubled with the disease. Since then he has been as bad as ever.

Another diabetic patient died in Platteville during the last winter who had used three bottles of the medicine without benefit. Both of these users were poor people who could ill afford to spend \$5 per vial which was the cost of the medicine. Some time after this I noticed an article in THE JOURNAL exposing this fraud, stating that on analysis it was found that the nostrum was only a sugar and salt solution, thus making a very nice profit on a 4-dram vial which sold for \$5.

This whole affair made such an impression on me that I thought I would do a little missionary work to try and prevent others from falling into the same error by purchasing the nostrum, so I went and interviewed the proprietor of one of our local papers and told him the whole story as I have just related to you and suggested that if he would publish the formula of the medicine the people were buying I would bring him the copy of THE JOURNAL containing the analysis and comment thereon, and he could publish the same and I thought it would make good reading for the public, and that I could furnish him many other articles from time to time on the same line that I thought would be interesting reading and be a benefit to the community. Did he accept the proposition? Not much! His argument was that the people liked to be humbugged, and he showed me a copy he was then getting ready for the press of a two-column article advertising the celebrated (?) syndicate of physicians, which makes this town at stated intervals. In other words, if he published anything derogatory to any one class of fakers, he probably wouldn't get the business from others of the same class or in other words, the whole business hinged on a money basis entirely.

JAMES OETTIKER, M.D., Platteville, Wis.

Specialism

To the Editor:—At a recent convention of otologists a prominent member stated that there was enough work in otology alone to warrant its separation from laryngology and rhinology and that the man who would do good work in the former should refrain from operating in these other fields. As a matter of fact, the majority of otologists, even in large cities, not only attend nose and throat patients, but also give some attention to ophthalmology. In the smaller towns most ophthalmologists are also ear, nose and throat specialists, but otology has become largely a matter of brain surgery. No man is qualified to do a radical mastoid operation who is not a capable surgeon and a capable brain surgeon at that. The exploration of the labyrinth, of the sinuses and the exposure of the dura is the most delicate kind of cerebral surgery. The opening of the frontal and ethmoidal sinuses demands the same special knowledge.

If, therefore, there is to be a distinct division between the present eye, ear, nose and throat specialist and the more modern ear surgeon, why not create an entirely new specialty, namely, that of cephalologist or craniologist, medical and surgical? The surgical craniologist should be competent to operate on every organ of the head—ear, nose, throat, eye or brain, the medical craniologist to diagnose and treat (otherwise than by operation) all disturbances of the brain and the special head organs.

A similar division of the abdominal organs might be made, abdominal surgery to pertain to surgery on stomach, intestines, liver, kidney and generative organs, male or female, and abdominal medicine to confine itself to diagnosis and treatment of non-surgical diseases affecting such organs. Gynecology as a separate specialty has no longer any reason for existence, nor should there be need for the so-called genito-urinary specialist.

With such a classification of specialists there should come special preparation for those undertaking the specialty. Dr. Jackson of Denver has made an earnest plea for the better training of eye specialists. Eminent surgeons have condemned the poor training of the average man who undertakes abdominal surgery. By placing all major surgery, whether it be on the mastoid, the frontal sinuses, the tonsils, the appendix, the uterus or the penis in the hands of specially trained operators and leaving the diagnosis and non-surgical treatment of these organs in possession of another class of specially trained internists, there can be created a body of well-trained specialists qualified to do what is required of them.

The otologist may by special preparation qualify himself to do brain surgery, but he is then no longer an otologist pure and simple. The gynecologist who removes gall-stones is working outside of his specialty, but there is no reason why a well-equipped modern surgeon should not remove a cataractous lens from the eye as many of the famous surgeons of old were in the habit of doing successfully. The man who would practice surgery, be it of the ear, the nose or any other organ, should not be bothered with the routine treatment or even the tedious examination of patients. He should not even have the responsibility of making a diagnosis. The internist should make all the necessary tests, locate the disease, determine as to its operability or not and then summon the operator, just as the anesthetist is employed. Such cooperation will mean safer and more scientific work, and will do away with much of the amateur surgery of to-day. It will tend to create a group of practitioners who will give their entire attention to finer methods of diagnosis and treatment in the various specialties without feeling that unless they perform major operations they are not entitled to be called specialists. There are many good surgeons who are very poor diagnosticians. These, too, will find their proper place. They will not be called on to treat symptoms that they cannot bring into relation with other phenomena. They will find room for their superior technical ability. Surely some rearrangement of the specialties is necessary.

M. V. BALL, Warren, Pa.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

REMOVAL OF TATTOO MARKS

To the Editor:—Do you know of any chemical or drug that will remove or discolor the tattoo ink from the skin?

W. H. HORTON, M.D., DeRidder, La.

ANSWER.—The methods of Variot and of Brault have been recommended for the removal of such marks. The principle in each is to excite an inflammatory process by means of chemical irritants so as to cause destruction of the superficial layers of the skin.

Variot's plan of treatment, according to Brocq, is as follows: First, he places on the tattoo marks a concentrated solution of tannin, and tattoos this in. Then a silver nitrate pencil is rubbed vigorously over the surface until the surface becomes black from the formation of silver tannate in the superficial layers of the skin, and the surface is then washed with water. In the next few days a slight inflammatory reaction occurs, and over the surface treated a closely adherent dark crust forms. After the third or fourth day there is no pain except when there is movement of the muscles under a large crust. Occasionally there is a little suppuration under the crusts, but if secondary infection is avoided no severe inflammation occurs. After fourteen or sixteen days the crust comes off spontaneously, the corium and the epidermis underneath have been repaired, and the locality of the mark is recognizable only by a superficial pink cicatrix which gradually becomes of normal color. A couple of months after the operation the scar is hardly noticeable.

Brault's method of removing tattoo marks consists in tattooing the region, previously rendered aseptic, with a solution of 30 parts of zinc chlorid to 40 parts of water. The needles with which the tattooing is done are dipped in this

solution and the surface is lightly moistened with the same solution after the tattooing. If properly done the resulting inflammation is slight and after a few days, there forms a superficial crust which remains about a week and then falls, leaving a slight, eventually almost imperceptible, scar. This method succeeds in a few cases but requires skill and care in its application in order to obtain good results and to avoid suppuration and deep cicatrization.

THE INTERNATIONAL CONGRESS ON HYGIENE AND DEMOGRAPHY

To the Editor:—Can you tell me something about the International Congress on Hygiene and Demography? B. D.

To the Editor:—Is there an exhibit of some sort in connection with the hygiene congress at Washington? To whom can I write for full information? M.

ANSWER.—These and other inquiries have been answered direct, but for the information of others we call attention to the fact that there have been repeated announcements in THE JOURNAL concerning this congress. An extended one, giving parts of the extensive program, a survey of the exhibit, and the names of those to whom one may write for full information, was given in THE JOURNAL, August 24, page 661. A statement concerning membership in the congress was given August 17, page 550.

PHYSICIANS' AND LOCAL CHAUTAUQUES

To the Editor:—The chautauqua season is over. Do you know what a chautauqua is? It is a cross between a camp-meeting and vaudeville. The entertainments consist of popular lectures, interspersed with brass bands, songs, legerdemain and sometimes *lecture de cerelle*. The lecturers, some of them, are instructive; some of them have lubricated tongues, athletic lips, and stale brains, and their forte is ridiculing medical men and the medical profession by telling jokes that were common before the flood, doubtless were told in Ham's barber shop in the ark, and were immensely enjoyed by saurian intellects who never heard of Drs. Reed, Carroll, Lazear, Agramonte or Gorgas. The opaque gas-maker is far too frequent a public educator. JOSEPH T. CLEGG, Siloam Springs, Ark.

ANSWER.—If a lecture course or chautauqua does not adequately or fairly represent medical science of to-day, it may be the fault of the medical profession. In many communities prominent medical men are on the chautauqua programs, telling the people about medical progress and enlightening them on hygiene and healthful living. Some of these numbers are among the most interesting and well attended on the program. It will usually be found that the committee on management will welcome assistance from the medical profession, if it is a harmonious, unified body of educated men. County societies and groups of physicians who want assistance in this work, or who want to find out what other societies are doing and what speakers can be obtained, should correspond with the Council on Health and Public Instruction of the American Medical Association, 535 Dearborn Avenue, Chicago. The Council has a list of speakers who are ready to make interesting addresses on various subjects pertaining to medical science, especially hygiene, sanitation and popular medicine. A county society has itself to blame if it fails to offer cooperation in a chautauqua, for this method of public education is one of the easiest and most effective possible. In this connection see two current comments in THE JOURNAL, Sept. 7, 1912, p. 810.

As to jokes in which the physician receives the laugh, we advise our correspondent not to be too sensitive. We would not excuse for a moment the joke that is bitter, vicious or low, but a kindly, wholesome joke should be enjoyed by every one. Members of other professions, even the clergy, are not exempt from being made the objects of jokes. Every race, trade and profession has its peculiarities and foibles, and the humorists do not overlook them. When the victim of a harmless joke resents it, both the humorist and the interested auditors are delighted; to join in a joke turns the edge away and promotes good feeling and sympathy.

CAPITALS IN THE NAME "CHRISTIAN SCIENCE" AND OTHERS

To the Editor:—Please give me the reason for capitalizing "Christian Science" and not "homeopathy." XXXX.

ANSWER.—Various reasons may influence different persons in treating a given name as a proper noun. Apart from the fact that "Christian" being a proper adjective, is almost invariably capitalized, we capitalize "Christian Science" while lower-casing "homeopathy" for the same reason that we capitalize "Warner's Safe Cure" while lower-casing "strychnin," "iodin," "sodium acetate," etc.; chiefly for the reason, to wit, that each capitalized name is a descriptive title imply-

ing an assertion for which we do not care to be responsible. If we were to write "Warner's safe cure," we should imply that it is safe and a cure. The use of an authenticated proper name, capitalized as such, involves no responsibility for its appropriateness. Frank Green may be a confidence man and Lily White a pronounced brunette. There can be no impropriety in calling either by the name bestowed by parents and godparents, but there might be some risk in dropping the capitals and asserting or implying that the one is frank and green and the other lily white. Capitals are marks of distinction; whether they constitute badges of honor, commercial labels or convicts' tags depends entirely on circumstances.

THE NEW BUTTON OF THE ASSOCIATION

To the Editor:—Please explain the new button of the American Medical Association. Some of us have a hazy idea of its meaning and a good many do not understand it at all.

THOMAS CRUICKSHANK, Vermillion, S. D.

ANSWER.—In reply to this and other inquiries, we quote from the report made to the House of Delegates by the committee appointed to devise a suitable emblem for the Association: "Your committee believes that it (the emblem) should convey a definite meaning both in colors and design. It was easy to determine that scarlet and gold had been the medical colors since ancient times. . . . It was also determined by your committee that the true ancestral symbol of the healing art is the knotty rod and serpent of Æsculapius." An article by Dr. Samuel P. Gerhard, Philadelphia, "The Appropriate Insignia for the American Medical Association" (THE JOURNAL A. M. A., April 24, 1909, p. 1325) elaborates on the appropriateness of the use of the knotty rod and serpent.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

PROGRESSIVISM AND PUBLIC HEALTH

One of the most encouraging features of the present public health propaganda is the growing recognition of the economic and sociologic value of public health. Some of the leading newspapers of the country have recognized this fact and have included a demand for better health conditions as one of the planks of the constructive platform which they are advocating. Two recent editorials in the *Chicago Tribune*, one of the most prominent of the progressive papers, emphasize the marked change in public opinion which has occurred in the past few years. In its issue of September 3, the *Tribune*, under the heading, "The Greatest of Our Needs," says:

"No nation can take and sustain a prominent place in the modern world that fails to develop and utilize the powers and ability latent in all classes of its people. The people whose wise men evolved that principle have accomplished perhaps the greatest feat of nation-building and wealth-creating in history.

"This people is not the Japanese, although they have done wonders in a quarter century. They are the Germans.

"Germany is the great scientific nation. That is, it is the nation which has most deliberately and persistently applied organized knowledge and systematic thought to the problem of making a community of efficient men, to minimizing the natural disadvantages of the land they occupy and making the most of all available advantages, to building up the national wealth and improving all the means by which modern peoples compete with their rivals in the world.

"Germany is a triumph of will directed by intelligence.

"And efficient education is the corner-stone of her greatness."

The *Tribune* then discusses the value of recent scientific advances in changing our views on practical education and the influence of proper educational methods on industrial and social conditions.

On the following day, September 4, under the title "Real Progressivism," the *Tribune* continues the discussion of these principles, applying them to health instead of to education. The editor says:

"This country has grown rich because of the masterly people who inhabit it and the great resources with which nature has endowed it. We have been so all-powerful that it never occurs to us to take stock.

"Year by year we have skimmed the cream and thrown away the milk. We have assumed that this was good policy because—have we not prospered? Tired, overused land is worth more to-day than fresh land was worth forty years ago; therefore, must not our land policy be right?

"But of late the more thoughtful and far-seeing Americans have realized the fallacy of these easy theories and the accumulating evil of our wasteful practice. It is an interesting paradox that one of the consequences of our success is to warn us that we must no longer pursue success in the old way. That is, our great wealth and enlarged facilities for wealth-production have driven us into competition with the world, and competition is teaching us. So long as we remained provincial we learned little from outside. Now we have become aware that other people are wise, are strong, are able, are energetic as well as we—and we are learning that some are wiser and stronger in some respects than we.

"The chief of these lessons is that the most formidable of our rivals exert especial pains to protect and conserve as their greatest national resource—their people.

"They have reduced their typhoid death-rates until they are less than one-third the rates prevailing with us.

"They have cut their consumption rates to about half what they once were, as compared with a reduction that nowhere in this country exceeds 25 per cent.

"Germany inaugurated a great movement for the protection of the vital resources of its working people more than a quarter of a century ago. England has been developing a similar policy during the last ten years. Meanwhile we have rather relied on fresh, strong, young country men and women coming into the cities, and on the cream of the virility and strength of Europe—our stream of sturdy immigrants—to keep our death-rates down and our standards of human efficiency up.

"Men of great wealth who have profited by illegal combinations and unfair business methods sometimes salve their consciences by contributing money freely, magnificently, to great philanthropic enterprises. As these sums are oftentimes drawn from unwarranted and unfair profits, the burden of disease and illness, poverty and inefficiency falls indirectly, when it does not fall directly, on the shoulders of the people.

"This is a vicious circle. It should be replaced by a more logical process. The collective intelligence of the nation, of the great American community, should deal directly with the conservation of the people's health and strength. We need to get rid of a lot of dead lumber in our public discussions and get hold of some practical truths, as that—

"Malaria decreases the value of land at least \$10 an acre.

"Hookworm, by producing inefficiency, influences the price of cotton goods more than the tariff.

"Pellagra is a problem as important as currency reform.

"Consumption is of more consequence than the coinage of silver.

"Pauperism is a practical problem that deserves the most persistent and thorough study.

"Social justice is a necessity if our republic is to endure.

"The *Tribune* believes that the kind of help given the farmer for his stock should be given him for his family; that communities should be helped to banish consumption and typhoid fever; that mothers should be protected during child-bearing; that the slaughter of the innocents should cease, as far as it is possible to make it cease; that children should be given a chance to grow up in strength; that men should be enabled to labor at high efficiency; that prevention should replace cure; that pauperizing of men by charity should give place to a scientifically developed scheme for the care of those who need to be cared for along broad economic lines.

"For the development of such broad activities proper machinery will be devised as a matter of course. The particular type of machine—whether departments of health, commissions, health services, health bureaus, or national insurance departments—is a matter of detail."

The *Tribune* has well expressed the views of an increasingly large number of people. As is usual in political and social development, the radical views of the progressive minority to-day will be the accepted views of the majority of to-morrow. Human betterment in all its phases is the most important problem for a civilized nation. In this problem there is no more important factor than the conservation of life and health, through the suppression of preventable disease.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, October 7-8. Sec., Dr. John Wix Thomas.
COLORADO: Denver, October 1. Sec., Dr. David A. Strickler, 612 Empire Building.
GEORGIA: Regular, Atlanta, October 8-10. Sec., Dr. C. T. Nolan, Marietta; Homeopathic, Atlanta, October 3. Sec., Dr. R. E. Hinman, 106½ Whitehall St., Atlanta.
IDAH0: Idaho Falls, October 1-2. Sec., Dr. O. J. Allen, Bellevue.
ILLINOIS: Coliseum Annex, Chicago, September 24-26. Sec., Dr. James A. Egan, Springfield.
KANSAS: National Hotel, Topeka, October 8. Sec., Dr. H. A. Dykes, Lebanon.
MICHIGAN: Capitol Bldg., Lansing, October 8-10. Sec., Dr. B. D. Harrison, 504 Washington Arcade, Detroit.
MINNESOTA: State University, Minneapolis October 1. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.
MISSISSIPPI: Capitol, Jackson, October 22-23. Sec., Dr. W. W. Smithson.
MISSOURI: Kansas City, October 1-3. Sec., Dr. Frank B. Hiller, Jefferson City.
MONTANA: The Capitol, Helena, October 1, 1912. Sec., Dr. William C. Riddell.
NEW JERSEY: Capitol Bldg., Trenton, October 15-16. Sec., Dr. H. G. Norton.
NEW MEXICO: Santa Fe, October 14. Sec., Dr. W. E. Kaser, East Las Vegas.
NEW YORK: September 17-20. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.
OKLAHOMA: Muskogee, October 7-9. Sec., Dr. John W. Duke, Guthrie.
RHODE ISLAND: State House, Providence, October 3. Sec., Dr. Gardner T. Swarts.
UTAH: Salt Lake City, October 7-8. Sec., Dr. G. F. Harding, 310 Templeton Building.
WYOMING: Riverton, October 9-11. Sec., Dr. A. B. Tonkin.

Reciprocal Relations Restored

Reciprocal relations between New York and New Jersey, providing for the endorsement of medical licenses, were reestablished by the Board of Regents of New York at a meeting held August 26, 1912. Such relations had previously been arranged but were cancelled in 1910 because of a decision by the attorney general of New Jersey which revealed a weakness in the New Jersey practice act. According to that decision the medical student could not be required by the examining board to have completed, nor in fact to have had, any high school work prior to beginning the study of medicine, but was privileged to pursue both high school and medical courses at the same time if he so desired. In other words according to this decision, the medical student's "preliminary" education did not need to be preliminary. Recent amendments, according to report, have corrected this defect in the law and, as a result, reciprocal relations between the two states have been restored.

Ohio April and July Reciprocity Reports

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports that at the meetings held by that Board April 2 and July 9, 1912, 27 candidates were licensed through reciprocity. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University Medical School	(1895)	Wisconsin; (1898)
Minnesota; (1910) Illinois		
College of Physicians and Surgeons, Chicago	(1905)	Wisconsin
Rush Medical College	(1901)	Illinois
Indiana University, School of Medicine	(1909)	Indiana
Kentucky School of Medicine	(1898)	Indiana
Detroit College of Medicine	(1897)	Michigan
University of Michigan, Homeopathic College	(1910)	Michigan
Michigan College of Medicine and Surgery	(1897)	Michigan
University of Michigan, Dept. of Med. and Surg.	(1910) (1911)	Michigan
Barnes Medical College	(1897)	Missouri
Homeopathic Medical College of Missouri	(1877)	Missouri
Washington University, St. Louis	(1903)	Missouri
Marion Sims College of Medicine	(1897)	Missouri
Long Island College Hospital	(1909)	New York
University and Bellevue Hospital Medical College	(1899)	Michigan;
(1907) New York		
University of Buffalo	(1899) (1900)	New York
Medical College of Ohio	(1893)	Kentucky
Cincinnati College of Medicine and Surgery	(1900)	Kentucky
Western Reserve University	(1891)	Kentucky
Hahnemann Medical College and Hospital, Philadelphia	(1889)	
Maryland; (1909) Indiana		
Jefferson Medical College	(1881)	W. Virginia

Arizona July Report

Dr. John Wix Thomas, secretary of the State Board of Medical Examiners for Arizona, reports the written examination held at Phoenix, July 1-2, 1912. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75, and not less than 60 in any one branch. The total number of candidates examined was 9, of whom 8 passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
College of Physicians and Surgeons, Los Angeles	(1912)		84.1
Chicago College of Medicine and Surgery	(1912)		85.3
Rush Medical College	(1912)		85.7
Louisville Medical College	(1906)		78.6
Homeopathic Medical College of Missouri	(1908)		81.4
Washington University, St. Louis	(1908)		86.6
Columbia University, College of Phys. and Surgs.	(1898)		86.5
University of Virginia	(1905)		78.6
Tennessee Medical College	(1907)		65

The following questions were asked:

ANATOMY

1. What arteries supply the heart with blood, and where do they originate? 2. Describe the thoracic duct. 3. Describe the thyroid gland, including blood- and nerve-supply. 4. Where is the fissure of Sylvius and what artery does it contain? 5. What muscles assist in (a) mastication? (b) deglutition? 6. Describe the diaphragm, its principal openings and nerve-supply. 7. Name the bones of the head. 8. Name the ligaments of the hip-joint. 9. State (a) the nerve-supply of the rectum and (b) the blood-supply of the rectum. 10. Describe the inguinal canal.

PATHOLOGY

1. Define hyperemia and give varieties and causes. 2. Define transudate and exudate, with examples of both. 3. Define (a) embolism; (b) thrombosis, and give examples. 4. Define and give symptoms of inflammation. 5. Describe the pathologic findings in typhoid fever.

BACTERIOLOGY

1. Describe the technic of staining for tubercle bacilli. 2. Define immunity and classify same. 3. Define (a) phagocytosis; (b) antitoxins; (c) vaccine. 4. Describe the gonococcus and give method of staining. 5. Give Koch's rules or dicta in regard to the bacterial cause of diseases.

CHEMISTRY AND TOXICOLOGY

Answer ten only. 1. What element occurs most abundantly in Nature and what are three of its more common combinations? 2. Atmospheric air is composed of what elements and in what proportion by volume? 3. Give definition of acids and formulas of six acids commonly used in medicine. 4. Define a salt and explain the difference between normal and basic salts. 5. What are hydrocarbons? Mention three. 6. Give difference between alcohols and ethers. 7. What chemical elements occur in all proteids? Name three common proteids. 8. What are the common sources of acetic acid? 9. Name the normal constituents of human milk and their approximate proportions. 10. Give treatment of arsenic poisoning. 11. What is the chemical antidote for phenol (carbolic acid) poisoning? What would you use for a physiologic antidote? 12. What is the best treatment for poisoning by strong mineral acids?

PHYSIOLOGY

Answer five only. 1. What part of the nervous system is involved in stammering speech? 2. Describe the pneumogastric nerve and its functions. 3. Describe lymph and how it is formed. 4. Classify foods and give a general description of each. 5. What is the pulse and what do its varieties signify within physiologic limits? 6. Describe the physiology of menstruation. 7. Briefly describe visual accommodations.

HYGIENE

Answer five only. 1. What means should be taken to prevent spreading of small-pox? 2. What means should be taken to prevent spreading of diseases in schools? 3. What regimen should be enforced in the sick-room of tuberculous patients? 4. Why should we abolish the common drinking-cup? 5. Describe the proper care of foods in stores and markets and why. 6. What are the dangers from drinking water from an unprotected watershed? 7. Why are plumbing fixtures ventilated?

MATERIA MEDICA

1. Define materia medica and therapeutics. 2. Define tincture, extract and ointment. 3. By what process and from what source is sugar of milk principally obtained? 4. State the source of ichthyol and give its uses in medicine. 5. Give the Latin title of paregoric; name all its constituents and give the amount of the principal drug in 1 ounce of the mixture. 6. Give the composition of the official compound cathartic pill. 7. Name the alkaloids of nux vomica. 8. What is incompatibility in medicine, and what are the different kinds of incompatibility? Give an example of each. 9. Describe four diuretics and give dose of each. 10. What class of acids would you use to acidify alkaline urine? Name one and give dose.

PRACTICE OF MEDICINE

1. Differentiate between cerebral vomiting and gastric vomiting. 2. In what diseases does leukocytosis occur? 3. What is the significance of prolonged expiration? 4. Describe the mitral regurgitant murmur; give the topography of the chest showing where this sound is best heard. 5. Mention the causes and describe the treatment of primary lobar pneumonia. 6. Define angina pectoris; what pathologic condition may cause it? 7. On what symptoms would you base a diagnosis of typhoid fever? 8. Give the period of incubation and of the eruption of the exanthemata. 9. What is the cause of syphilis? 10. Give the symptoms and blood-picture of chlorosis.

OBSTETRICS

Answer ten only. 1. Give the diameters of the fetal head in inches. 2. Give the diameters of the pelvis in inches. 3. Differentiate

between normal pregnancy, tumors within the abdominal cavity and ectopic gestation. 4. What maternal condition would warrant destruction of fetal-life? 5. When the action of the uterus is insufficient what measures and remedies may be used to bring about normal contraction? 6. Should you find albumin and tube casts in the urine of a pregnant woman what morbid condition would be indicated, and what would be your treatment? 7. Diagnose placenta prævia and give treatment. 8. What is the principal cause of ophthalmia neonatorum, and what means should be used to prevent it? How would you treat a case? 9. Give position of the fundus at three, five and seven months. 10. Name some of the causes and dangers incident to protracted labor. 11. Make a diagnosis of syphilis in the new-born. State something concerning the prognosis. 12. Describe how you would conduct normal labor.

GYNECOLOGY

1. (a) Define endocervicitis; (b) give the symptoms, and (c) treatment. 2. What are the indications for curettage? 3. Define (a) dysmenorrhea; (b) amenorrhea; (c) menorrhagia, and (d) metrorrhagia. 4. Mention the varieties of uterine displacements. 5. (a) Define urethral caruncle; (b) give its histology; (c) symptoms and (d) treatment. 6. Make a diagnosis from the following history: (a) A woman, aged 26, mother of three children. Menstruation stopped two months ago. Patient seized with abdominal pain, cramp-like in character, appearance of uterine hemorrhage; rapid pulse, anemic, increased leukocyte count, temperature first subnormal then elevated. Physical examination shows breast enlarged, uterus enlarged, os soft and mass in lateral fornix. (b) Describe in detail the treatment. 7. Discuss the etiology of cancer of the uterus. 8. Describe the clinical history of a large ovarian cyst. 9. Make a differential diagnosis between interstitial fibroids of the uterus and an ovarian cyst. 10. Describe an operation for amputation of the cervix.

SURGERY

1. What is inflammation? How does inflammation extend and how may it terminate? 2. Give the symptoms, diagnosis and treatment of phlebitis. 3. Name the inflammatory diseases of bone. 4. How would you arrest epistaxis? 5. What symptoms follow division of the radial nerve? 6. Name the varieties of shoulder-joint dislocations. 7. Name the causes of delayed bone union and give treatment. 8. Differentiate dislocation of the head of the femur from fracture of its neck, and give essentials of treatment of each. 9. Describe a method of amputation of the last phalanx. 10. Describe dermoid cysts. In what situations are they most commonly found?

Book Notices

MOTIVE-FORCE AND MOTIVATION-TRACKS. A Research in Will Psychology. By E. Boyd Barrett, S. J., Doctor of Philosophy, Superior Institute, Louvain. Cloth. Price, \$2.50. Pp. 225. New York: Longmans, Green & Co., 1911.

This is a technical laboratory study on formation of character and education of the will. The author believes that the essential elements of character are expressed in the choice-process. For this purpose he instituted 1,100 experiments, by means of which he reached the conclusion that when a choice has to be made between two alternatives, the choice is quick and easy in proportion as the values of the alternatives are clearly and definitely known. From the moment a person grew doubtful about the position of a substance on the scale of values, all regularity and certitude were at an end. Motivation was no longer swift and easy. Volitional force, instead of being economized, was wasted. Hesitations occurred and the functioning of the will grew more and more arduous and painful. Generalizing, then, he thinks that a person who consistently, without hesitation or capricious movements, takes the best of the two alternatives, with more and more ease, and that for intrinsic motives, is one who has "a well-fashioned will," a good character. This interesting psychologic study cannot fail to stimulate further research in a hitherto but little-cultivated field.

SURGICAL OPERATIONS. A Hand-Book for Students and Practitioners. By Prof. Friedrich Pels-Leusden, Chief Surgeon to the University Surgical Clinic. Translated by Faxton E. Gardner, M.D. Cloth. Price, \$7. Pp. 726, with 668 illustrations. New York: Rebman Company, 1912.

The work of Pels-Leusden comes near to accomplishing the difficult task of successfully teaching operative technic to both students and practitioners. The author is an exponent of German surgery and makes only incidental mention of American surgical procedures. The need for conciseness and the selection of only classical procedures justify this omission. The custom of Americans translating German and French works of inserting references to American works along similar lines is desirable for American readers, provided it does not deviate too much or overshadow the original. The translator has succeeded in putting the text into good English. He might, in some instances, have been a little less faithful to

the long German sentences of the original text. In scientific works, the facts weigh more than the language, and such works should be freely translated, without injury, of course, to the original statement. A valuable feature is the mention of standard methods of postoperative technic and indications for surgical interference in the most common postoperative complications. It is to be regretted that in most books on surgery for students these things are omitted. The illustrations, while correct and faithful to the description contained in the text, lack the art which characterizes the work of the Johns Hopkins school, being in most instances either diagrams or semidiagrammatic. The chapter on anesthesia, illustrated by very complicated apparatus for narcosis, gives the impression that the Germans should learn the simple method of ether anesthesia which is responsible for the low primary mortality from anesthesia in the United States. The table of contents constitutes a useful regional classification and the index is detailed and complete.

TECHNIK DER KLINISCHEN BLUTUNTERSUCHUNG. FÜR STUDIERENDE UND AERZTE. Von Dr. A. Pappenheim, Berlin. Paper. Price, 2 marks. Pp. 55. Berlin: Julius Springer, 1911.

This little book presents only the essential and clinically valuable methods of blood examination. The three cardinal features of hematology, namely, staining, counting of cells and estimation of hemoglobin, are especially emphasized, while the chemical and physical methods are ignored. The methods selected are those proved reliable by Pappenheim in his extensive work and are, therefore, of more than passing interest. Thus, his method of staining is a modification of the combined May-Grünwald and Giemsa stain, which gives very panoptic results. Sabli's method of estimating hemoglobin is preferred.

PRAKTISCHE NEUROLOGIE FÜR ÄRZTE. Von Prof. Dr. M. Lewandowsky. Paper. Price, 6.80 marks. Pp. 300, with 20 illustrations. Berlin: Julius Springer, 1912.

This is a small text-book for the general practitioner, in which a large portion is devoted to general methods of examination and a discussion of the leading facts in practical neurology. The publication of short text-books for practitioners is a new feature in German medical literature, which abounds with monographs and large treatises on nervous topics, while our own literature is blessed with a superabundance of the former and a scarcity of the latter kind of writing. The book is thoroughly up to date, containing also brief accounts of important advances in the treatment of nervous disorders.

ELEMENTS OF HYDROTHERAPY FOR NURSES. By George Knapp Abbott, M.D., Dean of the Faculty and Professor of Hydrotherapy and Practice of Medicine in the College of Medical Evangelists, Loma Linda, Cal. Cloth. Price, \$1.50. Pp. 273. Washington: Review and Herald Publishing Association, 1911.

In the preface the author states that he has endeavored "to cover the subject in only an elementary way." This is exactly what he has done; the book is elementary. In an elementary way it takes up the physical properties of water; the effects on the body after hot and cold applications, the action of the skin in hydrotherapy; and the effect of hydrotherapy on the circulation and muscles. The treatment of various disorders and diseases is discussed, and then the technic of the various methods used in this form of therapy.

DIE ENTSTEHUNG DER KURZSICHTIGKEIT. Von Dr. Georg Levinsohn. Paper. Price, 2.50 marks. Pp. 88, with 3 illustrations. Berlin: S. Karger, 1912.

In this essay the author contends that myopia is caused by the overflexion of the head on the trunk in the attempt to use the eyes for near work. He explains his theory on the ground of gravity pulling the eyeball away from the optic nerve, thereby lengthening the axis and causing short-sightedness. In consonance with his theory he proposes that school-benches be so constructed that unnecessary bending of head and trunk be obviated. Further, pupils should be constantly admonished to maintain an upright posture while reading or writing.

Society Proceedings

COMING MEETINGS

Amer. Assn. for Study, etc., of Infant Mortality, Cleveland, Oct. 2-5.
Amer. Assn. of Obstetricians and Gynecologists, Toledo, Sept. 17-19.
American Association of Railway Surgeons, Chicago, Oct. 16-18.
American Public Health Association, Washington, D. C., Sept. 18-20.
Assn. of Military Surgeons of the United States, Baltimore, Oct. 1-4.
Colorado State Medical Society, Pueblo, Sept. 24-26.
Conf. State Bds. of Health of N. Am., Washington, D. C., Sept. 20-21.
Delaware State Medical Society, Wilmington, Oct. 8.
Indiana State Medical Association, Indianapolis, Sept. 26-27.
Internat. Congress on Hygiene, etc., Washington, D. C., Sept. 23-28.
Kentucky State Medical Association, Louisville, Oct. 29-31.
Medical Association of the Southwest, Hot Springs, Ark., Oct. 8-10.
Mississippi Valley Medical Association, Chicago, Oct. 22-24.
National Association for Study of Pellagra, Columbus, S. C., Oct. 3-4.
Nevada State Medical Association, Reno, Oct. 8-10.
Pennsylvania State Medical Society, Scranton, Sept. 23-26.
Utah State Medical Association, Ogden, Sept. 24-25.
Vermont State Medical Society, Montpelier, Oct. 10-11.
Virginia Medical Society, Norfolk, Oct. 22-25.
Wyoming State Medical Society, Sheridan, Sept. 17.

Medicolegal

Damages Recoverable for Negligent Failure to Deliver Telegram From Physician

(*Alexander vs. Western Union Telegraph Co. (N. C.) 74 S. E. R. 449*)

The Supreme Court of North Carolina says that the plaintiff became ill with an attack of appendicitis. Her attending physician was of opinion that an operation was immediately necessary, but was unwilling to undertake it with the facilities at hand, and undertook for her to ascertain by telegraph if a physician at a city hospital would operate, the patient not being able to pay until later. A favorable reply was sent, but never delivered, and arrangements were thereafter made for an operation at another place. In affirming a judgment for damages in the plaintiff's favor, against the telegraph company, for apparently \$1,000 for alleged mental anguish in not hearing from the first physician inquired of by telegraph, the court says that the right of an addressee or a beneficiary whose interest has been made known to the company to recover for a negligent failure to deliver a message of this character is fully established in North Carolina and that the plaintiff's cause was brought within the principle of the decisions of that state where substantial damages by reason of mental anguish have been allowed.

Expert and Non-Expert Opinions as to Diseases—Hypothetical Questions

(*Shawnee Gas & Electric Co. vs. Hunt (Okla.), 122 Pac. R. 673*)

The Supreme Court of Oklahoma holds that a graduate nurse who has never nursed a case of epilepsy is not competent to testify as to whether certain symptoms indicate epilepsy; it not appearing from the evidence that nurses, as part of their training as such, are taught to diagnose diseases. It says that the court could not presume that a nurse must learn the diagnosis of diseases as part of her training as such. It cannot be denied that a nurse is competent to testify that a person has had a "fit," but, under the circumstances stated, she is not competent to testify as to merely epileptic conditions, as shown by certain symptoms. Any persons could testify as to whether or not another had had a "fit," but it might require some considerable study of diseases to be able to testify whether a "fit" was of epileptic character. It is believed that it is safer to confine expert testimony, in which the witness is permitted to give an opinion, to those persons who have had special training in the diagnosis and treatment of diseases. Of course a person without professional skill, who has observed another whose condition is under investigation, may be permitted to testify as to whether or not his condition is normal or abnormal, as for instance whether he is sane or insane, but

it is not safe to permit any one except physicians to make distinctions as to what particular diseases or ailment the abnormality points to, as for instance with what particular form of insanity a patient is affected.

It was contended that a hypothetical question was improper because of an explanation or direction given to the witness at the beginning of the question, but no authorities were cited in support of the contention, and it does not seem to be supported by reason. It was a mere statement to the witness as to what the examiner intended to state in the question, and added nothing to the facts as stated, and did not appear to require any particular answer. Where experts are called as witnesses, it is usual and not improper to inform them beforehand as to the nature of the question they will be called on to answer, and there is no reason why a statement of this sort to a witness on the stand should be more improper than it would be in the lawyer's office before the trial began. Again, it is almost impossible to state a question of more than 500 words without making it complicated. It is very doubtful if any juror is ever able to follow a hypothetical question sufficiently to remember and consider it in detail in the making of a verdict. It is proper, too, to ask a witness who testifies as an expert what causes, in his opinion, produced certain results. Such a question is not objectionable as calling for a conclusion of the witness, nor as invading the province of the jury. The jury is not compelled to follow his opinion. It may not believe his opinion the correct one.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Yale Medical Journal, New Haven, Conn.

May, XVIII, No. 9, pp. 357-445

1. Connecticut a Doctor of Consumptives. S. J. Maher, New Haven.
2. Medical Expert Testimony. H. G. Anderson, Waterbury, Conn.
3. *Experiences with Salvarsan in Syphilis. J. M. Flint and W. F. Cunningham, New Haven.

3. **Salvarsan in Syphilis.**—Ten syphilitics who were otherwise free from disease were given a single injection of salvarsan. In the series there were no primary lesions. Of the secondary lesions, several types of skin rash and tonsillar and pharyngeal ulcers were present, and of the tertiary cases, there were bone lesions in the form of gumma and osteomyelitis of the humerus, ulcers of the pharynx, leg, rupia and an old squamous syphilid of the palms. The effect of the injections were most marked on the pharyngeal and tonsillar ulcers, which cleared up in from five to seven days. The skin lesions healed in from ten days to two weeks, although there was often a persistent pigmentation such as follows the healing of any chronic lesion for a week or two longer. The rupia and squamous syphilids disappeared in from two to three weeks, while the large syphilitic ulcers began to show evidences of repair in a few days, but the time consumed in the healing process naturally depended on the extent of the ulceration.

Of the bone lesions, the gumma showed the effect of salvarsan earliest, the pain disappearing in a few days, and a distinct decrease in size was observed in a week. The clavicle appeared practically normal in about six weeks. In a case of syphilitic osteomyelitis, there was a distinct improvement as far as the pain was concerned in a week, and, in three weeks, a radiograph showed an absorption of the periosteal deposits and a clearing up of the shotted appearance of the shaft.

The only case in the series which showed resistance to the drug was one of congenital syphilis with interstitial syphilitic keratitis. It is doubtful, in this instance, whether the improvement was any more rapid than with the ordinary treatment of atropin and mercury.

The local reaction to the subcutaneous injections in two cases consisted in pain and tumefaction. The local reaction in the intravenous injections was *nil* in all cases save one,

in which a small amount of the drug escaped in the tissues about the vein. In this instance, there was pain and swelling which lasted for several days. The systemic reaction has varied in the intravenous series from none at all to a transitory increase in temperature and pulse-rate, accompanied in some cases by nausea and vomiting and a few diarrhetic stools. In no instance has the reaction been severe enough to cause any alarm, and in most, the patients have noticed nothing out of the ordinary in their condition.

In each case, with three exceptions, the red and white corpuscles were counted, the hemoglobin estimated, and a differential count made. The majority of cases showed a slight increase in the number of reds and an average increase in about 5 per cent. of hemoglobin in the interval of a week that elapsed between the two estimations. The number of whites varied somewhat with the condition and were naturally higher in cases in which ulceration was present with consequent absorption, but neither a constant increase nor decrease in the number of leukocytes was observed after the injection. The differential counts showed nothing of interest, the relative percentages being apparently unaffected by the administration of the drug.

In no case has the Wassermann reaction been permanently negative. In two cases there was evidence of a transitory nephritis. The conclusions which the authors draw from the observation of this series of cases seems to be in accord with the experience of others, namely, that salvarsan in most instances is a symptomatic specific. Its control of the lesions of syphilis is remarkably rapid and complete, but permanence of the cure as indicated by the Wassermann reaction cannot be expected from a single dose or even a number of doses.

Delaware State Medical Journal, Wilmington

August, III, No. 9, pp. 1-26

4. Conservative Surgery of Pelvic Organs. H. J. Stubbs, Wilmington.
5. Relation of Physician to Pharmacist. W. H. Kraemer, Wilmington.

Vermont Medical Monthly, Burlington

August 15, XVIII, No. 8, pp. 183-208

6. Neuralgia. S. W. Paige, St. Albans.
7. Criminality: Physician as Factor in Prevention; Crime on Increase. B. Joseph, Burlington.

Washington Medical Annals, Washington, D. C.

September, XI, No. 4, pp. 189-216

8. Value of Sophol in Prevention of Ophthalmia Neonatorum. J. F. Moran, Washington, D. C.
9. *Oily Injections of Salvarsan. H. H. Hazen, Washington, D. C.
10. Study of Mental Deterioration. D. P. Hickling, Washington, D. C.

9. **Oily Injections of Salvarsan.**—In the sixteen months that Hazen has been using the oily injections they have been found to be superior to the other intramuscular ones in two ways: first, ease of usage, and second, in the freedom from pain. Hazen's formula is as follows: Gum camphor, half dram; monomethylcatechol (guaiaecol), half dram; paraffin oil, enough to make one ounce. Just enough of this oil is used to make a fine, smooth emulsion; about 5 c.c. are usually required. The technic of preparation and injection is simple. All that is needed in addition to the oil and the salvarsan is a suitable syringe and a small mortar and pestle. A 5 c.c. syringe may be used, but one in which the end of the plunger is cut off square, and is not round, as in the latter case, some of the emulsion may work up between the plunger and barrel of the syringe and jam. The portal of exit of the syringe should be large, and a needle of from seventeen to twenty gauge used. Inasmuch as the syringe must be absolutely dry, it should be first lubricated with castor oil and then sterilized by dry heat, or it may be boiled and then cleaned with alcohol and ether; the former method is much the better. The very slightest quantity of moisture may cause a hopeless gumming. The mortar and pestle may be boiled and allowed to dry. The tube of salvarsan is broken into the mortar and the oil added drop by drop, constantly grinding until a perfect emulsion is secured. It is then drawn into the syringe and the injection made in the usual way.

Following the suggestion of Dr. Fowler, about 0.5 c.c. of air is injected along the needle so as to prevent the oil from

escaping into the subcutaneous tissues. The injections may be made into either the gluteal or lumbar muscles. To date Hazen has forty-two cases with fifty-three injections, all injections being given in the buttocks. He says that a small injection of 0.3 gram gives even less trouble than a full injection, so it is wise to give two half doses at one sitting rather than a full dose. His results have been about the same as with the other types of intramuscular injections; most of the secondary skin manifestations, and all the mucous patches, condylomata, and throat ulcerations cleared up speedily, while some of the tertiary lesions did very well and some were uninfluenced.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

August, XVI, No. 2, pp. 41-97

11. Uterine Hemorrhage a Symptom Frequently Seen in Pellagra of Women. C. H. Peete, Warrenton, N. C.
12. Amebic Dysentery. R. D. McMillan, Red Springs, N. C.
13. Chronic Nephritis, a Neglected Study. J. D. Willis, Roanoke, Va.
14. Fellows of Alumni of Medical College of Virginia. J. M. Burke, Petersburg, W. Va.
15. Medicine in Lay Literature. B. M. Randolph, Washington, D. C.

Bulletin of Manila Medical Society

July, IV, No. 7, pp. 137-145

16. Epidemic of Bacillary Dysentery in Baguio. M. A. Barber and L. Gomez.
17. Dysentery at Camp John Hay, Baguio. P. M. Ashburn and E. B. Vedder, U. S. A.
18. *Effect of Methylene Blue on Intestinal Parasites in Man. C. H. Schultz, Seattle, Wash.

18. **Effect of Methylene-Blue on Intestinal Parasites in Man.**—A personal experience and laboratory observation showed Schultz that methylene blue is evidently destructive to certain low forms of animal life; but not to all. The larval forms of the pinworms in the upper intestines are killed by the drug, but not the mature worms in the colon and rectum. For this reason we must exhibit the drug during the time that the pests are in the larval stage. Cleanliness will limit reinfection. Treatment with methylene blue pills extending over five days, eighteen to twenty-four 1 grain pills daily (for a full grown, otherwise healthy man), the entire treatment to be taken three times, ten days apart, has destroyed these pests in Schultz's alimentary canal on three different occasions. A slight headache and pronounced tinnitus aurium, similar to the effect of large doses of quinin, became noticeable on the second day. On the last day a marked laxative effect produced liberal evacuation of the bowel. Urine and feces remained dark blue. Sedimentation and microscopic examination of the urine failed to show anything but a few cuboidal renal cells, some cells from the epithelium of the bladder and numerous calcium oxalate crystals. The feces were stained dark blue, even the mucus appeared blue. Careful search failed to show oxyuris in the feces, or ova or larva from the vicinity of the anus. After three months no parasites have reappeared.

Kentucky Medical Journal, Bowling Green

August 15, X, No. 16, pp. 635-666

19. Fractures of Skull. J. G. Sherrill, Louisville.
20. La-Grippe. S. S. Prather, Louisville.
21. Parinaud's Disease. J. H. Simpson, Louisville.
22. Gonorrheal Rheumatism. J. A. O. Brennan, Louisville.
23. Acute Articular Rheumatism Treated with Phylacogen. E. B. Richey, Louisville.
24. Tuberculosis of Bladder. H. Bronner, Louisville.
25. Disseminated Sclerosis. F. C. Askenstedt, Louisville.
26. Hemophilia; Report of Case. H. A. Davidson, Louisville.
27. Severe Chorea in Child Under Four Years of Age; Report of Case with Exhibition of Patient. D. Y. Keith, Louisville.
28. Delirium Tremens from Paraldehyde; Report of Case. M. Board, Louisville.
29. Cholesteatomata of Ear. W. T. Bruner, Louisville.
30. Operation for Traumatic Epilepsy. C. G. Forsee, Louisville.
31. Appendicitis. M. Casper, Louisville.
32. Acute Gastro-Enteric Infection. W. W. Morton, Catlettsburg.

Therapeutic Gazette, Detroit

August 15, XXXVI, No. 8, pp. 533-608

33. Differential Diagnosis Between Brain Abscess and Sinus Thrombosis. Treatment of These Conditions. E. B. Dench, New York.
34. Three-Step Operation in Tumors of Sigmoid and Colon. J. P. Tuttle, New York.
35. Ointment of Scarlet Red in Treatment of Eye Diseases. W. O. Nance, Chicago.
36. *Effect of Tuberculin (Bouillon Filtrate) on Pulse in Pulmonary Tuberculosis. R. T. Pettit, Ottawa, Ill.

36. **Effect of Tuberculin on Pulse in Pulmonary Tuberculosis.**—Pettit claims that in cases with a low grade temperature but persistently high pulse, 100 to 125, tuberculin (bouillon filtrate) is of value in restoring the pulse-temperature balance. The explanation of this action may be that a toxin neutralization follows the injection of the soluble antigen.

Pennsylvania Medical Journal, Athens

August, XV, No. 11, pp. 813-924

37. Economic Relations of Social Disease. R. N. Willson, Philadelphia.
38. Race Suicide. D. C. Guthrie, Philadelphia.
39. The Human Body, a Chemically Regulated Organism. R. E. Lee, Meadville.
40. Ocular Manifestations of General Disease. N. J. Weill, Pittsburgh.
41. Plea for Early (Preperforative) Diagnosis of Extrauterine Pregnancy. P. G. Skillern.
42. Ectopic Gestation. S. D. Molyneux, Sayre.
43. *Ectopic Gestation, with Report of Case at Full Term, in Which Fetus was Carried in Abdomen for Thirty-Five Years. F. N. Yeager, Hamilton.
44. Treatment of Internal Hemorrhoids by Operation of Excision. H. D. Beyea, Philadelphia.

43. Abstracted in THE JOURNAL, Aug. 10, p. 443.

Boston Medical and Surgical Journal

August 22, CLXVII, No. 8, pp. 239-270

45. Blood Transfusion: Indications, Methods and Results. B. Vincent, Boston.
46. Case of Intrarectal Rupture of Suppurating Sinus from Hip Joint Disease. R. W. Jackson, Fall River, Mass.
47. Doctor Who Volunteers for Military Service in Time of War. C. G. Foster, Cambridge, Mass.
48. *Thirty-Nine Cases as Regards Intestinal Length and Nutrition. L. T. Swaim, Cambridge, Mass.
49. Private Obstetrical Record. J. R. Tebbert, Boston.
50. Progress in Obstetrics. R. L. De Normandie, Boston.

August 29, CLXVII, No. 9, pp. 271-310

51. *Acquired Hallux Valgus: Late Results from Operative and Non-Operative Treatment. C. R. Metcalf, Concord, N. H.
52. Neurology of Child: Mortality and Proportion of Backward Children in Cases of Congenital Syphilis Subsequent to Hospital Treatment. W. P. Lucas, Boston.
53. Progress in Treatment of Neuroses. E. W. Taylor, Boston.
54. *Tuberculosis in Aged and Diagnostic Value of Increased Whimper in Interscapular Space. H. F. Stoll, Hartford, Conn.

48. **Intestinal Length and Nutrition.**—Ten dissecting room cadavers and twenty-nine bodies seen at a necropsy were carefully examined by Swaim as to the length of the intestines. He found ptosis present in nine cases. The size of the stomach varied enormously and the tubular stretched stomach was present in most of the cases of ptosis—six out of nine—and the lesser curvature can be greatly stretched down, this series shows. The small intestines vary greatly in length, 10 feet 6 inches to 25 feet 10 inches, averaging 19 feet 3 inches, the length having only slight effect on the nutrition, with a tendency to more fat the longer the intestine and vice versa.

The large intestines vary also, averaging 5 feet 3 inches, extremes 3 feet 8 inches to 8 feet 5 inches. When the stomach is low the large intestine is apt to be longer and the cecum large and pendulous, the greatest length being in the transverse colon and sigmoid. The total average length of the entire intestines is 24 feet 6 inches. A rather significant fact is that not only the hollow viscera are displaced, but even more often the solid, such as the liver, which was below the costal border in twenty cases.

51. **Acquired Hallux Valgus.**—Metcalf summarizes his paper as follows: Hallux valgus refers to an outward displacement of the big toe—largely from mechanical causes—with inward displacement of the first metatarsal bone and hypertrophy and erosion of its head. Bunions and hammer toes often accompany. The longitudinal arch may drop; the anterior arch is nearly sure to do so. Oftentimes symptoms are due primarily to these defects. By non-operative treatment, therefore, an effort has been made to hold the feet in approximately normal position; in non-aggravated cases this may be done by wearing proper shoes and plates. Other forms of treatment have proved of doubtful merit.

Advanced cases demand operation. Fifteen operations, many of them closely allied, have been devised. The operations fathered by Wilson and by Barker have not met with success. Better results have followed employment of the methods of Porter, Hueter and Mayo, remembering always that the two latter may subsequently require plates. Other operations

have not been tried, so that the value of tendon transplantation, removal of the sesamoids and like details cannot be fairly expounded. Syms' dictum is worth noting: Employ different procedures for different deformities. Always operate on the deformity, not on the bursa. Finally, the most acceptable incision, the question of drainage, of splinting, of shoes and other details of after-treatment should be carefully considered for the individual case.

54. **Tuberculosis in Aged.**—Stoll states his belief that pulmonary tuberculosis is not an uncommon disease in persons past 60 years of age. It is more prevalent than the mortality suggests as an acute pneumonia is often the ultimate cause of death. In persons in the latter decade of life the disease is chiefly characterized by its extreme chronicity and by periods of relatively good health. Many people contract tuberculosis each year from the intimate association with some elderly member of the household who has had a "stomach cough" or "catarrh" for "as long as he can remember." The examination of the sputum of elderly people for tubercle bacilli is a much neglected procedure. The recognition of the pulmonary lesion is often difficult as the typical physical signs are frequently marked by some other condition, notably asthma or emphysema. In these cases the key to the diagnosis will often be found in the interscapular space. The detection of bronchial gland enlargement in adults speaks for tuberculosis rather than chronic bronchitis or emphysema.

American Journal of Orthopedic Surgery, Philadelphia

August, X, No. 1, pp. 1-169

55. Treatment of Structural Scoliosis. A. H. Freiberg, Cincinnati.
56. Action of Extrinsic and Intrinsic Muscles of Foot from Anatomic and Mechanical Standpoint. L. T. Brown, Boston.
57. Structure and Mechanism of Human Joints in Health, Disease and Injuries. G. G. Davis, Philadelphia.
58. Roentgen-Ray Study of Gastro-Intestinal Findings in Multiple Arthritis. G. R. Elliott, New York.
59. Some Considerations on Pathology and Treatment of Toxic Arthritis. P. W. Nathan, New York.
60. Abdomen an Important Factor in Chronic Joint Affections. F. E. Peckham, Providence, R. I.
61. Static Joint Diseases, Their Etiology and Relation to Arthritis Deformans. G. Preiser, Hamburg.
62. Apparatus to Be Used in Application of Plaster Jackets and for Photographic Record of Scoliosis. A. O'Reilly, St. Louis.
63. Etiologic Studies in Osteoarthritis. L. A. O. Goddu, Boston.
64. Traction Spreader Device to Prevent Plantar Flexion of Foot. N. Allison, St. Louis.

Journal of Arkansas Medical Society, Little Rock

August, IX, No. 3, pp. 61-90

65. *Tumors of Urinary Bladder. E. S. Judd, Rochester, Minn.
66. *Diagnosis and Treatment of Pruritus. I. Dyer, New Orleans.
67. *What the General Practitioner Too Often Overlooks. W. Breathwit, Pine Bluff.

65. Abstracted in THE JOURNAL, June 29, p. 2048.

66. **Diagnosis and Treatment of Pruritus.**—There are no specifics for itching, says Dyer, but there are medications in particular diseases which may apply for general use, of course individualizing the case in hand. Arsenic is the prime treatment for the nervous basis of the disease, and its administration is largely corrective of the itching. The derivatives of wheat and oats may aid in these types and the tincture of avena sativa (wild oats) is of special usefulness, given in conjunction with the arsenic. Where there is no neuropathic cause or association, the arsenic not only does no good, but it may actually do harm by local over-stimulation. Strychnin serves excellently in the vasomotor disturbances with itching. Zinc phosphid acts similarly, and is of special service in chronic itching diseases. Cannabis indica, in the fluid extract, may be used every hour in five-drop doses; as soon as the acute itching is controlled, the dose may be reduced and the period of administration lengthened to every three or four hours. Chlorid of calcium is of service in senile pruritus and in all itching where there is any suggestion or evidence of lowered coagulability. Freshly prepared chlorid of calcium may be administered in 5 to 15 grain doses, well diluted and repeated every three or four hours. Antipyrin and salicylate of soda, used in combination, serve best in gouty subjects or in uric acid cases. The use of the sodium and potassium citrates, at the same time, materially aids in the treatment. Gelsemium, codein, veratrum viride, bromids, chloral hydrate and chloroform are among the antispasmodics which have good effect

in stopping the paroxysms of itching, but any and all of these may be relegated until the above named drugs have been first essayed. The too free use of morphin for itching should be condemned. With all cases of pruritus, mild laxatives, diuretics, mineral waters of alkaline sorts, diet restrictions and limitations by injunction, habits, etc., should be carefully weighed and considered where indicated.

The local treatment of pruritus is of considerable importance and needs to be suited to the particular case. General baths are of supreme service in the treatment of itching, and these should be taken as hot as can be comfortably borne. Such baths may be employed in all diseases or conditions in which itching is general. The baths may be plain or may carry such emollients as starch, marshmallow or bran (in bags), or alkalies may be added, such as carbonate of soda (3ss to 3i to 30 gallons of water), household ammonia (3i, 3ii to the 30 gallons), or sulphuret of potassium (3ii, 3i to the bath), the last named being especially indicated in all parasitic diseases, vegetable or animal. Wet dressings may be substituted for the general bath, when the itching is so localized as to permit of such. The dressings should be kept wet with saturated boracic acid solution, 1-5,000 to 1-10,000 mercuric chlorid solution, 1 per cent. phenol solution, 1-5,000 potassium permanganate solution, or 1 or 2 per cent. solutions of resorcin, in water always. Fixed dressings of coal tar made into a felt with superimposed cotton may be applied and left in place for days at a time. Even dry cotton may be firmly bound in place, when such a dressing can be so fixed that the patient cannot remove it easily.

Oily substances may be employed and the old-fashioned carron oil may be used, or camphor and chloral hydrate. Cocoa butter and coconut oil are excellent protective applications when the skin is dry. An oily substance of excellent antipruritic value in small areas may be derived by combining phenol, menthol, camphor and chloral hydrate, and this may be diluted with any of the simple oils. Itching of the anal area is frequently relieved by ergot, used either in ointment made with the fluid extract or in suppository with the solid extract. Intestinal parasites should be excluded or removed. Genital pruritis is often helped with weak resorcin solutions. The use of the high frequency spark over the sacral plexus is an excellent adjuvant for genital pruritus and a systematic general effluve will often aid when other remedial agents fail. All cases of pruritus should be studied as individual types, and the etiology should be determined when possible; then the way to cure will be easier.

67. Abstracted in THE JOURNAL, June 29, p. 2048.

Wisconsin Medical Journal, Milwaukee

August, XI, No. 3, pp. 71-102

- 68. Surgery of Stomach. W. D. Haggard, Nashville, Tenn.
- 69. Pellagra; Report of Four Cases Occurring in Milwaukee. O. H. Foerster, Milwaukee.
- 70. *Gonorrhea in Women; Special Reference to Prophylaxis and Sequelae. C. M. Echols, Milwaukee.
- 71. Painless Hematuria. H. L. Kretschmer, Chicago.

70. Abstracted in THE JOURNAL, June 22, p. 1969.

Medical Record, New York

August 31, LXXXII, No. 9, pp. 369-414

- 72. *Practical Method of Prophylactic Immunization Against Tuberculosis. K. Von Ruck, Asheville, N. C.
- 73. Modern Means of Investigating Mental Processes. W. J. M. A. Maloney, New York.
- 74. *Nasal Obstruction as Early Symptom of Cardiorenal Disease. W. M. Barton, Washington, D. C.
- 75. Unusual Conditions Simulating Appendicitis. H. W. Emsheimer, New York.
- 76. Treatment of Puerperal Eclampsia. R. E. Coughlin, Brooklyn.
- 77. Removal of Adenoids as Preventive Measure After Exposure to Measles. J. B. Greene, Asheville, N. C.

72. Published in THE JOURNAL, May 18, p. 1504.

74. Nasal Obstruction as Early Symptom of Cardiorenal Disease.—Nasal obstruction, in Barton's opinion, should be termed among the little incidents rather than accidents of Brightism. In a personal case it preceded any other symptom by several years, and was a rather prominent feature. Inquiry disclosed the fact that the patient had never had any of the symptoms mentioned under the expression of Dienlafoy, "*les petits accidents du Brightisme*" except the "*doigt mort*,"

and this sign was late in appearing since he did not feel it until the beginning of the acute onset of his disease.

As to the explanation or pathogeny of such a symptom as nasal obstruction regarded in the light of an early manifestation of cardiorenal disease, the most rational theory, he says, would seem to be that it is in some way due to insufficient urinary depuration; in other words, to slight or latent uremia, the so-called *petite urémie* of the French authors. On this hypothesis it might be assumed that in certain individuals in whom the erectile tissues of the nose are in a state of hypersusceptibility the accumulated products of metabolic disassimilation may give rise to a sufficient degree of irritation to produce swelling of the mucous membrane and consequent obstruction of the nose, either as a result of edema of the parts or as a result of vasomotor disturbances set up.

Barton's patient, a very intelligent man, has always been physically robust. He has been troubled with nasal obstruction for over twenty years. The difficulty in breathing through the nose was insidious in its onset, and did not follow any acute inflammatory condition. At first and for a long time it was not complete and he could breathe better at times than at others, and one nostril was usually worse than the other. He had no symptoms of catarrh. His work was all indoors and he was not exposed to draughts or cold. About fourteen years ago he noted some dyspnea if he mounted stairs rapidly.

Seven years ago the obstruction became so complete at times as to cause him great annoyance and he consulted a rhinologist, who proposed an operation to which he readily consented. The operation consisted in an excision of hypertrophic tissue from both nostrils. Immediately after the excision he was relieved of the symptom of obstruction and remained so for about a year or more, when he noticed it began to return and at the end of two years was as bad as before the operation. Barton saw the patient for the first time March 23, 1912. About two weeks previously he had been taken sick with terrific retching and coughing during the night, accompanied by expectoration of large amounts of thin, frothy, mucoid sputum. The retching was accompanied by such intense dyspnea that he was forced to sit up in bed to breathe. On account of the nasal obstruction he was forced to breathe largely through his mouth. He noted that his pulse was accelerated and believes that he had slight fever. The attack was accompanied by great diminution of urinary excretion, the color of which was a dark muddy brown. He attempted to treat himself, taking at first some dilute sulphuric acid, which seemed to aggravate his condition, following this with some lithium citrate, which appeared to lighten the color of the urine, but did not increase the quantity. The patient noted concomitantly that his legs, feet and hands were swollen, and that there was puffiness of the skin of the trunk and face, particularly the left side of the face, on which he was accustomed to lie. He also noted a disagreeable stinging pain over the region of the heart. All of the symptoms tending to become continuously aggravated, he decided to obtain some assistance.

Examination of the heart showed the apex beat in the sixth interspace to the left of the nipple line. The impulse was diffuse. There was considerable tremulous epigastric pulsation. The imprint of the stethoscope left a marked ring depression. There was no audible murmur. The first sound at the apex was muffled and faint. The second sound was audible at the apex and markedly accentuated at the base, particularly in the pulmonic area. Examination of the chest showed moist râles posteriorly and anteriorly. Percussion negative. The skin was pale and edematous everywhere. The left eye was blind from glaucoma and the vision in the right was much diminished from the same disease. An iridectomy had been performed on the right eye. Blood-pressure, 1035. Examination of the urine, which was scanty, showed albumin present in slight amount and casts mostly hyaline or partly granular. Specific gravity, 1.015; color dark; sediment slight.

The patient was put to bed on a milk diet and given infusion of digitalis, 3ii, every four hours. Immediately the symptoms amended. The urinary excretion increased in quantity to 5 or 6 pints in twenty-four hours, going down subsequently to 3 or 4. Albumin and casts diminished. The

anasarea rapidly disappeared. The orthopnea vanished, as also the retching, expectoration and precordial pain. The precordial distress kept up, however, until nitroglycerin was given, after which it immediately disappeared. The pulse frequency diminished about 10 beats per day per minute until it had come down from 130 to about 80.

But the fact which particularly attracted the patient's attention was that twenty-four hours after commencing the digitalis the nasal obstruction was relieved and in forty-eight hours it had completely disappeared.

Bulletin of American Academy of Medicine, Easton, Pa.

August, XIII, No. 4, pp. 165-268

78. Real Purpose of a Medical Practice Act. A. R. Craig, Chicago.
79. Method of Securing State Appropriations for Proper Segregation and Care of Feeble-minded. J. S. Neff, Philadelphia.
80. How Far Shall Public School System Care for Feeble-minded? A. W. Edson, New York.
81. Idem. J. H. Van Sickle, Springfield, Mass.
82. Idem. E. B. McCready, Pittsburgh.
83. Sterilization and Segregation. H. H. Goddard, Vineland, N. J.
84. Child Labor vs. Conservation of School Children. O. R. Lovejoy, New York.

New York Medical Journal

August 31, XCVI, No. 9, pp. 409-464

85. Cinematograph as Aid to Medical Education and Research. R. Matas, New Orleans.
86. *Wheat Bran. A. E. Gallant, New York.
87. *Blood Pressure in Pulmonary Tuberculosis. F. M. Pottenger, Monrovia, Cal.
88. Bubonic Plague. C. S. Braddock, New York.
89. Cutaneous Sporotrichosis. G. B. Foster and W. H. Thearle, Fort Leavenworth, Kan.
90. *Arthritis Deformans. H. M. Greene, Portland, Ore.
91. School Lunches. I. S. Wile, New York.
92. Salvarsan Therapy. H. H. Morton, New York.
93. Surgical Hemostasis. W. C. Borden, Washington, D. C.

86. **Wheat Bran.**—Coarse, raw bran being composed chiefly of indigestible, non-absorbable cellulose, Gallant says, takes up a large amount of water, swells and adds very materially to the debris and bulk in the intestine, thereby exciting active peristalsis, which rapidly moves the fecal column downward and outward, thereby overcoming fecal stasis, avoiding putrefaction and preventing resorption with its deadly toxemia.

When bran is ingested as a part of the daily regimen, the daily stool is made up of a soft, well formed, bulky column of feces with a notable absence of its former foul smelling effluvia. As time goes by the "liver spotted" skin clears up, dandruff and indigestion disappear, the anemia rapidly improves, the skin surface loses its dryness and becomes soft and of a healthier tint, and in some instances acne vulgaris has disappeared.

Of the methods of administering bran there is no end. In Gallant's experience the best results have been obtained by the use of coarse, unground, raw bran, stirred in a glassful of cold water and quickly gulped down, or mixed with cooked cereal, and eaten with milk and cream. Many, however, prefer to take it stirred in soup, purée, or bisque, broth or gruel. Children like it mixed with jelly, jam, marmalade, honey, maple or other syrup, and spread on bread or toast. It matters not how taken so long as it is taken and that once or twice daily. Bran taken in the form of graham bread, graham biscuits, graham pudding, graham soup, etc., if indulged in daily and in large quantities, is without doubt beneficial, and from a nutritional standpoint of value, but owing to its fineness in grinding it does not result in such bulky feces and loses much of its value in habitual constipation. When taken as raw bran the average patient requires one to two heaping tablespoonfuls daily; others do better if that quantity is increased to three or four tablespoonfuls. In some instances the laxative effect is at first quite manifest, but will subside in a day or two, or the dose may be reduced. In others it may be necessary to continue the usual castor oil or phenolphthalein laxative for a few days, until the habitual stool is established, when the drug must be discontinued. Bran taken just before going to bed will induce a slight inclination very soon after rising, and should result in an action before the morning bath. If taken at breakfast, a natural though mild alarm will be felt about noon, and this warning should always be promptly obeyed or the good effect will be lost.

Among the several hundred patients whom Gallant has taught the bran habit, there have been many who suffered with chronic diarrhea, alternating diarrhea and constipation, mucous colitis, enema constipation, constipation due to the use of castor oil, the saline waters, and other drugs whose secondary effect is an astringent one and results in relative constipation. For several years it has been his habit while patients are convalescing after operation to feed them a daily quota of bran, and teach them the value of this beneficent habit.

87. Abstracted in THE JOURNAL, Aug 3, p. 396.

90. **Arthritis Deformans.**—Greene reports the case of a man, aged 44 years, who began three years ago to have an arthritis in the right wrist. The condition gradually extended, involving all the joints of the body. The condition was accompanied by continual pains in the joints and muscles and through the neck and chest, so that the patient was unable to obtain comfortable sleep during the night, or rest during the day. He had lost 37 pounds in weight during the three years. Three weeks ago Greene made an examination and found all the joints of the extremities greatly enlarged and partly ankylosed. The movement of the jaw was so limited that he was not able to put his false teeth into his mouth. His right wrist was almost completely ankylosed and there was marked deformity in the hand.

He drew 5 c.c. of blood from the median vein with a hypodermic syringe. The blood was placed in an incubator and allowed to remain for twenty-four hours. The serum was then poured off and plated and placed in the incubator for another twenty-four hours. A number of colonies were visible. Examination showed two distinct organisms, a bacillus which was similar to the one described by Ballantyne, Wohlmann, and Bloxall, and a diplococcus, probably the same as Boynton and Payne had isolated from the synovial membranes in chronic arthritis.

A bacterin was prepared from these organisms and treatment was instituted on March 5. After two weeks, the man was able to sleep without disturbance during the night, and says his pain has entirely left him. The right wrist, which was apparently completely ankylosed, has markedly limbered up and the swelling has disappeared. The circumference has decreased three-fourths of an inch. He is able easily to insert his false teeth into his mouth. His appetite has returned and he gained 1 pound in weight in a week. The patient keeps steadily improving. Other patients whom Greene has under observation are also improving.

Ohio State Medical Journal, Columbus

August 15, VIII, No. 8, pp. 407-458

94. "Alimentary Respiration," etc. R. T. Woodyatt and E. A. Graham, Chicago.
95. Complications and Treatment of Face Presentations. A. J. Skeel, Cleveland.
96. Smith Operation for Extraction of Cataract. A. Timberman, Columbus.
97. Osteitis Deformans (Paget's Disease), Its Associated Mental Disturbances. C. W. Stone, Cleveland.
98. Rabies and Its Prevention. J. McI. Phillips, Columbus.

Lancet-Clinic, Cincinnati

August 17, CVIII, No. 7, pp. 165-192

99. Work of Cincinnati Association for Welfare of Blind and Its Attitude Toward Prevention of Blindness from Venereal Disease. L. Stricker, Cincinnati.
100. What Must Medical Examiner Do to Protect Interests of His Company, and How Does He Do It? W. S. Kendrick, Atlanta, Ga.
101. Ice Tongs Extension for Simple Fracture of Femur. J. Ransohoff, Cincinnati.
102. Value of Didactic Teaching. R. L. Thomas, Cincinnati.
103. Skin Tension and Air Bathing. P. W. Goldsberry, Warwick, Mass.
104. *Cardiac Syphilis with Special Reference to Aortic Aneurysm and Regurgitation, and Value of Wassermann Reaction in Determining Their Etiology and Treatment. R. H. Babcock, Chicago.
105. *Contraction of Catgut and Theory of Muscular Contraction. W. H. Strickman and M. H. Fischer, Cincinnati.

104. **Cardiac Syphilis.**—The purpose of Babcock's paper is to emphasize the etiologic importance of lues in mesaortitis and its two sequels, aortic regurgitation and aortic aneurysm. He says that one who is not doing special work along this line can hardly appreciate the great frequency of what is

known as the vascular type of aortic insufficiency. Its clinical findings are not essentially different from those of the rheumatic form, and its clinical recognition rests mainly on the age of the individual, the entire absence of a history of articular rheumatism or other acute infection likely to be followed by endocarditis, the stiffness perhaps of the accessible arteries and often a less pronounced degree of left ventricle hypertrophy as shown by the breadth and force of the apex beat. Not infrequently there is history of the accidental discovery of a cardiac murmur or of the onset of cardiac symptoms without any previous illness that could have in any way led to inflammation of the valves. The patient is generally at or past middle age and is more often a male, although this type of the disease may be met with in women of the same age. Whenever, therefore, such an adult presents himself with signs of aortic leakage and close inquiry fails to elicit a history of articular rheumatism in earlier years or of attacks of tonsillitis, Babcock at once suspects syphilis. In such cases when possible, and in persons in whom history of luetic infection is possible but not definite, he advises a Wassermann test and rarely fails to obtain consent after having explained the advantages therapeutically, at least, of knowing what the reaction is.

Of sixteen cases of aortic regurgitation of the vascular type, eleven were submitted to the Wassermann test with a positive reaction in all. Of the remaining five a history of chancre was admitted in four, while one was not questioned in regard to the possibility of lues and did not take a Wassermann. Fifteen of the sixteen cases accordingly could be attributed to syphilis, a percentage of 93.7. During the same period of time Babcock has seen ten cases of aortic aneurysm, the diagnosis in all being made by classical physical signs and confirmed by the skiagraph, in those giving rise to any doubt concerning the accuracy of diagnosis. Of these ten patients, five gave a positive Wassermann reaction, two admitted syphilis, two gave no history and were not submitted to a Wassermann, while one gave a negative reaction. In other words, in seven out of ten cases, syphilis was clearly the etiologic factor (70 per cent.).

105. Contraction of Catgut.—This paper attempts to contribute to the establishment of a colloid chemical theory of contraction in striated muscle. A series of experiments on the swelling and contraction of catgut is described, and it is pointed out how these phenomena are not only identical with the physical phenomena of contraction as observed in striated muscle, but how the chemical conditions determining both are also identical. A review is given of the work of those men who have contributed most to the establishment of a colloid chemical theory of contraction, and to this are appended some critical remarks.

West Virginia Medical Journal, Wheeling

August, VII, No. 2, pp. 35-70

106. Etiology, Pathology and Treatment of Rheumatism and Allied Conditions. W. J. Judy, Webster Springs.
107. Medical Legislation in West Virginia. G. D. Lind, Greenwood.
108. Prolonged Pregnancy. A. H. Wright, Toronto.
109. Prophylaxis in Aural Diseases and Their Complications. S. M. Smith, Philadelphia.

Journal-Lancet, Minneapolis

August 15, XXXII, No. 16, pp. 423-450

110. Short Visit to Some Hospitals in Germany, Austria, Switzerland and Holland. W. J. Mayo, Rochester, Minn.
111. Case of Osteitis Fibrosa Cystica. H. J. G. Koobs, Scotland, S. D.
112. Puerperal Infection. C. E. Spicer, Litchville, N. D.
113. Tuberculosis Among American Indians. F. H. Creamer, Dupree, S. D.
114. Conservation of Health. W. C. Chambers, Blue Earth, Minn.

Journal of Indiana State Medical Association, Fort Wayne

August 15, V, No. 8, pp. 335-366

115. Flat-Foot. B. P. Weaver, Ft. Wayne.
116. Value of Cystoscopy in Diagnosis of Hematuria. H. L. Kretschmer, Chicago.
117. Case of Probable Acute Poliomyelitis. C. C. DuBois, Warsaw.
118. Treatment of Raynaud's Disease by Hyperemia. B. V. Caffee, Terre Haute.

Virginia Medical Semi-Monthly, Richmond

August 23, XVII, No. 10, pp. 237-260

119. Vital Statistics. C. P. Wertenbaker, Norfolk.

120. Role of Psychotherapy in Pellagra. G. M. Niles, Atlanta, Ga.
121. Operations for Harelip and Cleft Palate. J. S. Horsley, Richmond.
122. Treatment of Syphilis. H. H. Hazen, Washington, D. C.
123. Physician and Lawyer. H. J. Booth, Columbus, O.
124. Sociologic Factor in Medical Progress. W. M. Barton, Washington, D. C.

Colorado Medicine, Denver

August, IX, No. 8, pp. 221-248

125. Headache as a Symptom: Its Mechanism and Significance. E. Jackson, Denver.
126. Necessity of Knowledge of Psychology in Practice of Medicine. E. J. A. Rogers, Denver.
127. Importance of Accurate Refraction. W. H. Crisp, Denver.
128. Have We a Specific for Epidemic Cerebrospinal Meningitis? J. W. Ames, Denver.
129. Heat and Its Use in Pelvic Inflammation. D. S. Elder, Denver.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Annals of Tropical Medicine and Parasitology, London

July VI, No. 2, pp. 131-300

1. Measurement of Trypanosoma Rhodesiense. J. W. W. Stephens and H. B. Fantham.
2. Microsporidiosis, a Protozoal Disease of Bees due to Nosema Apis, and Popularly Known as Isle of Wight Disease. H. B. Fantham and A. Porter.
3. Morphology and Life History of Nosema Apis and Significance of Its Various Stages in So-Called "Isle of Wight" Disease in Bees (Microsporidiosis). H. B. Fantham and A. Porter.
4. Dissemination of Nosema Apis. H. B. Fantham and A. Porter.
5. *Variations in Number of Leukocytes and Crescents in Malaria. D. Thomson.
6. *Destruction of Crescents: Conclusions Regarding Prevention of Malaria by Administration of Quinin. D. Thomson.
7. Hemolysis in Malarial Fever. G. C. Simpson.
8. Anti-Neuritic Bases of Vegetable Origin in Relationship to Beriberi, with Method of Isolation of Torulin, Antineuritic Base of Yeast. E. S. Edie, W. H. Evans, B. Moore, G. C. Simpson and A. Webster.
9. Morphology and Biology of Prowazekia Urinaria (Bodo Urinaria, Hassall). J. A. Sinton.
10. Transmission of Human Trypanosomes by Glossina morsitans. A. Kinghorn and W. Yorke.
11. Measurements of a Thousand Examples of a Short Form of Trypanosome from a Double Infection. B. Blacklock.
12. Leishmaniasis and Babesiosis in Yucatan. H. Seidelin.

5. Number of Leukocytes and Crescents in Malaria.—In order to support his belief that a large number of malarial parasites on sporulating cause a leukopenia, whereas a small number on sporulating cause a leukocytosis, Thomson has tried the effect of hypodermic injections of dead malarial parasites on the leukocytes on twelve occasions. Having ascertained the number of parasites per c.mm. of blood in a case of malaria during a paroxysm, he drew off several cubic centimeters of blood from a vein into an equal volume of citrate solution in a sterile syringe. This was transferred to a sterile vessel and phenol added so as to make a 1 per cent. strength. This was left in the cold for a few days, so as to ensure the death of the parasites. By injecting hypodermically a given volume of this material into a person, one was able to watch the effect on the leukocytes of a given number of dead parasites. A leukocyte count was made immediately before the injection, and two to three more counts made at half-hour intervals afterward.

In three of these twelve experiments Thomson injected three, four and five millions of malignant tertian parasites, respectively, and got a slight increase in the number of leukocytes in one-half to one hour afterward. In three more he injected doses of thirty to forty millions, and obtained a slight decrease in the number of leukocytes. On five occasions he injected from ten to twenty millions, and obtained a marked increase of leukocytes in three of these in one-half to one hour after the injection. The remaining experiment was an injection of five million benign tertian parasites, taken during a rigor. This resulted in a slight increase of leukocytes in half an hour. It would therefore appear that it requires an injection of ten to twenty million malignant tertian parasites to cause a leukocytosis, whereas numbers from thirty to forty million and upward cause a leukopenic effect (as in a malarial paroxysm). On one occasion the latter number caused a slight rigor, but no increase of temperature.

6. **Destruction of Crescents.**—The "Ideal Method A" proposed by Thomson is that every adult person in the population (children in proportion according to age) should take twenty grains of quinin daily and simultaneously for a period of three weeks, quarterly, i. e., four times a year. This amounts to 1,680 grains per adult per annum, if well during the year, and probably 1,800 grains, if ill at some period in the year. The administration of quinin in doses of 20 grains daily for three weeks is almost certain to destroy both the asexual and sexual parasites. After this period, the person will be non-infective to mosquitoes, and freed from a tendency to relapse, four times a year. Infective mosquitoes must necessarily become much fewer in number. The amount of quinin taken is less in the end, and none is taken during nine months of the year. After the third day the majority of people feel very little inconvenience when taking 20 grains of quinin daily. Thomson has satisfied himself on this point over and over again with regard to adult males, while in hospital and doing light indoor work.

As an alternative to the above, Thomson puts forward "Ideal Method B," which embodies the same scientific principles as "A," but which is more scientific and less tyrannical in its administration. This method B differs from A in that a quarterly census of the blood of the population would be taken before administering the quarterly quinin. Only those who had parasites in their blood would require to take the three weeks' course, and those with crescents would, if possible, be isolated in mosquito-proof hospitals till non-infective. Further, immigrants would not be allowed to enter the area until their blood had been examined and pronounced non-infective. Infective immigrants would require the three weeks' period of treatment, with isolation, before being admitted to the population.

British Medical Journal, London

August 17, 11, No. 2694, pp. 345-404

- 13 Spinal Anesthesia by Stovain. F. C. Madden.
- 14 Complications Following Administration of Hedronal. R. A. Veale.
- 15 Congenital Syphilitic Deafness Treated by Salvarsan. G. N. Biggs.
- 16 Local Application of Salvarsan in Chronic Superficial Glossitis. A. Allport.
- 17 *Acute Formaldehyd Poisoning. J. Watt.
- 18 Scheme for Medical Benefit. L. J. Pieton.
- 19 Reform of Hospital Out-Patient Departments. A. S. Parkinson.
- 20 Children and Dental Diseases. R. J. E. Young and J. S. Wallace.
- 21 Isolation in Scarlet Fever. C. H. Phillips.
- 22 Visual Defects in Children. A. A. Bradburne.
- 23 Administrative Measures Consequent on Compulsory Notification of Phthisis. J. C. McVail and J. Niven.
- 24 Effects of Intra Migration on National Health. J. S. Mackintosh.
- 25 Chemical Effects Produced by Radiations from Active Matter. E. Rutherford.
- 26 Action of Radium and Roentgen Rays on Malignant Growths. E. H. Shaw and N. S. Finzi.
- 27 Causes of Failure of Roentgen-Ray Treatment in Deep-Seated Cancer. F. Hearnman-Johnson.
- 28 Standardization of Radium Dosage. E. H. Howlett.
- 29 Therapy of Radio-Oxygen Bath. W. Armstrong.

17. **Acute Formaldehyd Poisoning.**—Death in Watt's case was due to swallowing a quantity, not exceeding 1 ounce, of commercial formalin. There seems to have been considerable variation in the symptoms, due probably in part to the dosage in other cited cases. Here the points of interest are the tendency to vertigo, the unconsciousness, and the greater implication of the respiratory than the circulatory system, all of which occur in most of the cases quoted. The predominance of cerebral symptoms, leading to early death, gave little opportunity for the development of signs of irritation of the kidneys and the alimentary canal, apart from the intense pain in the latter and the initial vomiting. This case confirms the deduction to be drawn from the others that formaldehyd is really a potent poison, probably differing little in degree of toxicity from phenol.

Lancet, London

August 17, 11, No. 4642, pp. 425-494

- 30 Importance of Early Functional Treatment in Cases of Contusions and Sprains of Back. F. Shuffelbotham.
- 31 Epithelial Grafting as Means of Effecting Sure and Rapid Healing of Cavity Left by Complete Mastoid Operation. C. A. Ballance.

- 32 *Operative Treatment (Lane) of Simple Fracture of Long Bones in Children. H. H. Sampson.
- 33 *New Method of Demonstrating Presence of Bacillus Coli in Sewage-Polluted Water. G. C. Purvis.
- 34 *Etiology of Appendicitis as Result of Blood Infection. With Particular Reference to Tonsils as Primary Seat of Infection. F. J. Poynton.

32. **Simple Fracture of Long Bones in Children.**—Of simple fracture, forty-six cases have been subjected to reexamination by Sampson; of these cases forty-two had been treated by open operation. Thirty-four cases of recent fracture submitted to open operation give—thirty perfect anatomic and functional results; three perfect functional, yet imperfect anatomic results; one imperfect anatomic and functional result. Seven cases of malunited fracture submitted to open operation give—three perfect anatomic and functional results; one perfect functional but imperfect anatomic result; three imperfect anatomic and functional results. One case of ununited fracture submitted to open operation gives—one imperfect anatomic and functional result. Four of the imperfect cases have such slight defects that function is in no way impaired. Whereas recent fractures give perfect results in over 88 per cent. of the cases, malunited and ununited fractures give a perfect result in only 37 per cent.

This, Sampson regards as being a strong argument in favor of the adoption of early operative measures as a routine procedure, because if resorted to after malunion has taken place, the chances of a perfect result being obtained are greatly diminished. Perfect function is present in 97 per cent. of recent fractures and in 50 per cent. of malunited and ununited fractures. Sixty patients have been treated by the application of metal plates; thirty-five of these patients have been reexamined. Out of thirty-one recent cases, twenty-seven show perfect results, three show perfect functional results, and one has slight impairment of supination of the forearm and has been classed as an imperfect result. Three malunited cases show a perfect result in two instances and a perfect functional result in the third. One ununited case shows a very unsatisfactory result, but no screws could be used, and an attempt was made to fix the plate by means of catgut. The plate was subsequently removed from the last case after a period of three months. The plate was also removed from one other case two and a half months after the operation. In one case the plate was broken while the patient was being taken to the Roentgen-ray room; this fracture was replated a week later. In two cases of malunited fracture of the femur the original plates were removed and fresh ones applied when the deformity had been more fully corrected. With the exception of the ununited fracture the plates were found to be firmly fixed in every instance, and it was necessary to unscrew in order to remove them.

After a sojourn of some months in the tissues a steel plate becomes discolored from oxidation, but no corrosion takes place. On those occasions when, after a considerable lapse of time, it was found necessary to remove the plate, the latter was found in every case to be firmly embedded in the bone.

It has been stated that rarefying osteitis occurs around the screws, so that in time they become quite loose. Rarefying osteitis has never been seen in any case of Mr. Lane's at the hospital for sick children. It has been mentioned that lengthening of the limb occurs in a number of cases after a plate has been applied. Slight lengthening was found at the reexamination of the majority of cases of fracture of the shaft of the tibia and several cases of fractured femur. This lengthening was found at varying periods after the operation, and was just as frequent at the end of a few months as after the lapse of several years. The age of the child does not seem to have any influence. It is difficult to see how the plate when situated on the shaft of a bone could affect its growth. It seems probable that the lengthening in these cases has either been present since the operation, and corresponds to the space intervening between the ends of the fragments, or has occurred during the postoperative immobilization. The lengthening is more noticeable in the tibia, because that bone lends itself to such accurate measurement.

33. **Bacillus Coli in Sewage-Polluted Water.**—Purvis' method consists in adding salicylate of soda (in 1 per cent.

strength) to the nutrient medium, e. g., agar, and "plating" in the usual way in Petri dishes, then exposing the plates (after the medium has set) to the air for such time as may be deemed necessary. Take 100 c.c. of ordinary nutrient agar; this will require 1 gm. of salicylate of soda, which will give 20 tubes for plating, each tube containing 5 c.c., or 14 tubes each containing 7 c.c. and a little to spare. It will be found on exposing the plates, or a single plate, to the air and incubating at 37 C. that no bacterial colonies will have appeared, but only molds and torulae. If nutrient gelatin be used for "plating," then the incubation will have to be carried out at a lower temperature (22 C.), which is a better temperature for molds, but gelatin is unsuitable as a medium in the tropics, or even in subtropical climates.

The Method of Demonstrating Bacillus coli in Polluted Water.

—To 100 c.c. of double strength nutrient broth (10 Eyre) there is added 1 gram of salicylate of soda; the broth is then put into tubes (varying in size) from 25 c.c. to 1 c.c. in each tube, and all the tubes are sterilized in the usual way and allowed to cool; to each tube is then added a quantity of the suspected water equal in volume to the broth contained in it, and the tubes (which now contain salicylate of soda equivalent to 0.5 per cent.) are incubated for from twenty-four to forty-eight hours, at a temperature of 42 C. If turbidity of the broth results *B. coli* may be suspected and its identity will have to be proved by microscopic examination and by biochemical (e. g., sugar fermentation) tests. The only bacillus which is likely to grow along with *coli* is *subtilis* and they can be separated from each other, if necessary, by "plating." If incubation of the tubes be carried out at a lower temperature (37 C.), which Purvis does not recommend, then *Bacillus proteus* (*proteus vulgaris*) is also likely to grow far more vigorously than either *subtilis* or *coli*. *Bacillus typhosus* (laboratory cultures) is completely inhibited by 0.25 per cent. of sodium salicylate and even by 0.2 per cent., and does not grow particularly well even in a 0.1 per cent. salicylate medium.

34. Bacterial Origin of Appendicitis.—A girl, aged 15 years, was suffering from a first attack of appendicitis. The illness was a very definite, but not unusually severe one, and the diagnosis was particularly easy because in addition to the ordinary signs of the disease the enlarged and tender appendix could be easily felt through the abdominal wall. The duration of the attack was forty-eight hours. The right tonsil was inflamed, and in some of the crypts a follicular deposit was evident. No complaint of a sore throat had been made by the patient, who was no doubt suffering far more from abdominal pain. A large and swollen appendix covered with fibrinoplastic exudation was removed. There was neither gangrene nor perforation, and there was no concretion. The patient made an uninterrupted recovery. There was no previous history of any serious illness.

While under the anesthetic a culture was taken from the right tonsil, and the appendix was placed in a sterile tube. (a) The bouillon culture from the throat showed mainly strepto-diplococci, but also a few staphylococci and an occasional bacillus. There was no difficulty in isolating the diplococcus from the culture. (b) Cultures from the appendix made by smearing the exudate on agar showed mainly the *Bacillus coli*, but also some colonies of strepto-diplococci. (c) Cultures from the sanious fluid which had exuded from the appendix after it had remained a few hours in the sterile tube at room temperature, and which had been then withdrawn and incubated in a Pasteur pipette, gave a pure culture of strepto-diplococci. (d) Some of the sanious fluid inoculated on agar and into bouillon showed strepto-diplococci, but a predominance of the *Bacillus coli*. The diplococci from the throat and from the sanious fluid appeared morphologically and in cultural characters identical.

Experimental Results With the Culture From the Throat.—The diplococcus produced arthritis with the usual accompanying symptoms in the rabbits intravenously inoculated and was again recovered in pure culture from the arthritis exudations. These investigations are being continued.

Experimental Results With Cultures From the Sanious Fluid.

—Two groups of investigations were made: 1. Six adult rabbits were inoculated intravenously with subcultures in bouillon with negative result. This loss of virulence in bouillon is a frequent event in the cultivation of micrococci of the streptococcal group. 2. Six young rabbits of six weeks of age were inoculated from subcultures on blood-agar. Of these animals the first suffered from malaise and diarrhea for three days and on the fourth developed arthritis of the right shoulder-joint. It was killed on the eighth day. The diplococcus was recovered from the inflamed joint. The spleen was small and the other organs were healthy. The second animal developed arthritis of both knee joints on the third day with fever and malaise. It was killed on the fifth day. The post-mortem examination showed arthritis and appendicitis. The appendix showed the middle third as the injured part, and there were necrotic areas in the deeper layers of the wall of the appendix. The diplococcus was recovered in pure culture from the joints. The third rabbit developed arthritis of the left knee-joint on the third day and was killed on the fifth; save for the arthritis it was apparently healthy. The fourth rabbit, after transient malaise, recovered without any local lesion. The fifth rabbit developed arthritis of the right knee-joint on the third day. The sixth rabbit developed multiple arthritis and was killed on the fifth day. Thus five out of the six rabbits developed arthritis and one of these in addition appendicitis.

Sections of the appendix showed an acute diffuse change mainly affecting the submucous and mucous coats and the serous covering of the bowel. The submucous and mucous coats were in a state of acute necrosis, the result of minute hemorrhages from and thrombosis of the vessels in the submucosa. A fibrino-cellular exudation infiltrated the submucous coat, in which the lymphoid tissue was almost completely destroyed. The mucous membrane was infiltrated with inflammatory cells, and there was almost complete destruction of its epithelial covering and of Lieberkuhn's follicles, only a slight trace of the deeper crypts being visible. The muscular coat was also infiltrated with inflammatory cells, and the greatly swollen serous layer was edematous and infiltrated with fibrino-cellular exudation. Diplococci were demonstrated in the submucous and mucous membranes, but were most numerous and easily demonstrated in the serous membrane. The *Bacillus coli* had invaded the necrotic tissue and serous covering of the bowel.

Australasian Medical Gazette, Sydney

June 22, XXXI, No. 25, pp. 649-672

- 35 Actinomycosis. F. W. West.
- 36 Anaphylaxis. A. P. Gillespie.
- 37 Snow Blindness in Australian Alps. H. F. Shorney.
- 38 Case of Acute Atrophy of Liver. H. J. Clayton.

June 29, XXXI, No. 26, pp. 673-692

- 39 Knee-Joint Problems. R. H. Russell.
- 40 Gastroenteritis. L. E. Ellis.
- 41 Stone in Ureter. A. J. Park.
- 42 Naso-Pharyngeal Fibroma. F. Tratman.

July 6, XXXII, No. 1, pp. 1-24

- 43 Color-Sense in Relation to Emotions. G. H. Taylor.
- 44 Three Cases of Ectopic Gestation. R. G. Scott.
- 45 Complete Inversion of Uterus. F. Pain.
- 46 Case of Trephining in Epilepsy. R. M. Curtis.

July 13, XXXII, No. 2, pp. 25-52

- 47 Infantile Mortality. F. S. Home.
- 48 Case of Malignant Endocarditis. P. E. W. Smith.
- 49 Case of Double Ectopic Gestation. L. B. Lancaster and G. Moncrieff.

July 20, XXXII, No. 3, pp. 53-80

- 50 Two Hundred Consecutive Celiotomies. A. J. Nyulasy.
- 51 Rapid Labor in Albuminuria. G. H. Selwood.
- 52 Bilateral Tubal Pregnancy. R. Worrall.
- 53 Hemorrhage from a Corpus Luteum Cyst. F. Adams.
- 54 Unusual Absence of Menstruation. L. M. McKillopp.

Dublin Journal of Medical Science

August, III, No. 488, pp. 81-160

- 55 Daniel John Cunningham. J. Little.
- 56 *Pericardial Effusion. W. Boxwell.
- 57 Case of Henoch's Purpura: With Symptoms and Treatment of Disease. M. S. Moore.
- 58 Clinical Report of Rotunda Hospital for One Year, Nov. 7, 1910, to Oct. 31, 1911. H. Jellett, B. A. H. Solomons and D. G. Madill.
- 59 Pathologic Report of Rotunda Hospital for One Year, Nov. 7, 1910, to Oct. 31, 1911. R. J. Rowlette.

56. **Pericardial Effusion.**—Boxwell maintains that a pericardial effusion requiring any surgical interference at all ought to be treated by resection of a rib cartilage, and free opening of the sac, just as one would open the dura mater to drain a cerebral abscess. It is the only safe and satisfactory method, and the very presence of a large effusion makes the operation easier than it would be found in a normal subject. This is the line of treatment universally advocated for effusions previously ascertained by puncture to be purulent. Boxwell's point is that free opening should be the exploratory, and at the same time the curative, operation for all cases of large effusion, be the character of the effusion what it may. A short account of two cases, with allusions to two more, illustrate his reasons for adopting this surgical attitude.

Archives des Maladies du Cœur, etc. Paris

April, I, No. 4, pp. 225-304

- 60 The Blood Pressure During Digestion. (La tension artérielle pendant la digestion.) M. Loeper.
61 Alternating Pulse After an Extra Systole. (Du rythme alternatif post-extrasystolique. Sa Valeur pronostique.) J. Heitz.
62 Case of Aleukemic Chloromatous Macrolymphocytomatosis. (Étude clinique, hématologique et anatomique d'un cas de chlorome atypique.) Pissavy and C. Richet, Jr.

Archiv für Gynaekologie, Berlin

XCVII, No. 2, pp. 185-328. Last Indexed July 20, p. 230

- 63 *Importance of the Loss of Blood with Gynecologic Operations. (Bedeutung des Blutverlustes bei gynäkologischen Operationen.) F. Weitzel.
64 Connection Between Hypophysis Cerebri and the Genital Organs. (Beziehungen zwischen Hypophysis und Genitale.) B. Aschner.
65 Rupture of Old Cesarean Section Cicatrix. (Uterusruptur in der alten Kaiserschnittnarbe.) R. Jolly.
66 Sarcomatous Degeneration of Uterine Myoma. (Zur Frage der sarkomatösen Entartung der Gebärmuttermyome und des Zusammentreffens mit dem Corpuscarcinom, nebst Beschreibung eines Falles von Carcinosarkom des Uterus.) P. von Kubinyi.
67 Corkscrew Treatment of Obstetric Indentation of the Skull. (Zur chirurgischen Behandlung der Schädelimpressionen bei Neugeborenen.) T. Sofi.
68 *Sarcomatous Degeneration of Uterine Myomas; Seven Cases. (Häufigkeit sarkomatöser Veränderungen in Myomen.) Warnekros.
69 Suture of the Levator Ani. (Zur Anatomie und Technik der Levator-Fasciennaht.) E. Martin.

63. **Importance of Loss of Blood in Operations.**—Weitzel expatiates on the great importance of the loss of much blood in gynecologic operations on debilitated patients. By soaking all the cloths, sheets, sponges, etc., used in an operation and comparing the hemoglobin percentage of the water with the percentage of the patient's blood taken before and after the operation, it is possible to estimate the amount of blood she has lost. (Rihsamen is said to be the pioneer in this line; his work was summarized in THE JOURNAL, Feb. 10, 1912, p. 446.) Weitzel has applied the method in forty-one cases recently and tabulates the findings. They show that the nearer a vaginal operation to the menstrual period, the larger the loss of blood, as also in women farther from the menopause. During a pregnancy the hyperemia in the pelvic organs is most intense. The loss of blood in removing an ovarian tumor does not seem to be influenced by the size of the tumor; the technique in regard to the vessels is the same for all sizes. The loss of blood increases proportional to the vascularization of the peritonitic adhesions. With abdominal operations, parenchymatous hemorrhage over a large area seldom occurs, such as may be unavoidable with a vaginal operation. The blood-pressure does not seem to influence the hemorrhage at a laparotomy. A stout woman with uterine cancer generally loses more blood than a thin patient during a Freund-Wertheim operation, and the great loss of blood renders the prognosis graver. One cachectic woman succumbed to loss of 1,669 c.c. of blood during this operation, while a vigorous woman suffered no serious inconvenience from loss of 1,988 c.c.

68. **Sarcomatous Degeneration of Myomas.**—Warnekros found microscopic evidence of sarcomatous degeneration in seven of his last series of seventy-eight cases of uterine myoma; that is, in 10 per cent. He thinks that this finding is an argument against roentgenotherapy of myomas, as the seven women would probably all have been lost if the uteri had not been promptly removed. In two other cases there was malignant recurrence in six months after removal of uterine

myomas in which even the microscope failed to show any cancerous tendency. Bumm has reported four cases of sarcoma recurrence in a series of 200 operative myoma cases. Warnekros urges total hysterectomy for all myomas the least suspicious of cancer. A patient recently returned with symptoms two and a half years after supravaginal amputation for myoma, and a pedunculated sarcoma was found on the stump of the cervix.

Jahrbuch für Kinderheilkunde, Berlin

July, LXXVII, No. 1, pp. 1-124

- 70 *Microscopic Findings in Two Cases of Congenital Spastic Paralysis. (Zur pathologischen Anatomie der zerebralen Diplegia im Kindesalter.) S. Miura.
71 Osteopsathyrosis. L. Scholz.
72 Defective Bone Growth. (Zur Kenntnis der Osteogenesis imperfecta—Vrolik.) R. Preiswerk.
73 Six Cases of Progressive Familial Amaurotic Idiocy in Children. H. Kowarski.

Supplementary Number, pp. 1-222

- 74 Scarlet Fever. Incubation; Relapses; Traumatic Origin, Etc. (Weitere Fragen im Scharlachproblem.) F. von Szontagh.
75 Metabolism in Normal Boys. (Zur Physiologie des Stoffwechsels im Knabenalter mit bes. Berücksichtigung einiger Mineralstoffe.) O. Herbst.
76 Fifty Cases of Direct Laryngoscopy and Tracheobronchoscopy in Children. M. Pannz.
77 *Efficacy of Antitoxin in Diphtheria Affecting the Nervous System. (Wirksamkeit des Diphtherieserums bei Beteiligung des Nervensystems bei der Erkrankung.) H. Kleinschmidt.
78 *Participation of the Adrenals in Acute Infectious Diseases. (Zur Frage der Rolle der Nebennieren in der Pathologie und Therapie der Diphtherie und anderen Infektionskrankheiten.) W. Moltchanoff.

70. **Congenital Spastic Paralysis.**—Miura calls attention to hip-joint disease in the two cases he reports. He is convinced that this is more than a mere coincidence. The special feature of the microscopic findings in both cases was the primary developmental defect in the cells of the motor zone in the brain, a hypoplasia of the ganglion cells. The pyramidal tracts were apparently intact in the second case.

77. **Important Effect of Diphtheria Antitoxin on the Nervous System in Diphtheria.**—Kleinschmidt speaks of the well known affinity of the diphtheria toxin for the nervous system, and discusses the action of antitoxin in the cases in which the nervous system has been affected. He performed laboratory experiments with guinea-pigs' brains and concluded from the results observed that there can be no question that the antitoxin does actually neutralize the toxin that has already entered into combination with the nerve cells. This action, however, grows less the longer the interval since the infection. This teaches that diphtheria antitoxin should be injected early in such quantities and in such a manner as to bring the excess of antitoxin into direct contact with the nerve cells affected. Doses as high as 10,000 units three or four times a day should be given. The intravenous or lumbar spinal method is best. To avoid anaphylactic reactions, the serum should be injected slowly, and Neufeld advises subcutaneous injection of a small dose before each intravenous injection. Nartowski and F. Meyer, from their clinical experience, have come to the same conclusions. H. Meyer and Ransom disagree with these conclusions, but Babonneix performed similar experiments with like results. Kleinschmidt gives tables showing in detail the findings in his experiments. They testify anew to the fact that diphtheria toxin taken up recently by the brain cells can be drawn out of them by antitoxin and by this alone. Of course this can be effectually done only when antitoxin is present in amounts sufficient to do the work properly. The aim should be to inject the antitoxin immediately and in sufficient amounts to ensure intimate contact between the antitoxin and the nerve cells.

78. **The Part Played by the Adrenals in Acute Infectious Diseases.**—Moltchanoff made post mortem examination of the adrenal glands in forty-two children, including twenty-nine cases of diphtheria and six of scarlet fever. He also performed a series of experiments on guinea-pigs, injecting them with diphtheria toxin and epinephrin. He describes the findings in detail, all testifying to the important share of the adrenals, especially in diphtheria, their rôle in this disease being a very complex one; they help to protect the organism against the diphtheria poison, but just how is not known. At

first their functional activity is increased, but this soon exhausts the adrenal cells and atrophy follows. The resulting acute functional insufficiency of the adrenals causes serious symptoms and sometimes the patients die from this alone. Epinephrin at this stage supplies the lacking internal secretion of the adrenals, and thus is a very effectual means for restoring the tone of the cardiovascular system. He urges that it should be more extensively used in diphtheria and especially early in the disease as a prophylactic measure before the heart weakness manifests itself.

Monatsschrift für Geburtshilfe und Gynäkologie, Berlin

July, XXVI, No. 1, pp. 1-140

- 79 Course of Pregnancy and Childbirth After Extraperitoneal Cesarean Section; Two Cases. (Zur Frage über den Verlauf der Schwangerschaft und Geburt nach extraperitonealem Kaiserschnitt, nebst einigen Bemerkungen zur Sterilisation der Frau.) L. G. Litschkuss.
- 80 Artificial Premature Delivery with Contracted Pelvis. (Ueber künstliche Frühgeburt bei Beckenge.) V. Bagger-Jørgensen.
- 81 Vaginal Cesarean Section for Rapid Termination of Delivery or Pregnancy. (Die vaginale Sectio caesarea zur raschen Beendigung der Geburt oder Unterbrechung der Schwangerschaft.) S. S. Cholmogoroff.
- 82 *Periodical Pains in Women. (Ueber periodische Schmerzen bei Frauen. Simpsonsche Schmerzen.) G. Snegireff.
- 83 Technique for Gynecologic Roentgenotherapy. (Zur Technik der gyn. Roentgenbestrahlungen.) Albers-Schönberg.
- 84 Mixed Anesthesia in Gynecology. (Ueber Versuche mit neuen Narkose-Arten in der Gynäkologie.) H. Schlimpert.

82. **Diagnostic Significance of Recurring Intermittent Pains in Women.**—Snegireff reviews the features which distinguish the daily intermittent paroxysms of pain liable to accompany cancer of the body of the uterus. Retained fluids, a calcified myoma or a cancer may all act as a foreign body in the uterus and induce paroxysms of pain of a periodical character. When the pain is due to an inflammatory process it generally begins with an acute onset and then gradually declines, while in the other cases the pain gradually climbs up to its acme. The inflammatory pains are also accompanied by fever, chilliness and sweats, lacking in the other cases, and application of cold relieves the inflammation pain while cold aggravates the pain with cancer and only heat relieves. With the inflammatory pains, further, the amount of vaginal discharge has no influence on the pain and more or less painfulness persists between the paroxysms. With these typical intermittent pains of cancer the intervals are free from pain and the recurrences are more regular. He reports the case of a woman of 47 who noted these recurring paroxysms of pain after riding in the street cars; the paroxysms lasted an hour or so and then subsided spontaneously. After four months they increased in intensity and duration and occurred daily and finally both day and night; they were always most severe during the menstrual periods. By the seventh month she began to lose weight and in another month or so to vomit. A gynecologist then consulted diagnosed hemorrhagic endometritis and a tumor in the uterus which proved inoperable cancer. The patient had noticed by the fourth month an odorless, reddish vaginal discharge every evening about 6, and that this discharge was most abundant on the days free from pain and scanty on the days with paroxysms. The retention of this discharge explained the pains and their periodicity. In another case similar intermittent pains were caused by an ordinary uterine fibromyoma as a foreign body which the uterus was trying to expel. In conclusion a case is reported in which both forms of intermittent pains were combined, the patient having a fibrous polyp and bilateral pyosalpingitis.

Zeitschrift für Geburtshilfe und Gynäkologie, Stuttgart

LXX., No. 3, pp. 727-950. Last indexed July 27, p. 316

- 85 Nervous and Mental Disturbances Connected with Child-Bearing. (Ueber Generationspsychosen und den Einfluss der Generationsperiode auf schon bestehende psychische und neurologische Krankheiten.) J. L. B. Engelhard.
- 86 Electric Irritability of the Uterus Musculature. (Experimentelle Untersuchungen über die elektrische Reizbarkeit der Uterusmuskulatur.) W. Rübsamen and J. Burakoff.
- 87 Rupture of Old Cesarean Section Scar. (Ruptur des graviden Uterus in einer alten Kaiserschnittnarbe.) O. Fischer.
- 88 Etiology of Pyosalpinx. T. Heynemann.
- 89 Purulent Meningitis in a New-Born Child. (Fall von Meningitis purulenta beim Neugeborenen infolge rechtseitiger eitriger Mittelohrentzündung.) H. Bonhoff and P. Esch.
- 90 Adenomyoma in a Laparotomy Scar. (Ein Adenomyom in einer Laparotomienarbe nebst Bemerkungen zur Genese dieser Geschwulstbildung.) R. Klages.

Brazil-Medico, Rio de Janeiro

June 15, XXVI, No. 23, pp. 229-238

- 91 Abscess in the Spleen. (Abscesso do baço.) F. Luz.
- 92 Coffee and Alcoholism in Russia. A. B. de Mello.
July 1, No. 25, pp. 251-260
- 93 The Brazilian Electric and the Reflex Method of Treating Aneurysm of the Aorta. (Valor da reflexo-terapia applicada ao tratamento dos aneurismas da aorta.) A. de Freitas.

Revista de Medicina y Cirugia, Havana

July 25, XVI, No. 14, pp. 391-416

- 94 Hygiene of the Streets. (Peligros higienicos en las calles.) L. M. Cowley.
- 95 Science and Superstition. H. R. Perez-Vento.

Semana Medica, Buenos Aires

June 20, XIX, No. 25, pp. 1137-1184

- 96 The Proteids of Normal Blood Serum and Its Refractometric Index. C. B. Udaondo.
- 97 Dislocation of the Clavicle. (Luxaciones de la clavícula.) L. Bard.

Bulletin de l'Académie de Médecine, Paris

July 2, LXXVI, No. 27, pp. 1-16

- 98 *Wine, Cider and Gout. Motais.
July 9, No. 28, pp. 17-52
- 99 Culture of the Spinal Ganglia of Mammalia in Vitro by Carrel's Method. G. Marinesco.
July 16, No. 29, pp. 53-75
- 100 *Cholesterin Content of Syphilitic Blood Serum. E. Gaucher. Paris and Desmoulière.
July 23, No. 30, pp. 76-113
- 101 *Growth and Degeneration of Nerves in Vitro. G. Marinesco and J. Minea.
- 102 *Parameningococcal Meningitis. (Meningite à parameningococques, traitée et guérie par le sérum antiparameningococcique. Inefficacité du sérum antimeningococcique.) F. Widal and Weissenbach.
- 103 Confinement to Bed as Therapeutic Measure in Mental Disease. (De l'alitement—Clinothérapie—dans le service central d'admission des aliénés de la Ville de Paris et du département de la Seine.) Magnan.

98. **Wine and Cider in Gout.**—Motais reports eight cases of gout, in which he tested the effect of wine and cider. The wine used was the red Bordeaux wine, and his conclusions are, 1, that the use, even in moderate quantities, of the red Burgundy or Bordeaux wine, while it may not produce gout in healthy individuals, is likely to be injurious to those predisposed to gout or who are suffering from the disease. 2. A mild cider well made, but not too hard, prevents gout; combined with rational diet and exercise it becomes a genuine therapeutic agent, diminishing or even reducing the frequency and intensity of the attacks. 3. The attention of therapeutists should be drawn to the action of cider in gouty affections of the eye. 4. While without doubt the pathogeny of arthritic affections is variable and such conclusions may not apply to all cases of the disease, yet the author believes that cider should be not merely allowed to gouty patients, but should be prescribed to the majority as a habitual, perhaps exclusive, beverage.

100. **Cholesterinemia in Syphilitics.**—Gaucher, Paris and Desmoulière have investigated the amount of cholesterin in syphilitic blood-serum and conclude as follows: 1. There exists no evident parallelism between the amount of cholesterin in the blood-serum and the results of the Wassermann reaction. 2. The influence of mercury or arsenic on cholesterinemia is not marked. 3. The effects of syphilis on the amount of cholesterin in blood may be distinguished according to whether the case is recent or old. In recent cases the changes are slight and variable. On the other hand, in old syphilitics an excess of cholesterin in the blood seems to be the rule.

101. **Culture of the Spinal Ganglia of Mammalia in Vitro by Carrel's Method.**—Marinesco and Minea have experimented according to the method of Carrel by transplanting pieces of the spinal ganglia of rabbits and kittens into plasma prepared from animals of the same species. They found that while the cells of the central portion degenerated, those of the periphery grew for a time and sent out fibers some of which passed into the surrounding plasma.

102. **Meningitis From the Parameningococcus.**—Widal and Weissenbach refer to the researches of Dopter and others, showing the occurrence of meningitis produced by an organism closely resembling the meningococcus of Weichselbaum, but differing in its biologic characters. This organism has been distinguished by Dopter as the parameningococcus. Twelve

cases of this affection have been previously reported and Dopter has prepared a special serum to combat the infection. Widal reports another case of this disease, in which the use of ordinary antimeningococcus serum, prepared by the Pasteur Institute, was quite ineffective, but on the application of the antiparameningococcus serum prepared by Dopter the patient began to improve promptly. Widal suggests that a number of cases of meningitis apparently due to the meningococcus, but which were uninfluenced by meningococcus serum, were in reality due to the parameningococcus. In order to distinguish these cases, biologic tests must be made, the simplest of which is the agglutination test. The cerebrospinal fluid should be inoculated onto culture media and tests should be made to determine whether the organism obtained is agglutinated by meningococcus serum or by parameningococcus serum. If it is not affected by the meningococcus serum and it is agglutinated by parameningococcus serum, the latter serum should be employed as a remedy. Since in the majority of cases the disease is due to the meningococcus, there should be no delay in trying the antimeningococcus serum. In the discussion, Netter suggested that since at least forty-eight hours are requisite for distinguishing between the two organisms, it is very desirable that a serum should be immediately administered containing both antimeningococcus and antiparameningococcus serum. He believes that such a serum can be made, similar to the serum of Flexner, which is a polyvalent serum made from organisms some of which are agglutinated only to a slight degree by antimeningococcus serum. He refers especially to the researches of Elser and Huntoon, which showed a great difference in the agglutinability of different forms of the meningococcus. He reports a case in which the disease was not influenced by the serum prepared by the Pasteur Institute, but which recovered after two doses of Flexner's serum. He recommends therefore a polyvalent serum which might be produced in part by injections of the parameningococcus. (See Paris Letter in *THE JOURNAL*, Aug. 17, p. 556.)

Presse Médicale, Paris

July 13, XX, No. 57, pp. 593-604

104 The Tendencies of Psychiatry in France at the Present Day. (*L'esprit de la psychiatrie française d'aujourd'hui.*) J. Lepine.

105 *Action of X-Rays on Eosinophils. C. Aubertin and L. Giroux.

106 Industrial Accidents. Traumatic Stricture of Urethra. (*Les rétrécissements traumatiques de l'urètre.*) L. Imbert.

July 20, No. 59, pp. 613-620

107 Treatment with Preparations of the Hypophysis. L. Lagane.

July 24, No. 60, pp. 621-628

108 *Newer Conception of the Venous Pulse. O. Josué.

109 *Tonicity of Mineral Waters Used as Local Applications. (*Tonicité de quelques eaux minérales.*) P. J. Ménard.

July 27, No. 61, pp. 629-630

110 *Cytology and Serology of Leprosy. E. Jeanselme.

111 Multiple Osséous Dystrophies. L. Baume.

July 31, No. 62, pp. 641-648

112 *Transfusion of Blood. (*La transfusion du sang.*) M. Tuffier.

113 *Percussion of the Liver. (*Exploration du foie au moyen de la percussion.*) W. Orłowski.

105. **Action of X-Rays on the Eosinophils.**—Aubertin and Giroux conclude that the x-rays cause a general increase in leukocytes of all kinds, which is followed by a destructive action. In normal subjects this results in an increase of the neutrophils. In patients with myeloid leukemia the neutrophils are also chiefly increased because these cells are still in a large majority in the blood, although much modified. In a case reported by the authors, in which the eosinophils reached 65 per cent., the leukocytosis was especially an eosinophil leukocytosis. The x-rays therefore do not act on the blood like the infections which produce an exclusively neutrophil reaction; they act equally on the eosinophils. In moderate doses they cause these cells to migrate into the blood, as in the patient reported. In larger doses they destroy them, as in the case of leukemic patients treated by the x-rays.

108. **Newer Conception of the Venous Pulse.**—Josué contrasts the older idea of a venous pulse with the new view resulting from recent investigations. Formerly two forms of venous pulse were distinguished, a true venous pulse supposed to be due to the actual propulsion of blood waves through an insufficient tricuspid valve and a false venous

pulse occurring before the systole as the result of the contraction of the right auricle. The physiologic or normal venous pulse presents a certain analogy with the older false pulse since it shows a presystolic wave corresponding to the contraction of the auricle.

The condition formerly known as the true venous pulse which is synchronous with the ventricular systole is observed in certain cases but has a significance different from that which was formerly attributed to it. This form of venous pulse is found in patients presenting complete arrhythmia at the same time with a marked venous stasis. In these cases no wave corresponding to the auricular contraction is found and the wave corresponding to the ventricular contraction tends to occur earlier and eventually coincide with the wave c. There is thus only a single wave coinciding with the contraction of the ventricle. This wave is not due, as was formerly supposed, to an actual reflux of the blood through an insufficient tricuspid valve, but occurs because the pressure being very high in the veins, the auricle closed below by the tricuspid valve is immediately filled. The absence of the auricular wave "a" was at first attributed by Mackenzie to paralysis of the auricle. Later he believed that it was due to the fact that the contraction of the auricle occurred simultaneously with that of the ventricle, the impulse arising from the auriculoventricular node of Tawara. This is the nodal rhythm of Mackenzie. More recent investigation has indicated the importance of auricular fibrillation in preventing the formation of an auricular wave.

109. **Tonicity of Mineral Waters.**—Ménard calls attention to the importance of the molecular constitution of mineral waters which are used for local applications to the mucous membranes. He has made an examination of a large number of these mineral waters and among fourteen samples he found two whose freezing point indicated a molecular value hypertonic to that of the blood. The rest were hypotonic. He suggests that the hypertonic waters be reduced to the molecular concentration of the blood by dilution with distilled water. On the other hand, the molecular concentration of hypotonic waters can be brought up to that of the blood by the addition of a solution of sodium chlorid.

110. **Serology of Leprosy.**—Jeanselme reviews the investigations which have been made of the serum of leprosy patients, specially with reference to its reaction by deviation of complement on the application of an antigen made by mincing a leproma, this reaction being known as Eitner's, and to its response to the Wassermann reaction. As a result of his own investigations he found that of forty serums of patients with active syphilis, in which the Wassermann reaction was positive, the reaction with Eitner's antigen gave thirty-three positive results and seven negative; that is, the reaction of Eitner was positive in 85 per cent. of syphilitic patients. In twenty-one cases of healthy men or persons with latent syphilis the reaction of Wassermann and the reaction of Eitner gave equal results. The reaction of Eitner, when it is positive with leprosy, is, as a rule, but not always, accompanied by a positive Wassermann reaction. The antigen of Wassermann and the antigen of Eitner may give a deviation of complement either with a leprosy or with a syphilitic serum. The antigen of Eitner is always more sensitive to leprosy and the antigen of Wassermann more sensitive to syphilis, thus indicating that the substances in the serums on which these antigens act are related, but not identical. While in syphilitic patients specific treatment causes the disappearance of the Wassermann reaction, the phenomenon is not exhibited by leprosy patients. In one case the author found that the Wassermann reaction in a leprosy patient persisted in spite of energetic treatment with salvarsan. This indicates that the response of leprosy patients to the Wassermann reaction is not due to syphilis the symptoms of which have been obscured by the leprosy condition.

112. **Transfusion of Blood.**—Tuffier presents a simplified technique for transfusion: There are needed three silver tubes coated with paraffin; two pairs of hemostatic forceps, with a very light spring and a large flat grasp; three Halsted forceps with very fine points, one curved and two straight;

two very fine dissecting forceps and an irrigator, fine silk, fine scissors and a bistoury. The tubes are 3 cm. long and enlarged at both ends and have a diameter of 1.5, 2 and 2.5 mm. They are coated with paraffin melting at 50 C. by plunging the sterilized tube in clear paraffin heated to 130 C., withdrawing and shaking to remove excess of paraffin. A healthy young adult should be selected as the donor. Examination for agglutination and hemolysis, abandoned by Crile, is unimportant. Tuffier always applies the Wassermann test. During the operation the two subjects are placed on adjacent tables and the radial region of the donor and the internal premalleolar of the receptor are sterilized by iodine and anesthetized with stovain. The internal saphenous vein of the receptor is exposed and freed by cutting and tying all the small veins which may hold it. The wound is covered with liquid petrolatum and then with a compress wet with salt solution. The radial artery of the donor is exposed and isolated for a length of 5 cm. and any troublesome arterioles are tied with fine silk and cut. The artery is tied at the lower extremity of the wound and a small hemostatic forceps is placed on the upper part of the exposed artery, care being taken that it does not slip. The vessel is cut obliquely with the scissors for nearly two-thirds of its width above the ligature; a triangular wound is thus produced. The two lips of the wound being held by fine forceps, a tube which should be rather larger than the diameter is introduced just beyond the point of its enlargement and a thread is passed around the artery to hold the tube in place. The radial region of the donor is brought close to the malleolar region of the receptor; the vein is tied completely, cut at its lower part, and freed for 4 to 5 cm. The interior is irrigated with a special syringe. The end of the tube is immediately introduced into the vein and the latter is tied over it above the enlargement. The hemostatic forceps are removed and blood flows from the artery into the vein causing appreciable pulsations. During the whole operation it should be noticed every two minutes whether the vein is carrying the blood well, and care should be taken to palpate 1 or 2 cm. above the anastomosis to avoid the error which consists in taking a propulsion of the arterial blood wave for a true expansion of the vein.

When the transfusion is ended the artery is tied above the tube and cut between the tube and the ligature. The vein is tied below the tube with a catgut thread and cut in such a manner that in removing the tube it takes with it the two pieces of vessels which were tied to it.

113. Percussion of the Liver.—Orlowski describes his method of applying Goldscheider's threshold percussion to the determination of the lower border of the liver. While the patient is lying on the back with legs extended, he percusses along the right mammillary line and also along the linea alba. The index finger of the left hand is laid on the surface of the abdomen, making very light pressure so as to avoid vibrations from deeper-lying organs. With the fingers of the right hand blows are made so feeble that the sound can only be heard close to the finger which is struck, and these blows are always applied parallelly to the linea alba and perpendicularly to the surface of the abdomen. Complete silence must be obtained. The author has compared this method with that of palpation and draws the following conclusions: 1. Orthopercussion (threshold percussion) of the lower border of the liver is a very exact method of examination, equaling that of palpation. 2. A floating kidney, if present, should be returned to its place, as otherwise orthopercussion will in many cases determine not the lower border of the liver but that of the kidney. If the region below the right hypochondrium gives a dull sound by ordinary percussion, it is not unusual (18 per cent.) for orthopercussion to produce a dull note over the whole extent of this region. In such case in order to determine the position of the lower border of the liver it is necessary to inflate a part of the intestine with air. 3. In cases in which the lower border of the liver is more or less sharply defined and where coils of intestine adjoining this are inflated, orthopercussion determines the position of the lower border of the liver nearer to the hypochondrium than is really the case. 4. The consistence of the liver has an influence on the result of

the determination of its lower border. Thus the position of this border of the liver, determined by means of orthopercussion, corresponds more frequently to its real position when the liver is firm than in cases in which it is soft. In fact, in firm livers Orlowski has observed that in 92 per cent. of cases the result of orthopercussion corresponded to the real position of the lower border of this organ, while in cases in which the liver was soft this was true only in 86 per cent.

Semaine Médicale, Paris

July 24, XXXII, No. 30, pp. 349-360

114 *Radical or Partial Extirpation in the Treatment of Genital Cancer of the Female. R. de Bovis.

July 31, No. 31, pp. 361-372

115 *Secretion of Chlorids by the Kidneys in Nephritics with Edema. F. Widal, L. Ambard and A. Weill.

August 7, No. 32, pp. 373-384

116 Hysterical Disturbances in Breathing, with Spasm of the Vocal Cords. G. Marinesco.

114. Treatment of Uterine Cancer.—De Bovis discusses the value of the enlarged operation of Wertheim for cancer of the uterus, and concludes that it has been somewhat modified because it has been recognized that beyond certain anatomic limits the benefits are overcome by the immediate excessive mortality. De Bovis is less inclined than Theilhaber to lay stress on the benefits obtained by partial operations and the extraordinary cures which sometimes follow them. These are exceptions which should not be too strongly emphasized. They prove, however, one thing, that there is a difference between cancerous patients. Some are bound to undergo evolution and metastasis, while others have a slower course. The latter are fortunate; whatever the operative technic, the result is remarkable success. The operation, however, should preferably be made extensive while remaining within the limits of human endurance, for, after all, we have no criterion to determine in advance what course an individual cancer will take.

115. Renal Excretion of Chlorids in the Edema of Bright's Disease.—Widal, Ambard and Weill report four cases illustrating the influence of a salt-free diet and of theobromin on the threshold for the excretion of chlorids by the kidney. This threshold was found to be considerably raised in cases of edema, varying according to the degree of reduction of chlorids. The salt-free diet tends to counteract this elevation of the threshold for chlorid excretion. The operation may be slow at first, and exceptional patients are found who do not respond to this dietetic treatment. In most nephritics, with edema, however, it is possible, at will, by giving or withholding salt to produce along with the appearance or disappearance of the edema an elevation of the threshold for renal excretion of chlorids, or its return to the normal. Theobromin acts on the excretion of chlorids in the same way as the salt-free diet, producing a marked reduction of the threshold. Thus theobromin has an action on the kidney directly antagonistic to that of sodium chlorid. It occasionally fails to produce any effect. The authors find that nephritics without edema have little or no retention of chlorids, while in those with edema such a retention is more or less marked.

Berliner klinische Wochenschrift

July 22, XLIX, No. 30, pp. 1405-1452

117 *Serotherapy of Tumors. (Heilversuche an geschwulstkranken Tieren mittels tumoraffiner Substanzen.) C. Neuberg, W. Caspari and H. Löhe.

118 Congenital Hypoplasia and Multiple Sclerosis of Ductless Glands. (Späteenchondismus.) W. Falta. Concluded in No. 31.

119 Keeping Quality of Scopolamin Solutions. (Haltbarkeit.) F. Sachs.

120 *Auscultation and Percussion of Organs and Neoplasms in Abdominal Cavity. R. Ehrmann.

121 Duodenal Alimentation. (Duodenalernährung.) M. Einhorn.

122 Increasing Mammary Gland Secretion by Increasing Albumin in Food. W. Liepmann.

123 *Barium Sulphate. (Warnung und Aufklärung in Sachen des Baryumsulfats.) G. Schwarz.

July 29, No. 31, pp. 1454-1500

124 Chemotherapy in Trypanosome Infections. (Trypanosoma Brucei.) L. Brieger and M. Krause.

125 Mutation and Adaptation of Microorganisms. II. Pringsheim.

126 Mechanism of Anaphylatoxin Formation by Bacteria. (Anaphylatoxinbildung aus Bakterien.) H. Frösch.

127 *Anatomic Study of Pneumogastric Nerve in Hypertrophy of Heart. (Nervus depressor bei Herzhypertrophie.) E. Ludwig.

128 *Etiology of Malignant Granuloma. O. Meyer and K. Meyer.

- 129 Neosalvarsan. C. Gutmann.
130 Clinical Observations in Diphtheria Epidemic of 1911. O. Nordmann.
131 Technic of Roentgen Irradiation in Gynecologic Region. E. Runge.
132 Congenital Hypoplasia and Multiple Sclerosis of Ductless Glands. W. Falta.
August 5, No. 32, pp. 1501-1548
133 Treatment of Bacterial Infections with Chemicals. (Behandlung der bakteriellen Infektionen im Organismus durch Chemikalien.) F. Blumenthal.
134 *Intra-arterial Therapy. F. Bleichröder.
135 Etiology and Pathology of Tabes Dorsalis. M. Bernhardt.
136 A Simple Method for Determining the Heart Boundaries with Roentgenoscopy. (Röntgenherzgrenzenbestimmung.) J. Spier.
137 *Oxaluria. E. Rosenberg.
138 *A Simple Method for Determining Free Hydrochloric Acid in the Stomach. Friedrich.
139 *Blood Findings in Diabetes Mellitus. L. Caro.
140 Pharmacology of Cascara Sagrada. Flury.
141 Experimental Syphilis in Guinea-Pigs. I. Finkelstein.
142 Functional Kidney Diagnosis. W. Baetzner.
143 Rest Cure at Sea. (Ueber Liegekurschiffe und Liegekuren auf See.) M. Senator.

117. **Serotherapy of Tumors.**—The authors confined their experimental research to the use of various metals in the treatment of mouse carcinoma. The best results were obtained with combinations of copper, zinc, platinum and especially with cobalt and silver. The result of the administration of these metals was that the tumors softened and became necrotic. Microscopic examination of the tissues showed deposits of the various metals used. Although the effect on the tumors was a considerable one, the animal itself did not exhibit any untoward symptoms; both spontaneous and experiment tumors were affected similarly, but the treatment produced the most marked results in the cases of mouse tumors. A very careful search of the tissues in which the tumor had been situated failed to disclose any tumor cells. The authors give a complete list of the metals used and the dosage per gram of body-weight of the mouse. (See editorial in THE JOURNAL, Aug. 31, p. 724.)

120. **Auscultation and Percussion of Organs and Neoplasms in Abdominal Cavity.**—The method employed by Ehrmann consists in having the patient in the dorsal position and then pushing the abdomen upward by means of deep inspiration. This not only presses the organs nearer to the abdominal wall but also pushes them downward into the abdomen. He has succeeded in outlining the gall-bladder in a number of cases in which the ordinary percussion failed absolutely. The spleen, liver and kidneys were likewise outlined with ease. With regard to tumors in one case in which the diagnosis of mesenteric swelling was made, the abdominal pressure showed very distinctly that the mass was in the urinary bladder. He believes that abdominal and non-suppurating inflammations in the vicinity of the appendix can be outlined by this method. As for the stomach and intestines these organs can easily be outlined and the findings verified by means of skiagrams.

123. **Barium Sulphate in Roentgenoscopy.**—Schwarz sounds a warning as to the use of barium sulphate in making skiagrams of the stomach and bowels because of the possibility of using a poisonous barium sulphid. He has been advised of several instances of poisoning. He would have a careful chemical examination made of the barium sulphate that is to be used for skiagraphic work and then label it so that no mistake can be made.

127. **Anatomic Study of Pneumogastric Nerve in Hypertrophy of Heart.**—A very careful study of sixty-three cases with regard to the relationship existing between heart hypertrophy and the influence of the nervous system on the heart has convinced Ludwig that no nerve disturbance is characteristic of cardiac hypertrophy. Any alteration which may be found present he believes to be merely incidental. The same is true in cases of enlargements of the ascending aorta although here one frequently finds lymphocytic infiltration as well as free hemorrhage or residual evidences of hemorrhage, without, however, in any way interfering with nerves or ganglia. Nevertheless, the author emphasizes the fact that the depressor nerve must be regarded as a safety valve of the heart and that anything which interferes with this action may cause a cardiac hypertrophy. He still fears, in spite of his negative histologic finding, that the depressor

nerve stands in some relationship physiologically to the blood-pressure, variations and enlargement of the heart.

128. **Etiology of Granuloma.**—The authors have investigated the exciting cause of malignant granuloma clinically as well as experimentally and are convinced by their findings that the Fraenkel-Much bacillus is in reality a variant of the tubercle bacillus. The authors report one case of typical malignant granuloma of the lungs and lymph-nodes associated with a miliary tuberculosis of the liver, spleen and kidneys. No primary tuberculous focus was demonstrable elsewhere in the body. They cite evidence to the effect that this granulomatous bacillus may be transported from the seat of granulomatous disease to other parts of the body and there produce a typical tuberculous lesion. Reasons for these morphologic and biologic variations of this organism have not been determined.

134. **Intra-Arterial Therapy.**—Bleichröder harks back to a series of experiments made by him several years ago in which he attempted to investigate the process of metabolism by withdrawing blood directly from the inferior vena cava at the mouth of the hepatic vein by means of a catheter. This work led to the thought that it might be possible to inject medicinal agents into the arterial blood-stream in a similar manner. Experiments on dogs confirmed the correctness of his belief and also demonstrated the fact that the method was free from danger. Before trying out the method on the human being he experimented on his own person; a catheter was inserted into the vein of the lower arm and passed up to the axilla. A second catheter entered a vein of the thigh extending into the vena cava. These experiments were negative in that they were not followed by any untoward effect. The author has utilized this method in the treatment of puerperal sepsis. The result was not particularly encouraging although the cases in which it was tried were of the very worst type and little was to be expected from any method of treatment. In one case collar-rot was injected in the twenty-four days of the disease, resulting in a crisis which could be charged to no other circumstance than the treatment. The injection was made through the femoral artery by means of a nreteral catheter. He believes the method is worthy of further trial.

137. **Oxaluria.**—The author reports two cases of transitory oxaluria associated with gastro-intestinal disturbances. He is convinced that the intestinal trouble was the unquestioned cause of the oxaluria, although he does not offer any explanation as to how this cause affected the metabolism so as to produce oxalic acid.

138. **A Simple Method for Determining Free Hydrochloric Acid in the Stomach.**—Friedrich uses neither sound nor special apparatus. His method consists in producing the necessary chemical reaction directly in the stomach by means of threads saturated with congo red. A small metal cylinder with rounded edges is enclosed in a capsule and attached to a long thread dyed with congo red; another dyed with one free end is attached to the cylinder and enclosed with it in the capsule. This capsule with its enclosed metal cylinder is swallowed readily by the patient, twenty minutes after the usual test breakfast has been given. Half an hour later, it is withdrawn by means of the long thread and according to the evidence of the reaction on the thread will depend the amount of free hydrochloric acid. The author has had no difficulty in getting his patients to swallow this capsule and he has repeatedly verified his findings by means of other tests. It should be mentioned here that the long thread is dyed a deep red, whereas the short thread is dyed pink, so that the degree of reaction may be noted. The author has laid down the following scale of the reaction for himself: browning of the dark red thread indicates subnormal acid; violet, normal; blue-black, above normal or hyperchlorhydria. In the presence of hyperchlorhydria, the pink thread is colored blue, if the condition is of high grade, and sky blue if the hyperchlorhydria is extremely intense. The reaction must be noted immediately when the thread is withdrawn and before it is touched with fingers or instruments.

139. **Blood-Findings in Diabetes Mellitus.**—Caro studied the blood in twenty-eight cases of diabetes mellitus. He invariably found a reduction of hemoglobin and a decrease in the number of red cells. He failed to find leukocytosis. In twenty-two cases there was a relative lymphocytosis, in fifteen cases as high as 40 to 70 per cent. In only six cases was the lymphocytosis slight in degree. These patients invariably suffered from gangrene, tuberculosis, etc. In eight cases there was a distinct eosinophilia. The degree of lymphocytosis was not an indication of the severity of the case or of the amount of sugar found in the urine.

Münchener medizinische Wochenschrift

July 23, LIX, No. 30, pp. 1641-1696

- 144 *Idiosyncrasy Against Salvarsan. (Zur Frage der Idiosynkrasie gegenüber Salvarsan, insbesondere sind Hautimpfungen mit Salvarsanlösungen zur Feststellung einer vorhandenen Idiosynkrasie brauchbar?) K. Zieler.
- 145 Examination and Treatment of Isolated Pupillary Disturbances Resulting from Previous Syphilis. (Bedeutung der modernen Untersuchungs- und Behandlungsmethoden für die Beurteilung isolierter Pupillenstörungen nach vorausgegangener Syphilis.) G. L. Dreyfus.
- 146 *Determination of Diphtheria Bacilli. H. Conradi and P. Troch.
- 147 Calcium Chlorid for Enriching Tubercle Bacillus. (Einige weitere Erfahrungen mit dem Kalziumchlorid-Anreicherungsverfahren für Tuberkelbazillen.) A. Zahn.
- 148 Urethrotomy Therapy. P. Scharff.
- 149 Treatment of Urethral Stricture by Means of Bougies Causing Hyperemia. P. Kobelt.
- 150 Palliative Treatment of Prostatic Hypertrophy. H. Joseph.
- 151 Roentgenoscopy of Lung Apices. F. Holst.
- 152 Pituitrin as a Postoperative Tonic. (Pituitrin als postoperative Tonikum, mit besonderer Berücksichtigung der Blasenfunktion.) R. T. Jaschke.
- 153 *A Comparison Microscope. W. Thorner.
- 154 Acetonemia in Children. L. Silberstein.
- 155 Reinfection After Salvarsan Treatment. H. Wüstenberg.
- 156 Three Fatalities Following Use of Salvarsan. F. Hirsch and F. Hammer.
- 157 Acute Traumatic Origin of Retroflexion of Uterus. R. Ziegenspeck.
- 158 *Perforation of Rectum Due to Rectoscopy. O. Retzlaff.
- 159 Local Cutaneous Gangrene Caused by Luminal Injection. K. Fürer.

July 30, No. 31, pp. 1697-1744

- 160 Epilepsy. (Die Epilepsie als klinischer Krankheitsbegriff.) L. W. Weber.
- 161 The Significance of Toxic Products of Decomposition of Albumin in Labor and Eclampsia. (Ueber die Bedeutung der Eiweisszerfallstoxikose bei der Geburt und der Eklampsie.) R. Franz.
- 162 Neosalvarsan in Syphilis. A. Wolff and P. Mulzer. (Erfahrungen mit Neosalvarsan.) K. Kall.
- 163 Electromagnetic-Arsenical Treatment of Cancer. (Die ersten Versuche mit einer neuen Kombinationsbehandlung des Krebses. Elektromagnetische Reizarsenbehandlung.) H. Spude.
- 164 Atophan. H. Bach.
- 165 *Fracture of Femur of Child During Birth. (Zwei merkwürdige Fälle von Oberschenkelfraktur des Kindes unter der Geburt.) Bertkau.
- 166 *Plastic Operation on Rectum. (Plastischer Ersatz des vorderen Teils des Mastdarmrohrs durch die hintere Scheidenwand.) W. Goebel.
- 167 Iron Content of Human and Cow's Milk. (Ueber den Eisengehalt der Frauen- und Kuhmilch.) L. Langstein and F. Edelstein.
- 168 Wassermann Reaction in the Cadaver. G. B. Gruber.

144. **Idiosyncrasy Against Salvarsan.**—Zieler emphasizes the fact that the occurrence of a skin eruption after the use of salvarsan is to be regarded as an idiosyncrasy against arsenic. He would not consider this condition analogous to the serum disease, caused by anaphylaxis. On the contrary it is merely a cumulative effect, which may be manifested after a single injection of salvarsan. He has never observed or heard of an hereditary idiosyncrasy and therefore it is impossible to determine the existence of such an idiosyncrasy by means of a salvarsan vaccination.

146. **Determination of Diphtheria Bacilli.**—The authors have used a new culture medium for isolating the diphtheria bacillus. Ten gm. of meat extract, 5 gm. of sodium chlorid, 20 gm. of peptone [Witte] and 6 gm. of calcium acetate are added to 1,000 c.c. of water. The mixture is placed over the water-bath for one-half hour and filtered. The filtrate is slightly acid and 1 per cent. of grape-sugar is added to it. One part of this mixture is added to three parts of fresh sterile blood-serum and to 100 c.c. of this blood-serum mixture 2 c.c. of a 1 per cent. solution of potassium tellurite is added. The mixture is then shaken and distributed in Petri dishes. The mixture is allowed to congeal and is then ready for use. The original culture of the suspected material is

made on Loeffler's blood-serum. The culture is incubated for three hours at 35 C. and then a culture is made from it on the tellurium plate. This plate is incubated for twenty hours at 35 C. and the original Loeffler plate is allowed to continue development and growth for eight hours so as not to interfere with examination of such bacilli as have developed in this plate. If diphtheria colonies are visible on the Loeffler plate, further examination of the tellurium plate is unnecessary. If, however, the former fails to show any diphtheria cultures, the latter must be examined. The diphtheria colonies will be colored black, the result of a reduction of the tellurium dioxid. Even the diphtheria bacillus contains these dark spots. The authors have had splendid results clinically from the use of this method of examination.

153. **A Comparison Microscope.**—This instrument is constructed on the basis of a stereoscope and serves to compare normal with pathologic tissues. It is practically two microscopes with a single eye-piece, connecting the two tubes, so that half of the field may, for example, show a normal lung section and the other a pathologic section.

158. **Perforation of Rectum Due to Rectoscopy.**—Retzlaff reports a case of perforation of the rectum of a man, 58 years of age, the result of a rectoscopy examination. The patient was examined in the knee-chest position and suddenly complained of abdominal pain. He went home and succeeded in having a bowel movement. In the afternoon he had severe intestinal colic, with vomiting, but soon collapsed. A laparotomy was done four and one-half hours after the rectoscopy. There was every evidence of an intense peritonitis, and in the anterior wall of the rectum, just above the rectovesical space, was a tear 2 cm. in length, through which the rectal mucosa protruded. The tear in the bowel wall was sutured, the intestinal loops were cleaned with wet compresses and 80 c.c. of a 10 per cent. camphorated oil were poured into the pelvis. The patient made a complete recovery.

165. **Fracture of Femur at Birth.**—Bertkau reports two cases. The first was a favorable presentation with contracted pelvis and prolapse of the umbilical cord. The author performed version, grasping the left foot of the child so that when traction was made the right leg was drawn up and the thigh was flexed on the body. The child was delivered without any trouble. While it was being bathed it was noticed that there was a fracture of the right femur at the junction of the upper and middle thirds. In the second case the fetus was in the transverse position, the left arm presenting. The extraction was accomplished in the same manner as in the previous case, although during the delivery there was a slight obstruction which was readily overcome by a strong tug on the left leg, when a distinct cracking sound was heard. Delivery was then effected without any further trouble. The child cried as soon as it was born and on examination it was found that the femur was fractured as in the first case. Both fractures were treated by extension and the application of a plaster cast.

166. **Plastic Operation on Rectum.**—Goebel reports the case of a woman 60 years of age who had a scirrhotic carcinoma of the anterior wall of the rectum. The tumor was removed and the rectum drawn down to the anal margin and sutured. The result apparently was a good one but there soon appeared a rectal fistula opening into the vagina, just below the cervix. On examination it was found that the rectum and vagina had become firmly united into a cicatricial mass. This fact and the age of the patient made it impossible to do a second operation like the first; therefore the author dissected free from the lateral vaginal wall a flap of mucosa which he turned around into the rectum, so that the vaginal mucous membrane became the rectal mucous membrane. A further plastic operation was done in the vagina to cover the defect. The patient made a splendid recovery from the operation and six months afterward was apparently in perfect health. She had gained in weight, looked well and the carcinoma apparently had not recurred. The vagina was somewhat constricted. The patient did not complain of any intestinal disturbance, and she had perfect control of the rectum.

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HOW MAY THE SCIENCE OF THERAPEUTICS BE ADVANCED?*

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In studying this subject, it is necessary to consider briefly the conditions under which our present system of therapeutics has developed, practically unaided by the fundamental sciences. The science of bacteriology is of comparatively recent origin; it has enabled us to determine not only the nature of some of the infectious agents, but also their distribution in the body, the effect of external agents on them, and to study experimentally their behavior in animals as well. We are at present in the midst of extensive studies in metabolism, so essential in illuminating the dark places in pathologic physiology, by revealing to us the behavior of cells in diseased states. The same is true of the studies now being made in immunity, information directed at the very foundation of disease. Still more recent is the field of experimental therapeutics, where the action of drugs may be observed on animals in which diseased conditions have been experimentally produced. The effect of diuretics in experimental nephritis is an excellent example of what we may expect from investigations by this method. Studies along the above lines are fundamental and must be understood before therapeutics can be developed along scientific lines. Our therapeutic forefathers are not to be censured, as, with the means at their command, they did surprisingly well. The present unsatisfactory state of therapeutics has not been due chiefly to the lack of properly trained clinical minds, but rather to an insecure foundation on which to establish rational therapeutics. The few valuable empirical remedies now at our command give us only a faint conception of the fruitless efforts of thousands of earnest workers in this field. In the majority of instances the attention of the physician was attracted to these remedies by lay people, who in using countless vegetable substances had detected some with real curative powers. We may perhaps smile at the logic of some of these ancient clinicians, but only when we fail to realize the wonderful advances made in the fundamental branches of medicine in recent years. An illustration of this is a comparatively modern discovery of the value of salicin in the treatment of acute articular rheumatism. MacLagan, an Englishman, was first to make this discovery. In the London *Lancet* in 1876 he describes the beneficial action of this drug, which was the first of the salicyl group to be used in the treatment of rheumatism. MacLagan believed that for all miasmatic diseases there could be found some

antidote in plants or trees growing in the same climatic surroundings as favored the development of this particular disease. This he considered one of the wise provisions of Providence and in support of his theory referred to cinchona and ipecac as growing in tropical countries where malaria and amebic dysentery were prevalent. As damp surroundings favored the development of rheumatism, he directed his studies to vegetation growing in low grounds. The willow naturally attracted his attention. He knew that salicin was made from its bark and he thus introduced it in the treatment of rheumatism. In the interesting discussion following his discovery, an English surgeon in South Africa refers to the common use by the Hottentots of a decoction of willow twigs in treating febrile disturbances and especially acute arthritis.

With this haphazard method of selecting therapeutic agents, it is not surprising that many fallacious observations were made and certain drugs acquired unwarranted reputations as remedial substances, until, as the result of the accumulation of ages, we are now burdened with a mass of drugs without remedial qualities, or at least without these powers being definitely proved. It would seem that the time had arrived, with our modern methods of investigation, to separate those of real value from the worthless. There is about these questionable drugs which crowd our Pharmacopeia nothing sacred that should prevent our carefully working them over experimentally, and, when essential, clinically, to determine their real value. It would seem that, to place our therapeutics on a real scientific basis, work of this character must be done. It is true that much work of this character has already been performed, especially by the pharmacologist. The therapeutic value or worthlessness of many of these drugs can, however, be worked out only at the bedside. We should not content ourselves by saying that these supposed remedies are in the majority of instances harmless, and, therefore, may be permitted to remain. While we may not be able to modify materially the Pharmacopeia, we, as teachers of medicine, should see that the student is taught only facts, and writers of textbooks in medicine should observe the same discretion in their discussion of treatment, as they do in the pathology and symptomatology of diseases. The subject of therapeutics as taught by the pharmacologist is much less open to criticism from a scientific standpoint than that taught by the clinician. This is especially true, since the chairs of pharmacology in our medical schools have been filled by men who devote their entire time to study, teaching and research.

We have not, however, inherited all of our therapeutic fallacies; many are of comparatively recent origin. The commercial pharmaceutical chemists are largely responsible for a long list of drugs, either valueless or duplicates of existing preparations. They have also furnished us with many valuable remedies. Such preparations are,

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however, almost uniformly exploited in an entirely unscientific manner, with false statements in regard to the nature of the preparation, and unwarranted claims in regard to their therapeutic value. It is perhaps a conservative statement that the majority of physicians are more interested in and more influenced by this class of literature than they are by text-books in pharmacology. Direct evidence on this point is the frequency with which proprietary preparations appear in the physician's prescriptions. By the proper enforcement of the pure food law and through the activities of the Council on Pharmacy and Chemistry of the American Medical Association this evil is being curbed. The services rendered to scientific therapeutics through the Council on Pharmacy and Chemistry is inestimable and should receive the hearty cooperation of all clinicians.

Another important factor responsible for the present practice of therapeutics is the attitude of many teachers and text-book writers in medicine. It appears that often, while their discussion of the etiology, pathology, symptomatology, diagnosis and prognosis of disease is of highly scientific character, when they pass to the realm of therapeutics, there is a vagueness which is not in keeping with the previous discussion. If we admit that this is true, what explanations may be offered? Are therapeutic facts really more elusive than those of pathology and diagnosis and if so, why? Here it appears a factor is introduced which, to my mind, is more responsible than any other element for the different status of therapeutics, and, we will say, diagnosis. An important function of the physician is to cure disease; he receives his fee chiefly because he is able to benefit his patient. Diagnosis interests the layman only as making prognosis possible and paving the way for treatment. The physician is human and wishes to render service commensurate with his fee. This not infrequently leads to the unconscious ascribing of improvement to the treatment and especially the drug treatment of the condition. The physician, at times, fails to realize that the detection and correction of errors of diet, insufficient exercise or recreation, abuse of alcohol, tobacco or coffee, or unnecessary worry, require as much medical skill and are as fully appreciated by the patient as the administration of drugs. Proper instruction of the patient on these points may be largely or solely responsible for his improved condition. Nevertheless, if he has been given a prescription, this is too apt to be accorded unwarranted credit by the patient and acquiesced in by the physician. He is too frequently unwilling to admit of the futility of the drug. Against his better judgment, he becomes somewhat biased. In the diagnosis, this element does not enter, as the patient is little interested in the name of his ailment, except as to its curability. The physician, therefore, makes these observations in an unbiased manner, and presents them frankly to the patient. Fundamentally, the collection of facts in therapeutics is quite as feasible as in any other branch of medicine, though it may require broader judgment and greater insight into the factors to be considered. We must accept negative results, consider the influence of non-medicinal measures, as diet, habits, rôle of suggestion and especially must we obliterate self as regards the opinion the patient may have of our abilities as physicians. When the results of treatment are scanned with the same care as matters in pathology and diagnosis, the observations of the physician will consist mainly of facts.

The teacher in clinical medicine, having carefully demonstrated his patient, may feel somewhat embar-

rassed in admitting that, with our present knowledge of medicine, there is little to be expected from any form of drug treatment. It is, however, only just to our students that we take this stand provided we are certain of our position, rather than give them a list of drugs that have been recommended in the disease, which our knowledge of pathology and pharmacology, as well also as personal clinical experience has shown, are valueless. After all, if the physician thoroughly grasps the actual field of usefulness of drugs, the conditions in which surgical interference is indicated, the importance of hygiene, diet and psychotherapy, when proper individualization is observed, he will be able with our present knowledge of medicine to cure many and to benefit many more.

The clinician, however, has not been alone responsible for the present confused state of our therapeutics. If we can criticize the practitioner as being unscientific, it may be said of the pharmacologist that he is oftentimes unpractical. The main object of pharmacology, from the purely medical standpoint, is to obtain the action of drugs with the expectation of applying this knowledge to the treatment of disease. The pharmacologist, in addition, is interested in the action of drugs from a purely scientific point of view, even when this knowledge has no direct bearing on the treatment of disease. The pharmacologist's shortcomings are largely due to lack of contact with the clinician and especially with clinical material. This, not infrequently, has resulted in his suggestion being too vague and often impossible of application. Perhaps the method of administering the drug in the laboratory is not applicable at the bedside. Few drugs are administered to patients intravenously, yet the majority of our pharmacologic observations are made on drugs injected into the circulation. It would seem that more observations should be made by the pharmacologist on the action of drugs introduced into the stomach. Such a method may be very tedious and the results variable, but they will, nevertheless, show us what to expect at the bedside. Digitalis, when administered intravenously to an animal, causes a decided rise in blood-pressure, and it has, therefore, been taught that its use is contra-indicated in patients with high blood-pressure, although it has been conclusively proved recently that, when administered to man by mouth, it does not raise blood-pressure. Suprarenal extracts when administered by mouth do not increase blood-pressure, and in the laboratory animal rarely increase blood-pressure when given intramuscularly, while in man their intramuscular use is quite uniformly followed by a rise in blood-pressure varying from 20 to 30 mm. of mercury. While the above examples are unusual, they show, nevertheless, the importance of laboratory work, more closely following the clinical method of administering drugs.

Passing now to the means of putting therapeutics on a more scientific basis, a very important measure is the standardization of drugs. The laboratory worker and clinician must be certain of the uniform strength of the preparation used. Excellent work is being carried on at present in this phase of the subject, and has progressed far enough to convince the most skeptical of its importance. Unless the clinician can be assured of the strength of his drugs it is practically futile to undertake comparative observations.

The rapid development of experimental therapeutics is a most encouraging sign of progress. While its field will probably always be limited, it permits the pharmacologist to study carefully in his laboratory the action of drugs in pathologic conditions. The work already

accomplished in the action of diuretics in experimental nephritis is a good index of what we may expect in the future from this line of research.

Closer cooperations of the clinician and pharmacologist would do much to place therapeutics on a more scientific basis. The pharmacologist, with his special training, by working in conjunction with the clinician can carry on at the bedside those observations which he has in the past so creditably performed in the laboratory. This has already been undertaken by Cnshny and MacKenzie in England and by Sollmann and others in this country. It is distinctly a step in the right direction. This is not intended to detract from the valuable observations which the clinician alone may secure, as any clinical observer may obtain most valuable information, even with a limited material, provided his attitude is unbiased and he records and interprets correctly the information obtained. These observations, however, can best be carried out in a systematic manner in suitable hospitals. The university hospital should offer ideal conditions; with plenty of free beds and a dispensary as a feeder, it becomes possible to study groups of cases therapeutically. In the majority of existing hospitals, conditions are not favorable for such investigation. There is not a sufficient number of free beds, and these are not and usually cannot be filled with selected cases. In addition, the lack of properly trained assistants and nurses who can be relied on to carry out instructions carefully is most discouraging to the investigator. Such a hospital should be supplied with the necessary apparatus for making careful observations. Under these conditions, the clinician and pharmacologist, working in harmony, could do much to clear away the haze in which our clinical therapeutics is now enveloped. The university hospital is a much-needed institution, not only for the proper instruction of medical students but also to develop research in certain phases of clinical medicine.

With suitable conditions, however, the therapeutic action of only a limited group of drugs is capable of definite clinical demonstration. The action of digitalis, for instance, can be quite accurately observed at the bedside. The character of the pulse, size of the heart, relief of dyspnea, disappearance of edema and increased diuresis give evidence of the action of the drug. With due consideration of the rôle played by rest, it is possible to determine with reasonable accuracy the actual effect of this agent. By multiplying the observation, we can obtain reliable data. There is, however, a rather small group of drugs that can be studied in this manner.

In another very large group of cases, we must pursue another method of investigation. In the majority of the acute infections, it is not the immediate effect of the drug that determines its curative powers, but the way in which it modifies the duration of the disease, the frequency of complications and especially the mortality. The variable duration and mortality of the same infection in different individuals being known, and also the variations in different epidemics and the effect of age and habits, it becomes necessary not merely to collect a large number of cases but actually to conduct a control series. The average clinician lays too little stress on the importance of control cases. We have numerous instances of the fallacy of drawing conclusions from statistics of a series of cases treated in one epidemic and comparing these with a series treated differently in another epidemic. In pneumonia, where the mortality is so dependent on the age of the patient, it would not be fair to compare statistics from a military hospital, where only young robust men are treated, with those

from a general hospital where all classes and ages are accepted. In the acute infections, however, it is necessary only to supply properly trained observers with a sufficient amount of material to obtain accurate data.

The investigation of another group of cases offers almost insurmountable difficulties. I refer especially to that class of functional nervous disturbances grouped under the name "neurasthenia." Many — and perhaps most — of the therapeutic fallacies now in our medical literature are due to the misleading results obtained from treating this class of cases. The neurasthenic is a creature of suggestion. A change of physician, a change of medicine or even a change in the flavoring extract used may be followed by marked improvement. The continued growth of Christian Science is largely due to the prevalence of neurasthenia. Psychotherapy has here its legitimate field. With the individual so open to suggestion, it is practically impossible to obtain accurate information in regard to the actual effect of a drug on the condition. Even more confusing to the therapeutists is the group of neurasthenic symptoms which very gradually envelop the patient, suffering from chronic organic disturbances. The patient with carcinoma, chronic nephritis or locomotor ataxia gradually acquires a group of nervous symptoms, the indirect result of the primary disease. It is often extremely difficult to determine which of these are functional in character and which are due to the organic lesions. Patients with a progressive disease like carcinoma may temporarily gain in weight and consider themselves much improved after a change of physician. The relief obtained in this group of cases after taking up Christian Science or certain fake cures is due to the disappearance of these functional nervous disturbances. Reports of marked improvement and even cures in chronic conditions generally recognized as incurable are not confined to the outcasts or hangers-on of the profession. Responsible medical men may often be deceived in this class of cases. At the time when Brown-Séquard's testicular extract came into vogue, some well-known physicians reported remarkable results in locomotor ataxia after its use.

We might multiply the sources of error and the remedies to be applied. The above, however, is sufficient to call attention to some of the salient features. The outlook is exceedingly encouraging, and while we may chafe at the delay, development along the right lines is already well under way. The therapeutics of to-day is far in advance of that even of ten years ago. While new obstacles are appearing, along the entire line there is distinct evidence of improvement. The limitation of drug therapy is better understood, and has led to development along the lines of diet, hygiene, etc. Most encouraging is the stand taken by many of our patients that they prefer to be treated if possible without taking a lot of medicine. Our teachers in medicine are each year growing more conservative. Each year will register the elimination of some therapeutic fallacy and herald the acquisition of therapeutic knowledge acquired by scientific investigation.

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ABSTRACT OF DISCUSSION

DR. GEORGE D. KAHLO, French Lick Springs, Ind.: The tendency in the teaching of modern therapeutics is to dwell entirely too much on the treatment of disease by drugs alone and to give too little attention to the subjects of therapeutic suggestion, climatology, hydrotherapy, exercise, diet and other measures which often are of much greater value than the use of drugs themselves.

DR. JOHN P. SAWYER, Cleveland: It is one thing to look on drugs as having an action, it is another thing to look on drugs as having an action peculiar to this or that tissue of the body. In our common use of the terms "drug action" and "therapeutic effects of drug" we are actually losing sight of what is known to both the physiologist and pathologist, that in drugs, heat, electricity, massage, hydrotherapy, we are using merely stimuli applied to the organism which we are seeking to aid in its struggle against disease, and that the pharmacologist and the medical man can get together a little better with caution in regard to the use of this term "drug action." It is convenient, but it is a little befuddling at times. We think too much of the drug itself and not enough of the personality of the patient with whom we have to deal.

DR. S. SOLIS COHEN, Philadelphia: Dr. Kahlo is too severe in saying that the subject of physiologic therapeutics does not now receive attention in the medical schools. Certainly, in the leading schools the professors of medicine and of therapeutics and their assistants lay great emphasis on all of the measures to which I have ventured to apply that title. In fact, the pendulum now is in danger of swinging too far that way, owing to injudicious and extreme public utterances by certain physicians. Should a patient come to me and say "I want to be treated without medicine," much as I favor that method in appropriate cases, I would tell that patient to go to some other physician. The function of the physician is to help his patient; it may be by suggestion, by a drug, by heat, electricity, mechanical manipulation, diet or exercise, but the physician and not the patient must be the judge of what is the best measure. I dislike all such terms as "cure," "remedy" or "drug action." I protest against the implication that, whatever may have been the situation two decades ago, at present physiologic therapeutics is not thoroughly emphasized. To me the danger seems rather that the medical student and the medical public may underestimate the very potent help that lies in drugs properly selected and judiciously used. Not only must we get rid of the term "drug action," however, but we must also get rid of any implication that it is the drug that works the effect, and not the reaction called forth in the tissues. Nevertheless, without the drug there would be no such reaction. But I do think we must go a step further in our conception of disease—disease as a whole, not special forms of disease. I have formulated the phrase that "disease is the struggle for health." Unless we look at it from that point of view I think we shall be very much misled. Take acute infections as one class, for example. When bacteria invade non-organic matter or dead organic matter there is no reaction except the mere destructive changes that take place. But when they invade a living organism there is an intense reaction, reconstructive as well as destructive. That whole reaction is disease; hence it is the struggle for health. Unless we realize that it is our duty to guide that struggle and to hold it within bounds, to limit destructive reactions, to aid and supplement reconstructive reactions and to prevent unbalanced reactions from introducing new dangers, and that this is all we can do with our drugs, or our other measures, even our quinin, our salvarsan, our antitoxins, our vaccines—then we are going to make mistakes whether we diet our patients or drug them or simply fold our arms and look at them.

DR. W. BENHAM SNOW, New York: We should not hesitate to use the word "cure" when we can restore normal conditions. Our patients want the encouragement and should have it, provided we have the means to effect it. The idea that we fear to use that term is unfortunate. If I have an early case of sciatica with the neuritis at the sacrosciatic notch, I do not hesitate to tell the patient that he will be well in ten days; that he will be cured—not tentatively, but actually cured, for one who employs the proper method can rarely fail. To the physical measures to which Dr. Solis Cohen referred we are looking for the possibility of actually and promptly curing many conditions. The pendulum has not swung so far yet as it will swing. It is not going backward; it is still going outward.

The use of physical therapeutics is going to be taught in the medical colleges some day as it should be. It accomplishes results that can not be accomplished with drugs,

because it actually does the things to restore the tissues to a normal condition. We cannot think of disease under any name. The condition that we find is a symptom-complex; it is not one disease. Each disease has its source in some preceding cause. It is the deteriorated condition which makes possible the inroad, and in the treatment of disease we must not consider alone the condition we find, but we must consider the condition that led up to it and meet the condition from the point of view of nutritional metabolism and restore the nutrition processes. We must treat the patient and not a disease.

HIGH-FREQUENCY DESICCATION, FULGURATION AND THERMORADIO THERAPY

THEIR USES IN THERAPEUTICS *

WILLIAM L. CLARK, M.D.

PHILADELPHIA

Since the advent of high-frequency electric currents, various investigators have sought to determine their value in therapeutics. The literature on this subject is chaotic, and the opinions of different clinicians of equal standing are at variance. This is probably explained by the fact that there has been no standardization of apparatus or methods, and on account of the great variability of these currents as to strength and quality, hardly any two men who sought to compare results were employing exactly the same currents. To compare, then, the conclusions of men who specialize in other fields and who have not the time to devote to the intricacies of the newer electric methods would be misleading to those who seek exact data and unjust to the originators who have developed an exact technic and are skilled in the use of their own instruments. Of the later electric methods which seem to have a tangible value are high-frequency desiccation, fulguration and thermoradiotherapy.¹

HIGH-FREQUENCY DESICCATION

Desiccation of living animal-tissue is an effect produced by the proper application of an accurately measured electric current of high tension. For superficial destruction no bare electrode comes in direct contact with the tissue, but the current from one pole is concentrated and thrown from a metal point through an air space to the tissue in the form of sparks of great frequency, the other pole being grounded. For deeper destruction the bipolar method is used; the metal point is brought in contact with the tissue and the large passive electrode is placed at some indifferent part of the body. A static machine of large output (2.5 to 3.5 milliampères) is used to produce the initial current, which is stepped up by a carefully measured capacity (0.00042 microfarads to each Leyden jar), and an accurately attuned resonator. The current from a coil or any magnetic device will not produce the desiccation effect on account of the interruptions in the primary, and as no discharge can be transmitted to the body until such interruption occurs, the current is delivered in a series of hot discharges which render the thermic degree inconstant and the impact against the tissue painfully severe. A steady

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. The following references, which I am able to add on correcting the proof of this article, will supplement this paper:

Clark, W. L.: The Destruction of Surface and Cavity Neoplasms by Desiccation: A Preliminary Report, *New York Med. Jour.*, June 10, 1911; High-Frequency Desiccation, Its Uses and Limitations in Surgery and Dermatology: A Second Report, *Month. Cycl. Prac. Med.*, August, 1912; Electric Desiccation as an Adjunct to Surgery, with Special Reference to the Treatment of Cancer, *Surg., Gynec. and Obst.*, August, 1912.

flow is necessary as is procured from the static machine, but it must be of large output and subject to perfect control, or it will fall short of the desiccation point.

Desiccation should not be confused with fulguration, high-frequency cauterization or coagulation. The first devitalizes by drying the tissue; the second shocks and produces hyperemia, but does not destroy, and the third is essentially the same as an ordinary cautery, though perhaps deeper in effect. It is possible with this same apparatus, by attaching a controlling device, to produce all thermic degrees, ranging from hyperemia to cauterization. The desiccation-spark is not hot enough to carbonize, but only sufficient to cause rapid dehydration of the tissue, rupturing the cell-capsule and converting the area treated into a dry mass. It has the power of penetrating into the tissue from a small fraction of an inch to an inch, or even more, depending on the frequency, distance of the electrode from the body, time of exposure and density of the tissue. Not only can an area the size of a pin-point be desiccated without infringing on the normal tissue, but a growth of considerable size may be destroyed with one application, though this is not always desirable.

Desiccation destroys tissue without opening blood- or lymph-channels, and will act as a styptic when there is oozing of blood. It sterilizes all tissue on which it acts directly, as has been shown by careful experimentation with cultures taken before and after treatment. The desiccated tissue acts as a foreign body and a positive chemotaxis is promoted, which probably accounts for the rapid repair. The dry crust which forms acts as a natural dressing and separates in from three days to one week. Regeneration of skin or scar-tissue usually takes place underneath the crust. The method is not very painful if applied with correct technic. In super-sensitive individuals a local anesthetic is employed, either by topical application, in the case of mucous membranes or ulcerated surfaces, or by infiltration when the area is covered with skin, although the latter is never practiced when there is a suspicion of malignancy, the ionic diffusion of cocaine being preferable. In rare cases a general anesthetic is required.

CONDITIONS IN WHICH DESICCATION MAY BE USED

Warts and Moles.—These are usually destroyed by one application. A dry crust at once forms, which separates and falls off in from three days to one week, depending on the size of the area destroyed. Regeneration of skin takes place underneath the crust. The slightly red area gradually fades to normal color. There is no contracture as from a burn, and the cosmetic effect cannot be improved on by any other method. There is no doubt about the wisdom of removing these lesions for other than cosmetic reasons, as it is a well recognized fact that sometimes cancer has its starting point in an apparently innocent wart or mole.

Pigmentations, Vascular Nevi, Angiomas and Tattoo Marks.—The results in these conditions have been very satisfactory. It is advisable to complete the destruction at one sitting, unless the lesions are very large, when a number of applications may be necessary. When these lesions are superficial, new skin is formed; if deep, scar-tissue or a combination of skin and scar-tissue. The cosmetic effect depends on the depth of destruction. Care should be taken to destroy the tissue perfectly evenly and not too deeply, as there may be cupping, irregularity of surface, and if the spark is too hot, even a keloid. This may be avoided, however, by careful technic.

Chronic Varicose Ulcers.—The exuberant granulations are desiccated, after which ordinary methods, such as strapping and the silver nitrate stick is employed. Several cases which had resisted ordinary methods of treatment healed quite rapidly after the granulations were desiccated.

Acne.—An attenuated spark of the same type as above is used, but it is not carried so far as actual destruction. The primary effect is local anemia, followed by an intense hyperemia. This method is very efficient when used in conjunction with proper constitutional treatment.

Growths in the Bladder.—By the use of a catheterizing cystoscope, an insulated wire may be passed through the instrument, the bladder being inflated with boric acid solution or sterile water, and tumors may be readily destroyed by desiccation. When this current is passed through fluids, the intensity should be slightly increased and the wire brought in direct contact with the growth. This work may, however, be done by high-frequency cauterization and coagulation, as has been reported by various writers during the past year.

Rectum.—Using a special air inflation proctoscope through which an insulated wire is passed, growths may be reached for a considerable distance up the rectum. By this method, papillomas, ulcerations, cancers (for palliative treatment) and hemorrhoids, if for any reason operation is refused or contra-indicated, may be treated.

Larynx.—In suitable cases tumors of the larynx may be destroyed by desiccation. The laryngoscope or ordinary laryngeal mirror is employed to expose the interior of the larynx, and the current applied by means of an insulated wire, curved like a laryngeal applicator.

Eye.—Desiccation may be applied to the conjunctiva in trachoma, dry granular conjunctivitis, epithelioma and to the cornea for granulating ulcerations and pterygium. There is no danger in working near the eye, as the control of the desiccation current is absolute.

Cancer.—Desiccation should be employed alone only in superficial epitheliomas. The destruction should be complete and carried beyond the diseased area. Blood- and lymph-channels are sealed, which would seem to render metastasis less likely. The results have been very satisfactory. In advanced epithelioma in which there is deep involvement of tissue, but without glandular involvement, curettage or excision should be practiced first, followed immediately by desiccation. It is employed in such cases only when the wound is left open. When it is necessary to close the incision, as in cancer of the breast or the cervical glands, desiccation treatment is not to be recommended, because the debris could not find exit, even with drainage.

In cancer of the cervix, if inoperable, desiccation as a palliative measure probably has an advantage over the curet and cautery. It may be done without a general anesthetic; it destroys as effectively, sterilizes, deodorizes and acts as a styptic.

In cancer of the mucous membranes, such as the tongue, the buccal surfaces or the lip, unless seen early, desiccation should not be employed alone, because the glands are usually involved, even though they are not palpable, for the diseased tissue must be accessible if a good result is to be expected with desiccation. The correct surgical procedure then is complete extirpation of the initial lesion and thorough excision of the glands likely to be involved, followed by desiccation if the wound is left open, or by fulguration if sutured, and then by the x-ray. In cancer that is absolutely inoperable, the x-ray should be applied. There is evidence

to show that seemingly inoperable cancer may sometimes be made operable by the intelligent use of the *x*-ray.

Among other conditions in which desiccation may be considered are: hypertrophie tonsils, in which there is contra-indication to operation, minor nasal growths, xanthoma, granulations on the tympanum, early Paget's disease, lupus, *x*-ray and senile keratoses, chancroids, granulations in the urethra, erosions of the cervix, urethral caruncle, condyloma, keloid, certain forms of eczema and parasitic skin diseases.

FULGURATION

Fulguration is a method advocated and devised by de Keating-Hart, of Paris, to be used in combination with operative measures, especially in the treatment of cancer. The growth with all adjacent glands is first thoroughly excised, and the wound is at once treated with a bombardment of high-frequency sparks from 4 to 8 inches long. The initial current is obtained from an induction coil and stepped up by a capacity such as Leyden jars and an Oudin resonator. The fulguration applicator consists of a curved, hollow, hard rubber tube 14 inches long, the greatest diameter of which is 1½ inches, and tapering so that the end from which the sparks are delivered is one-fourth inch in diameter. A rubber handle 10 inches long is attached to the tube nearly at right angles to protect the hand from sparks. A hollow, graduated, metal tube 8 inches long is inserted into the proximal end of the hollow rubber tube, a stiff wire taking up the rest of the distance to the distal end. Filtered and cooled sterilized and compressed air is passed through the hollow metal tube while the sparks are passing to prevent burning of the rubber, and to blow away blood from the field so that the sparks may strike the tissue direct. The metal tube may be withdrawn so that any length of spark desired may be obtained.

The time of exposure depends on the size of the area to be treated and the character of the condition. Roughly speaking, an average case of cancer of the breast requires about ten minutes to fulgurate it thoroughly. The physiologic action is not positively known, but is probably due to an alteration of nutrition of the tissues, which is said to render the soil less fertile for the proliferation of cancer-cells. Fulguration, as devised by de Keating-Hart, is never used for destruction of cancer or of any tissue. He has shown freedom from recurrence ranging from one to five years, even in advanced cases of cancer. This method is now being tested in Philadelphia and New York, but no positive personal conclusions can yet be drawn.

THERMORADIO THERAPY

Thermoradiotherapy is a term applied to a new method of applying the *x*-rays, the aim being to increase the efficiency of the rays. De Keating-Hart maintains that the radiosensitiveness of tissue is in direct proportion to its temperature—the warmer the part the more intense the action of the rays, and *vice versa*. To increase the temperature beneath the skin-surface, he uses a method known as thermopenetration, or diathermy, a high-frequency process which causes heat to reach deep into the tissue. To counteract dermatitis, in addition to the usual leather or aluminum filter, cracked ice between two layers of gauze is applied over the skin, or the surface is moistened with water and fanned to promote evaporation, thereby cooling it. De Keating-Hart asserts that the thermopenetration increases the deep action of the rays and that chilling the skin will prevent

dermatitis, even though the treatments are frequent and the dose massive.

It is a well-known fact that roentgenologists are hampered in treating inoperable or postoperative malignant conditions, because they dare not apply massive doses frequently on account of the danger of a severe burn, which shows little tendency to heal, and the long interval between treatments allows the cancer to gain headway. Indeed, there is evidence to show that malignant growths have been stimulated and have grown rapidly after the application of the ray. The probable reason for this is that a stimulating rather than a killing dose was given. The merit of Hart's method is that killing doses may be given without burning the skin, and the efficiency increased by deep heating of the tissue. Hart has presented evidence to show that probably his premise is correct. This method is also being tested in Philadelphia and New York, and the work thus far seems to verify Hart's contention. The method, of course, does not apply to skin diseases in which a superficial stimulating effect is desired, but only in deep lesions for which the *x*-ray is applicable. Thermoradiotherapy may be employed to increase the efficiency of desiccation and fulguration in the treatment of cancer.

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ABSTRACT OF DISCUSSION

DR. GEORGE E. PFAHLER, Philadelphia: Fulguration, as Dr. Clark has called attention to it and as described by de Keating-Hart, of Paris, is never used to destroy tissue. If the profession will get that one fact clear we shall have much less confusion in our literature. Some writers now speak of "fulguration" when they really mean "desiccation." Desiccation as originated by Dr. Clark is a dry process and should be, in my opinion, confined to the destruction of small lesions. Thermopenetration, on the other hand, is a cooking process, a coagulation process and can be used in the destruction of large growths, providing the destruction between the two poles will not destroy other important organs in line, because by thermopenetration one destroys everything between the two poles, when used for destructive purposes. Thermoradiotherapy, I feel, will have to be used with a certain amount of conservatism because the application of ice by no means insures safety from burning of the surface and of the skin. The heating of the tissue by the high-frequency current preceding the application of the rays will increase its effect, but it will likewise increase the surface effect. I believe that the ice as applied by Dr. de Keating-Hart is not sufficient protection and that there is great danger.

DR. W. BENHAM SNOW, New York: I wish to ask Dr. Pfahler if he would modify his statement concerning thermal penetration burning everything between the electrodes. It is only when much current is employed that this occurs. Otherwise the current is employed to heat the intervening tissues and thereby induce locally an active hyperemia. Doyen applies a large metal electrode to a remote surface and a small one to tissue which he would destroy. We place large electrodes on opposite surfaces and pass enough current through to produce an active hyperemia in the interval. A demonstration is made of the profound effect of cooking a piece of meat by passing the high-frequency current through it. Applied to the body the accelerated circulation allows much heat to pass through without danger to the tissues.

We should not leave the impression that thermal penetration is necessarily a destructive process. Dr. Clark has given a most scientific and well-defined technic for the use of these methods. Those who understand the principles could follow them and obtain the same results. It is a destructive process and when proper judgment is exercised as to the depth and extent of the effect produced, it is a process which removes superficial abnormalities and growths in the most effective and practical manner. Oscillatory desiccation as described by Dr.

Clark differs from the method employed by those who are reporting numerous cases of papilloma treated with the hot spark from high-frequency coils which they term "fulguration." They are not using the desiccation method as described by Dr. Clark. That method should be called *destructive fulguration*, in contradistinction to the method of de Keating-Hart which was demonstrated in this country last winter, and the results of which are being carefully investigated in New York. Dr. Clark produces a drying effect which differs from the other method. His method requires a more precise technic, with more skilful adjustment of apparatus and it is generally more successful.

For destroying malignant growths thoroughness is imperative, otherwise the growth is stimulated and promptly recurs. It should therefore be absolutely destroyed at the first application.

DR. W. H. SCHMIDT, Atlantic City, N. J.: I find that in those conditions in which I have used desiccation, especially in surface growths, or any accessible growths, the effect has been very good and the cosmetic result following the removal of these growths as near perfect as it was possible to obtain. It has also been my pleasure to follow several bladder cases in which the desiccation method has been employed. I think this phase of the subject has opened up a wonderful field because the subject of papilloma of the bladder is a very serious one. The fact that by means of this method you can destroy papilloma without the necessity of giving the patient a general anesthetic (and, as a rule, the patient who has had a papilloma of the bladder for any length of time is pretty weak) appeals to me as its strongest point. Furthermore, papilloma of the bladder has a marked tendency to recur and by the use of this method in case the papilloma does recur in a certain length of time it is a very simple matter to go into the bladder again with the cystoscope and destroy the recurrence. It will not necessitate a second surgical operation.

DR. C. L. GRABER, Cleveland: Has Dr. Clark ever used a local anesthetic, such as ethyl chlorid, before using this method in the destruction of warts and like growths? Also, what experience has he had in the use of the *x-ray* in palmar dermatitis and what result has he obtained?

DR. WILLIAM L. CLARK, Philadelphia: By application to a given area of very mild sparks preliminary to desiccation, the part becomes blanched and partial anesthesia ensues, usually sufficient to render the treatment bearable. In supersensitive individuals, local infiltration is to be recommended, except in cases of malignancy. I prefer a 1 per cent. solution of quinin and urea hydrochlorid to cocain, because it seems to be quite as effective, is non-toxic, less expensive and more prolonged in action. In ulcerated surfaces, the topical application of a 20 per cent. solution of quinin and urea is quite satisfactory. In two cases of extensive *x-ray* keratosis in which extreme sensitiveness existed, nitrous oxid gas was administered. My definition of the uses and limitations of desiccation is based on nearly 4,000 lesions treated personally by this method.

I quite agree with Dr. Pfahler that it is too early to assert that cold applied to the skin will give absolute immunity from *x-ray* dermatitis, but as there appears to be some tangible evidence that the *x-ray* may be applied with greater safety and efficiency by this method than by those now in use, co-workers should not hesitate cautiously to put it to the test. De Keating-Hart's observation that *x-ray* workers who possessed habitually cold hands had milder *x-ray* lesions than those with warm hands, and his personal statement to me of his belief in thermoradiotherapy based on experience with actual cases, led me to give it a trial. The fact seems worthy of note that during the past five months I have been able by this method to administer tremendous doses of the *x-ray* without burning or even tanning of the skin. The failure of massive *x-ray* dosage to produce burns may not be due to the temperature of the skin *per se*, but possibly to ischemia due to the application of cold, and conversely the greater efficiency of the ray may be due to the resulting hyperemia after the application of heat, these effects may possibly be brought about by some other means. This is an open question which will doubtless be determined later.

BACILLARY DYSENTERY

A CONTRIBUTION TO THE STUDY OF THE EPIDEMIOLOGY*

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Under the direction of Dr. Samuel G. Dixon, commissioner of health of Pennsylvania, I have had an opportunity to study the infections by members of the typho-colon group, and with his permission the results are now presented as a preliminary report.

The bacilli classified in this group of microorganisms possess such great differences in pathogenic characteristics and so many points of similarity in morphology and biology that infections by members of the group often present difficulties in establishing an individual clinical as well as an epidemiologic diagnosis.

It is especially desirable in this paper to discuss, in their epidemiologic relations, infections by members of the group giving rise to dysentery as the chief clinical characteristic, and the relation of outbreaks of dysentery to typhoid fever.

The work of Shiga and all who have since studied the dysentery bacilli has led to the etiologic division of infections by these microorganisms into two forms, bacillary and amebic dysentery; there is reason to add to this classification the form caused by the presence in the intestinal tract of the *Balantidium coli*, namely, balantidic dysentery. The last two forms will not be discussed in this paper.

In Pennsylvania, for the purpose of supervision and control, all forms are required by law to be reported to the health authorities under the term "epidemic dysentery." In only seven states and territories, California, Louisiana, New Jersey, Pennsylvania, Texas, Hawaii and Porto Rico, has an attempt been made to control the spread of this disease. The actual reporting and supervision of cases of dysentery except of the amebic type, however, so far as I have received information, is not practiced in any health jurisdiction of America. Under the jurisdiction of Hawaii and under the direction of the federal government in the Panama Canal Zone and the Philippine Islands, amebic dysentery is required to be reported and placed under certain quarantine regulations. In Pennsylvania, since the organization of the State Department of Health in 1905, there have been nine epidemics which were sufficiently large to investigate because the attention of the department was directed to them by reason of the mortality or of the association with typhoid fever, or because of the relation of sewage from the affected district to the public waters of the commonwealth.

Studies of outbreaks of proved water-borne disease in Pennsylvania have demonstrated the prevalence of acute bacillary dysentery and in many instances its relation to typhoid fever.

HISTORICAL

In Johnsonburg, Elk County, with a population of 4,200, during August, 1905, there was an epidemic of dysentery, the extent of which could not be learned (but

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* Because of lack of space, this article is abbreviated in THE JOURNAL by the omission of the charts. The complete article appears in the Transactions of the Section and in the author's reprints.

which was admitted to be very large), about ten days prior to the development of twenty-nine cases of typhoid fever as diagnosed clinically. There was no mortality during the outbreak of dysentery, but five of the typhoid fever patients died, a mortality of 17.2 per cent. The local diagnosis was "dysentery," but apparently it had no significance to the local health authorities. No bacteriologic analyses were made except that the water-supply was shown to be polluted with sewage organisms, the source being evidently from a lumber camp located on the banks of one of the streams supplying the borough with water and containing twenty-two men who had suffered with "bowel complaint."

In Warren, Warren County, with a population of about 10,000 at the time, an epidemic of "intestinal disorder" which is shown to have been water-borne, occurred during April, 1906, at which time 406 cases developed, not violent enough in character to require medical attendance. During the same year, between the dates of December 7 and 12, there occurred an estimated number of about 1,800, 600 persons being taken ill during one day, with the local diagnosis of "gastro-enteritis resembling mild ptomain or arsenical poisoning," the general features of which were sudden severe cramps in the abdomen followed by diarrhea, vomiting and great weakness. A few patients had high temperature followed by syncope. The excreta were watery and brownish. The duration of the illness was from three to six hours in the great majority of cases, followed by recovery. Others were more severely ill for thirty-six hours or longer. The laboratory examinations showed the water to be polluted with sewage organisms. The examination of the feces showed the prevailing microorganism to be a Gram-negative rod, apparently a bacterium, with characteristics which were common to *Bacillus aerogenes capsulatus* and hog cholera. It was negative to guinea-pigs. No organism suggestive of typhoid bacillus or cholera vibrio was discovered in water or feces. This outbreak was not followed by any known cases of typhoid fever.

In Kittanning, Armstrong County, with a population of 4,500, there occurred in January, 1907, a sudden and wide-spread outbreak of gastro-intestinal disorder which varied in severity from cases of simple diarrhea to cases presenting the symptom-complex of dysentery. It was shown that transient visitors to the town were particularly susceptible. The general features were sudden onset, accompanied by vomiting, purging and profound prostration. Other cases simulated influenza of the so-called abdominal type. In a certain number of cases there was severe rigor followed by temperature of the remittent type, general muscular pains, bronchitis and marked malaise. Many of the cases simulated typhoid fever, but as they improved on or about the tenth day the diagnosis of typhoid fever was not made. The outbreak followed immediately after certain changes in the public water-supply during the first week in December, and December 26, the first one of fifty-one cases of typhoid fever was reported to the local board of health.

At Mount Gretna, Lebanon County, in a military camp, during July, 1909, there was an outbreak of dysentery which was followed within one or two weeks by an unstated number of cases of typhoid fever. It was shown to be a water-borne infection. There was no bacteriologic analysis.

In that portion of Allegheny County in which 18,000 persons are supplied with water by the Ohio Valley Water Company there occurred during January, 1909, a

dysenterial disease, the local diagnosis of which was "gastro-enteritis." The prevailing symptoms were abdominal pains followed by vomiting, diarrhea, lassitude and copious and watery excreta, lasting for a period of from three to seven days. An actual census of the cases showed that 2,887 persons, or nearly 16 per cent. of the total population, were ill. Analysis of the public water-supply showed the presence of sewage organisms and three weeks from the date of onset of the first cases of dysentery there developed sixty-three cases of typhoid fever. The mortality was six, or about 10 per cent.

In Erie, Erie County, with a population of 66,525, there occurred during December, 1910, and January, 1911, two outbreaks, the local name for which was "winter cholera." These followed unusually severe north-east gales on Lake Erie, from which the water for the city supply is taken. The public supply became unusually turbid shortly after December 1 and almost immediately afterward there was a marked outbreak of acute enteritis appearing in all parts of the city, which by many physicians was called "intestinal grip." Clinically the disease, according to Dr. J. W. Wright, county medical inspector for the State Department of Health, and city health officer, was as follows: sudden onset with slight constitutional disturbance but characterized by severe abdominal pain, and followed in a few hours by frequent, profuse, watery stools; the discharges were offensive and accompanied by much flatus.

In the more severe form there was a moderate rise in temperature, all of the symptoms being more aggravated, and in some instances accompanied by intestinal hemorrhages. In mild cases the patients recovered within two or three days but cases of the more severe form lasted from ten days to two weeks and frequently were marked by relapse before complete recovery. Cases presenting these symptoms were first observed about December 10, the acme of the outbreak lasting about three days, on or about December 15. Various estimates have been made as to the total number of cases and it is generally agreed that there were probably 20,000 cases in this one outbreak. Typhoid fever, which had been practically endemic in Erie, immediately increased in the number of reported cases, the height of the outbreak occurring December 25, as indicated by the dates of onset. The number continued relatively great up to Jan. 10, 1911. Following the same storm history and tidal history of the lake waters, during the early part of January there occurred a second outbreak of dysentery of the same type, during which, however, a lesser number, probably 10,000 persons, became ill. Following this outbreak of dysentery there occurred another outbreak of typhoid fever, the height reaching its greatest point about February 1, and slowly subsiding until measures were instituted by the State Department of Health under the direction of Dr. Samuel G. Dixon.

To recapitulate: There occurred in Erie during December, 1910, and January, 1911, an outbreak of dysentery with a conservative estimated number of 30,000 cases, each outbreak being followed within a period of ten days, as indicated by the height of the curve of onsets of those cases studied, by a total of 886 cases of typhoid fever and 126 deaths, or a mortality of 14 per cent. The percentage of deaths from the dysentery infection cannot be properly estimated.

In Chester, Delaware County, with a population of 38,537, there occurred during January, 1910, an outbreak of dysentery which was diagnosed locally as being "winter cholera" and was traced to the water-supply of

a manufacturing company employing 7,000 wage-earners. The total number of cases has not been correctly estimated but it was shown that the absentees between January 3 and January 25, because of dysentery, ranged from eighty-eight to 265 in a single day. No increase above the normal typhoid fever rate for Chester followed this outbreak. There were no deaths.

Engineers from the State Department of Health discovered and immediately abated the source of the water pollution; a field laboratory was established by direction of the state commissioner of health and thirty-three suspected cultures were isolated from stools of the patients; twenty-nine proved to be *B. coli communis*, various forms of cocci and a few *B. aerogenes*. One of the remaining four was *B. cuniculicida*, closely related to the swine plague group. The other three were found to belong to the colon bacillus group and hog cholera group and most closely resembled *B. poelsii* but differed somewhat in growth on milk and potato. They differed from the hog cholera bacillus in their action on milk and in their indol production, which was, however, very slight. They were called paracolon bacilli because of the sugar reaction and action on milk and slight indol reaction.

The three cultures were isolated from two stools of the sick, one case being well advanced and the other just past the height of the infection. The other cultures did not show any of these colonies, but one acute case, although showing none of these organisms in the stool, gave a positive serum reaction. The biologic characteristics noted are found in several of the meat-poisoning group but do not correspond exactly with any of the described forms. The bacterium was isolated from one case just past the height of the condition and one convalescent. It was agglutinated by the serum of one early case but was not agglutinated by the serum of the patients from whose stools it had been isolated. There is no reason to believe that the clinical course of the case giving the agglutinating serum is any different from the courses assumed by the other cases. Other samples of water were incubated and after thirty-six hours were fished for colonies resembling *B. dysenteriae*, the paracolon bacillus and *Vibrio cholerae*. None were found. Larger numbers of *B. coli*, however, were found in the sediment of the drinking-supply as well as in the sediment of the raw river-supply. The organism recovered corresponds biologically to the bacillus of Poehl, recovered from patients in an epidemic of dysentery in Rotterdam.

During February of 1912, I was assigned to investigate the reported cases of "Asiatic cholera" in Iselin, Indiana County, which is an unorganized community with a population of 2,700. The outbreak was proved to be a water-borne infection, the spring source of which was polluted directly by the excrement of hogs and chickens and a more remote pollution by human excrement. The early cases were marked by an abrupt onset and propulsive, watery evacuation (intestinal hemorrhage occurring in one), with vomiting and abdominal pain. There were a few cases with elevated temperature, the major number having subnormal temperature with marked prostration. The first of these patients was seen on or about February 1, and as only a fraction of the total population obtained water from the infected source and as all who sickened were Polish or Hungarian in nativity, it was not proved, but was apparent, that the earliest cases were of a dysenterial type. Later, after February 10 or 11, fifty-three cases, in part typical

cases of typhoid fever, in part simulating typhoid, developed.

During September of 1911, I was assigned to investigate an outbreak of dysentery in Bethlehem, Lehigh County, which has a population of 12,837. Acting under the authority of the act of assembly dated May 11, 1909, the physicians were required to report all cases under their care. This is the first time in Pennsylvania that dysentery has actually been reported during the course of an epidemic or otherwise.

A total of 408 cases was so reported and studied, though there was indisputable evidence that upward of 1,800 cases existed in the borough between the dates of August 1 and September 6. This outbreak of bacillary dysentery was followed by a total of eighty-eight cases of typhoid fever, the maximum number of cases being reported three weeks from the date of subsidence of the dysentery outbreak. The clinical features of the dysentery were abruptness of onset and the great variation in the course and character of the symptoms, as has been noted in certain previous outbreaks. The source of the infection, except to certain members of the local board of health, was not apparent to the residents of Bethlehem, and many persons ascribed it to temperature and other meteorologic changes.

Bethlehem's water-supply is obtained from springs, and the residents boast of having the second oldest water-works in the United States. The geologic formation is almost entirely limestone and the sewage in this very old community has been for years directed into crevices of the limestone formation. The spring is at the base of the hill and unquestionably receives some portion of the 100,000 gallons of water, plus the sewage which passes into these crevices during every day of the year.

The analysis of the water showed, in addition to the *B. coli communis*, the presence of the *B. alkaligenes*, *B. suicidus*, the *B. acidi lactici* and a form corresponding to the strain of the dysentery type described by Rosen. The blood of seven known cases of dysentery infection agglutinated the last-named microorganism in dilutions of 1:50, which was the only dilution employed, while reactions with the *B. poelsii*, paracolon bacillus, *B. dysenteriae* (Shiga) and *B. enteritidis*, (bacillus of Gaertner) were negative when studied in the same dilutions. Blood from the same patients was studied in relation to *B. typhosus* and *B. paratyphosus* A and B, with negative results. The same organism was recovered later from the feces of two of the patients and corresponded in all of its biologic features with the microorganism which was recovered from the water-supply of the borough.

* TYPES AND PATHOGENICITY OF ORGANISMS

There is no question as to the relation between organisms of the dysentery group and the diseases classified as acute dysentery. It is obvious, from the work of many investigators, that there are many types of dysentery bacilli and that each type may be the factor in an outbreak or apparently there may be mixed types, as noted by Gay, Duval, Hastings, Shiga, Park, Hiss, Russell, Whitmore and many others. The variations, both in the type of organism and in the clinical phenomena, have until recently made the diagnosis confusing. Recently it has been possible to classify the many strains belonging to this group, which have been isolated and carefully studied, into three distinct varieties of types. The type most frequently found in severe epidemics and the one which probably contributes to the highest mor-

tality is known as Type 1 and includes the Shiga organism and all strains which have similar biochemical properties. Types 2 and 3, as a rule, cause a much milder clinical course; both are biochemically more nearly like strains of the colon group than are members of Type 1.

The bacilli of Type 1 do not produce indol and do not ferment mannite, maltose or saccharose; they produce agglutinins specific for strains of their own type and but little for members of other types. Type 2 ferments mannite with the production of acid reaction but does not split maltose or saccharose in peptone solution or agar; it produces indol and also produces agglutinins specific for strains of its own type. Type 3 is nearest the colon group since it produces indol and actively ferments mannite and maltose but acts feebly on saccharose.

The organism isolated from feces in the Warren epidemic would seem to conform to Type 3 though the identification by cultural and other methods was not carried out in detail. Clinically, the course of the disease in all cases introduced by this microorganism was mild.

The type isolated from feces in the Chester epidemic would also seem to be identified with strains of Type 3 since its characteristics resembled closely the bacillus isolated by Poehl, which can properly be grouped as a paracolon organism. The organism recovered from both feces and water during the Bethlehem epidemic corresponds to Type 2, however, as shown by its biologic characteristics; indol was but feebly and inconstantly produced; dextrose and mannite were fermented with the production of an acid reaction; saccharose was not fermented and there was no gas production. The serums of patients from whom it was isolated and the serums of other patients suffering with the same clinical course agglutinated this organism in dilutions of 1:50 before the end of one hour and failed to agglutinate the *B. dysenteriae* (Shiga) and the *B. poelsii* (isolated from feces in the Chester epidemic). Studies with immune serums of known strains were not made.

Park suggests restricting the name "dysentery" to infections by the Shiga type and "paradysentery" to all infections by forms which fall into the other two types, giving as reasons their greater similarity to the colon group, as indicated in indol production, greater range of carbohydrate activity, and also the fact that they give rise to a much milder clinical type of reaction. Were this suggestion followed it would be less confusing for the practical purposes of both study and control. The pathogenicity of the types here reported would, then, correspond to the paradysentery type as the course of cases of the major number of epidemics studied was mild, and as a result the mortality was very low; in those instances in which an organism was isolated and identified, it was shown to belong to Types 2 and 3.

SEASON AND AGE

Infections by Type 1 are said to prevail from early summer (June or July) to the end of October and practically to disappear during the winter months. In contrast, the epidemics studied in Pennsylvania show the following occurrence:

Warren, Warren County.....	April
Kittanning, Armstrong County.....	January
Ohio Valley.....	January
Erie, Erie County.....	December and January
Chester, Delaware County.....	January
Iselin, Indiana County.....	February

The Johnsonburg, Elk County, epidemic, however, occurred during August; the Mount Gretna, Lebanon

County, epidemic during July, and the Bethlehem, Northampton County, epidemic during September. It was possible to study the relation of the temperature range and the daily precipitation in relation to the dates of onset of the 408 cases in Bethlehem. Since two-thirds of these water-borne epidemics occurred during the winter or early spring months and a total of nine epidemics occurred during seven different months of the year, it would seem that there is no particular season for its appearance but that an outbreak of this disease depends on the association of an unprotected water-supply and the possibilities of sewage pollution; among other evident factors controlling the latter an unusual precipitation is of some importance. There is, however, some reason to believe that infections by members of Type 1 are more common during the summer months. It has been stated that young persons, particularly those between 20 and 30, are unusually susceptible. For this reason a tabulation of the cases occurring in Bethlehem with reference to age periods is introduced. It will be noted that practically no age period from the first to the seventieth year was spared and that while there is an apparent partial immunity beginning with the sixtieth year, it should be recalled that the proportional number of persons over this age is less in number than for younger age periods.

Age Period.	No. of Cases.
0 to 4.....	60
5 to 9.....	29
10 to 14.....	20
15 to 19.....	31
20 to 24.....	47
25 to 29.....	27
30 to 34.....	29
35 to 39.....	20
40 to 44.....	31
45 to 49.....	15
50 to 54.....	21
55 to 59.....	22
60 to 64.....	18
65 to 69.....	12
70 and over.....	19
Information refused.....	7
	408
Males	193
Females	215
	408

MORTALITY

As has been shown by the study of infections by Type 1 there is a very wide range of mortality; that given by Shiga for Japan is from 22 to 26 per cent.; by Kruse for Germany, 10 per cent.; by Rosenthal for Russia, 12 to 17 per cent.; and Manson states that while Europeans in India suffer a mortality of 3 to 22 per cent., the native loss is 36 to 40 per cent. Park, in studying infections by mixed types in and about New York City, found that there was a mortality of 6 per cent; about 50 per cent. of the cases studied by him showed the *B. dysenteriae* (Shiga-Kruse) in the feces. The clinical course was severe and the mortality high as contrasted with the other cases studied. In the feces of the other 50 per cent. various strains of the other two types were found. No age periods are mentioned by him. The mortality of epidemic dysentery in Pennsylvania has not been studied except in the instance of Bethlehem, where but four cases, or less than 0.4 per cent., resulted fatally. It should again be recalled that the Bethlehem epidemic was in all probability caused by a strain belonging to Type 2.

The average annual death-rate in the registration area of America for the years 1906 to 1910, inclusive,

was 595,731. Of these 496 are credited to cholera nostras, 2,947 to dysentery, 35,226 to diarrhea and enteritis under 2 years of age and 7,110 to diarrhea and enteritis over 2 years of age. From these figures it is obviously impossible to estimate the number of deaths from acute bacillary dysentery since there are included under the four titles cases of bacillary dysentery diagnosed as "summer diarrhea," acute colitis, acute enteritis, the various chronic inflammatory conditions of the gastro-intestinal mucosa and also acute and chronic conditions not bacillary in origin. These will be referred to in a separate contribution.

Unquestionably epidemics differ widely in severity, depending on the type of microorganism, its casual relation to other pathogenic forms, and, to some extent, the degree of sewage pollution.

EPIDEMIOLOGY

While cultural characteristics, agglutination reactions and bacteriologic phenomena make it possible to distinguish sharply between types, the process resulting from the infection by any type is a pathologic one and becomes the problem of the epidemiologist. The most important source of infection, as in typhoid fever, is the patient himself, and the care of the dejecta constitutes the most important single item of sanitation.

The disease is endemic in a large portion of the world and each case may be the cause of a widely distributed outbreak. That at Warren followed an infection of the borough water-supply by sewage from a lumber camp where cases of "bowel complaint" existed and the sewage was deposited on the banks of the stream. At Erie and Bethlehem the infection was unquestionably caused by microorganisms from the sewage of the residents of each city. The occurrence of cases secondary to large numbers of sporadic cases cannot be estimated.

There is no doubt that many persons are infected by contaminated food, particularly meat, milk and ice-cream; contact infection, especially in epidemics, occurs through the medium of infected clothing, infected food and the ubiquitous fly. In addition, the organisms belonging to this group have been found in the feces of healthy persons and in the intestinal mucosa of individuals who had no other evidence of dysentery: the possibility of infection by carriers is so demonstrated.

RELATION TO TYPHOID FEVER

The relation of bacillary dysentery to typhoid fever depends entirely on the casual association of the two forms of microorganisms in the sewage-polluted source of infection.

The simultaneous appearance, however, of a number of cases or the presence of a spontaneous epidemic of acute dysentery should be the indication for immediate investigation and abatement of the source of infection. If typhoid bacilli should be associated it will be the means of lessening the number of cases. Those already infected will show an onset some two weeks after the beginning of the subsidence of the dysentery outbreak.

The average period between beginning of subsidence of reported cases of bacillary dysentery and the onsets of the typhoid fever cases is fourteen days, the least recorded period being ten days, the greatest, twenty-one days. In the nine epidemics of dysentery studied there is a record of at least 55,000 cases of acute bacillary dysentery in a total population of 152,000; that is, 36 per cent of the population suffered from that one preventable disease. In five instances, or in 55 per cent., notable increases in the number of cases of typhoid fever

developed, 1,320 having occurred immediately after. The mortality for the latter was 14.6 per cent.

CONCLUSIONS

The following conclusions seem to be warranted by this study:

1. Bacillary dysentery should always be a reportable disease.

2. Sufficient power should be given to the health authorities to investigate and abate any suspected source.

3. Less confusion to the general practitioner results from a nomenclature broad enough to include all types of the causative organism.

4. While there is some warrant for the terms "dysentery" and "paradysentery," the more general one of "bacillary dysentery," in so far as preventive medicine is concerned, simplifies the problem both of diagnosis and of sanitary supervision.

5. There is apparently a notable lack of recognition of the etiology and probably of the pathology of cases infected by members of the dysentery group, resulting in a longer continuance of the infecting source and a higher mortality; this is evidenced in the varied diagnoses such as "diarrhea," "winter cholera," "intestinal grip," "grip," "gastric fever," "intestinal disorder" and many others.

6. Dependent on the casual association of the *B. typhosus*, outbreaks of bacillary dysentery may be followed within ten to twenty-one days by a marked increase in the number of typhoid fever cases. This occurred in five out of nine instances in Pennsylvania and may serve as a warning of the presence of the more serious infection; the immediate abatement of the sources would probably decrease the morbidity and mortality due to typhoid fever.

7. When it is recalled that the major number of cases of bacillary dysentery are mild in form, being caused by Types 2 and 3, that sporadic cases probably exceed the total numbers occurring in epidemics; that sporadic cases probably account for the large proportion of deaths under 2 years of age accounted for statistically as cholera nostras, dysentery and diarrhea and enteritis; that the disease is reportable in only seven states and territories; and that in the latter the law is not enforced, the only conclusion is that we have no definite collective information about the morbidity and mortality of the infection which properly should be called bacillary dysentery.

ABSTRACT OF DISCUSSION

DR. C. HAMPSON JONES, Baltimore: In our municipal laboratory we examine for the *Bacillus typhosus*, as well as for the paratyphoids. There is a regular process of examination of every specimen that comes in.

DR. RICHARD COLE NEWTON, Montclair, N. J.: I could not help but take particular heed to what Dr. Hunt said about Bethlehem, as Bethlehem has been infecting the city of Trenton. We have been getting 100 cases there at a time on the Delaware River, and it is supposed that they all start from Bethlehem.

DR. A. PARKER HITCHENS, Glenolden, Pa.: Some time ago I had occasion to look up the literature on paratyphoid fever. I was rather astonished to learn how very prevalent it is. Attention has been called to this fact a number of times but general interest has not yet been aroused. Wells stated that about 10 per cent of the cases in Chicago diagnosed as typhoid fever are actually paratyphoid. Kolle makes the same estimate for Germany, while Boycott found in London from 3 to 3.5 per cent. An epidemic of paratyphoid infection in this country was reported by Lyons in the *New Orleans Medical Journal*

about, I think, in 1910. The bacillus responsible for the epidemic was of the A type. The usual impression is that paratyphoid B infections are much more commonly diagnosed as typhoid fever than are infections by the paratyphoid A bacillus. Lyons believes that paratyphoid A is the more frequent offender, in New Orleans, at least.

He was the first to suggest the use of a mixed typhoid vaccine. If paratyphoid infection is anything like so prevalent as has been stated—10 per cent. of the conditions diagnosed as typhoid fever—even though the mortality-rate be not high, not more than 1, or 2, or 3 per cent. ordinarily, the economic loss due to the illness and enforced idleness is so great that there would seem to be no reason why we should not add the paratyphoids to the regular typhoid vaccine, as mentioned by Dr. Russell.

A short time ago I started an investigation to find out what bacteria are concerned in the infection in typhoid fever after ulceration has developed. I feel that the treatment of typhoid fever by a single vaccine, that is, a vaccine composed of typhoid bacilli alone, is not adequate at this stage. Once in a while therapeutic inoculation with typhoid vaccine is followed by remarkably brilliant results. We feel that at such times, in such cases, the infection is a pure typhoid infection. In other cases the typhoid vaccine seems to do no good at all; and these things happen so frequently that nobody can predict a favorable result. After ulcerations have developed, that is, after the second or third week, when typhoid patients usually reach the hospitals, the disease is not, bacteriologically speaking, a typhoid infection, but is a mixed infection and if one could prepare a suitable mixed vaccine, positive results from therapeutic inoculation might be more frequent.

DR. C. J. HUNT, Harrisburg, Pa.: I understand that in the laboratory in Baltimore the agglutination reaction has been worked out in every case of typhoid fever with *Bacillus typhosus* and all other group members. I should like to be informed whether I am correct in that understanding.

Under the direction of Dr. Dixon I made a tabulated list of the cases of typhoid fever occurring in the Lehigh Valley District, in order that they might know from where some of the typhoid organisms originated which were found in the Delaware. There is no doubt that much sewage escaped disinfection. The German statistics showing a mortality of 10 per cent. are probably more nearly correct, as the details worked out in establishing a diagnosis were studied more carefully. One point which seems confusing in the reports of German investigators is the apparent failure to differentiate between *Bacillus typhosus* B and the Gaertner bacillus. There is no sharp differentiation between paratyphosus B fever and meat-poisoning cases, from which the Gaertner bacillus has been isolated. It is my hope to make a report of these infections later.

The frequent occurrence of paratyphosus A infection has already been noted and is a matter of comment among those working in this field, particularly as to the differentiation between *Bacillus paratyphosus* A and *Bacillus typhosus*. There is apparently a group agglutination for these two microorganisms, a factor which can be determined only by observations on the titer limit in every case. My conclusions in the Coatesville epidemic were that we were dealing essentially with A infection, though I did not advance it as a portion of my paper. Had more extended observations been made there would be some justification for making a definite statement with reference to it. In South Bethlehem during the epidemic of *Bacillus typhosus* infection, I had an opportunity, through the treasurer of the Bethlehem Steel Works, acting for Mr. Schwab, to immunize about 10,000 employees. The result of the first day's work in that borough by ten census-takers showed that the outbreak was already abated and the enforced vaccination would have been scarcely justifiable. The use of vaccine in mixed infection is one I hope to work out in Pennsylvania. I shall, I think, have an opportunity in connection with further studies on this group of microorganisms. The latter will include studies on the titer limit, saturation and bactericidal properties.

THE ERADICATION OF THE SOCIAL DISEASES IN LARGE CITIES *

ROBERT N. WILLSON, M.D.

PHILADELPHIA

No more time need be spent in discussing the possibility or the impossibility of eradicating the contagious social diseases, syphilis and gonococcus infection than in relating their ubiquity or their influence on all classes of society. Suffice it to say that rich and poor, intelligent and stupid, moral, immoral and unmoral, innocent and guilty, are paying the price of centuries of an ignorant, ill-considered false modesty in terms of morbidity and mortality that probably surpass the sum of all other contagious influences combined. If a computation were made of the acute venereal infections, their complications and active sequelæ, the brain and cord lesions, the insanities and idiocies, the inherited and acquired deformities and destructive lesions, the partially and totally blind, the abortions and stillbirths, the operations on the abdomens of innocent as well as of guilty women, the male and female sterility, the army of infant deaths, the apoplexies, the lowered vitalities of those not manifestly diseased, the moral bias and weakness, and the degeneracies of mind and heart directly or indirectly traceable to the so-called social diseases, there would result a seriousness and perhaps a tendency to reflection throughout humankind that would forecast at least a profound upheaval. The physical results form only the beginning of the influence of the social diseases on the world at large. The broken homes, the divorces, the desertions, the suicides, the incapacity for work, the wages lost, the hospitals and asylums rendered necessary, the cost of treatment, form only a few of the points at which the diseases of immorality impinge on both the innocent and the guilty portions of society. It seems incredible that up to the present syphilis and gonococcus infection are, officially speaking, non-existent, and that as far as the national and to a great extent the municipal authorities are concerned are deserving only of contempt or complete disregard. In the Army and the Navy alone are they officially recognized by the national government as diseases. The horde of immigrants that enter this country every year is examined for every infection save these two. The accurate and actual cause is placed on the death-certificate, the country over, in every instance save of these two diseases.

There is before us, therefore, a task to which society at large, and especially the medical portion of it, must straightway address itself. The fact that the problem ramifies in and out through animal passion and private and public immorality renders it more difficult, to be sure, but none the less insistent, and none the less finally soluble. Small-pox once appeared hopelessly and permanently beyond control; tuberculosis was only recently regarded with complacent resignation. The social diseases await the same sharp awakening of a people that have been too long asleep, and the application of measures that are within our grasp in spite of all pessimism to the contrary.

AN EDUCATED PUBLIC

In the first place, and absolutely essential to the success of any attempt at controlling influences so insidious

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

as the diseases that are fostered mainly by and through immorality, is the sane, quiet, complete sex-education of the American people. Granted not only a knowledge but a realization, a thorough appreciation of the facts, and radical action will follow, on the part of woman-kind at least, and eventually from the side of the traditionally less virtuous male portion of society. On a health basis only, in my opinion, is the social evil a solvable problem. In a competent knowledge of the existing conditions of the public health lies the first and most radical advance toward society's moral and physical cure. Beginning with the teaching of normal sex hygiene to little children at the mother's knee, through the medium of the flowers, and soon through the lower and then the higher forms of animal life—always emphasizing the sacred duty and privilege of reproducing one's kind, and of equipping the body and mind far in advance for this duty—beginning with this primitive, but essential ground-teaching, we can advance through the public and private school to the later sociologic training of the adult citizen. Not only trained teachers are needed, but intelligently willing parents. We are at least one generation distant from the apparent realization of society's physical and moral cure.

COMPETENT AND WILLING OFFICIALS

An intelligent, open-eyed people will elect to positions of responsibility and trust only such men and women as are committed to the moral and physical health of the public. One of the new requirements of eligibility for mayor of a city will be a candidate's thorough acquaintance with the bearing of prostitution on the physical health of the community. He will be required to make in advance an outspoken statement of his attitude toward a continued tolerance of the spread of the social diseases through publicly condoned immorality,—a tolerance that is rendered possible only by the violation of his oath of office in ignoring and failing to enforce existing laws. As a rule these are competent to meet the needs and to insure the protection of the public. Clandestine prostitution furnishes a problem even far more serious than that of public immorality and one that does not come within the responsibility of a city's chief executive. This fact relieves him in no measure from a full and far-reaching responsibility for every public brothel that remains open and inviting to the boys and men contrary to law, or for every case of venereal disease carried from such a house into clean homes to infect innocent, ignorant women and children. In my own as in almost every other city the brothels have long stood open wide. In them a large percentage of our boys and men contract and transmit one or both of the two contagious social diseases. This is in the face of the fact that mayor after mayor has sworn to uphold laws already on the statute-books, and only awaiting official willingness to enforce them.

WHAT CAN THE PUBLIC DO?

The active cooperation of the people with their chosen officials is the ideal method and will no doubt bring the speediest and most thorough result. The people and the officials are not both essential to the success of an intelligently conscientious endeavor. Either can awaken the other, if slumbering, to a sense of duty and inherent power. Either can accomplish much, if necessary, without the aid of the other. In certain of our American cities the immoral and diseased sections have been rendered temporarily clean through the efforts of one man or of the entire body of citizens, in the face of a

reluctant mayor and an openly opposing department of police. In such an event the public may have to seek out the facts for itself. It should, if necessary, deliberately investigate its own improvident expenditure of public funds for the care of those physically incompetent through tolerated public immorality. It should not be called on, however, to assume the functions of the mayor and his subordinates; but in the delinquency of these officials it may and should take their functions over. The public officials are salaried to protect the public by the enforcement of law. On occasion the public is forced to work and to serve without pay. Publicly condoned prostitution means publicly condoned disease and a consequent civic burden in the form of taxes for the maintenance and care of the feeble-minded, epileptic, orphaned, crippled and paralyzed. It would almost seem that the medical portion of the public would feel it incumbent on itself to render these data easy for the people to obtain. It should encourage a full public understanding of the dependence of these conditions in large measure on immorality and consequent disease.

In default of action by their chosen officials the people should not repeat the mistake of placing unwilling men in places of power. The women of a community should demand also that the double standard of physical and moral health be distinctly condemned by the male sex, if marriage and child-bearing are to be continued by innocent, clean girls. Motherhood should not entail invalidism, the operating-table and an unsexing operation soon after the first child is born. What is more, womankind should see to it that the single standard is adhered to, at least by those men who desire to marry clean girls. No laws are needed for the purpose. Let the mother, or better still the marrying girl, offer her prospective husband a physician's certificate of her own freedom, as far as ascertainable, from transmissible disease, and demand the same from him. His answer will of itself go far toward assuring her of safety or danger. In this step the miracle is already well on its way toward accomplishment, the women and children are in sight of physical safety, and the babies far nearer an enjoyment of their right and title to be born alive and to live.

MEASURES TO BE AVOIDED

The public should also study and acquaint itself with the facts regarding measures that have invariably invited and just as invariably resulted in failure. These may be considered under three heads: (1) Indisposition, ignorance, inaction; (2) reglementation, including medical examination, and segregation; (3) vice commissions.

Inaction has been the order of the day for centuries, and has centered in male duplicity and willingness to tolerate feminine ignorance and even encourage blind over-confidence in the worthiness of the stronger and less temperate sex. Most cities owe their sorry moral and physical plight to the fact that they are contented in their corruption in spite of knowing that it is only a short step to civic revolution and to the security of a new and real health.

Reglementation, Medical Examination and Segregation have all been put to a thorough test in Europe and in certain sections of this country. In Germany, France, Austria and England, government commissions have reported not only on their inefficacy, but very positively with respect to their influence in increasing the spread of prostitution and the social diseases. No more ample, no more definite evidence

can be presented to an intelligent people than has been adduced on this point. Nothing further should be necessary by way of determining the action of a wide-awake nation. We should not require the stroke of a mallet on our collective figurative head. Neither should we encourage a further waste of time and money over methods and means that have once and again been tried and found wanting.

Vice Commissions.—I venture to suggest that these are at best a sorry attempt on the part of public officials, from the mayor of a city down, to shift a grave personal responsibility and duty on a long-suffering people. Two memorable vice commissions have made the necessary pioneer investigations and have blazed the way. The fact that they were necessary in their respective cities was a burning disgrace on the executive officers of those communities and on the male sex at large. None the less their work was well done, and their reports have startled all the world except the portions that are still asleep or that do not wish to be shaken out of ignorance and depravity. Cities differ very little with respect to their immoral and diseased sections. Invariably there is a close association between rotten politics and public prostitution. Without a thorough interdependence of these twin evils neither one could continue to exist, because the concealment and misrepresentation that are necessary to the life of the latter would become apparent to the clean portion of the public and action would be prompt and radical.

Every public prostitute and street-walker ought to be accurately known to the police officials. Her exit from a particular city is not a matter of difficulty when this end is desired. A definite notice that she is to cease plying her trade, with the realization that the notice requires attention and observance, is all that is necessary. Nor need she return until the authorities desire or permit her reappearance. When all cities take this matter in hand there will be none that will harbor an acknowledged public woman or house of ill fame, nor one that will permit the presence of soliciting men and women—usually foci of contagious disease—on its streets.

There are indeed difficult phases and perplexing features of the prostitution question, but the matter of a full knowledge of the number and identity of the public houses and of their inmates and of the street-walkers, and ridding the cities of all these, are not among those difficulties. An official suggestion that they are constitutes an insult to the intelligence of the people, and amounts to a self-conviction of unfitness for executive office. Moreover, we may rest assured that a vice commission, from to-day on, will from the time of its appointment until its dissolution meet with unnatural conditions in the city which it undertakes to investigate. My own city is at this instant heralding far and wide the fact that its vice commission, just appointed, is about to begin its labors and report on the condition of the town. Meanwhile during the three months since the first announcement that the mayor was waiting for a public demand for a vice commission all types of public prostitute, house inmate and street-walker, have been quietly and discreetly filtering out of Philadelphia into Atlantic City, Baltimore, Washington, even New York—black and white, male and female—all diseased and transmitting contagious disease, and ready to return to their pursuits shortly after the vice commission has rendered its report on an unnatural and abnormally peaceful state of affairs. In most instances a vice commission

must necessarily employ improper and immoral means to obtain the evidence that will convict. When it does not, it assigns to an impossible task a police or detective force that is usually as well-known to the public prostitute as the latter is to them. Perhaps as in the Philadelphia journals of yesterday and to-day the personnel, even the names of the officers assigned to detective duty are spread out to public, and of course to prostitute view. Every item of the work of a vice commission can and should be accomplished more thoroughly, quietly and quickly by an efficient police department serving under a loyal mayor and director of public safety than by a group of citizens, however willing, but altogether ignorant of the first principles of such an investigation as is placed in their charge. The facts are in most instances already in hand; the moral courage to use them is alone lacking.

Official and Departmental Investigation and Control.—These are the forces that must be invoked and applied sanely, persistently and without ceasing. The moment they are relaxed human passion and carelessness of inevitable results will answer for the return of moral and physical conditions that are all too apparently serious to-day. In my opinion no city need harbor either the public prostitute or his or her contagious disease, provided it begin now and continue electing only such public officers as both subscribe to solemn oaths and fulfill their obligations to the public and to humanity.

The public should square itself with the public prostitute and acknowledge that in a large measure it is responsible for her sorry state. Social conditions are tolerated and encouraged by many of saintly speech and mien that render it easy if not imperative that the public woman yield to the temptations of passion, vanity, and man's disregard of woman's honor and fair name. Starvation wages, the unattractiveness and poverty of the home, the opportunity of an easy income far larger than that obtainable in an honest or honorable livelihood, a total ignorance of the inevitably early disease and death that attend this calling, the dance-hall, the average theatrical show, the wiles of the procurer and cadet, the long working-hours, the temptation and finery of the department store, the lack of legitimate pleasure and relaxation are the conditions that help, at least, in recruiting the ranks of the 300,000 and more of America's public women, the average length of whose prostitute life is little over five years. The public owes the prostitute something of sympathy, protection, encouragement and of hospital care, at least when she emerges from her low level to an attempt at better things. Her head should not be pushed down again; she should not be refused employment; she should not be raided or imprisoned unless the same treatment is accorded the man. She ought to be taken into God's fresh air under institutional protection and directing care, under ideal conditions, until she can breathe deep and realize that there are human beings still on the earth who have also erred in one or another direction and who are extending to her a helping hand. She has not violated her oath of office as have the mayor and his subordinates who have perhaps allowed her to become morally and physically infected and as a prostitute to spread contagious disease, nor has she yielded in most instances altogether to her own desire. Grim social conditions have oftentimes pressed her down until her weak will has given way in an attempt to reach the only apparent means of relief and escape from intolerable servitude or impending starvation.

Another mistake that is likely to be made is the overlooking by the citizens of the entire absence and lack of hospital provision for the army of girls and women and boys and men whom any wholesale moral upheaval will throw suddenly on the community. In the state of Pennsylvania there is only one hospital that freely admits for treatment persons suffering from the social diseases as such. Without ample hospital facilities and wards in which to furnish treatment free of charge to all willing to apply, the control of the diseases consequent on prostitution is impossible, and the attempt need not be undertaken with any hope of accomplishment. Such extravagances as the recently proposed placarding of the houses of those infected with the social diseases are ill-advised conceptions of those who are acquainted with either the social nor the strictly medical difficulties in the way. Victims of syphilis or a gonococcus infection must be encouraged to attempt as speedy and complete a cure as possible, not driven to concealment and the inevitable spread of disease. An exaggerated fear of public exposure means simply and surely an endless chain of infections that will cease only when the social diseases are placed as they should be, in the light of day, beside and in the same category with similar contagious, such as small-pox, typhoid fever and tuberculosis, not one of which compares either in morbidity or indirect mortality with syphilis, or perhaps with gonococcus disease.

SALUTARY SANITARY MEASURES

There are practical measures that are likely to contribute toward final success in the partial or ultimately complete eradication of the social diseases. One of the most important of these is the placing of syphilis and gonococcus disease on the list of the compulsory reportable contagious. California enforces such a provision to manifest advantage. Even New York City provides for limited reporting of these conditions. In no instance is the name of the patient reported to the health authorities; simply the fact (by number) that a new case is in the care of the physician, a brief statement of the character of the infection, its origin when possible, and the adequacy of its supervision and care from the standpoint of the public.

Another strictly official health measure should be the provision for a careful and accurate study of the social diseases. Such an investigation must needs be carried on by the authorities to be complete or of any practical value. It could be rendered successful by the use of a questionnaire placed in the hands of every physician in a given municipality.

Side by side with adequate free treatment for syphilis and gonococcus infection should be offered unrestricted opportunities for obtaining a Wassermann test for syphilis, a serum test for gonococcus infection, or a laboratory examination of specimens and slides for the *Spirochaeta pallida* and for gonococci. Quarantine regulations can and should be imposed on patients who refuse proper treatment and thereby endanger the public health.

State control hardly seems practicable at the present time though both the state and national authorities should officially recognize the social diseases as grave problems from the standpoint of morbidity and of indirect mortality. Especially in their bearing on mortality among infants and children should they be listed as hereditary contagions, and accurate statistics be sought after. It may be possible within the near future to pread on the statute books laws similar to those already

enacted in several of our western states providing for the requirement of a certificate of health prior to the issuance of a license to marry. Such a law would at best be merely an educational power. It cannot be enforced except in so far as the individual physician is conscientious and has an eye single to public duty. This end can be accomplished in even fuller measure by the people themselves when they are of a mind to establish the custom of exacting just such a certificate in the absence of a law covering the point.

Another invaluable measure must be the furnishing by every city of all its hospitals with private and free wards for the decent and skilful treatment of syphilis and gonococcus disease. This has already been referred to as absolutely necessary to success.

Another measure might well be the systematic education of all those who probably carry infection, especially of the public prostitute so long as she is an acknowledged member of a community, with respect to her own invariable infectiousness to the public, not only to the men with whom she cohabits, but through them and also independently of them to other and innocent individuals.

Still another would be the posting in the front hall of every building, respectable and otherwise, of the name and address of the owner of the property. If held in the name of a corporation or estate the name of the latter should be displayed. In Iowa an injunction can be obtained against the keeper of a house of prostitution, as well as against the owner of the property. A fine of \$300 may be imposed by the court against the property, constituting a tax lien which takes precedence over a mortgage and serves as a cloud on the title. The property is enjoined forever from use for immoral purposes and for one year from use for any purpose whatsoever, except under certain specified conditions.

A fifth would be the formation of definite organizations whose sole aim would be the securing of ample living wages for girls and women for services actually rendered. This step would be an active preventive measure against public prostitution, and still more powerful in the control of the even more serious problem of clandestine immorality which serves as the most active means of spreading the social diseases among the needy working girls, and through them to boys and men.

Sixth, the cities can and should maintain a real home, an outdoor institutional guardianship, not in the nature of a penal institution, for wayward girls who need and desire a guiding and directing hand back into physical and moral health. Definite provision should be made for the protection of the public against infected and infectious cooks and table servers (hotel, restaurant and lunch-counter waiters), colored and white; also for a full medical certification as to the freedom of certain classes of household servants, especially of nursery maids and butlers, from transmissible disease. One of the largest railroad systems in the country is of its own volition already insisting on a regular periodic physical examination by the company's medical officer of its entire restaurant station and train force on pain of prompt dismissal in the event of refusal to submit to the inspection. For identical reasons the common drinking-cup, the roller towel, and the public piece of soap, should be forbidden by law. The cities can and should furnish properly managed outdoor gymnasiums, baths, dance-halls and playgrounds, not only for its children but for its young adult men and women. From both of these uncared-for classes come the substitutes that fill the ever depleting ranks of the diseased and dying prostitute.

Finally, it would not be an impossible thing for the women of a city effectually to demonstrate to the men that since prostitution is no longer looked on as a physical necessity for either sex, it must no longer be indulged in by the loyal citizen. A prompt handling of all attempts to entice and solicit on the part of men; the public exposure and summary punishment of all males and females detected practicing any form of prostitution; the oversight of the moral and physical welfare of its boys and girls, at least to the extent of safeguarding and preventing them from easy contact with prostitution and from exposure to the social diseases in public houses of ill fame—lie within the power of the large cities and afford opportunities that should not be overlooked of prevention as by all odds the best and cheapest form of cure. The women and the physicians of a community really have the solution of the prostitution problem within their grasp and control. Both prostitution and the social diseases will begin to disappear the moment the women and the physicians so decree. With power comes the responsibility of *noblesse oblige*. With the new opportunity comes also a shame born of oft-repeated unwillingness and refusal. Only through educated, brave men and women and through the intelligent action of him whom we still love to call the family doctor, will that new body of citizens be reared who will know all the facts, and regard prostitution and its diseases as burning life-problems, and who will not stop short of a radical cure of evils for the continuance of which through their inaction they have been in a considerable measure responsible.

1708 Loenst Street.

ABSTRACT OF DISCUSSION

DR. R. E. LEDBETTER, Washington D. C.: Venereal disease is one of our greatest problems in the Navy. Last year, 11,150 men were admitted with venereal diseases or their sequelæ, 191 of whom were totally disabled and had to be discharged from the Navy. Our personnel being about 45,000, it will be noted that approximately 25 per cent. of our men were infected during the year. The number of admissions, 11,150, corresponds to the number of men required to man ten first-class battle-ships. We now have compulsory venereal prophylaxis in the Navy, and our results since its institution have been fairly good, and we hope for better results in the near future. Briefly, the method consists of injections of argyrol and local applications of calomel ointment within twelve hours after coitus. Just now the percentage of venereal admissions would appear to be greater than ever before, but this is only apparent and not real, as now the medical officers are reporting every case, whereas in former years many patients were not reported, as they could still work. We hope with venereal prophylaxis and education to reduce the rate of admission to 25 or 30 per cent. of what it is now. The layman can help us by teaching the public to respect our uniform, and by urging legislation to restore the canteen. This would materially lessen venereal infection in the Navy, as on account of their uniform the men, except in Rhode Island and the District of Columbia, cannot enter a respectable café or theater, and must gravitate to the slums, where many of them contract venereal disease. We are doing all we can to educate our men, and assistance would eventually lessen our venereal problem very much.

DR. GUY L. KIEFER, Detroit: I hope with Dr. Willson that the time is near at hand when all houses of prostitution will be banished from our cities, but unfortunately this time has not arrived. It may be disgraceful but we must admit that houses of prostitution do exist and that the inmates of these houses do spread these diseases, and while it is maintained by some that this is a small part of the problem, it is large

enough. We know from the estimates that have been made that the number of exposures in a city like Detroit, for example, are about 750 in a day from this source. It seems to me that it is necessary for a health department to meet this condition. I do not believe in regulation of houses of prostitution in the sense of segregation and regular examination of the inmates because this has been tried and has failed, but I do believe in the examination of all known prostitutes in a given city by the officials of the department of health at irregular and unannounced intervals, with the proviso that, if any of the women are found to be diseased when these unannounced examinations are made, then the house will be placarded. Such a method will result in the reporting of the cases to the department of health, and the reporting of cases of contagious diseases of any kind is the first step necessary in a campaign for the prevention of such diseases. Whenever cases of venereal diseases are reported to the department of health, the infected persons should be removed at once to a hospital and kept there until their case is no longer infectious.

DR. GEORGE M. STERNBERG, Washington, D. C.: It seems to me that the most important thing to keep in mind is the educational campaign. If we can show our young men and our young women an exhibit which shows the results of venereal infection and the statistics relating to the prevalence of these diseases, I think it would have a greater effect than any amount of legislation relating to prostitution.

DR. SARAH J. McNUTT, New York: Much has been suggested as to what should be done with the prostitute woman in order to control venereal diseases. Since it is a well-recognized fact that there are more than twelve prostitute men to every prostitute woman, it would seem neither just nor right that the woman alone should be arrested, examined and, if found infected, retained for treatment, while all the men prostitutes are allowed to go free, and at will to scatter these diseases broadcast throughout the land. If one is examined, retained and treated, so should all be examined, retained and treated.

MR. W. A. HOWE, Albany, N. Y.: It seems to me that the question of prostitution is not the only point where we should attack the prevalence of venereal diseases. To my mind equally as much venereal disease is contracted outside as inside of houses of prostitution. For that reason we should attack both sources of infection, that so frequently are seen as a result of clandestine intercourse, as well as that contracted in houses of prostitution. Here, as in practically every problem of public health, the question resolves itself into one of practical education. It is one thing for us to get together to tell each other that we should educate the people in the suppression of these communicable diseases, but it is quite another matter to determine how we should conduct that education. It is the intention of Commissioner Porter to appoint in the immediate future about twelve prominent women physicians of the state to conduct an active campaign of education among various organizations of women, among working girls, etc., as to the prevalence of venereal diseases and their dangers. A similar line of education will likewise be conducted by a certain number of men physicians who will conduct similar meetings among organizations of their own sex. In our state we have already enlisted the active cooperation of the W. C. T. U., the Y. M. C. A. and various other religious and civic organizations in our crusade of education for the control of venereal diseases. We expect at no distant day to be able to get into the high schools of our state likewise to teach the boys and girls as much of sex hygiene as may be advisable and of material assistance to them in appreciating and escaping the danger of these extensively prevailing diseases.

DR. JOHN F. ANDERSON, Washington, D. C.: It does not seem to me that the placarding of houses of prostitution is going to do a great deal of good. It results in the scattering and depopulation of those particular houses.

DR. H. D. PEASE, New York: All my educational efforts have been confined to the field of tuberculosis. I am, however, much interested in watching the development of activity looking toward the prevention of venereal diseases. In reply to Dr. Sollmann's suggestion, I may say that as far as my recollection serves me, comparatively little relation has been

found between tuberculosis and venereal diseases from a strictly pathologic standpoint. The subject might develop interesting results on investigation.

DR. ELNORA C. FOLKMAR, Washington, D. C.: It seems to me that in dealing with this problem at present from the educational side we must aim to reach certain classes or groups. First of all, we must reach the parents of the coming generation and we must, as far as possible, reach the coming generation. Many parents are not fitted to teach the young concerning sex hygiene and have no time to prepare for the work. We must, therefore, get at the young people themselves. Another group of persons we must reach is the class of employers. We must demonstrate to them the amount of inefficiency that results from venereal disease. When we touch an economic problem we get support which will help us to carry education all along the line.

In the work in Washington, which was undertaken last year under the auspices of the Woman's Clinic and the Committee on Public Health Education Among Women of the American Medical Association, we did not attempt to press the subject home to any group. We announced that we were ready to give talks on sex hygiene whenever they were called for. One request was made, then another and another until at the end of the year, the last month of our educational campaign, which covered other subjects than sex hygiene, almost all the requests were for lectures on sex hygiene. The requests came from mothers and teachers who are intensely interested in the problem "What will become of our sons and daughters?"

DR. ROBERT N. WILLSON, Philadelphia: I omitted an extended discussion of clandestine prostitution from my paper, since it is too large a subject. It is an important field and the largest number of venereal infections probably spring from it. Its consideration does not properly form a branch of public hygiene and is rather a social problem, one of education and sociology, and especially a question of home surroundings and home management. Whether we will ever handle it properly is a matter for Providence to decide. The clandestine prostitute is more dangerous even than the professed public woman, though there is no prostitute more than a few weeks at her trade without infection from one or both of the two social diseases. I think the method suggested of telling our young people, as in the Navy, that there is a possible prophylaxis, would be most unfortunate. I think it is morally unwise, unnecessary and an invitation in the wrong direction. Moreover there is no certain preventive.

I do not think you can frighten any boy into being moral or clean. In the University of Pennsylvania medical department we find the highest percentage of students who suffer from the social diseases; the next highest is obtained in the dental school, and the next in the veterinary. There is always a percentage of infections among practicing physicians; how high nobody knows. Education will not therefore do all. I believe there is a definite relation between tuberculosis and syphilis. I believe the negro race offers a case in point, syphilis existing there side by side with tuberculosis, and offering a ready soil for its development. I have never seen a negro recover from incipient tuberculosis, and believe the mortality of the two diseases is in the negro race a composite one. Last of all, I wish to say that I believe this is not a hopeless problem. I believe the fact that some of the younger medical men and women have within fifteen years seen the work progress from the stage in which all who undertook it were challenged as seeking advertisement to that in which there are demands received every day for teachers and for sane instruction; this, I believe, is the best augury of final success.

No Automobiles in Yellowstone Park.—Physicians who have had vacation outings in mind have inquired whether automobiles are allowed in Yellowstone Park. They are not. It is said that an understanding with the firm that runs coaches in the park stands in the way of the admission of automobiles. Pressure is being brought to bear and it is probable that within a year or two the park will be opened to automobiles. Much improvement in roads will be necessary.

UROBILIN: ITS CLINICAL SIGNIFICANCE

PRELIMINARY REPORT *

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AND

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SAN FRANCISCO

To follow the fate of hemoglobin within the body or to unravel the intricate skein of important functions carried on by the liver cell offers many difficult problems, but we are steadily progressing toward a better solution of them. Probably no substances have stimulated more interest and led to the production of more theories along these lines than urobilin and its mother substance urobilinogen. It now seems beyond reasonable question that these bodies are derived from hemoglobin, either with or without preliminary formation of bile pigments.

While there are several ingenious theories of their production, each one with its fatal defects, the most generally accepted is that of Friedrich von Müller, which is that urobilin comes only from bile pigments subjected to bacterial decomposition within the intestinal tract, and he points in corroboration to the supposed absence of urobilin from the excretions of patients with complete obstruction of the common duct and to its appearance in such patients when they are fed normal pig's bile. Recently from von Müller's own laboratory Fischer and Meyer-Betz¹ have reported finding small quantities of urobilinogen (hemibilirubin) in concentrated extracts of urine from a patient with complete biliary obstruction, a finding which they ascribe to the elimination of small quantities of bile pigment directly through the jaundiced intestinal wall into the intestinal lumen.

Fischler,² from a series of experiments principally on dogs with biliary fistulas, has concluded that not only does a urobilinuria point to an inability on the part of the liver to perform its normal function of modifying the absorbed urobilin that comes to it from the portal circulation, but that the urobilin may be also a direct product of abnormal hepatic cell activity. Severe hemolysis is accompanied by any one of a series of conditions varying from the thickening of the bile from the increased pigment derived from the breaking down of the hemoglobin (pleiochromia) to a hemoglobinuria. With only moderate blood destruction increased urobilin or urobilinogen in the stools and urine are the only indications of a process which, when severe or acute, transcends the ability of the liver to reduce the hemoglobin and so permits its appearance as such directly in the urine. Thus it is probable that the best measure of erythrocytic destruction is to make parallel studies of the amounts of urobilin and urobilinogen in the feces and urine. At the same time much information can be obtained as to the functioning of the hepatic cells.

METHODS

The urobilin group are end-products resulting from the breaking down of the pigment moiety of hemoglobin within the body. The different steps in the process are being gradually worked out, and especially within the

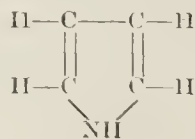
* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From Laboratory of Medicine, Medical Department of Stanford University.

* Because of lack of space, this article is abbreviated in *THE JOURNAL*. The complete article appears in the Transactions of the Section and in the authors' reprints. A copy of the latter will be sent by the authors on receipt of a stamped addressed envelope.

1. Fischer and Meyer-Betz: *Wien. med. Wochenschr.*, 1912, lix, 749.
2. Fischler: *Dissertation, Heidelberg*, 1906.

last few years great advances have been made in the chemistry of the decomposition products of hemoglobin pigment. Structural formulas have been advanced for some of them, not, it is true, with any claim to absolute accuracy, but sufficient to serve as working hypotheses on which to base further investigation. In general it has been well established that the essential feature of all this group of substances is the pyrrol nucleus.



Hemoglobin pigment contains four of such nuclei; bilirubin, the form into which the hemoglobin pigment is converted in the liver, probably also has four, whereas it seems not unlikely that urobilinogen contains two and the urobilins perhaps only one. The breaking down process, therefore, appears to consist in a separation from each other of combined pyrrol nuclei. It is important to bear in mind that the term urobilin covers a whole group of substances which have in common the pyrrol nucleus, but differ in the character of the side chains attached to this nucleus. Numerous pyrrol derivatives have been synthetically prepared which give the two characteristic reactions of urobilin, the fluorescence with zinc salts, and the spectroscopic absorption band between b and F. These are therefore group reactions and not specific for any one substance. The methods based on the spectroscopic characteristics of urobilinogen and urobilin appeared from the first to hold out greater promise of accuracy than any others. In acid solution urobilinogen in the presence of paradimethylaminobenzaldehyd shows a sharp band between D and E, that is, between yellow and green, while urobilin in acid solution gives the band between b and F, that is, between the green and the blue. The basis of the method used by us is the determination of the number of dilutions required to cause the disappearance of the spectroscopic absorption bands of urobilinogen and urobilin. Its details will be taken up later in a more comprehensive paper.

CASES

While a series of cases representative of the following types have been studied, time prevents recital of more than a few.

Blood Destruction.

1. Within the vessels.
 - A. Pernicious anemia.
 - B. Chlorosis.
2. Outside the vessels.
 - A. Large pulmonary infarct.
 - B. Hemorrhagic ascites.

Hepatic Cases.

1. Cirrhosis.
2. Cancer.
 - A. With complete obstruction.
 - B. With incomplete obstruction.
 - C. Without obstruction.
3. Biliary Fistulas (gall-stones).

Cardiac Insufficiency.

1. Chronic insufficiency.
2. Acute insufficiency followed by recovery.

Renal Insufficiency.

Pulmonary Disease (pneumonia, etc.).

Gastro-Intestinal Diseases (gastric carcinoma, etc.).

The following cases were chosen from among a number we have followed, not so much to show the present value of urobilin estimations as to emphasize their possible future importance. Until more definite knowledge is

obtained as to the source or sources of origin of urobilin and the factors which influence its excretion, its clinical significance must remain uncertain and problematic.

CASE 1.—Liver Disease: Complete Closure of the Bile-Ducts; Carcinoma.—The patient, F. W., was 55 years old. Four months previous to admission on March 18, jaundice unaccompanied by any symptoms had gradually set in. The skin was a deep olive color. The liver was greatly enlarged. No irregularities could be detected. The gall-bladder was not palpable. Wassermann positive. Ascites was first found April 20. An exploratory operation was performed April 24. The patient died April 27.

At post-mortem a large carcinomatous mass was found within the liver.³ The hepatic ducts were completely occluded. The gall-bladder was small and contained mucus, no more bile-stained than the mucus in the respiratory and intestinal tracts. The cystic and common ducts were patent. The intestines were almost empty, but some contents were collected at different points and after diluting with acid alcohol until as far as possible an equal consistency was obtained in all the specimens, the urobilin was extracted. The following figures were obtained: stomach, 0; duodenum, 0; jejunum, 0; midway in small intestine, 4; lowest part of ileum, 4; cecum, 13; transverse colon, 12; descending colon, 0.

The blood and tissues gave negative results. In fluid from the peritoneal cavity a reading of 4 was obtained from 10 cm. In the fluid removed from the necrotic center of the carcinoma above the blocked bile-ducts a reading of 4 was found in 10 cm.

Chart 1 shows that no urobilin was ever found in the urine. Small amounts were found occasionally in the stools. It should be noted here that in this case the uro-

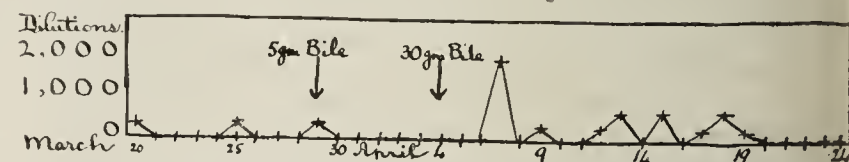


Chart 1.—F. W. Complete closure of gall-ducts; carcinoma. In this and the following charts urobilin in the stools is indicated by a line with crosses; urobilin in the urine, by a line with heavy dots; urobilin in bile, by a line with circles.

bilinogen was not taken into account. It has been shown by Von Moraczewski⁴ that in acholic stools the amount of indol is considerably increased. Now indol in acid alcoholic solution forms a pigment with Ehrlich's reagent which has a spectroscopic absorption band different from that of urobilinogen indeed, but yet so near it as to make confusion possible. The amount of indol in any given case is small and in non-acholic stools could not make any appreciable difference, but in this case in order to avoid any possible error we left out the urobilinogen estimations altogether. By leaving the stools standing for from twenty-four to forty-eight hours in a dim light most of the urobilinogen was turned into urobilin. Still it is probable that the actual amount of urobilin was greater than our figures represent. The question arises then as to the source of this urobilin. No bilirubin was entering the intestine from the liver and it does not seem likely that the traces excreted through the intestinal wall could be responsible, since after giving 5 gm. of dried bile no urobilin was found. Yet if the theory of the intestinal formation of urobilin is accepted, no other explanation is possible.

In this case von Müller's experiment was repeated. He found that in a case of complete duct closure

3. The carcinoma had liquefied in the center. When the cavity was opened numerous bright red particles were found adhering to the walls. Some of these were collected and on examination proved to be the red form of mercuric sulphid. Shortly before death the patient had had energetic mercurial treatment by inunction.

4. Von Moraczewski: Arch. f. Verdauungskr., 1908, xiv, 375.

urobilin previously absent from both urine and stools, appeared after bile was given by the mouth. On this was founded the theory of the exclusively enterogenous formation of urobilin. In our case, as can be seen from Chart 1, 5 gm. of dried bile, which was found to be free from urobilin, produced no effect. Six days later 30 gm. of inspissated bile was given. Three hours after the patient complained of nausea and epigastric pain. Shortly afterward he began to vomit small amounts of fluid containing altered blood but no bile. At this time he was in a condition of collapse from which he did not completely recover for forty-eight hours. There was no diarrhea. In spite of this large dose of bile no urobilin was found in the urine although a moderate amount of urobilin appeared in the stools three days later.

CASE 2.—*Blood Destruction: Subacute Bacterial Endocarditis.* The patient, H. D., aged 33, entered the hospital, April 5, 1912, with symptoms of cardiac insufficiency and edema of the legs of ten days' duration. He gave a history of ill health for six months with occasional fever and night sweats. Signs of aortic and mitral regurgitation were found. The cardiac symptoms and the edema disappeared after a few days in bed

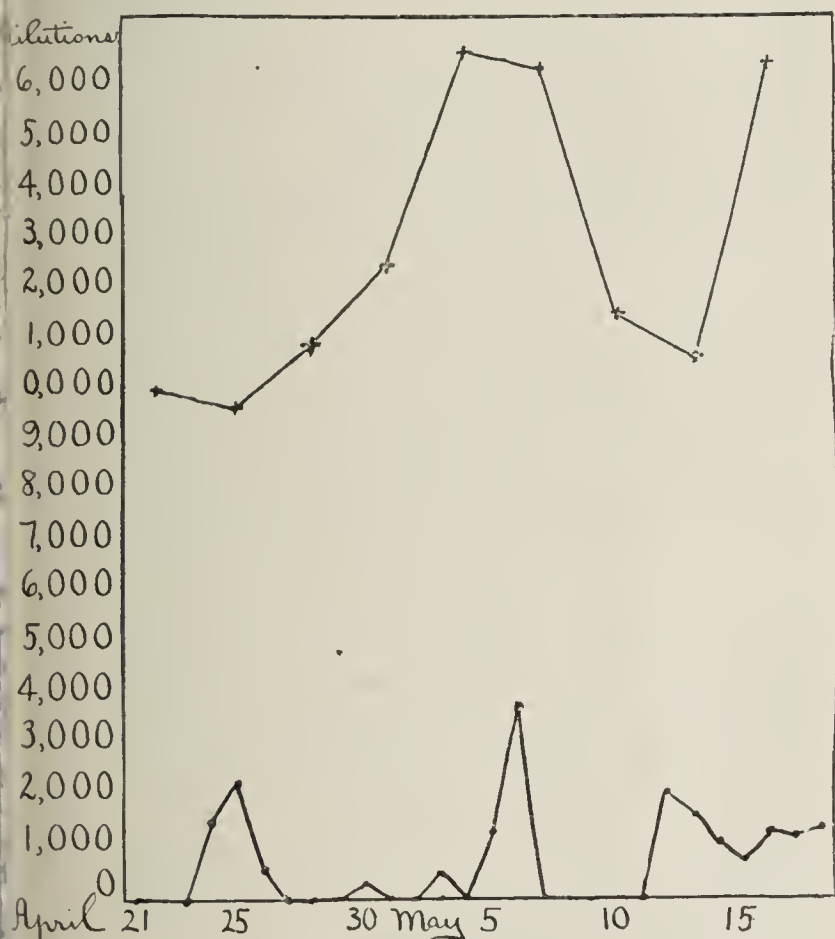


Chart 2.—H. D. Subacute bacterial endocarditis.

at the patient remained weak and obviously ill. Every evening there was a marked rise of temperature. April 19, the red cells numbered 3,800,000, with 56 per cent. hemoglobin. May 4 the red cells were 3,000,000, with 56 per cent. hemoglobin. Diagnosis of subacute bacterial endocarditis was made.

Chart 2 represents urobilin elimination in stools and urine. The fecal excretion is represented as averages of three-day periods. The amount of urobilin is two or three times as great as normal. Yet the amount of hemoglobin broken down balances the amount built up, or there is no change in the percentage of hemoglobin. Nevertheless the hemoglobin metabolism is not normal, or the large urobilin excretion indicates that much more hemoglobin is disintegrating than in conditions of health. It will be noted that there is no relation between the amount of urobilin in the urine and in the stools,

which indicates that other factors besides the amount of urobilin in the stools must influence the urinary excretion of urobilin.

CASE 3.—*Gall-Stone Dyspepsia.*—E. W.'s case was one of long standing. There was no trace of icterus and none had been noticed for fifteen years. At the operation, May 4, the gall-bladder was found to be much thickened. A stone was present in the common duct. The gall-bladder was drained. After the operation the stools became clay-colored. The manipulations had evidently caused a closure of the duct.

On Chart 3 it will be seen that there is little urobilin in the stools, no more than was found in the case of complete duct closure. May 16 and thereafter a moderate amount was found, indicating that some bile was entering the intestine. The most interesting point about the chart, however, is the large amount of urobilin pres-

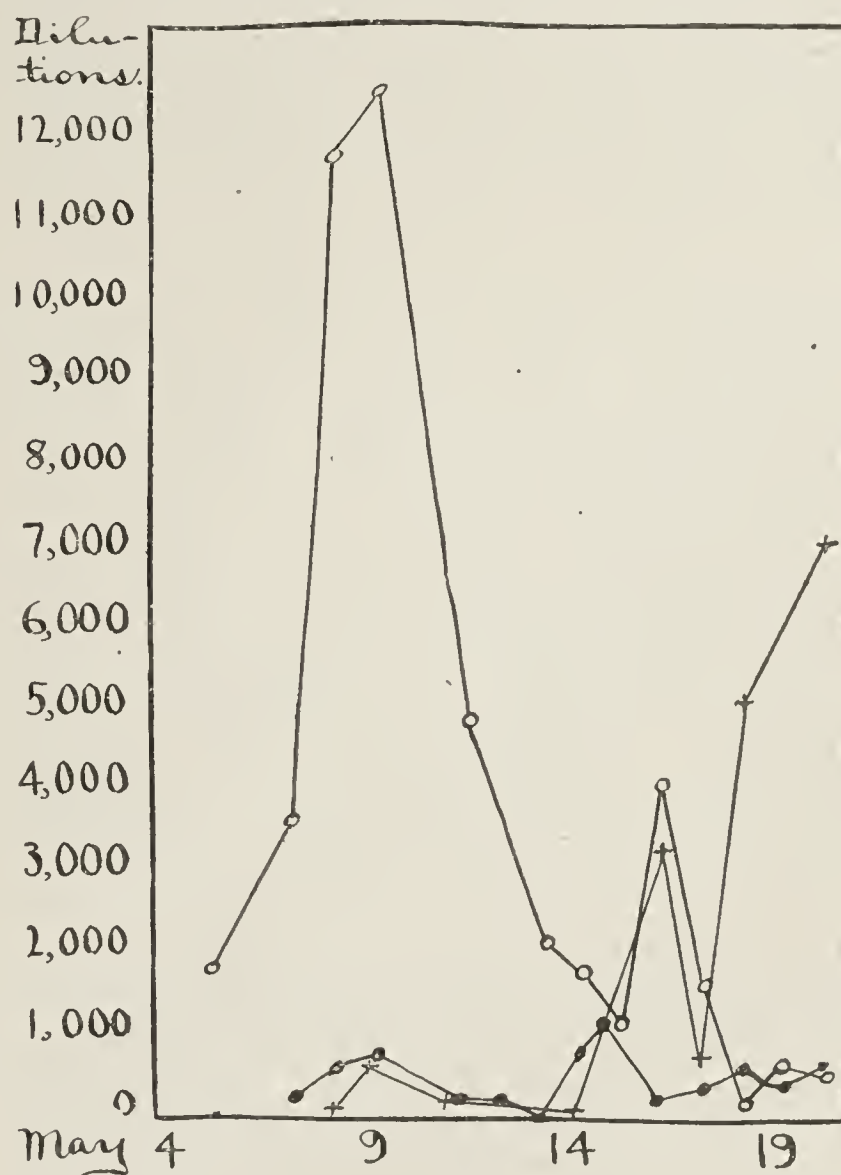


Chart 3.—E. W. Acute closure of common duct.

ent in the bile at the very time when little was formed in the intestine. As the amount of urobilin in the stools increased, the quantity in the bile decreased. This urobilin in the bile cannot have been derived from the intestine. It is possible, though improbable, that it was formed in the gall-bladder, but this explanation does not apply to the urobilin in urine. This, then, is another instance of the inability of the theory of the enterogenous formation of urobilin to explain the facts.

CASE 4.—*Failure of Cardiac Compensation.*—The patient, H. B., presented a case of aortic incompetency with broken compensation. He entered the hospital, April 11, with general anasarca. The liver was enlarged and there was tenderness in that region. During the first few days his condition became better, the size of the liver diminished and the tenderness disappeared. From that point, however, improvement ceased.

Chart 4 shows an amount of urobilin above the normal though not so high as in the case of infective endocarditis. There was a rapid fall in the amount of urobilin in the urine after admission without any corresponding decrease in the urobilin in the stools. This decrease in urinary urobilin may have been associated with the improvement in the circulation in the liver which occurred at the same time.

CASE 5.—*Migraine*.—The patient, M. B., had a typical case of migraine. A small amount of urobilin was found in the urine during one attack. Some time afterward when the patient was free from headache none was found. During a subsequent slight headache (not of the migraine type) the urine was again negative.

CASE 6.—*Blood Destruction: Pernicious Anemia*.—The patient, Dr. B., aged 50, had a history and symptoms suggestive of pernicious anemia. Blood-films taken shortly before death showed an increase in the average size of the red blood-cells, marked poikilocytosis and anisocytosis with numerous megaloblasts. During the fortnight preceding death three specimens of urine were examined, and all showed unusually large amounts of urobilin. With the average excretion of urine of 1,000 c.c. the dilution values would have been 7,200, 10,800 and 5,600.

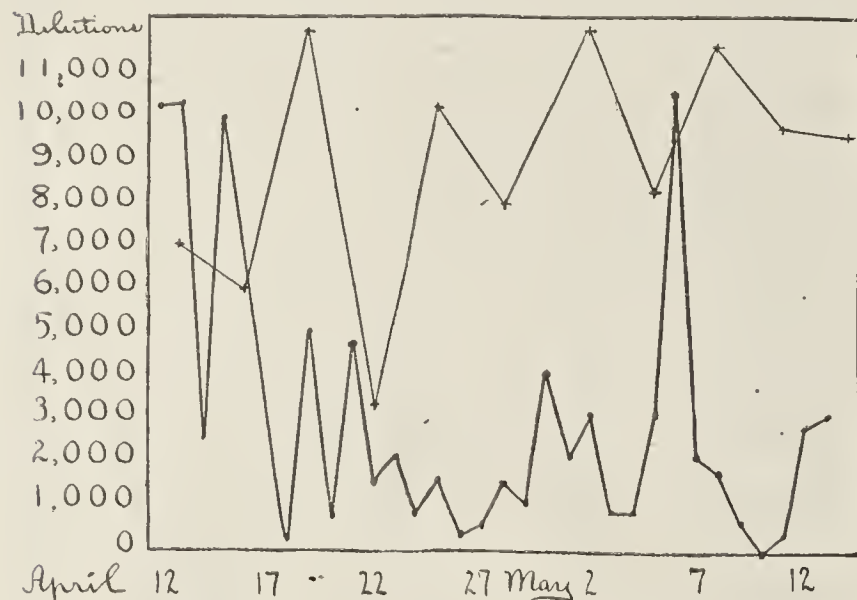


Chart 4.—H. B. Failure of cardiac compensation.

At the post-mortem, besides the usual findings in pernicious anemia, an extensive dilatation of the colon which contained quantities of solid feces and an increase in the connective tissue in the liver were found. Some black sticky bile was obtained from the gall-bladder. This bile contained urobilin far in excess of any amount previously found by us. From 10 c.c. urobilin was extracted with a dilution value of 2,940. Assuming the amount of bile excreted in twenty-four hours to be 600 c.c. (Zoja), this would represent a dilution value of 1,746,000 for the twenty-four hours. Ten grams of the contents of the intestinal canal were removed at various points and the following dilution values obtained: duodenum, 1,000; jejunum, 1,800; ascending colon, 1,649; and sigmoid, 1,000. No urobilin was detected in the blood or in any of the tissues.

SUMMARY OF CLINICAL CONDITIONS

With the above described cases in mind, a review of the present status of information in regard to those clinical conditions accompanied most commonly by the elimination of abnormal amounts of urobilin and urobilinogen seems worthy of presentation.

Pernicious Anemia.—While simple anemia may or may not be accompanied by a urobilinuria, increased quantities of urobilin in the stools and urine in pernicious anemia have been recorded by a number of observers

(Neuberg,⁵ Scheel,⁶ Münzer and Bloch,⁷ Hildebrandt,⁸ Gerhardt,⁹ and others).

Numerous and careful studies of the relation of urobilin in pernicious anemia should throw considerable light on the processes by which the red blood-cells are destroyed by the toxic factors evidently present in this disease.

Malaria.—The breaking up of the red blood-corpuscle and hemoglobin is such a characteristic factor in malaria that we would expect increased quantities of urobilin to appear in the excretions at or near the time of malarial paroxysms. Simpson¹⁴ found an enormous increase before and subsequent to the fever. He considers the urobilin in the urine as only an indicator of the absorptive capacity of the intestinal wall and as useless in itself to determine the amount of hemoglobin-metabolism, but that combined examinations of the stools and urine give valuable results, the total output of the urobilin corresponding closely to the amount of hemoglobin destroyed.

Diseases of the Liver, Especially Obstruction of the Gall-Ducts and Cirrhosis.—The description of the improbable "urobilin icterus" by Gerhardt, together with the changes discovered in the amount of urobilin in the urine of patients suffering with various hepatic disorders, has long excited the interest of clinicians, but in spite of the large amount of investigation done there is at present no uniform understanding of the relation of urobilin to diseases of the liver.

Obstructive lesions, particularly those involving the common duct, have been of the most interest because of Friedrich von Müller's experiments indicating that urobilin originates only from bilirubin reduced in the bowel and Neubauer's observation on the absence of the aldehyd test in the urine of cases in which the bile fails to pass into the intestine along the common duct. Fromholdt²¹ believes that when bile is given in a case of common duct closure (Müller's experiment) it acts as an irritant to the liver and so leads to urobilinuria. Fischler found that dogs permitted to lick up their own bile from a biliary fistula, which had previously prevented the presence of bile within the intestine, became ill and had an increased susceptibility to liver poisons (amyl alcohol, phosphorus, etc.) and presented later a marked overgrowth of connective tissue within the organ. Increasing evidence that urobilin can originate outside of the intestine is accumulating (Gerhardt, Tsuchiya, Troisier, Guillian and Troisier, Beck), but nevertheless valuable information can be obtained in cases of jaundice with obstruction from observations as to its presence or absence in the urine and stools.

In general we may, without entering into the various theories of the origin and excretion of urobilin and urobilinogen, state that an increased elimination of these substances takes place in parenchymatous liver lesions (unless too acute and severe) and that there is a marked reduction or absence of these substances in complete obstruction of the common duct, so that urobilin estimations become of much value in diagnosis and prognosis of many hepatic diseases.

Pneumonia.—The striking assertion of Zoja²⁶ that blood regeneration must go on ten times faster than normal in some cases of pneumonia if the blood is to

5. Neuberg: *Der Harn*, Berlin, 1911, Part i, 910; Part ii, 1204.
6. Scheel: *Ztschr. f. klin. Med.*, 1911, lxxiv, 13.
7. Münzer and Bloch: *Arch. f. Verdauungskr.*, 1911, xvii, 260.
8. Hildebrandt: *Ztschr. f. klin. Med.*, 1906, lix, 351.
9. Gerhardt: *Dissertation*, Berlin, 1899.
14. Simpson: *Biochem. Jour.*, 1911, v, 378.
21. Fromholdt: *Ztschr. f. exper. Path. u. Therap.*, 1911, ix, 268.
26. Zoja: *Fol. Haemat.*, 1910, x, 225.

retain its regular amount of hemoglobin and its usual number of red blood-cells is based on estimations of urobilin in the urine and stools. The increase in urobilin is thus considered by him a measure of blood destruction, and taken with the percentage of hemoglobin and red blood-counts, a measure as well of the work done by the hemopoietic organs. Many investigators have reported the finding of urobilin in pneumonia. Möller²⁷ with Biffi's method²⁸ found urobilin in the serum of two pneumonia patients. Out of sixty patients, Conner and Roper²⁹ found urobilin in the blood, but none in the affected lung tissue, of ten who were in the last stages; nor were they able to show that it came from bacterial action on hemoglobin.

Prognostic Value in Cardiac Lesions.—Case 4 (that of H. B.) is typical and shows clearly the value of urobilinuria in estimating the amount of stasis in the liver in failure of cardiac compensation. With improvement and consequent decrease in the size and tenderness of the liver there was a rapid decrease in the amount of urobilin in the urine without a corresponding fall in the fecal excretion. A recurring period of decompensation was inaugurated by a premonitory increase in the urobilinuria. In general, liver stasis is accompanied by a marked urobilinuria. Its estimation serves as a guide by which one may follow the beneficial results of administered digitalis. Cases with cyanosis and with hypercythemia, but without marked liver engorgement, present no increase in the urobilin in urine. Fischler considers a urobilinuria which persists after compensation has been regained as evidence of a pathologic condition of the liver.

Migraine.—The increased urobilinuria found in Case 5 (that of M. B.) at the time of migraine attacks is suggestive, especially when considered in the light of the very effective treatment of Rachford,³⁴ which aims to prevent the periodic headaches by the persistent use of drugs thought to stimulate elimination from the liver. Too few cases have been observed to more than indicate the desirability of further investigation.

CONCLUSIONS

1. Simultaneous estimation of urobilin and urobilinogen in the stools and urine, after certain allowances are made for the state of the liver and intestinal peristalsis, permits valuable approximations to be drawn as to the amount of hemoglobin broken down within the body.
2. Urobilinuria may be used as an early indicator of the failure of the liver to functionate normally in alcoholic individuals with enlarged and tender livers.
3. While in a jaundiced individual the persistent failure to obtain positive tests for urobilinogen in the urine by the present methods points usually to absolute closure of the duct, there seems to be evidence against the correctness of the commonly accepted view that the only origin of urobilin is from the reduction of bilirubin in the intestine, this evidence consisting in the presence of not inconsiderable amounts of urobilin in the stools of patients in whom very little bilirubin (closure of the common bile-duct) or no bilirubin (closure of the common duct and a biliary fistula) reaches the intestine.
4. The urobilinuria and urobilinemia of pneumonia deserve more study as the occurrence of urobilin as such in the blood is apparently, by the present methods, found during life only in this disease, and it may indi-

cate that peculiar relations exist between urobilin and the factors accompanying cyanosis.

5. The discovery of a persistent urobilinuria should incite a careful study for all possible factors leading either to blood destruction or to parenchymatous or obstructive hepatic disorders.

MY EXPERIENCE WITH DIABETIC PATIENTS
LIVING TEN OR MORE YEARS *

ELLIOTT P. JOSLIN, M.D.
BOSTON

It was a gratifying surprise to me to discover that sixty-seven of my patients with diabetes had lived, or were still alive, at least ten years after the onset of the disease. The discouragements which beset the life of the diabetic patient and his physician are so great that the brighter aspects of the disease should constantly be brought into the foreground. Furthermore, lessons are always to be learned from a study of the extreme aspects of any disease. Therefore it appears desirable to me to report on my cases of diabetes of long, rather than of short, duration.

Eleven per cent. of all the cases of diabetes which I have seen in private practice have had a duration of ten or more years; but the figures are far more favorable than this, because, out of these 505 cases, I have, at the present writing, been able to trace the outcome in only 394 cases. The proportion of cases of ten years' duration of which I know the present state, therefore, rises to 17 per cent., and yet this figure is too low, because a large number of the living patients have acquired their diabetes less than ten years ago. If I subtract this number, which is 141, from the number of diabetics of which I have discovered the outcome there remain 253 cases, representing the number which are actually eligible for statistics. Of this number, sixty-seven patients having lived ten or more years with the disease, we can say that 26 per cent., i. e., one in every four, may look forward to a duration of life of at least ten years from the onset of their malady.

The usual preponderance of diabetes in the male sex prevails. Of my sixty-seven patients forty were males.

The onset of the disease was at 16 years of age in one patient, and 69 in another. Contrary to expectation, nearly one-third of the patients acquired the disease under 40, and only five after the age of 60. The remainder were equally divided between the fifth and sixth decades.

TABLE 1.—TABULATION OF ONSET OF DIABETES IN SIXTY-SEVEN PATIENTS ACCORDING TO AGE

Age at Onset Years	Number of Cases
11-20	3
21-30	5
31-40	12
41-50	21
51-60	21
61-70	5

It is thus apparent at the outset that these cases of long duration were not simply due to the mild diabetes of elderly people.

The duration of life in one patient was thirty-five years, and in five others twenty years or more. Thirty-nine of my patients are still living, and of this number fourteen have had the disease at least fifteen years.

27. Möller: Berl. klin. Wchnschr., 1909, xlii, 2303.
28. Biffi: Fol. Haemat., 1906, iii, 189; 1907, iv, 533.
29. Conner and Roper: Arch. Int. Med., 1908, ii, 532.
34. Rachford: Med. News, 1903, lxxxiii, 630.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

Practically all of the patients were of American extraction. Four were Hebrews and one was an Irishman.

Syphilis was known to me to exist in only five of the cases. I am sure, however, that it was present in a much larger proportion. All will agree that statistics on syphilis in diabetes are to-day of no value. Within a few years syphilis may reach a position of great importance in diabetes. I would call attention to the case reported by Umber, in which the diabetes was most favorably influenced by salvarsan. All should scan each new case of diabetes and its possible connection with syphilis with great care. No case of diabetes has come under my personal observation which has been favorably influenced by antisyphilitic treatment. I mean, however, to be most open-minded on the subject.

The severity of the disease is attested by the presence of acidosis in thirty-five of the cases, and also by the fact that of the twenty-eight patients who died, twelve died in coma. On the other hand, it is true that, contrary to the rule that the severity of the disease increases with its duration, a certain number of the cases became less severe as time advanced. Thus, fifteen were free from sugar before death occurred. Some of these cases too were of considerable severity and, as a rule, they were of long duration. So far as I am aware acidosis was absent in all but one of these cases. Of course, sugar may have persisted in an increased quantity in the blood, and yet been absent from the urine. But because of the absence of acidosis I am inclined to believe that the sugar in the blood did not reach, toward the end of the disease, a height above the normal level.

The cause of death was, as above stated, diabetic coma in twelve cases. In only eight cases was death directly attributable to arteriosclerotic conditions. Pulmonary tuberculosis was the cause in one patient. Contrast this with the probable statistics of twenty years ago. It is interesting that the patient who finally died with pulmonary tuberculosis represented one of the severest cases in the group, and yet toward the end of life the diabetes decreased in severity, yielding preference to the tuberculosis. I have several other examples of this sort. Pneumonia occurred three times, cancer once, and pernicious anemia once, as causes of death. The cause of death was not ascertained in two cases.

The classification of the cases is extremely difficult. Eight cases were pure diabetes and can be so grouped in the Naunyn sense. Fifty-two can be similarly grouped if we would include in this number thirty-two patients who were also obese and nine at the age of 59 or over. Five cases were of extremely mild type and might be grouped under glycosuria, though, better, I think as mild diabetes. One case was of a functional neurotic character and the remainder could not be classified.

How did it happen that these sixty-seven diabetics lived so long?

1. Obesity surpasses all other factors as an explanation. Twenty-six weighed over 200 pounds at some time or other of their lives, and thirty-five weighed at least 180 pounds. If we study the duration of life of the distinctively fat patients we find it to be fourteen years for the nine who died, and thirteen years for the seventeen who are still alive. In contrast to this, the duration of life for the fifteen patients of moderate weight now dead was thirteen years, and for the fourteen of moderate weight yet alive also thirteen years. The type of diabetes among the fat patients was mild. Presumably these same individuals would not have developed diabetes if they had maintained normal weight. Modern medicine demands the prevention

of obesity as prophylaxis against diabetes. I realize that another interpretation could be put on these figures, namely, that if there is a disposition to acquire diabetes, one had best be fat, but I believe most will agree that the figures can be better utilized as reason for prophylactic treatment against the onset of the disease rather than as prophylactic treatment against death after the disease has begun.

The loss of weight ranged from 109 pounds in one individual to a gain in weight of 1 pound in another. The usual loss of weight was 40 to 50 pounds.

TABLE 2.—TABULATION OF LOSS OF WEIGHT IN SIXTY-SEVEN DIABETICS

Loss of Weight Pounds	Number of Cases
0- 10	7
11- 20	4
21- 30	13
31- 40	9
41- 50	9
51- 60	6
61- 70	2
71- 80	1
81- 90	0
91-100	0
101-110	1
Gain in weight	1
Unknown	14

2. Three qualities of temperament constitute a second reason why these patients lived so long. These qualities were common sense, courage and cheerfulness. These patients were not led into fads of treatment either by physicians or by the advertisements of patent medicines. They were practically all individuals of strong character who, realizing their disease, made up their minds to fight it through to the very end. They were not cowards. A cowardly diabetic has a poor prospect for life. Cheerfulness was more than noteworthy as a characteristic of these people. It was well-nigh universal.

3. There is hope in the fact that fifty-five of the sixty-seven patients received distinctly better treatment than the average diabetic patient. Eleven of the patients received treatment from men who stand exceptionally high in the profession. It is true that over and over again patients deny that they carry out careful treatment, but I think it is seldom, though it is occasionally so, that one meets a patient with diabetes of long standing who has not consciously or unconsciously followed rational methods of care.

4. Heredity plays a considerable rôle among the group. Sixteen, or 25 per cent., of the sixty-three patients whose cases are available for statistics in this regard had parents, brothers or sisters, cousins or aunts with the disease. This percentage is probably somewhat higher than the percentage of heredity in diabetes, but not really so much greater than is often the case. Undoubtedly, heredity will play a greater rôle in diabetes as time goes on, but it may not attain greater significance. Accuracy of vital statistics and better physicians enter into this condition. Two cases in the heredity group are of especial significance because the disease developed at the ages of 15 and 17, respectively; in fact, these were the youngest patients in my group. Another of my patients with marked heredity developed diabetes at the age of 13 but lived not quite ten years.

All cases which have come to my attention of youthful patients with diabetes living for such long periods of time have been hereditary. The case of Schmitz, quoted by Naunyn, was hereditary. Naunyn's own famous cases, Nos. 124, 173 and 32 were all hereditary cases, and he refers on pages 96 and 97 of the second edition of his book on diabetes to other cases with long duration in which I find that heredity was manifest.

Jon Noorden calls attention to the fact that heredity may be a favorable factor for the duration of diabetes, though occasionally unfavorable if the type in the progenitors has been especially severe.

5. The diabetes was extremely mild in five of my cases, and the quantity of sugar in the urine in these five cases was not far from 1 per cent. In one of these cases, acidosis was present following an operation for appendicitis. In several of the cases a small quantity of sugar was present in the urine presumably for some time before the disease broke out in full force. I suspect that many more such cases will be found in the future.

6. The favorable outcome in a considerable percentage of the cases can be attributed to the early detection of the disease. Many of the patients were physicians and several learned of the diabetes through life-insurance. Approximately one-fourth of the patients discovered their diabetes in this manner, and thus presumably began treatment early. The early detection of the disease, therefore, is one of the best methods for obtaining favorable results for treatment.

Naunyn especially urges the importance and the good results of early treatment. The time is probably not far distant, if not already here, when the question will be asked of the diabetic "How long did the diabetes exist before it was discovered and who was your physician?" We are familiar with the same questions in tuberculosis. Who would have thought ten years, or even five years ago, that it might reflect on a physician if one of his patients developed typhoid fever? In ten years to come we may be blamed for the development of some cases of diabetes.

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ABSTRACT OF DISCUSSION

DR. THEODORE C. JANEWAY, New York: Success in the treatment of diabetes mellitus depends entirely on minute attention to detail and on the ability of the physician to persuade the patient to undergo the necessary hardships, which, however, should be made as little irksome as possible. There must of necessity be cooperation on the part of the patient; unless you can convince your patient of your ability to help him, you will not get this needed cooperation.

The treatment of the ordinary cases of diabetes is within the powers of any physician who is willing to give a little time and study to the underlying principles. The management of severe cases of diabetes requires special experience. Dr. Joslin has emphasized the real value of profiting by what we have learned from experience, carefully studied, in the hopefulness that comes from known power to help our patients. The same principle holds good, for instance, in the use of digitalis in heart disease; the man who always uses it carefully, and only when it is indicated, can accomplish results, and avoid many failures. In his future use of digitalis then he will show a confidence which goes a great way in promoting a good effect on the patient. This holds good over the whole domain of practical medicine.

If we have learned to carry these diabetic patients along and improve at least one-quarter of all of them so that they can live ten years or more, I think that we have been given a valuable lesson. There is no one in the country who is in a better position than Dr. Joslin to give us this lesson with the statistics that he has, and the thoroughness with which he has gathered them. My personal experience with these cases of diabetes has not been as great as his. I think rather more of the long-lived ones that I have records of have shown obesity. Dr. Joslin's patients, however, have been chiefly among the American-born population, more of mine among the Hebrews. One patient illustrates a phase of the question occasionally seen, an elderly obese individual, now nearly 80

years of age, diabetic for about twenty years, who has disregarded most of the rules laid down for him but is still alive. He has survived an appendix abscess since 70. For the last six years his diabetes has been moderately severe. Too much should not be said about such cases, for the disregard of proper dietetic measures usually produces very definite effects in hastening the progress of diabetes. Such a case shows, however, that the elderly obese diabetic may live long even without good treatment.

DR. JOHN A. LIGHTY, Pittsburgh: What was the percentage of these patients that Dr. Joslin has reported to the number of patients diabetic whom he has seen? An important point which I think should be emphasized, is the effect of the acute infections on these cases. Death in almost all my cases was due to some acute infection rather than because of the usually dreaded diabetic coma, such for instance as middle-ear disease, tonsillitis, pneumonia, pulmonary tuberculosis and other diseases which might be mentioned.

In looking over my case records a few weeks ago in preparation for a lecture to the students on the subject of diabetes mellitus, I found a point that impressed itself on me very much, and one that Dr. Joslin has brought out this morning, that these patients live longer than was ordinarily believed and longer than the text-books usually tell. One case in particular illustrates the hopefulness which should be entertained in regard to these cases. This patient was a young man, in the dangerous age, between 20 and 30, whose case was classed as acute, with a bad prognosis. He was eliminating 26 ounces of sugar during twenty-four hours. This man was gradually placed on a carbohydrate-free diet, and the amount of sugar fell gradually to three-fourths of an ounce per day. After two days' rest in bed the sugar entirely disappeared, and he slowly gained in weight. This case looks to be very hopeful. It illustrates what rest in addition to proper dietetics will do.

DR. G. W. McCASKEY, Ft. Wayne, Ind.: I am strongly inclined to think that we have a tendency to take an altogether too hopeless view of the progressive tendencies of diabetes mellitus, and am firmly convinced that an intelligent and careful management of these patients will tend very largely to increase the number of those who live many years, and who make, under favorable conditions, what is a substantial recovery. While we do not know much of the real pathology of the disease, we may say that it is a more or less complete breakdown in the glycolytic function of the body. This function is very complex. Certainly it is dependent in part on the internal secretion of the pancreas and probably on the glycolytic ferment discovered by Colnheim in the muscle juices. Other factors still may be operative although at present unknown.

What we should aim to do is to study this function in so far as its limitations are concerned and endeavor if possible to broaden them. I believe that this can be done to a great extent in a considerable number of cases. The first thing to do is to determine whether the patient with diabetes will continue to have glycosuria on a starch- and sugar-free diet. If he does, the case is essentially unfavorable and the patient cannot be expected to improve very much or perhaps even survive very long. If the sugar in the urine disappears on the withdrawal of carbohydrates, then intelligent supervision of the patient's dietary may accomplish very much. He cannot, of course, be kept aglycosuric by completely withholding carbohydrates indefinitely, as this is not practical; but by reducing the quantity as much as possible and at frequent intervals entirely withdrawing them and giving this complex function rest, we may improve its capacity and widen its limitations and in a certain group of cases the patient may ultimately become able to assimilate and metabolize an increasing quantity of starch without the production of glycosuria. A full recognition of these facts will enable us to be of vast service to some of these patients who otherwise may drift along steadily becoming worse as months and years go by. In short, it is not sufficient at all, nor does it discharge our duty to the patient simply to tell him to take less starch; the quantity that he can assimilate must be carefully worked out from time to time and the treatment which is, of course, principally dietetic, must be intelligently directed along the lines indicated.

DR. J. L. MILLER, Chicago: I would like to report two interesting cases. A woman had a glycosuria which had existed for a number of years; she developed an urticaria of very severe type which persisted for three or four months. Without any change in her diet or any special medication, the glycosuria disappeared. After the disappearance of the urticaria, however, the glycosuria returned.

The second patient was a woman, who passed 50 gm. of sugar a day. She was on a rigid diet. She had very severe uterine hemorrhages, and, as a result, was markedly anemic. A hysterectomy was performed. It was found that a carcinoma had developed on an old fibroid tumor. Several months later the patient returned and it was found that she was entirely free of sugar. To-day she is taking practically an unlimited amount of starch and is doing very well.

DR. LOUIS G. HEYN, Cincinnati: At von Noorden's clinic and at different sanatoriums to which I had access in Vienna, I was impressed with the control the physician had over his patient and the good results to the diabetic patient accruing from a hospital residence. Great stress is laid on the patient's residence in a hospital or sanatorium, an important step in gaining control of the patient. Of greater importance perhaps than the control of the patient is the facility which close observation affords of determining the carbohydrate tolerance. Estimations may thus be carried over a definite length of time daily. What also seemed important to me was the manner in which physicians impressed their patients with the seriousness of their condition and the fearlessness which the physician displayed in handling the situation. For instance, the presence of acetone and acid bodies was usually disregarded, unless the acetone estimate was over 5 gm. daily. Let me say again that I consider of paramount importance the residence of diabetic patients in hospitals or sanatoriums. Most of them will not be required to remain longer than a few weeks.

DR. ELLIOTT P. JOSLIN, Boston: One occasionally meets a patient who states that he has not had careful treatment, yet such a patient may live for a long period of time. I investigate such cases and usually find that such patients take much butter and cream and other fatty food and also change the character of their work. The head of a large life-insurance office told me that he had had diabetes for twenty years, and that he had never been treated for it. In reality, however, the diagnosis was made early and the patient being intelligent had followed a most careful diet all his life. I can report a case similar to that described by Dr. Miller. The patient had a very severe attack of diabetes; the glycosuria occurred in connection with a fibroid tumor of the uterus; when the fibroid was removed the glycosuria disappeared. I think that residence in a hospital should be but a short time, three weeks the maximum. When sent out, these individuals will be more willing to return for another period of treatment. They should be allowed to go about town and enjoy pleasures outside the institution. Rest for a week, however, often results in great benefit to them. The report of the case of urticaria occurring in the case of diabetes was extremely interesting, especially as it might throw some light on the etiology or on the treatment of this disease. There is no doubt also but that cases of diabetes in which tuberculosis is acquired require careful study; if tuberculosis develops in a diabetic patient, the diabetes usually recedes; just why I do not know.

Laboratory Typhoid Diagnosis.—Blood-cultures make possible an early and positive diagnosis. The typhoid bacilli can be recovered from the blood in a large percentage of cases as early as twenty-four hours after the onset of the illness. This is the most valuable aid in diagnosis during the first week, before the appearance of the Widal reaction. After the first week the percentage of successful blood-cultures take a decided drop. This method of examination is now even more of a necessity since the use of typhobacterin in the prophylaxis of typhoid fever. A positive Widal results quickly after the vaccination and persists for a varying period, making the agglutination reaction worthless in many cases.—Sledge in *Southern Med. Jour.*

SUCCESSFUL CULTIVATION OF MALARIAL PLASMODIA *

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NEW ORLEANS

In a former contribution¹ I first reported my success in cultivating *Plasmodium vivax*, *P. malariae* and *P. falciparum*; and as much additional work has been completed since the appearance of that article, the present brief announcement of results to date is presented pending publication of the full technic and details.²

The work subsequent to that first described in the article above cited¹ was done in Central America in conjunction with Dr. Foster M. Johns on a research expedition equipped and sent to Panama by the Tulane School of Tropical Medicine and Hygiene.

In the course of this later work it was found that the malarial plasmodia can be grown in human serum, in Locke's fluid (from which calcium chlorid is omitted) and in human ascitic fluid. In the majority of cases it was found that dextrose must be added to the medium in order to secure growth of the parasites. The plasmodia grow in a thin layer near the top of the cell sediment, beneath which zone the parasites all die.

The parasites have been cultivated only in the red cells of human blood and are destroyed by the leukocytes as soon as they are liberated from the erythrocytes, and also by the serum, Locke's fluid, ascitic fluid, or, in fact, by any of the mediums experimented with.

Plasmodia develop readily in the red corpuscles, apparently digesting the substance of the corpuscles, and segmentation can be followed with great satisfaction in the cultures.

The most favorable temperature found for the cultivation of these protozoa is about 40 C. They will usually live at a lower temperature, but often will not grow, and as a rule will not multiply.

Positive cultures have been obtained from twenty-nine cases of estivo-autumnal malaria, six cases of tertian and one case of quartan. The cultures have been carried on as far as four generations from the parent culture and with proper attention to technic can doubtless be maintained indefinitely. Only the asexual cycle of the parasite has been observed in our cultures.³

It is hoped that those workers who are in a position to do so will confirm the work already done; those who are interested in the matter are referred to the full discussion.²

In conclusion I wish to thank the anonymous friend of the Tulane School of Tropical Medicine who, through the Dean of the Medical Department of Tulane University, contributed the fund which paid the expenses of the expedition; also the United Fruit Company which, through their manager, Mr. C. H. Ellis, furnished complimentary transportation for the members and apparatus of the party, and Colonel W. C. Gorgas, chief sanitary officer of the Canal Zone, with various members of his staff, who extended every help and courtesy during the expedition's stay in Panama.

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* Study 23, from the Laboratories of Tropical Medicine and Hygiene, under the direction of Creighton Wellman, Medical Department of the Tulane University of Louisiana.

1. Bass, C. C.: A New Conception of Immunity, THE JOURNAL A. M. A., Nov. 4, 1911, p. 1534.

2. A complete discussion will appear in the October number of the Journal of Experimental Medicine.

3. Cultures, preparations and apparatus illustrating the foregoing work will be exhibited at the International Congress on Hygiene and Demography to be held at Washington, September 23-28.

A ROUTINE METHOD OF OPENING THE HEART WITH CONSERVATION OF THE BUNDLE OF HIS AND THE SINO-AURICULAR NODE

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NEW YORK

As it has become important to make detailed pathologic examination of those human hearts which have been studied clinically with the newer instruments (string-galvanometer, polygraph, etc.), it is advisable to have a routine method of opening hearts in such fashion that the specialized tissue is left intact for further study. The text-books direct one to connect the superior and the inferior vena cava with the scissors; but this procedure almost invariably results in cutting the sino-auricular node, one of the important structures which ought not to be injured.

DIRECTIONS FOR REMOVING AND OPENING THE HEART

The superior vena cava should be cut high up (an inch or more from its auricular mouth) so as to avoid the sino-auricular node. One should also not cut too close to the right auricle in detaching the heart from the lungs on the right side.

Right Side of the Heart.—After removal of the heart, insert the scissors into the opening of the inferior vena cava and cut the right auricular wall close to and parallel with the auriculoventricular groove, extending the incision to the apex of the auricular appendix (Incision 1, diagram). This incision avoids especially cutting along the line connecting the superior and inferior venæ cavæ: that is, it avoids the sulcus terminalis of His underneath which the sino-auricular node is located. Lay open the right auricle and inspect it and the tricuspid valve. Insert the scissors again into the inferior vena cava and cut along the right border of the ventricle to its end (Incision 2). Then, following the blood-stream, cut the right ventricle from near its end to and through the mass of fat which is at the base of the pulmonary artery, keeping well over toward the left side so as to pass between the left anterior and the posterior cusps of the pulmonary valve (Incision 3). In making this last incision, it is well to avoid bisection of the anterior papillary muscle, as the right branch of the auriculoventricular system passes directly from the interventricular septum to the anterior papillary muscle.

Left Side of the Heart.—In opening the left side of the heart, the usual incisions, following the course of the circulation, give a good exposure and do not injure the specialized tissues.

With the scissors connect the orifices of the pulmonary veins. Lay open the left auricle and inspect it and the mitral valve. Cut from the left auricle, through the mitral valve, between the two papillary muscles of the left ventricle, to the apex of the heart. From the apex make an incision, parallel with the interventricular septum and close to it, into and through the aorta.

One should not make slashes into the interauricular and interventricular septa as these may damage the conducting system. Incisions should, however, be made into the rest of the ventricular wall, first, to determine the gross characteristics of the musculature, and, second, to facilitate the penetration of the fixative.

FIXING AND PRESERVING THE HEART

For general histologic work the following method has proved very satisfactory:

1. Fix in Orth's solution (Formaldehyde-Mueller) thirty-six hours, preferably in a warm environment, and change the solution whenever it becomes dark.

2. Wash for at least forty-eight hours in running water until the drippings from the heart are no longer yellow.

3. Place in a sufficient quantity of 70 per cent. alcohol and store in this reagent until the pathologist is ready to undertake the laborious histologic work.

4. Or, instead of steps 1, 2 and 3, place directly into a 10 per cent. dilution of liquor formaldehydi.

One of the present problems in cardiac pathology is to correlate the clinical condition with the histologic findings. By observing the above method, an excellent gross view of the interior of the heart may be obtained

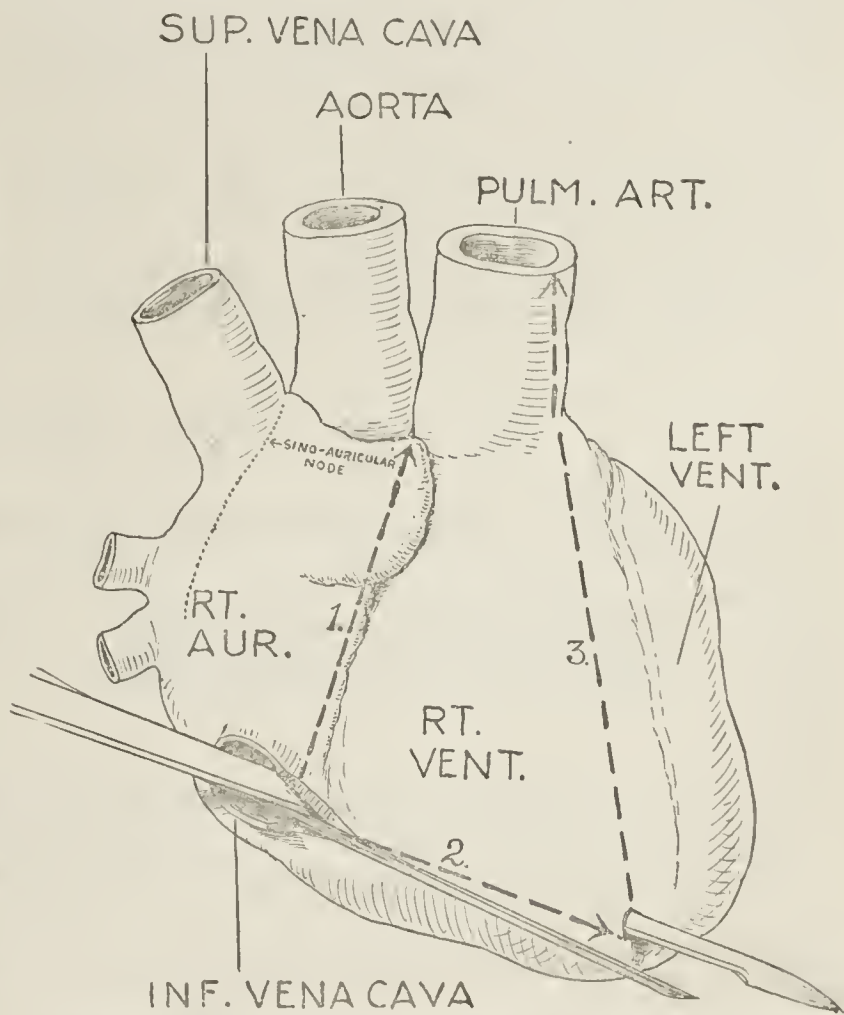


Diagram of a heart showing Incisions 1, 2 and 3 for opening the right side of the heart without injury of the sino-auricular node, which is represented diagrammatically by the fine dotted line.

and at the same time the material is not injured for further detailed study through the technic employed in removing, opening or preserving the specimen.

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DESCRIPTION OF A NEW URETHROTOME

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A moment's consideration will make it clear that the ideal urethrotome should possess the following characteristics:

1. It should be applicable to all strictures of whatever caliber, down to those admitting only a filiform, and whether situated in the anterior or posterior urethra.

2. It should be provided with some sort of finder or mechanism for locating the exact points requiring incision before bringing the knife into action.

3. It should be so constructed as to permit the surgeon to pass his knife down to the seat of the stricture without damage to that portion of the urethra lying anterior to it.

4. It should be provided with some mechanism for informing the surgeon when he has completely divided the stricture in order that he may not do damage to that portion of the urethra lying posterior to it.

I wish to describe a new instrument which appears to meet all the conditions perfectly. It consists of:

A. A grooved staff similar to that of the Maisonneuve urethrotome, and tipped with a detachable woven filiform guide. The groove stops at the beginning of the curve.

B. A cutting apparatus to be introduced along the groove of the staff and having a hinged knife which can be raised or lowered at the will of the operator by means of a mechanism found in the handle. The knife is to be protected during introduction by an olive (E and F), and, as the olive is detachable, any size from 19 to 32 French may be used.

An extra tip (D) tunneled for passage over a whalebone bougie accompanies the instrument and the advantages of this will be at once apparent.

The method of procedure with this instrument will be as follows: First the surgeon will pass the grooved

again and again, until he has brought the urethra up to such size as he may elect, and then and not till then will he remove the grooved staff.

It will be seen that with this instrument the surgeon is enabled to place his incisions with great accuracy, sparing absolutely the sound urethra and dividing beyond peradventure all strictured areas. The need of such an instrument has long been felt, and it is hoped that, now that this need is supplied, the operation of internal urethrotomy will rise to that popularity which its true worth deserves.

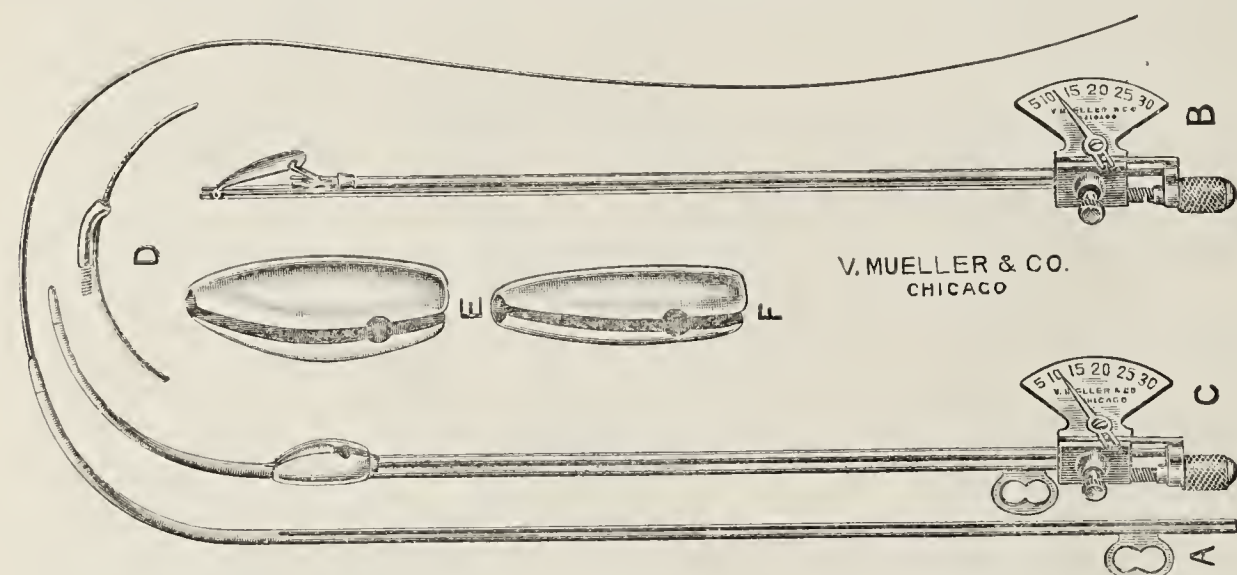
THE RELATION OF THE PARATHYROID GLAND TO INFANTILE TETANY *

CLIFFORD G. GRULEE, M.D.

CHICAGO

The evidence for and against the causal relation between lesions of the parathyroid glands and spasmodophilia or infantile tetany may come under three heads: clinical, pathologic and chemical. It should be borne in mind that lesions of the parathyroids have always been regarded only as predisposing factors—in other words, conditions that render the system more susceptible to the convulsive seizures, but that to produce such seizures some active factor, such as diarrhea, constipation, various infections, etc., are necessary. This narrows the subject down to the consideration of two questions: 1. Are lesions of the parathyroid in any way the cause of infantile tetany? 2. If we answer the first in the affirmative, is a disturbance of the parathyroid secretion necessary in order that spasmophilic attacks may occur?

From a clinical standpoint, we may bring evidence on only the first of these questions. It has long been known that total extirpation of the thyroid gland



New urethrotome: A, grooved staff; B, cutting apparatus; C, cutting apparatus inserted into grooved staff and olive adjusted; D, extra tip for introduction over a whalebone bougie; E and F, olives.

staff down through the stricture; he will then hold it firmly by the little hand-grip between the thumb and index-finger of the left hand. Then with his right hand, he will pass the cutting apparatus, olive adjusted and knife lowered, down along the staff until he meets an obstruction. This will tell him that his olive lies directly against the face of the stricture, and that he may now proceed to elevate his knife. This done he will advance his cutting apparatus further until resistance ceases or becomes greatly diminished, when he will lower his knife again. Now he will advance his cutting apparatus further with the knife concealed, thus testing the entire urethra with his olive, and bringing his knife into action only when cicatricial tissue is encountered. He may enter the bladder if he chooses. The olives, being tapering, have no shoulder to catch at any point. Finally the cutting apparatus is to be withdrawn, as it was introduced, with the knife lowered and protected by the olive.

The surgeon may now exchange his olive for one of larger size and repeat his maneuvers, this time placing his incision somewhat laterally to the original one according to the method of Guiard. This he may do

in adults is often followed by tetanic symptoms, and that such do not occur if the parathyroid glands are allowed to remain *in situ*. So far as I know, such operation has not been performed on an infant under 2 years of age, and hence we have no direct evidence that such symptoms would occur at this age. On the other hand, there is no reason to believe that the results on animals in this instance would differ materially from those on man. From personal experience in some experiments¹ recently undertaken, I am convinced that, though exceptions may occur, still we may state that the younger the animal, the shorter the period of life after removal of the parathyroids. So far as I have noted the symptoms of thyroidectomized (thyro-parathyroidectomized) dogs, they have simulated very closely those of infants affected with severe convulsive seizures. In two ways, however, they may be said to differ. In the first place, during the convulsive seizures they do not seem to lose consciousness. Our inability to estimate the psychic state in animals under such conditions, and the usually short duration of

* Read before a joint meeting of the Chicago Medical Society and the South Side Branch, May 15, 1912.

1. In the Department of Experimental Medicine, University of Chicago.

the convulsion suggest that our observations may be wrong. The rapid, deep, pauseless respiration can hardly be considered as altogether a hyperpnea following an apnea. Here, again, our attitude must be determined by our judgment and not by any direct evidence. In one respect the thyroidectomized animal reacts in exactly the same way as does the spasmophilic infant—the electrical irritability is distinctly increased.

It has long been known that removal of the parathyroid glands in animals brought about these convulsive seizures, but it remained for Erdheim² and Yanase³ to produce definite evidence of the presence of lesions of these glands in cases of infantile tetany. Yanase examined the parathyroids in fifty infants up to 15 months of age which had had an increased electrical irritability before death, and in every instance found lesions; while in those infants in which no increased electrical irritability was found, no lesions of the parathyroids were present. The lesions found were the results of hemorrhage which had probably occurred at the time of birth. These findings have been confirmed by Strada,⁴ and in large part by Iovane and Vaglio,⁵ but the reports of Jörgenson,⁶ Grosser and Betke⁷ and Auerbach⁸ speak strongly against the regular association of lesions of the parathyroid gland and infantile tetany. It may be said, however, that in the majority of cases so far reported the remains of hemorrhages in the parathyroid glands have been observed. It is quite conceivable, too, that a disturbance of the secretion of the parathyroid gland may occur without the occurrence of a lesion which is recognizable as such by our present methods.

For many years infantile tetany has been theoretically connected with a deficiency in the retention of calcium. The intimate clinical relations between spasmophilia and rachitis and the latter disease and calcium bone deposit perhaps suggested this theory. The brain calcium estimations of Quest⁹ and the experiments of Rosenstern¹⁰ tend to confirm this theory, while the metabolic experiments of von Cybulski,¹¹ of Schabad,¹² and of Haskins and Gerstenberger¹³ tend to disprove it. MacCallum and Voegtlin¹⁴ found a negative calcium balance in parathyroidectomized dogs, while Cooke¹⁵ obtained directly opposite results. In experimenting with babies suffering with convulsions and other spasmophilic manifestations¹⁶ several years ago I was convinced that while a food containing milk, either whole or skimmed, rather increased than decreased the convulsive tendency if the whey were removed, there seemed to be in all cases a distinct tendency to improvement, provided the convulsive seizures were not so severe that sedatives were necessary, and even in these cases the reaction to sedatives was more prompt and complete. The whey contains, in addition to water, protein, milk-sugar and some salts. Since much protein is contained in the curd, and since milk-sugar and other carbohy-

drates have proved to be non-irritating in this condition, it was thought that the salts might be to blame. Most of the calcium is held in the curd, so that when the whey is removed the salts thrown out consist largely of sodium and potassium. About this time Reiss¹⁷ called attention to the antagonism between calcium and magnesium on the one hand, and sodium and potassium on the other, in respect to the irritability of the nervous system, and suggested that some like disturbance of salt metabolism might be the active cause in spasmophilia.

In order to get some definite data on this subject, I decided to undertake some metabolic experiments on young dogs before and after thyroidectomy.¹ It was possible to complete these in four of twelve young dogs. In the first two complete experiments there was seen a distinct retention of sodium, with no distinct change in the calcium, after removal of the thyroid. In the last two, one showed a distinct excretion of calcium, with slight excretion of sodium, while in the other, although the sodium retention was practically the same before and after operation, the calcium showed a slightly negative balance. The magnesium and potassium in both instances showed a distinct loss.

On the strength of these results one might conclude that there was, after total thyroidectomy in young dogs, a disturbance of salt metabolism, such as Reiss suggests. One must be cautious, however, in interpreting such findings. Injections intraperitoneally of normal solutions of sodium and calcium salts, both before and after operation, did not apparently either delay or hasten death. I think it fair to conclude that the findings here set down, though not necessarily the result of parathyroid removal, at least are strongly suggestive, since, so far as is known, the acute changes following complete thyroidectomy are due to removal of the parathyroids. (The work was not undertaken primarily to study the action of the parathyroids, but only the convulsive condition caused by their removal.)

To complete this work, clinical experiments are now in progress and in at least one case the addition of sodium chlorid and potassium chlorid to the food, in quantities equal to the amount of whey, corresponding to the curds used, has produced a distinct increase of electrical irritability.

We have, then, no absolute evidence that lesions of the parathyroids are responsible for the cases of infantile tetany. We can say, however, that removal of the parathyroids in adults and animals produces a condition which, if not identical, closely simulates spasmophilia. In a majority of cases of infantile tetany there is found some lesion of the parathyroid glands. And there is strong reason to believe that the same disturbance of salt metabolism occurs in the tetany of animals produced by thyroidectomy as in the spasmophilia of infants.

In answer to the two questions propounded earlier in this paper, we may then say that it is altogether likely that lesions of the parathyroid are causal factors in infantile tetany, but that it is in no way proved that such lesions must exist in all cases.

122 South Michigan Avenue.

17. Reiss: *Ztschr. f. Kinderh.*, 1911, iii, 1.

2. Erdheim: *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1906.
3. Yanase: *Jahrb. f. Kinderh.*, 1908, lxxvii (E. H.), 57.
4. Strada: *Riv. di Clin. Ped.*, December, 1909 (Ref. *Jahrb. f. Kinderh.*, 1910, lxxi, 511).
5. Iovane and Vaglio: *La Ped.*, 1910, xviii, 709 (2d Series, vii).
6. Jörgenson: *Monatschr. f. Kinderh.*, 1911, x, 154.
7. Grosser and Betke: *Ztschr. f. Kinderh.*, 1911, i, 458.
8. Auerbach: *Jahrb. f. Kinderh.*, 1911, lxxiii, 193.
9. Quest: *Jahrb. f. Kinderh.*, 1905, lxi, 114.
10. Rosenstern: *Jahrb. f. Kinderh.*, 1910, lxxii, 154.
11. Von Cybulski: *Monatschr. f. Kinderh.*, 1906, v, 409.
12. Schabad: *Monatschr. f. Kinderh.*, 1910, ix (Orig.), 25.
13. Haskins and Gerstenberger: *Jour. Exper. Med.*, 1911, xiii, No. 3.
14. MacCallum and Voegtlin: *Jour. Exper. Med.*, 1909, xi, 118.
15. Cooke: *Jour. Exper. Med.*, 1910, xii, 45.
16. Grulee C. G.: *Arch. Pediat.*, 1912, xxix, 24.

Anesthetizing Children.—Never begin the anesthetic until the surgeon is ready to operate. This is a thing that I wish to impress not only on anesthetists, but on the general operator. I have seen many patients who have been kept under anesthesia anywhere from five to thirty minutes before the operator was ready to begin.—Kilmer in *Arch. Pediat.*

CESAREAN SECTION DONE UNDER SPINAL ANESTHESIA FOR ECLAMPSIA

REPORT OF THREE CASES *

JAMES P. MARSH, M.D.

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Leonard Hospital

TROY, N. Y.

CASE 1.—Mrs. E. W. L., aged 32, was admitted to the Samaritan Hospital, Troy, N. Y., Nov. 28, 1911, having been referred to my service by Dr. Thurman Hull.

About five years previously, she had two miscarriages and with both there were convulsive attacks, although she is said to have had no albumin in the urine at that time. The day before admission to the hospital, when between seven and eight months pregnant, she was taken suddenly with convulsive attacks, and thereafter had a convulsion about every half hour until her admission, at which time the bowels were moving involuntarily and there was a small amount of blood coming from the vagina. The pulse at 70 was of a fairly good quality. The temperature was 99.3 F. The urine was said to contain a large quantity of albumin. The skin was pale and very dry. The pupils were mid-wide and did not respond to light. The tongue was clean. The lungs were normal. The apex of the heart was in normal position, but the sounds were weak, indistinct and irregular. The liver dulness was normal. The abdomen was full, rounded and universally dull. The fundus of the uterus was 2 inches below the ensiform cartilage and a pregnancy was easily diagnosed. The small parts were to the right, dorsum to the left, head in the pelvis. There were neither fetal heart sounds nor fetal movements.

The os was dilated so as to take the tips of two fingers, was hard and did not respond to manual dilatation. The patient was semiconscious and there was a paralysis of the right side of the face and body.

At 2 p. m. she was given 10 minims of Norwood's tincture of veratrum viride, and poultices of digitalis leaves were applied to the lumbar spine. At 3:20 p. m. she was given 10 grains of theobromin sodium salicylate. The specific gravity of the urine was 1.024, reaction acid, albumin in large quantity, granular and hyaline casts, and red blood cells.

After a number of convulsive attacks, about midnight the patient went into a heavy stupor which was broken by periods of active delirium. There were no convulsions and she voided involuntarily.

At 5 p. m. November 29, under spinal anesthesia, with the use of stovain according to the formula of Dr. Babcock of Philadelphia, through a median section, a hysterotomy, the extraction of a dead female child and a complete supravaginal hysterectomy were done. The uterus contained several fibroids of various sizes.

The next day the patient was restless, vomited several times and voided urine involuntarily. The right side of the body and face were still paralyzed. The convalescence was smooth. Surgically speaking, the patient made a complete and quick recovery. Immediately after the operation the urine began to clear so that by December 17 it was free of albumin. The paralysis in the right leg had improved when the patient left the hospital Jan. 20, 1912. On July 4, 1912, it was reported that she had regained very good use of her right leg, and that the arm motions seemed to be improving rapidly.

Because of the low pulse-rate and the presence of a right-sided hemiplegia, although there was an undoubted albuminuria with casts and red blood cells, the diagnosis of uremic eclampsia may be open to a reasonable doubt, but all who saw this case with me felt that the doing of cesarean section under spinal anesthesia was the proper procedure.

CASE 2.—Mrs. M. C., aged 27, patient of Dr. J. H. Flynn, was nearing the end of her first pregnancy when on Dec. 30, 1911, at about 7 p. m., suddenly and without any premoni-

tion, she was seized with eclamptic convulsions, which continued during that night without the appearance of labor pains. On the morning of December 31, Dr. Flynn introduced a catheter into the uterus for the purpose of inducing labor. As the day wore on and labor did not supervene, and as the patient was semiconscious and pulmonary edema had developed, Dr. Flynn had her removed to the Leonard Hospital, Troy, and asked me to see the patient with him.

On admission her temperature was 102 F. and pulse 136. She was semiconscious, cyanotic and was having frequent convulsions. There was marked pulmonary edema. This condition continued up to the time of my operation on the evening of December 31.

Under spinal anesthesia, the same as in the first case, I performed the cesarean section, extracting a child which lived four hours. As the catheter was found in the uterine cavity, between the membranes and the uterine wall, it was thought that sepsis might occur and a complete hysterectomy was done.

The patient made a good surgical recovery, but convalescence was complicated by a mammary abscess where repeated hypodermoclysis had been given. The patient was finally discharged from the hospital in good condition Jan. 27, 1912. The albumin, however, never entirely cleared up.

CASE 3.—Mrs. C. McC., when between eight and nine months pregnant, was taken, Jan. 27, 1912, at about 10:30 p. m. with uremic convulsions. All day she had had headache and was restless, but there had been no signs of labor. After the first eclamptic seizure, convulsions followed each other frequently. Dr. Winship, of Eagle Mills, was called to attend the patient and sent her in to my service in the Samaritan Hospital Jan. 28, 1912. On admission the patient was comatose and was having frequent convulsions.

The family history was good. The patient began to menstruate at 11 years of age and had always been regular; she was married at 19 and had had two children, both of whom were living; previous to the birth of the second child she had considerable "bloating," and one year previously she had had scarlet fever and was very ill for two weeks. She was a well-nourished and well-developed woman. The skin was pale and dry; the face was expressionless and edematous, and the pupils were small. The tongue was bleeding from teeth wounds and much swollen. The apex of the heart was displaced outward, but there were no murmurs. The liver dulness was normal and the spleen was not palpable. The abdomen showed a normal pregnancy of about eight and one-half months with the head in the left occipito-anterior position. The kidneys were not palpable, and the genital organs were edematous. The urine was said to be scanty and highly albuminous. A diagnosis of eclampsia was made.

Under spinal anesthesia, a classical cesarean section was performed, with the same technic as in the previous cases. A living female child was delivered. The operation was slow, taking one hour and five minutes, most of this time being used in carefully closing the wound in the uterus.

For several days the patient had some rise in temperature and at one time it went up to 102 F., with a pulse of 110, but on the seventeenth day it reached normal and so remained. She was discharged from the hospital, well, Feb. 22, 1912.

On January 28, the day of admission this patient's urine was acid, specific gravity, 1.006, and contained a large quantity of albumin, red blood cells, leukocytes and granular casts. On February 20 it was acid, specific gravity 1.016, and did not contain any albumin.

These three cases belong to a class in which previously I have always lost both mother and child.

In the early years of my practice, about twenty-five years ago, I used to treat the patients medically and all died. Then I did manual dilatation, and *accouchement forcé* and they all died. Then I turned to cesarean section under ether and was equally unfortunate, and so I had come to look on the cases as being necessarily

* Read at the annual meeting of the Greene County Medical Society, New York, July 9, 1912.

fatal whatever might be done. I wish no one to be mistaken as to the class of cases about which I am talking. There is a vast difference in the chances of a woman taken with eclampsia when labor is present or has progressed more or less, and the chances of one taken with eclampsia in the eighth or ninth month of pregnancy all signs of labor being absent. It is of this latter class that I am speaking. All of these three women were *in extremis* and I am sure that with any other mode of anesthesia they would have been lost.

There was much doubt in my mind, before doing my first operation, as to whether or not the uterus would contract promptly and efficiently under this form of anesthesia, but in all of the cases the contraction was excellent and just as firm as when I have done cesarean section under ether.

Professor Babcock of Philadelphia writes me that he is quite sure that these cesarean sections are the first in the United States to have been done under spinal anesthesia; he thinks that they are the first to be reported from any country.

1828 Fifth Avenue.

SUBCLAVIAN ANEURYSM WITH SUCCESSFUL ENDO-ANEURYSMORRHAPHY

EARLE DRENNEN, M.D., BIRMINGHAM, ALA.

Patient.—R. W., a boiler-maker, aged 38, was admitted to St. Vincent's Hospital March 12, 1912. He was pulseless and in extreme shock from loss of blood consequent on a stab wound just beneath the middle of the left clavicle, inflicted a few minutes before. By packing the wound and applying pressure over it, hemorrhage was checked. The shock was combated by intravenous infusion and other routine measures. Four days later, signs of aneurysm were first discovered on auscultating near the stab wound, which region was perceptibly bulging. Expansile pulsation and a thrill were evident to palpation. The left radial pulse was slightly weaker than that of the right side. He was kept in bed with rest and suitable diet for three weeks. During this time, he complained of considerable pain over the tumor and shooting down the arm. Beginning on the eighth day, powerful compression was applied over and just above the tumor three times daily, for a period of fifteen minutes each time. The pressure employed above the clavicle stilled the pulsation and bruit in the sac; likewise the radial pulse was obliterated. Following this procedure, the patient experienced complete relief from his pain. At the end of three weeks he refused operation, and left the hospital. Two weeks later he returned, complaining of much pain over the tumor, which had visibly increased in size. He was pale and very weak. Operation was decided on at once. His family and past history were negative. He had never had syphilis.

Operation.—The patient was anesthetized and an incision 3 inches in length was made about half an inch above the clavicle and parallel to it. The subclavian artery was exposed and a temporary tape ligature passed around it and tied at the point where the artery emerged from behind the scalenus anticus muscle. Next an incision 4 inches in length was made along the lower border of the clavicle, its middle corresponding to the bulging of the tumor. The sac was quickly opened and furious hemorrhage occurred. This was controlled with great difficulty by pressure, but in spite of all efforts blood kept welling up in such quantities that nothing could be done. Finally an aneurysm needle, threaded with a stout, heavy ligature, was passed around the artery, beneath the clavicle just proximal to the sac, the wounds above and below the clavicle having been made freely into one large wound. By a lifting and squeezing action with this ligature, all hemorrhage from the proximal opening into the sac was stopped. The bleeding from the distal opening was controlled by pressure,

and a stitch taken across its lumen; when pulled on, this stitch effectually stopped all bleeding. It could now be seen that the aneurysm involved the third portion of the left subclavian artery, that it was the size of a small hen's egg and contained considerable fibrin, clots, etc., and that there were two openings about three-eighths of an inch in diameter, and a similar distance apart. No groove between the two could be demonstrated. The detritus was removed from the sac. The openings were then closed with interrupted chromic catgut stitches, four stitches being taken in the lower, and five in the upper. The temporary ligatures proximal to the sac were now removed; the sac remained dry. The sac was then closed with a running Lembert suture. The radial pulse, while quite weak on the left side, immediately after the operation, was easily felt, and the next day was equal in size and strength to that of its fellow.

Postoperative History.—Healing occurred by first intention, and convalescence was uneventful. The patient was kept in bed three weeks and then allowed to go about. Since the operation the left arm and side have been normal in all respects. The patient returned to his arduous work eight weeks after the operation. When he was seen three weeks later, there was no tumor, no bruit and no pulsation under the scar. The left radial pulse was similar in all respects to that on the right side. The patient feels well, and has gained 25 pounds. Although careful search has been made of the literature, no record of a successful aneurysmorrhaphy of the subclavian artery has been found. It is my belief that it was possible in this instance only because all the tissues involved were healthy. The most impressive thing about the operation was that ligature, above the sac, apparently had no effect on checking hemorrhage from the opened sac. It is possible also that the compression employed in this case accentuated an already free collateral circulation.

A CASE OF SPOROTRICHOSIS IN NORTH DAKOTA: PROBABLE INFECTION FROM GOPHERS

G. M. OLSON, M.D., FARGO, N. DAK.

A few cases of sporotrichosis have been reported in North Dakota. Probably many cases are not recognized. Diagnosis is easy if this disease is kept in mind. Potassium iodid occasions a prompt recovery. Ordinary surgical treatment is of little avail.

Patient.—G. A., a man, aged 19. Five weeks before examination, while at Tappen, N. Dak., a lump like a "boil" appeared on the dorsum of the right hand. No pain, tenderness, fever or other constitutional symptoms were present. A few days later subcutaneous nodules began to appear on the back of the right forearm. On examination there was an ulcer about 1 inch in diameter on the dorsum of the right hand. The ulcer was raised and contained thick gelatinous pus. There was no pain, tenderness, fever or headache. Three nodules on the back of the right forearm were similar to that on the hand except that there was no ulceration. There was a distal nodule about one-half inch in diameter, raised and purple-red in color. Other nodules were smaller. Proximal nodules were wholly subcutaneous and not adherent to the skin.

Culture.—On blood-serum a number of snowy white colonies appeared in three or four days. Two days later the colonies were brown. A smear from the culture showed a branching mycelium with oval or ovoid spores.

Source of Infection.—Patient was on a farm at Tappen, N. Dak., but states that none of the cows or horses had any sores. Many gophers that he killed and handled had sores similar to that which later appeared on his hand. As sporotrichosis is present among rats, it is probable that gophers may be infected with this disease.

Treatment.—Tincture of iodine was applied locally and potassium iodid, 10 minims, was given three times a day. In ten days the ulcer had nearly healed and the nodules had almost disappeared.

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[For other information see second page following reading matter]

SATURDAY, SEPTEMBER 21, 1912

THE EYE, EAR, NOSE AND THROAT NUMBER

This issue of THE JOURNAL is a special Eye, Ear, Nose and Throat Number. It is in two parts: Part 1 is the regular issue; Part 2 contains the articles, and the discussions thereon, presented at the Atlantic City Session, 1912, in the Section on Ophthalmology and in the Section on Laryngology, Otology and Rhinology.

PHYSIOLOGIC FEATURES OF HIGH ALTITUDES

There are manifold relations between climate and man which can justly lay claim to scientific interest. Some of them have agricultural or anthropologic bearings, whereas the physician is especially concerned with those features which relate to hygiene or therapy. The underlying problems have been studied in various ways in the past, either by observation under the conditions which actually obtain in nature, or in the laboratory where an attempt is made to imitate and experimentally control individual factors such as temperature, humidity and barometric pressure. Within the past decade investigation in each of these directions has received a noteworthy impetus, so that there is available at present a considerable body of useful scientific literature relating directly to the subject of climate. In a way, laboratory studies like those conducted in the respiration chamber have served to supplement or confirm the evidence collected in the open air.

As happens not infrequently in scientific work, the improvement in apparatus and the refinement of experimental technic, along with an accumulation of healthy criticism, have modified some of the earlier views regarding the effects of certain climatic factors. It may be helpful to take a retrospect of the advance in knowledge which a decade of investigation has brought in respect to the physiology of altitude.¹ A few years ago it was confidently stated that removal to higher altitudes was attended with a decided increase in the number of red corpuscles and the percentage of hemoglobin in the blood. This result was looked on as a compensatory response on the part of the organism, whereby the possi-

ble inability of the body to satisfy its oxygen needs in the presence of a lowered barometric pressure was averted. With improved technic in hematologic work, whereby especially the more rapid evaporation of blood samples at higher altitudes is avoided, the tendency has been for the earlier reported extreme increases in the oxygen-carrying blood constituents to disappear. The reports of more recent years, such as those made by Bürker and his colleagues,² show at best only a comparatively small increase amounting to 4 or 5 per cent. at altitudes of five or six thousand feet. The same moderate results have likewise been noted lately for much higher altitudes. There is no displacement of the usual relations between the number of corpuscles and the content of hemoglobin and iron in the blood, contrary to the conditions formerly alleged to exist at lowered barometric pressures. Cohnheim has essayed to attribute to a concentration of the blood at high altitudes the almost insignificant increases which have undeniably been found by competent observers. The climate is always dry and evaporation proceeds rapidly. As a result individuals lose water more readily than at lower levels, and the losses become more pronounced and conspicuous in smaller animals, such as those which commonly serve the purposes of experiment. If this explanation is tenable, the increases in corpuscles or hemoglobin content occasionally found are in no wise the expression of a lack of oxygen; they are rather the outcome of the increased evaporation under the newer conditions of climate. Thereby one reputed response of the organism is no longer tenable as a therapeutic hypothesis.

The influence of altitude on respiration has, of course, always been the subject of speculation, especially in its relation to mountain sickness. Two factors come into play. As the altitude increases, a lowered tension of oxygen in the alveolar air results, and there is a diminished tension of carbon dioxide. The rate of respiration may be variously influenced in different circumstances; but the depth of respiration is almost invariably increased. This, of itself, not only facilitates the oxygen supply, but also increases the elimination of carbon dioxide. These effects are reflected in the content of the two gases in the blood. Since Haldane's classic investigations on the regulation of respiration by the carbon dioxide tension in the blood it has become apparent why respiration may become so markedly modified under these conditions. Mosso and his followers were always inclined to attribute to the acapnia a very important rôle in the physiologic disturbances noted in high altitudes. Undoubtedly acapnia is a factor to be reckoned with, but the primary and fundamental feature is the lowered oxygen pressure to which the other consequences are in reality secondary.

Whether the pulmonary exchange of gases proceeds according to well-known physical laws at high altitudes, or there is an active secretion of oxygen by the pulmo-

1. For a very recent review of this subject see Cohnheim, O.: *Physiologie des Alpinismus*, II. *Ergebn. d. Physiol.*, 1912, xii, 628; also *Anglo-American Expedition to Pike's Peak*, THE JOURNAL A. M. A., Aug. 10, 1912, p. 449.

2. See editorial, *Altitude and Blood-Corpuscles*, THE JOURNAL A. M. A., February 3, p. 344.

nary epithelium into the blood, as has lately been maintained, remains to be determined.³ In addition to these purely respiratory influences there is evidence of an increased combustion in the body under conditions of lowered oxygen tension, and there are undeniable influences on nitrogenous metabolism. Effects of this type still await an explanation. Unquestionably very high altitudes—and perhaps those moderately high—are detrimental to human health, but the great body of clinical climatologic literature still needs to be sifted and studied in the light of modern physiology before an adequate understanding of reputed and unquestioned curative virtues of mountain resorts can be attained.

GRADUATES OF SECTARIAN SCHOOLS IN THE GOVERNMENT SERVICES

In the discussion over the creation of a national department of health, the statement has frequently been made that the three medical services of the government, namely, the Medical Department of the Army, the Medical Corps of the Navy, and the Public Health Service, were exclusively manned by graduates of so-called "regular schools," and that such a condition was due to a plot on the part of the "regular" medical profession and the American Medical Association to exercise a "monopoly." The fact is that the American Medical Association, fully appreciating that such action would be beyond its province, never has attempted to influence an appointment to one of these services.

In order to secure official statements of the present personnel of the government services, letters were recently addressed to the surgeons-general of the three services, asking whether there were graduates of sectarian schools in the service at present and whether there was any provision in the law which prevented any graduate of any medical school from being appointed to a position in the service. In reply, Colonel J. R. Kean of the surgeon-general's office of the Army Medical Department writes:

Our requirements are that a candidate for admission to the medical corps shall be a graduate of a reputable medical school and shall pass the examination. This does not exclude sectarians if they are well grounded in scientific medicine. There is, I think, one graduate of an eclectic school in the active list of the Medical Reserve Corps and two graduates of homeopathic schools.

Surgeon-General Charles F. Stokes of the United States Navy writes:

There are at present medical officers of the Navy on the active list who are graduates of homeopathic colleges. There is no reason why a graduate of a homeopathic or eclectic medical college who has had a year's experience in a general hospital on successfully qualifying physically, professionally and morally, should not receive an appointment to the Medical Corps of the United States Navy.

Assistant Surgeon-General J. W. Kerr of the Public Health Service writes:

One of our active assistant surgeons is a homeopathic graduate, and another is of the eclectic school. One of our passed assistant surgeons is a graduate both of a homeopathic school and of a "regular" school. There is no reason why a graduate of medicine from any reputable school could not be admitted into the service provided he was a gentleman and had passed the required examinations.

These official statements are sufficient refutation of the charge that graduates of sectarian schools are not eligible to appointment in the government services.

The scientific and educational qualifications required for admission to the services are the same for all applicants whatever the particular "school" to which they may belong. The examinations to ascertain these qualifications test the candidate's training in the fundamental medical sciences; they are practical ones; that is, they do not consist simply of written questions and written answers, but of laboratory and clinical demonstration of the knowledge of the applicant on the various subjects; they demand practical knowledge and not merely theoretical—book—knowledge. If but few graduates of sectarian schools gain admission to the government services, this is due to one of two reasons: Either such graduates do not apply, or else they are not qualified to pass the examinations. The latter is the more probable explanation, for it is well known that, with few exceptions, the sectarian colleges are too liberal in their requirements for admission and are weak in both their teaching staff and their laboratory equipment, so that they do not give the practical training demanded by the government. Investigation of those who succeed in entering the service will reveal the fact that it is not alone the sectarian schools that are not represented, or represented only in small numbers, but also the low-grade schools generally—including the so-called "regular," as well as the sectarian.

The truth, as all who are conversant with the facts are aware, is that few graduates of sectarian schools are able to secure appointments for the same reason that few graduates of low-grade "regular" schools are appointed—namely, that the equipment and character of instruction at these schools are not sufficiently high to prepare the graduates so that they can comply with the standard required by the government service. It is not a matter of "schools" or "sects"; it is a question of a working knowledge of the sciences fundamental to modern medicine.

DIET FACTORS AND THE SKIN

Although the skin is the seat of manifold disturbances which are undoubtedly associated with alterations in nutrition, it can scarcely be said that there is developed, at the present day, anything which might be designated as a chemical physiology of this tissue. Something is known, in truth, of the secretions of the skin, their composition and the conditions under which they are manifested; but what positive knowledge is available in respect to the chemical make-up of this organ or protective tissue which takes no mean part in the defenses

3. See editorial, *The Anglo-American Expedition to Pike's Peak*, *THE JOURNAL A. M. A.*, August 10, p. 449.

against our environment? When it is stated that the skin is largely albuminoid in character the essential known fact is told. Yet there must obviously be other factors concerned in those sensitive responses which the integument is capable of displaying at times and under suitable provocation. Every practitioner has to deal with stubborn affections of the skin which often resist equally the mildest or the most drastic treatment. It is easy to classify the phenomena into disturbances of nutritive or nervous origin, respectively; but little is gained thereby for any fundamental appreciation of the etiology of these manifestations. We need to know not only that the skin becomes sensitive under certain conditions of diet or drugging, but also why this reactivity develops and of what organic changes it is the expression.¹

One clue to the situation appears to be found in the disturbances that may arise in the inorganic or "mineral" metabolism of the body. We have taken occasion repeatedly to emphasize the fact that profound alterations in the dietary involving radical shifts in the types of foods consumed may be attended by considerable changes in the so-called salt metabolism. A marked loss of mineral nutrients may ensue, for example; or, what is equally significant, the inorganic components of the organism may experience a depletion of the store of some individual element, like calcium or the alkalies, leading to a rearrangement or incoordination of the ions present. Acid-forming foods may lead to a shift in the usual proportions of the elements which constitute the inorganic environment of the living cells.

Dr. Luithlen of Vienna has undertaken to ascertain whether the inorganic constituents of the skin show any changes in composition incident to conspicuous upsets in the general inorganic metabolism. Studying the proportions of calcium, magnesium, sodium and potassium present in the integument under radical changes of diet or after administration of acids or the decalcifying oxalates, he has found that distinct chemical alterations can be detected. Sometimes it is an altered content of all the bases that is brought to light by his analyses,² and sometimes a disturbance in the relative proportions of the individual ions. Here at length is some tangible evidence of a coincidence of general alterations in nutrition with changes in the actual chemical texture of the skin.

The next logical step, that of investigating the possible correlation of the chemically altered skin with a specific reactivity or sensitiveness of the integument under these new conditions, has also been undertaken by the same author.³ He has studied the comparative response of the skin to typical irritants under a variety of experimental conditions in which altered inorganic composition of the tissue had been shown to occur. Thus

there were observed to be wide differences in the reaction to croton oil or turpentine and camphor. Animals subjected to acid intoxication or oxalate administration proved to be extremely susceptible. On the other hand, administration of lime in the form of calcium chlorid distinctly checked the exudations. The bearing of these facts in the management of certain types of dermatitis becomes apparent.

These "diatheses" could, moreover, be induced by suitable diet changes as well as by specific chemical treatment. In rabbits a diet of oats, notably deficient in calcium and acid-forming in character, was far more potent in producing skin sensitiveness than was a mixed diet with green vegetables. It is apparent that increased loss of alkalies from the organism is the forerunner of a state of irritability which can be overcome by the administration of lime. The researches of Jacques Loeb have prepared us to expect such antagonisms among the inorganic constituents of the organism. Healthy nutrition, whether of the body as a whole or of some organ like the skin, depends on the maintenance of a delicate adjustment or equilibrium of the inorganic elements. Dermatology may well profit by taking into account the possible function of these factors in the interrelations of nutrition and the conditions of the skin.

LEAD-POISONING AND ENCEPHALOPATHY

In certain cases of lead-poisoning recently mentioned in *THE JOURNAL*,¹ apparently the chief source of absorption was by inspiration of air permeated with lead-dust. It has by no means been determined just what relation the atrium of absorption of lead bears to the clinical form of poisoning which develops. Absorption through the digestive tract and skin seems to result more commonly in colic and neuritis, while there is some ground for supposing that absorption from inspiration of lead-laden dust is more liable to be followed by the so-called lead encephalopathy. This is a comparatively rare form of lead-poisoning in which the symptoms appear first or chiefly in the cranial nerves. The affection usually appears in the laryngeal, pharyngeal, facial, optic and ocular nerves. Concomitant central symptoms are vertigo, headache and mental apathy.

That the medical corps of the Navy is alive to its responsibility in the matter is shown by Medical Inspector E. R. Stitt,² who describes three cases of lead encephalopathy in the naval hospital at Canacao, P. I. All three had developed in men engaged in scaling or chipping off red-lead paint in a compartment of the torpedo-boat destroyer *Chauncey*. One patient was admitted under the diagnosis of enteritis with a developing psychosis, probably dementia præcox. The second patient was admitted in a stuporous condition suspected

1. Compare Bulkley, L. Duncan: Diet and Hygiene in Diseases of the Skin, *THE JOURNAL A. M. A.*, Aug. 17, 1912, p. 535.

2. Luithlen, F.: Ueber Chemie der Haut, *Wien. klin. Wchnschr.* 1912, No. 18.

3. Luithlen, F.: Tierversuche über Hautreaktion, *Wien. klin. Wchnschr.*, 1912, No. 20.

1. Lead-Poisoning in Battle-Ships, *THE JOURNAL A. M. A.* August 3, p. 375.

2. Stitt, E. R.: Lead-Poisoning and Encephalopathy from Inhalation of Red-Lead Dust, *U. S. Naval Med. Bull.*, April, 1912.

to have been caused by estivo-autumnal malaria. The third patient was admitted under the diagnosis of lead-poisoning with epileptiform convulsions, and was the only one with a clear history of exposure to lead.

The correct diagnosis in the first two cases and a confirmation of the diagnosis in the third was made by finding a punctate basophilia in the red blood-cells. This basophilia consisted of large irregular or splotchy spots, taking a basic stain, in the red cells. Stitt made a series of experiments in rabbits to determine the diagnostic value of basophilic stippling in plumbism. The experiments indicated that the sign was of little value, and this conclusion is supported by the findings of Oliver³ in Scotland, who found the sign negative in 40 per cent. of his cases. Stitt, however, states that the diagnosis in his own three cases was made on the presence of this stippling, and quotes P. Schmidt to the effect that when basophilic granules are present to the number of 100 per million of the red blood-cells, it is pathognomonic of lead-poisoning. Stitt considers that malarial stippling can be differentiated from plumbic stippling by the tendency in postmalarial anemia for the bluish dots to be small and round, instead of large, irregular and splotchy.

A series of three cases is too small to justify the conclusion that the absorption of lead through the respiratory atrium is more liable to induce lead encephalopathy than its introduction by ingestion or by the skin; but the point needs further elucidation and observation.

The presence of basophilic stippling in red cells is of real aid in the diagnosis of plumbism. This emphasizes the value of a blood examination in every case in which the diagnosis is obscure or doubtful. A blood-smear can be made, stained and examined microscopically in a few minutes, and often this simple procedure will throw unexpected light on the clinical picture.

PHILOSOPHY, SCIENCE AND MEDICINE

"No philosophy evolved from the inner consciousness of man has ever done man half the good that has been secured to him by the discovery of the agents of infection. In fact, no discovery in science has failed to better the lot of man." With these significant words Prof. V. C. Vaughan of the University of Michigan replies, in an admirable address⁴ that merits wide distribution, to the strictures of those modern writers who charge science with being essentially materialistic in its aims and scope. These philosophers, evolving what they assume to be an exalted idealism out of their inner self, are all too frequently in apparent ignorance of the real contributions which science has made alike to knowledge and to human happiness. Confident that the "inner life" contributes some superior sort of moral worth to the individual, they fail to grasp the signifi-

cance of the forces about us and the biologic tendencies within us which determine in largest measure what constitutes human welfare and social and racial betterment.

Scientific men (and these necessarily include medical men) build their idealism solidly up from the ground; they do not suspend it precariously from star-beams. "The foundation-stone of my philosophy," writes Professor Vaughan, "is the doctrine of evolution." He points out that we deal here not with inscrutable forces which man cannot know, cannot modify, cannot study, but rather with potent factors that call for the best effort in behalf of the race. What higher incentive can there be, for example, to keep one's self clean morally and physically than the facts derived from the study of heredity? And when the added undeniable influence of environment in the modification and improvement of the species is taken into account, it is apparent that every effort to improve the conditions under which men live is based on motives quite as dignified and worth while as the musings of the philosopher who claims to cultivate the good and beautiful for its own sake.

It is timely to refute the charges of materialism which are now and then preferred against medicine. As Vaughan points out, our knowledge of the spread of infection is the strongest factor in the social movements of the day. Disease still takes a heavy toll. Ignorance and deep-seated prejudice still are often found retarding progress in unexpected quarters. The philosophy of science concerns itself with this world and this life and reaches every condition. It is a truth which will bear insistence and repetition that the dicta of science are a high, noble and powerful incentive to righteousness. "To widen the domain of knowledge, be it ever so little, to abate disease, to lessen pain and suffering, to decrease the burden of poverty, to brighten and ennoble the lives of others, to harness the forces of Nature and make them subservient to man's will and contributory to his happiness . . . to make man more considerate of his fellow, to appreciate and perform his duties—these are some of the things that science has done and is doing."

THE ARTIFICIAL FERTILIZATION OF EGGS

With recent progress in the application of physico-chemical studies to the problems of biology a little light has begun to penetrate the veil of mystery that surrounds the phenomena of the fertilization of eggs. Artificial parthenogenesis—the process by which an egg starts on the road to development without the aid of spermatozoa—has long been known as an experimental possibility; and the experiments of Jacques Loeb and others have given some insight into various chemical methods by which this independent developmental change can be initiated or controlled. The process of fertilization is composed of two distinct phases. In one of these there is an alteration or destruction of the sur-

3. Oliver, Sir Thomas: Bulletin of the Bureau of Labor, July, 1911.

4. Vaughan, V. C.: The Philosophy of the Scientist, Science, Aug. 23, p. 225.

face layer of the egg which may or may not result in the formation of a fertilization membrane. Many methods can be applied to induce the superficial cytolytic which starts the development of the egg. Unless, however, a second treatment is applied, the eggs tend to perish during the further development. In the case of some of the lower forms a brief treatment with hypertonic sea-water will suffice to remedy the sickly condition of the eggs at this stage and allow practically normal development.

Much interest centers in the fact that the spermatozoon also appears to cause the development of the egg by carrying into it two agencies, one of which is a cytolytic substance, or to use a recent designation, a lysin, which causes the membrane formation. T. Brailsford Robertson¹ of the University of California has succeeded in extracting from the sperm of an invertebrate a substance which is capable of fertilizing the eggs of that species and acts as a powerful agglutinating and cytolyzing agent on them. This illustrates the biochemical turn of modern investigation and the departure from the old "vitalistic" attitude. It now appears that these lysins are by no means specific for the spermatozoon but are found in the cells and blood of animals. The blood of cattle, for example, contains them;² and there is some ground for believing that the fertilizing agent in spermatozoa is identical with that in blood-serums. Loeb has explained the fact that the blood of each female does not cause the parthenogenetic development of its own eggs, by the theory that, while the lysins contained in the blood of foreign species can diffuse with comparative ease into the egg and cells of an animal, the lysins contained in its own blood are prevented from such a diffusion. This difficulty can be overcome by physicochemical methods so that the eggs will become permeable to the fertilizing agent.

Obviously, if the underlying principles here illustrated have any broader significance and do not merely lead to some unique and abnormal phenomenon in an occasional species — in other words, if the lysin theory of fertilization is to be regarded as more generally applicable — the field of observation must be widened. Loeb and Wasteneys³ have been engaged at the Rockefeller Institute in ascertaining whether the mechanism of fertilization referred to finds an exemplification in the artificial parthenogenesis of the eggs of all animals by foreign blood. The experiments thus far reported show that it is possible, with the aid of foreign blood-serum, to induce parthenogenetic segmentation and development into larvæ, in eggs which had been found refractory to the other methods of artificial parthenogenesis. These facts have more than a tentative importance, and further experimentation along this line will be awaited with interest.

Current Comment

THE RAT-CATCHER

With the plague at our doors the ancient if not specially honored profession of the rat-catcher may come again into vogue, at least until science and invention have solved the problem of eliminating the rat altogether. In the congested and insanitary cities of centuries ago it is easy to imagine the utility of such a functionary. We believe that the profession still exists in most of our larger cities, its representative—a sort of non-criminal member of the underworld—claiming special skill or mysterious professional secrets in his way of working. It is not to be doubted that such individuals are better acquainted than the rest of the community with the ways of the pestilent rodents, and the success of some has passed into tradition as little short of marvelous. The usefulness of the profession should make it more respectable at this time than it has been considered in the past. Boards of health and sanitary authorities might well utilize this class of workers as a temporary means of warding off a threatening crisis like the impending epidemic of plague. Catching the rat, to be sure, like swatting the fly, is a lame and unsatisfactory expedient compared with the method of building and starving both out of existence; but so long as such an anachronism as the rat exists, there is no inconsistency in fighting it with a medieval institution like the rat-catcher.

RECTAL FEEDING AND ABSORPTION FROM THE LARGE INTESTINE

The growing acquaintance with the preliminary processes involved in the preparation of the food protein as a suitable pabulum for the tissues, during gastro-intestinal digestion, has encouraged the belief among physiologists that the protein is practically completely disintegrated into very simple chemical fragments before absorption and utilization take place. The acceptance of this view has brought with it, as a logical consequence, the question as to whether ordinary protein solutions, such as have in the past been administered rectally in the form of nutrient enemata, in reality contribute any nitrogenous components to the organism. If it is true that the proteins, as such, fail to traverse the intestinal wall with readiness, it by no means follows at once that they are lost for the purposes of nutrition. It is possible that the injected materials may be transported antiperistaltically to those higher regions of the bowel where digestive enzymes are still available to convert them into assimilable products, although this supposition finds little support in the facts of experiment. Bacterial intervention in the large intestine may likewise serve to duplicate the normal digestive changes, but this can scarcely be looked on as a beneficent type of preparatory alimentary process. But even if we assume the existence of such indirect methods of rendering proteins administered by rectum available to the body, it is obviously preferable to furnish the nitrogenous nutrients in some form immediately usable in the intestine. For this reason we have heretofore already suggested the employment of completely digested food materials for the purposes of rectal alimentation. The

1. Robertson, T. B.: The Extraction of a Substance from the Sperm of a Sea-Urchin (*Strongylocentrotus purpuratus*) Which Will Fertilize the Eggs of That Species, Jour. Biol. Chem., 1912, xii, 1.

2. Compare Robertson, T. B.: The Non-Enzymatic Character of Oocytin (Oocytase), Jour. Biol. Chem., 1912, xii, 163; also xi, 339.

3. Loeb, J., and Wasteneys, H.: Fertilization of the Eggs of Various Invertebrates by Ox-Serum, Science, Aug. 23, 1912.

rational acceptance of this advice depends, however, on the actual demonstration of the absorption of such products from the regions of the intestine under discussion. Not only must it be made evident that chemical compounds can be absorbed from the large intestine—a fact well known in the case of water, drugs and certain products of putrefaction—but the degree of absorption must be extensive enough to have some adequate quantitative significance for the purposes of nutrition. The evidence here desired is now forthcoming. Recent researches by Folin and Denis¹ leave no doubt that amino-acids like glycocoll and alanin, which may be cited as types of digestion fragments, readily enter the blood-stream from the lumen of the lower bowel. They can be detected in the circulation as they are carried to the tissues in accord with the view elaborated in a previous notice.²

PERTUSSIS

In 1905 Bordet and Gengou discovered in the viscid exudate coughed up in pertussis a coccobacillus which stains with weak solutions of fuchsin, is Gram-negative, and grows with some difficulty on ordinary mediums, but more easily on humanized mediums. Bordet injected children exposed to whooping-cough with a vaccine of this organism and, as all developed unusually severe cases, he concluded that a profound negative phase had been produced. By injections of this bacillus Klimenco³ and Fraenkel⁴ were able to produce what seemed like typical pertussis in monkeys. Klimenco also believed that he had produced the disease in young puppies, but these results have not generally been accepted. More recently it has been shown by Izabo⁵ that injection of this bacillus in an ape gave rise to a typical whooping-cough, an incubation period of thirteen days being followed by a catarrhal stage of two days, a paroxysmal stage of twenty-four days and a stage of decline lasting nineteen days. After a total period of forty-two days the ape seemed entirely well. The bacillus used was found in seventy-eight of eighty-one cases and was cultivated in sixty-eight of seventy-seven cases in which cultivation was attempted. In eighteen cases of other respiratory diseases the organism was not found. Inoculations of dogs gave negative results. This would seem to be fairly conclusive as to the association of the coccobacillus of Bordet-Gengou with pertussis. On this basis Ladd⁶ has prepared a vaccine from the organism in the usual manner, growing the organism on blood mediums, collecting the growth and counting by the Wright method, killing by heat for one hour at 60 C., and testing the sterility by inoculation of culture mediums and of guinea-pigs. The vaccine has been used in a number of cases with results not particularly striking, but nevertheless of great interest. Between injections five days intervened, the author preferring to act cautiously in view of inexperience in vaccine therapy. No harmful results occurred in any

instance. In one or two cases there was marked improvement immediately following the first injection. Practically all patients recovered within five weeks after the beginning of the treatment, usually in the third week of the disease. To Ladd this seems encouraging, as he has seen many severe cases of several months' duration. We have, then, good ground for further work in this field. To the various institutions for the treatment of diseases of infancy there is afforded an opportunity for investigation along lines which may prove of great significance in our treatment of whooping-cough.

BLOOD-CORPUSCLES. OLD AND YOUNG

Precisely as epithelial cells are regenerated when they have been damaged or destroyed, so, it is well known, the red blood-cells can be replaced after they have been lost through hemorrhage or disintegration by various hemolytic agencies. The renewal of the cellular elements of the blood in different types of anemia is a fact of common experience. Is there any physiologic difference, however, between the young and the old red corpuscles? The morphologist at times can discern structural peculiarities in the erythrocytes which may lead him to ascribe developmental changes to them. But even under conditions in which no visible inequalities or perversions of structure are discernible there is chemical evidence that "new" blood is unlike "old" blood. Morawitz¹ and his pupils have noted an increased consumption of oxygen by the blood in anemia in contrast with the blood of healthy persons; and this feature has even been used to estimate the degree of regeneration which is taking place. Dr. Snapper² of Gröningen, Holland, has used the resistance of the red corpuscles of different bloods as an index of physiologic variations. Comparing the behavior of the corpuscles from blood after hemorrhage with that obtained beforehand, he has observed that the newly formed cells are less easily hemolyzed than the older ones. The young corpuscles formed in the reparation of the anemia are more resistant in this sense. There is, furthermore, some evidence that new red cells can be formed from the components of older ones which have suffered destruction in the vascular system itself. In such cases the resistance of the cells to hypotonic salt solutions may increase despite the lack of change in the number of the cells present, and if one may judge by the phenomena here noted, the reparation of blood-cells may quite exceed the actual loss experienced. This is in accord with a familiar principle in pathology. Loss of blood occasions not merely a restitution for what has been removed, but also acts as a stimulus to the hematopoietic system whereby there are formed far more than enough new cells to replace the loss.

1. Morawitz: Arch. f. exper. Path. u. Pharmacol., ix. Itami: *Ibid.*, lxii.

2. Snapper, J.: Vergleichende Untersuchungen über junge und alte rote Blutkörperchen, Biochem. Ztschr., 1912, xliii, 256.

The Supreme Value of Health.—Finally, I have one advice which is of very great importance. You are to consider that health is a thing to be attended to continually, as the very highest of all temporal things. There is no kind of an achievement equal to perfect health. What to it are nuggets or millions?—Thomas Carlyle.

1. Folin, O., and Denis, W.: Absorption From the Large Intestine, Jour. Biol. Chem., 1912, xii, 253.

2. A New Theory of Protein Metabolism, THE JOURNAL A. M. A., Sept. 14, p. 880.

3. Klimenco: Centralbl. f. Bakteriologie, 1908, xlviii, 64.

4. Fraenkel: München. med. Wochenschr., 1908, iv, 1683.

5. Izabo: Ztschr. f. Kinderh., June 15, 1912.

6. Ladd: Arch. Pediat., 1912, xxix, 581.

TEXASALT: THE PROFIT-SHARING INSULT IN
A NEW GUISE

The so-called profit-sharing plan of introducing nostrums to the medical profession still flourishes. The usual method in such cases is to offer the physician a bonus for prescribing the nostrum. A modification of this scheme is offered by the Texawater Company of New York City. This concern markets a product which it calls Texasalt and which it assures physicians is "Nature's surest cure for rheumatism and all other ailments due to too much uric acid in one's system." The Texawater Company has conceived the idea of working the county medical societies to introduce this product. Samples of this company's circular letter sent to secretaries of county medical societies have been sent to THE JOURNAL with comments, of which the following are typical:

"After reading THE JOURNAL for several years with great profit to myself I have been impressed with the magnitude and difficulties of the campaign of THE JOURNAL against fraudulent proprietaries. I knew that some manufacturers had a low opinion of the profession but the inclosed letter surprises me as an example of colossal 'nerve'—T. Avery Rogers, M.D., Plattsburgh, N. Y."

"This looks like a lovely good thing—but I haven't the nerve to present this letter to our local county society, fearing that the friends of Sal-Hepatica, et cetera, might take umbrage. However, while we are boosting the sales of these nostrums way not throw our noble influence on the side of the firm that philanthropically offers to 'divvy' the spoils?—W. B."

The Texawater Company's letter is too long to reproduce in full but the gist of the proposition is this: The company is capitalized at \$25,000 "divided in equal shares of \$100 each." One-half of the capital stock—125 shares—is to be set aside "for sale to medical societies, whose members will agree to introduce Texasalt among their friends and patrons."

"Any society with a membership of fifty or more, can easily influence the sale of enough Texasalt, through local druggists, to pay for a share of stock, during the first month."

As always, in such cases, the public gets the worst of the bargain for, to quote again:

"The retail price of Texasalt is \$1.00 per bottle; of this sum the retailer, the society and this company receive 25 cents each, while the remaining quarter covers the cost of the product."

Which means, of course, that the public is to be fooled into paying a dollar a bottle for a simple saline that has no more curative virtue than five cents' worth of Epsom salts, and the local medical society is to get a "rake-off" of twenty-five cents on the deal. If a pedler should call at the house of a physician and make a proposition similar to that made by the Texawater Company, the medical man would probably kick him down stairs. When the thing is done through the instrumentality of the United States mail, however, it provokes nothing stronger than a shrug of the shoulders and the consignment of the offer to the waste-paper basket. The reason that such insulting propositions are occasionally made by nostrum exploiters is not that there are a large number of medical men who will listen to them but that there are too many physicians who will not administer the rebuke that such offers deserve.

Medical News

ALABAMA

Medical Scholarships Awarded.—The Board of Revenue on September 2 awarded scholarships in the Birmingham Medical College to Roy Hudnall and Wharten McPherson, Birmingham, and a scholarship in the University of Alabama, Mobile, to Alfred A. Meeks of Birmingham.

Colored Professional Men Hold Meeting.—The Alabama Medical, Dental and Pharmaceutical Association, which held its annual meeting in Tuskegee the last week in August, has arranged to meet in Opelika in August, next year. The following officers were elected: president, Dr. L. U. Goin, Birmingham; secretary, E. T. Belsaw, Mobile, and treasurer, Dr. J. W. Darden, Opelika.

Tuberculosis Notes.—The Montgomery Antituberculosis League has completed five new cottages at the Fresh Air Camp which are now ready for occupancy. Two of these cottages are reserved for pay patients.—The opening of a tuberculosis hospital for convicts at the state penitentiary, Wetumpka, was celebrated July 4 with a barbecue. The hospital cost \$35,000 and was constructed entirely by convict labor.

FLORIDA

New Hospital.—A charter has been granted for a new hospital to be built in Lakeland. The officers of the hospital association are C. J. Memminger, president; Dr. B. H. Maynard, secretary, and Dr. W. R. Groover, treasurer.

Personal.—Drs. R. R. Sullivan, C. W. Love and William M. Bevis have been appointed members of the Board of Health of Lakeland.—Dr. H. R. Mills, in temporary charge of the State Bacteriologic Laboratory, Pensacola, returned to his duties in the office of the State Board of Health, Jacksonville, September 1.—Dr. H. A. Murphy, St. Petersburg, is reported to be seriously ill in a sanatorium at Olney, Ill.—Dr. Abram D. Williams and family, Jacksonville, are taking a trip through the Pacific states and Alaska.—Dr. Howard S. Holloway, Jacksonville, has been appointed pathologist and Dr. A. E. Conter, Apalachicola, assistant physician at the Florida Hospital for the Insane, Chattahoochee.—Dr. A. E. Conter, Chattahoochee, has been commissioned Captain M. C., N. G. Fla.—Dr. F. F. Ferris, Apalachicola, has returned from an extensive trip through the North and West.—Dr. J. M. Spence, Sumatra, was recently operated on for perirenal sarcoma at Rochester, Minn.

ILLINOIS

Poliomyelitis at LeRoy.—Dr. J. C. Westervelt, Shelbyville, of the State Board of Health, has gone to LeRoy to investigate an epidemic of infantile paralysis. Thirteen cases have been reported.

Deplores Publicity.—Christian County Medical Society at its September meeting adopted resolutions requesting the newspapers of the county to refrain from using the names of physicians of the county in connection with their cases.

Municipal Tuberculosis Hospital.—The Belleville Municipal Hospital for the treatment of tuberculosis will be opened early in October. It is situated on a farm three miles south of the city. The building now on the site will be used, and tents will also be put up as required.

Personal.—Dr. Frances P. Chapman has been appointed bacteriologist of the Oak Park department of health.—Galesburg Medical Society gave a complimentary banquet September 4 to Dr. L. R. Ryan, who is about to leave Galesburg to make his home in California.—The Bi-County Medical Association (Iroquois-Ford) gave a banquet in Gilman, September 3, in honor of Dr. Thomas N. Boue, Loda, a charter member of the association.

Chicago

Personal.—Dr. Frederick Tice is slowly convalescing after an attack of appendicitis for which an operation was performed, August 6.—Drs. Joseph Welfeld and David Horovitz have returned from Europe.

Foreign Physicians to Visit Chicago.—As outlined in General News, August 24 and 31, a party under the auspices of the German Central Committee for Physicians' Study Travel will visit Chicago September 29-30, and will be entertained by the local profession at a dinner at the Hotel La Salle.

New Building for Hospital.—A new building to cost \$40,000 will be erected on the site of the Chicago Lying-In Hospital

at Vincennes Avenue and Fifty-First Street. The new building will accommodate twenty-two free patients, twenty-one half-pay patients and twenty-one full-pay patients. The new building is largely due to the efforts of the Mothers Aid, which was organized in 1904 to promote the best interests of the Chicago Lying-In Hospital and Dispensary in its work for educational, civic and philanthropic purposes, and to cooperate with other organizations whenever it seems advisable.

INDIANA

Dispensary Asks Increased Appropriation.—Dr. Charles P. Emerson, dean of the Indiana School of Medicine, Indianapolis, has urged on the mayor of that city that the allowance for the City Dispensary be increased from \$12,000 to \$18,000.

New Hospital for Gary.—The Gary Commercial Club has raised a fund of \$36,550 for the benefit of Merey Hospital in that city. A hospital to cost \$100,000 will be built in the tenement district and will be conducted by the Sisters of St. Francis.

Negro Physicians Meet.—The fourth annual meeting of the Indiana Association of Negro Physicians, Dentists and Pharmacists was held in Indianapolis, September 5, and the following officers were elected: president, Dr. A. H. Wilson, Indianapolis; vice-president, Dr. C. A. Martin, Muncie, and secretary-treasurer, Dr. H. W. Armistead, Indianapolis.

Free Typhoid Serum.—The Indianapolis Board of Health has voted to supply typhoid serum free to all applicants. This has been done to prevent the annual fall occurrence of typhoid fever. A special bulletin concerning the disease has been issued by Dr. J. N. Hurty, State Health Commissioner, as 125 deaths from typhoid fever occurred in Indiana in August.

Hospital Notes.—Plans are said to have been completed for the Robert W. Long Hospital which is to be connected with the Indiana University School of Medicine. It is expected that the hospital will be ready to receive patients early in January.—The Indianapolis City Board of Health has decided to have two ward units for the new city hospital constructed immediately and has called for bids.

Personal.—Dr. J. P. Simonds, city bacteriologist, has resigned and has assumed his duties as professor of preventive medicine in the University of Texas, Galveston.—Dr. Klore W. Hidy, Indianapolis, has been placed in charge of the rabies work of the State Board of Health.—Dr. A. H. Kallfleisch was seriously injured by being thrown from an automobile at Erie, September 5.—Dr. A. C. Yoder, Goshen, has been appointed president of the Elkhart County Board of Charities.

IOWA

Personal.—Dr. M. A. Beach, Stratford, has recovered from an operation recently performed and has resumed practice.—Dr. Ira C. Brown, Fort Lawton, was slightly injured by the overturning of his automobile, August 27.

Honor Departing Colleague.—The Ida County Medical Society gave a banquet August 19 in honor of Dr. M. R. Karterman, Idagrove, for five years president of the society, who leaves soon to reside in Western Washington. At the close of the banquet Dr. Karterman was presented, on behalf of the society, with a gold watch, suitably engraved.

LOUISIANA

New Officers.—Attakapas Clinical Society at New Iberia: president, Dr. John D. Hunter, Rayne; secretary-treasurer, Dr. Lambert O. Clark, Lafayette.

Leprosy.—George Jacquim, formerly of Gretna, who escaped from the leper colony in Iberville Parish several years ago, has been discovered in a shanty boat on Bayou Barataria.—Three cases of leprosy have been reported from Acadia Parish and the health officer is endeavoring to have them sent to the Lepers' Home in Eastern Louisiana.

Personal.—Dr. W. H. Seeman, New Orleans, has been appointed bacteriologist of the city board of health, vice Dr. Paul E. Archinard, deceased.—The dispensary and office of Dr. Maurice Bateman, near Franklinton, were burned September 7.—An unsuccessful attempt was made on September 4 to set fire to the home of Dr. Theodore Engelbach, Grand Isle.—Dr. G. C. Chandler, president of the Shreveport Board of Health, is ill with malaria.

Health Train on Trip.—Dr. Oscar Dowling, Shreveport, president of the State Board of Health, started on his annual trip with his health train, September 15. He will go through the Southwest and will reach Washington in time for the

International Congress on Hygiene and Demography, reaching New Orleans on the return trip about October 2. The train will also carry a corps of six lecturers, Drs. Beverly Smith, Franklin, T. T. Tarlton, Grand Coteau, Herman Oechsner, New Orleans, G. W. Gaines, Tallulah, Thomas A. Roy, Mansura, B. A. Ledbetter, New Orleans and E. S. Kelly, New Orleans, secretary of the board.

MARYLAND

Typhoid.—Six cases of typhoid fever have occurred at the Industrial Home for Colored Girls at Milvale.—There are thirty-three persons ill with typhoid fever at Towson.

Tag Day in Cumberland.—On Tag Day, September 4, in Cumberland more than \$1,300 was realized for the anti-tuberculosis society. The funds will be used for the establishment of a tuberculosis sanatorium.

Nurses' Home Presented.—A nurses' home has been presented to the City Hospital of Frederick by Mrs. Georgia Simmons. The building will be sixty-four by forty-one feet and will adjoin the hospital.

Personal.—Dr. Francis E. Harrington, health officer of Cumberland, was seriously burned by an explosion of a gas tank in the laboratory of the City Hall, September 10.—Dr. J. E. Pitznogle, Hagerstown, has resigned as health officer of Washington County.—Dr. Edward N. Brush, Towson, has returned from Europe.

Baltimore

Colonial Dames Endow Room.—The Margaret Brent room has been opened at the Hospital for the Women of Maryland. It is a gift of the Maryland Society of Colonial Dames of America.

Lecture-Room Equipped.—Mrs. John B. Thomas has equipped at the University of Maryland a lecture-room in memory of her father, the late Dr. James H. Harris, who died two years ago.

Psychiatric Clinic Almost Ready.—The Phipps Psychiatric Clinic is so far advanced that it is expected it will be ready to receive patients by January 1 next. It will be under the direction of Dr. Adolph Meyer. The clinic is the result of gifts from Mr. Henry Phipps of Pittsburgh, amounting to \$750,000.

Personal.—Dr. and Mrs. G. Milton Linthicum have returned from a thousand-mile automobile trip through the eastern states.—Dr. J. A. Seligman underwent operation at the Hebrew Hospital, recently, and is reported to be improving.—Major W. Guy Townsend, M. C., N. G. Md., surgeon of the Fourth Infantry, has resigned.—Dr. Benjamin Newhouse, resident pathologist at the Hebrew Hospital, has been appointed head resident surgeon of the Emergency Hospital, Washington, D. C.—Dr. W. DeForest Olmstead was operated on at the Maryland General Hospital, September 14.—Dr. Sydney Wallenstern has resigned as assistant superintendent of the Sydenham Hospital.

MINNESOTA

Isolation Hospital at Biwabik.—Plans have been prepared for a contagious disease hospital to cost \$10,000, to be erected at Biwabik.

New Open-Air Schools.—The Board of Education of Minneapolis has planned to open two new open-air schools in Columbia and Glenwood Parks and this action has been endorsed by the park board.

Approves Tuberculosis Ward.—At a joint meeting of the St. Paul Common Council Conference Committee of the County Commissioners, September 10, it was voted that the city appropriate its share of the \$75,000 required to build a tuberculosis ward in connection with the City and County Hospital.

Personal.—Dr. Edmond Lalonde, St. Paul, was thrown from his automobile, September 6, and sustained severe injuries to the hand.—Dr. C. C. Pratt, bacteriologist in charge of the Mankato Branch Laboratory of the State Board of Health, has been elected health commissioner of Mankato, vice Dr. A. E. Somer, resigned.

Hospital Liable for Injury.—Judge Cant of Duluth, is said to have refused to set aside a personal injury verdict given to a woman who suffered the loss of a hand in the laundry mangle while employed at St. Luke's Hospital. The institution had asked that the verdict be set aside on the ground that it is a charitable organization and exempt from liability.

Biggs Favors Reorganized Health Department.—In a report made by Dr. Herman Biggs, health officer of New York City, at the request of the Civic and Commerce Association of Minneapolis, the following recommendations are made: The reor-

ganization of the health department; the creation of a public health board with authority to make and enforce ordinances affecting public health; the appointing of a health commissioner by the mayor; an allowance of \$25,000 annually for school inspection; civil service for all health department employees; organization of a small health board with legislative repeal and executive powers; more nurses to look after home tuberculosis patients; control of contagious diseases and facilities for treatment of such diseases by the health department; tuberculosis sanatorium under the direction of the department; campaign against infant mortality under the health board auspices; modernization of the milk ordinance and the removal of 17,000 outdoor privy vaults.

NEVADA

State Association Meeting.—The Nevada State Medical Association will hold its ninth annual meeting at Reno, October 8-10, under the presidency of Dr. Benjamin F. Cunningham, Reno. The house of delegates convenes on Thursday, October 10, at 1 p. m. During the meeting Dr. O. P. Ophuls, San Francisco, will deliver an address on "Modern Medicine. Its Present Status and Use for the Future."

Personal.—Drs. M. A. Robison and B. F. Cunningham, Reno, have been appointed by the governor members of Gov. Colquitt's committee to draft bills to present to congress relative to the conversion of military reservations and forts into federal sanatoriums, etc. Gov. Colquitt's plan is to utilize all army posts of the south and southwest as sanatoriums for the treatment of sufferers from tuberculosis.

NEW MEXICO

New Hospital for Roswell.—Plans are being made for the establishment of a protestant hospital in Roswell to be ready to receive patients this winter.

Personal.—Dr. William Porter Mills has succeeded Dr. H. M. Smith, both of East Las Vegas, as superintendent of the New Mexico Hospital for the Insane, Las Vegas.—Dr. Fred M. Bishop, Santa Fe, sailed for Europe, September 11.

NEW YORK

New Tuberculosis Hospital.—The new Tompkins County Tuberculosis Hospital, Taughannock Falls, with a capacity of sixteen patients, will be ready for occupancy in a few days. Dr. Isaac W. Brewer, Fort Niagara, has been appointed director of the institution.

Personal.—In a collision between his touring car and a taxicab, Dr. J. W. Bayliss, Buffalo, sustained severe injuries.—Dr. and Mrs. C. W. Hoyt, Rochester, have sailed for Europe.—Dr. and Mrs. Amos T. Baker, Riverdale, have sailed for Europe.

Demands Legacy for Hospital.—The authorities of St. Joseph's Hospital, Syracuse, have filed a petition in the surrogate's court asking that the executrix of the will of the late Dr. Henry D. Didama be required to show why the clause which leaves \$5,000 to the hospital should not be paid.

Board for Feeble-Minded and Defectives.—The State Board of Examiners for Feeble-Minded Criminals and other Defectives, created to prevent procreation among that class, held its first meeting in Albany, September 4, and elected Dr. Lemon Thompson, Glens Falls, president, and Dr. Charles H. Andrews, Buffalo, secretary.

Gifts to Norwich Hospital.—The directors of the Norwich Hospital Association announce that the hospital will be opened about October 1. The private rooms and wards are to be furnished entirely by the various societies and organizations of the village. Dr. Joseph D. Bryant, New York City, has donated a valuable set of surgical instruments to the hospital and the Norwich Nurses' Association has equipped the operating-room.

Contagious Diseases During July.—The July report of the State Department of Health shows that there is an increase in typhoid fever throughout the state, but a 50 per cent. decrease in both scarlet fever and measles. There is a slight increase in the number of cases of small-pox and in the cases of tuberculosis reported. There is a remarkable decrease in the number of cases of diphtheria. There have been no deaths due to tetanus following injuries received on the Fourth of July.

Medical Care for Inmates of Prisons.—Colonel Joseph F. Scott, superintendent of prisons, believing that it is important that the prisoners of the state should have sound bodies if they are to be cured of their criminal tendencies, is prepared to put into practice a plan for their treatment. He proposes to subject every prisoner arriving at a state prison or reformatory to a thorough physical examination. Defects of hearing,

vision or other physical impairment that can be remedied by medical or surgical skill will receive treatment by specialists. Those who are victims of the drink habit will receive special treatment directed to the cure of the habit.

Infantile Paralysis in Buffalo.—Reports show that there have been a total of 220 cases of infantile paralysis since the epidemic started a few months ago. There have been twenty-six deaths and 60 per cent. of the survivors have been permanently crippled. Dr. John Frank Fraser of the Rockefeller Institute of Medical Research has been in Buffalo for the purpose of fighting the disease, but on account of the appearance of the disease in New York has returned to that city.

New York City

Rockefeller Institute Appointments.—The board of scientific directors of the Rockefeller Institute has made the following appointments: Michael Heidelberger, fellow in chemistry; Linda Bartels Lange, fellow in pathology; Florentine Medigreccanu, assistant resident physician.

Endowment Fund Completed.—It is reported that a few months ago the University and Bellevue Hospital Medical College received from Mrs. Helen Hartley Jenkins the sum of \$25,000, which completes the \$100,000 endowment fund for the Marcellus Hartley chair of medicine.

Health Department Wants More Money.—The budget of the Department of Health for the coming year asks for an allowance of \$3,086,599, an increase of \$1,367,921 over the appropriation for this year. The reason for this increase is for the establishment of new positions and to increase the salaries of present employees of the department.

Steamship Quarantine.—The Italian steamer *Amerika*, from Genoa, was held in quarantine, September 11, because of the discovery of a case of small-pox in the steerage. The patient was taken to Swinburne Island for treatment and later the steamer was disinfected and 574 of the steerage passengers were sent to Hoffman Island for observation.

Degrees Conferred by Fordham College.—Honorary degrees were conferred on five scientists by the Fordham University September 12. The degree of LL.D. was conferred on Drs. Henry Head, London; Karl J. Jung, Zurich, and Horatio Robinson Storer, Newport, R. I., and the degree of Doctor of Science on Dr. Nicholas Achucarre, Madrid, and Dr. Gordon Holmes, London.

Drop in Infant Mortality.—For the week ended September 7 there were fifty fewer deaths of infants under 1 year of age than for the previous week. The actual number of deaths of infants under 1 year of age was 319 as compared with 369 for the week ended August 31. This marks the drop in infant mortality which last year came four weeks earlier. The Babies' Welfare Association thinks now that there is no doubt but that last year's record in baby saving will be broken. At the end of the week there were 17,652 babies cared for by the association, a decrease of 131 from the previous week.

No Leniency for Sellers of Bad Milk.—Out of fifteen persons, mostly grocers and keepers of delicatessen shops and restaurants, accused of selling milk that did not come up to the requirements of the board of health, only three were discharged and the fines imposed on the remaining offenders were unusually severe. Thirty-three milk dealers who entered a plea of not guilty were held for further investigation. The New York Milk Committee has urged on the Board of Health the desirability of having grade "C," the milk only fit for cooking, labeled so that those who buy it for drinking purposes in restaurants and lunch rooms may know just what they are getting.

Personal.—Dr. James F. McKernon has been elected president of the New York Post-Graduate Hospital and Medical School, vice Dr. George N. Miller, resigned. The other officers of the institution remain unchanged.—Dr. Simon Flexner has been appointed Huxley lecturer, to speak before the Charing Cross Hospital Medical School in London, Oct. 31, 1912.—Dr. Frederick H. Birchard, formerly assistant in chemistry at the Rockefeller Institute for Medical Research, has been appointed research chemist in the dairy division of the Bureau of Animal Industry, Washington, D. C.—Dr. Don R. Joseph, formerly assistant in physiology at the Rockefeller Institute, has been appointed associate professor of physiology at Bryn Mawr College.—Sir Lambert Ormsby, M. R. C. S., Ireland, has arrived in this country. He went immediately to Toronto, Canada, where he delivered a lecture on "Imperialism."—Drs. William Pincus, H. G. Watson and A. A. Dutari have sailed for Europe.—Dr. and Mrs. G. V. Jacoby, Dr. and Mrs. H. J. Allen and Dr. and Mrs. C. L.

Bailey have returned from Europe.—Dr. E. L. Roy has been appointed coroner's physician, vice Dr. Phillip F. O'Hanlon.—Dr. J. Wallace Beveridge, who was operated on recently for mastoiditis, is reported to be making good progress toward recovery.

OKLAHOMA

Good Health Tour.—The annual good health tours of the state department under the direction of Dr. J. C. Mahr, Muskogee, State Commissioner of Health, began August 12. The entire state will be covered in these tours, inspections will be made and lectures delivered.

Petition Against Indian Hospital.—A petition against an Indian hospital at Lawton has been sent to the Interior Department, Washington, by Kiowa and Comanche Indians, who assert that the hospital is not needed and that its erection will be a waste of money.

Personal.—Dr. Felix M. Adams, Big Cabin, has been appointed superintendent of the Eastern Oklahoma Hospital for the Insane, Vinita.—Dr. J. D. Ballard, Oklahoma City, has resigned as assistant state auditor and has accepted the position of assistant state examiner and inspector.—Dr. Albert Beasley, Hobart, had a light stroke of paralysis recently, but is reported to be improving.—Dr. and Mrs. C. J. Fishman, Oklahoma City, are spending eight months in Europe.—Dr. W. Moore Thompson, Tulsa, sailed for Europe, August 20, to spend a year in the study of the eye, ear, nose and throat in Vienna.

PENNSYLVANIA

Personal.—Dr. E. R. Walters, director of public health of Pittsburgh, is reported to be ill with small-pox.—Dr. George W. Maust, Lock Haven, is reported to be ill with heart disease.

Tuberculosis Dispensary Ready.—The new quarters of the Williamsport Tuberculosis Dispensary at Pine and Canal Streets has been remodeled and equipped. Dr. Charles W. Youngman is in charge of the dispensary, Dr. Robert F. Trainer is his associate and Dr. Wesley E. Kunkle has been added to the staff and placed in charge of the nose and throat department.

Typhoid at Allentown.—Typhoid fever was reported from Allentown, September 11. Two deaths have occurred and twenty-five persons are down with the disease. The epidemic seems to be limited to the fourteenth ward, which is a newly annexed portion of the city. The source of the infection has not been discovered. An inspector of the State Board of Health has taken charge of the situation.

Nurses Fight "Hex" Doctors.—The Visiting Nurse Association of Reading has issued a statement denouncing the witch doctors. Several deaths, they claim, are attributed to the local practice of summoning these "pow-wowers" to cure infantile ills. It is claimed the association saved the lives of many babies in stepping in and securing the discharge of these so-called witch doctors. Their statement cites the mothers who have been fooled by these fake practitioners.

Medical Hall Dedicated.—The Reading Medical Society dedicated its new home in the old Reading Classical School at the meeting, September 10. Dr. Hiester H. Muhlenberg read the address delivered by the late Dr. Isaac Hiester at the first meeting of the society, August 7, 1824. Dr. Ira G. Shoemaker read a paper on "Our Society and Its Future" and Dr. James Tyson, Philadelphia, president of the Medical Society of the State of Pennsylvania, considered the duties of the medical society to its members, and gave reminiscences of some of the physicians who practiced in Reading half a century ago.

Philadelphia

Hospital News.—As the site for a rear addition, the Kensington Hospital for Women has acquired four three-story brick residences at the back of that institution, at a cost of \$4,600.

Charter for Clinical Society.—Application has been made to the courts for a charter for The Clinical Society of Philadelphia. This body intends to possess a building for offices, to hold scientific meetings and to do especially professional work.

New Open-Air School.—The open-air school of the Pennsylvania Society for the Prevention of Tuberculosis began its sessions September 9, on the roof of the Lighthouse, a social center at 152 West Lehigh Avenue. Twenty pupils have thus far enrolled.

To Teach Children Health Methods.—Lectures on practical health and hygiene will be given to 15,000 school children of this city during the year under the auspices of the Pennsyl-

vania Society for the Prevention of Tuberculosis. The lectures began September 11 and are given by Dr. Howard L. Fussell.

Baby Hospital Closes.—The hospital for babies on the Race Street Pier was closed for the season, September 3. During the summer 250 very sick babies were treated and with a very low mortality. Dr. J. D. Brittingham acted as chief physician at the hospital, being assisted as consultants by Dr. J. P. Crozer Griffith and Edward E. Graham.

Hope Tuberculosis Colony.—"The Hope Colony" for the treatment of tuberculosis has been established at the end of one of the Independent Pier Company's wharves, along the Delaware River. More than twenty victims of this disease are being treated here daily with sunshine, fresh air and good food. Many are treated here preparatory to going to the state sanatoriums; others who return from these institutions continue the treatment at this colony. The camp is an adjunct of the Pennsylvania State Tuberculosis Dispensary, and is under the supervision of Drs. A. P. Francine and R. A. Torrey.

Personal.—Dr. Walter E. Kiefer has had the misfortune to lose his wife to whom he was married June 15, and who died August 7 from acute nephritis.—Dr. Charles A. O'Reilly has returned from his studies in Vienna.—Dr. R. M. Palmer, a member of the staff of St. Joseph's Hospital, fell down stairs September 9 and severely injured his right leg.—Dr. Herbert J. Smith has been elected clinical professor of dermatology in the Medico-Chirurgical College, succeeding the late Dr. John V. Shoemaker. In addition to his new chair, Dr. Smith is also associate professor of materia medica in the college and professor of materia medica and anesthetics in the dental department.

Medical Philadelphia Greets Foreign Guests.—This city and its seaside neighbor, Atlantic City, are honored on September 20, 21 and 22 by the visit of about 250 distinguished European scientists. Under the auspices of the "German Central Committee for Physicians' Study Travels," these physicians, government officials, etc., are touring America and while in this city are entertained by a committee of the medical profession and other representative citizens. A reception to the visitors, under the auspices of the Philadelphia County Medical Society, is given at the Bellevue-Stratford, September 21, and a formal banquet by the city on the evening of September 22 at the roof-garden of the Continental Hotel. The itinerary and personnel of the party were given in General News, August 24 and 31.

Infant Death-Rate Decrease.—Statistics compiled by Dr. Joseph Neff, director of the department of health and charities, for the last four years on the education of mothers in the care of their babies show gratifying results. Compared with a general death-rate of 16.66 in August, 1911, the rate last month was 16.23, a decrease of more than 4 per cent. in the mortality of babies under 1 year of age, and a decrease of 13.4 per cent. of infants under 2 years of age. This decrease in infant mortality has been constant during the last three years. During June, July and August, 1910, the deaths were 1,888; in 1911 they were 1,467, or a decrease of 421, and in 1912 they were 1,274, or a further decrease of 193. During the same months the mortality of babies under 2 years of age from enteritis was 1,258 in 1910, while in 1911 they fell to 903, a decrease of 355, and in 1912 to 712, or a further decrease of 191. Among the effective agencies in the decrease in infant mortality has been the work of the Chestnut Street Recreation Pier and the Baby Hospital at the Race Street Pier, where babies are given medical care and daily classes have been conducted for the instruction of mothers in child hygiene.

VIRGINIA

Personal.—Dr. B. Lawrence Taliaferro has been appointed first assistant resident physician at the Catawba Sanitarium for Tuberculosis. Dr. Taliaferro took treatment at the sanitarium from April to July; during July and August he was substitute assistant physician at the Adirondack Cottage Sanitarium, Trudeau, N. Y., and expects to do special work in tuberculosis on his return to Richmond.—Dr. Allen W. Freeman, assistant state health commissioner, Richmond, was operated on for appendicitis, August 26, at the Trout Hospital, Roanoke, and is reported to be doing well.

WASHINGTON

New Officers.—Washington Association for the Prevention and Relief of Tuberculosis, at Tacoma: president, Dr. C. Quevli, Tacoma; secretary, Prof. John Weinzerl, Seattle.

Personal.—Dr. Mary McMillan has succeeded Dr. Walter F. Nuzum, resigned, as a member of the Board of Medical Super-

visors of the public schools of Spokane.—Dr. and Mrs. E. M. Anderson, Spokane, have sailed for Europe.

To Improve Tacoma General Hospital.—Drs. W. N. Kellar, C. P. Gammon, W. D. Read, L. L. Love and G. C. Wagner have been appointed a committee from Pierce County Medical Association to take up with the trustees of the Tacoma General Hospital the matter of better facilities.

Tuberculosis Hospital Authorized.—The board of public works of Seattle has been authorized to construct a tuberculosis hospital and other necessary buildings for use in connection therewith at Richmond Highlands, a site given to the city several months ago by the King County Anti-Tuberculosis League, and \$100,000 was appropriated for this work.

WEST VIRGINIA

Personal.—Dr. E. S. Clovis, Pleasant County, has been appointed superintendent of the State Tuberculosis Sanatorium.—Dr. A. L. Higgins, Wheeling, was operated on recently in the Wheeling Hospital.

State Sanatorium Soon Ready.—The State Tuberculosis Sanatorium, now under construction near Rinard, Preston County, will be ready for use by November 1. The site consists of 551 acres and three buildings are being erected which will accommodate sixty patients.

GENERAL

Tri-City Hospital.—A gift of 1,000 acres of land has been made by Captain J. H. Chrestman, Iris, Miss., to the Tri-State Memorial Hospital, Memphis. The land is believed to be worth at least \$50,000.

Meeting of Pacific Railway Surgeons.—The tenth annual meeting of the Pacific Association of Railway Surgeons was held in San Francisco, August 30-31, and the following officers were elected: president, Dr. David Powell, Marysville, Cal.; vice-presidents, Drs. R. T. Legge, McCloud, Cal., and S. J. Gardner, San Francisco; secretary, Dr. G. R. Carson, San Francisco, and treasurer, Dr. E. M. Keys, Alameda, Cal. The association passed resolutions endorsing the Owen bill.

Cumberland Valley Physicians Meet.—The Cumberland Valley Medical Association held its tenth annual meeting in Chambersburg, Pa., September 5, and elected the following officers: president, Dr. Luther H. Keller, Hagerstown, Md.; vice-presidents, Drs. S. E. Mowery, Mechanicsburg, Pa.; Percy D. Hoover, Waynesboro, Pa., and W. B. Wheeler, Boonsboro, Md.; secretary, Dr. John J. Coffman, Scotland, Pa. (reelected); treasurer, Dr. Philip R. Koons, Mechanicsburg, Pa. (reelected).

Missouri Valley Meeting.—The Medical Society of the Missouri Valley held its twenty-fifth annual meeting in Council Bluffs, September 5-6, under the presidency of Dr. J. M. Bell, St. Joseph, Mo. The oration in surgery was delivered by Dr. Henry T. Byford, Chicago, on "Modern Tendencies in Surgery" and the oration in medicine by Dr. W. O. Bridges, Omaha, on "The Present Status of Vaccine Therapy." The following officers were elected: president, Dr. H. B. Jennings, Council Bluffs; vice-presidents, Drs. M. L. Hildreth, Lyons, Neb., and B. T. Quigley, Mound City, Mo.; secretary, Dr. Charles Wood Fassett, St. Joseph, Mo. (reelected), and treasurer, Dr. Oliver C. Gebhard, St. Joseph (reelected). Kansas City was selected as the next place of meeting.

Donations.—The following donations have recently been announced:

Chicago-Winfield Tuberculosis Sanatorium, Wheaton, Ill., \$25,000 by Mr. Julius Rosenwald for a new administration building.

Dr. John M. Sheller, Denver, \$400,000 by the will of the late Mrs. Carolyn Cloth, Memphis, Tenn.

New York Polyclinic Medical School and Hospital, \$50,000 for the new building and equipment fund and a legacy of \$3,000 by the will of the late David J. Garth.

Jewish Maternity Hospital, New York City, \$2,000 for the building fund, the proceeds of an entertainment recently given at Averno.

New York Eye and Ear Infirmary, \$25,000 by the will of the late John S. Lyde.

Johns Hopkins Hospital, Baltimore, a donation of \$220,000 from Mr. James Brady, New York City.

Jewish Hospital, Philadelphia, \$1,000, by the late Joseph Netter.

St. Mary's Free Hospital, New York City, \$5,000 for the endowment of a bed, by the late Mrs. Johanna C. Jones, Baltimore.

St. Luke's Hospital, New York City, \$10,000 for the endowment of beds to be known as the Henry F. Daly beds for actors, by the late Mrs. Catherine E. Daly.

Alexian Brothers Hospital, Chicago, \$1,000 by the will of Simon Mandel.

Graduate Education.—A meeting for regular graduate medical education will be held during the International Medical Congress in London in August, next, by the International Committee for Graduate Medical Education. The program embraces in its first part reports designed as contributions to

collective researches concerning the present regular course of medical university instruction and postgraduate education. These reports will include the present regular course of university education up to graduation (including examinations) and the legal provisions governing the whole course of study and the relation in which the university education stands to the graduate education and the present condition of medical graduate education. The second part of the program deals with the necessity of a reform of instruction in a view to the importance of technical skill in the medical profession, and with the importance of social medicine and its collateral lines as a subject for instruction.

Report of Valmora Sanatorium.—The second annual report of the superintendent of the Valmora Industrial Sanatorium, Watrous, N. Mex., shows that the organization has passed the experimental stage. During the greater part of the year less than twenty-five patients were at the sanatorium, thus causing a financial deficit, but during the three months that the full capacity of thirty-five patients was maintained, the institution was more than self-supporting. During the year thirty-nine employees of members were received as patients, as compared with fifteen the previous year. Of these twenty-nine were discharged during the year, twenty-three of whom are at work. Only one employee who went back to work relapsed. During the year the patients have installed a pumping plant, have helped to put up the ice, have hauled all the sawdust from the mill, a distance of twelve miles, have hauled coal, kept the grounds in good order, kept fences and sidewalks in repair, have taken care of their own cottage, carried trays to bed-patients, hauled all groceries and supplies from Watrous and have assisted with the gardening. The institution is overcrowded and increased accommodations for patients, help and officers are needed.

The Infectious Disease Situation.—Seven cases of plague have occurred in Porto Rico since August 27, making the total number of cases fifty-six. Plague-infected ground-squirrels are still being found in California in the country districts outside of San Francisco and Oakland, but none have been found in either of those cities. The last case of human plague occurred in California in September, 1911. Plague is reported from Amoy and Hong-Kong, Lower Egypt, India, Formosa and certain districts in Persia and Russia. In South America, cases have been reported from Brazil, Chile, Ecuador and Venezuela; also from Trinidad and from South Africa. —Yellow fever has been reported from Merida, Mex., Manaus and Pernambuco, Brazil, from Chile, Colombia, Ecuador, Peru and Venezuela. —Cholera is reported from Sardinia, and the quarantine officers in the United States at ports at which vessels arrive from Italian ports have been instructed to make careful examination of all passengers. —On account of the large number of emigrants from India and Asiatic ports infected with hookworm, it has become necessary to place restrictions on such emigration at San Francisco. Heretofore, on request, these emigrants have been examined and treated at the government hospital at Angel Island; 1,300 of such patients have been treated within the past year. This has taxed the capacity of the hospital, and the steamship lines engaged in passenger traffic from Asiatic ports have been notified that after Nov. 1, 1912, the United States government would cease to permit the treatment of emigrants suffering from hookworm at Angel Island. The steamship lines must examine all emigrants on the other side in order to avoid the expense of carrying infected passengers back to their point of embarkation. —On account of the prevalence of trachoma among the Indian children on the reservations in Minnesota, the State Board of Health, in cooperation with the federal authorities, has begun a vigorous fight against this infection. Dr. Taliaferro Clark, who has made investigations concerning the disease under the direction of the State Board of Health, has been appointed by the U. S. Public Health Service to have charge of the work. Physical examination of every child entering the schools will be made and those infected will be properly treated. Work will begin first in the schools on the iron range in the northern part of the state where the infection is being carried by the Indians to the white children in the schools. —The presence of Malta fever in the goat-raising region in Texas has become of sufficient importance to enlist the attention of the state authorities and the federal Department of Agriculture. Secretary Wilson has asked Governor Colquitt of Texas to assist in investigating the disease and providing a remedy. It is not known to what extent Malta fever prevails among the goats in Texas but the facts that it is communicable to man and that a number of cases in human beings have already been reported have led to the action above noted. It is deemed

important to eradicate the disease among the goats even if it is necessary to exterminate all herds infected.—Infantile paralysis is reported from many states, with the greatest number of cases in Buffalo and Los Angeles, the former city having to date 220 cases with 26 deaths. On account of a difference of opinion as to the correctness of the diagnosis of the cases in Los Angeles, the city authorities appointed a committee of medical men to investigate all cases.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Sept. 7, 1912.

The Origin and Nature of Life

The British Association for the Advancement of Science has held its eighty-second annual meeting at Dundee. The attendance numbered 2,379, including 1,200 visitors. President Schäfer delivered an address on the origin and nature of life. He said that recent advances have shown the dividing line between animate and inanimate matter to be less sharp than as been supposed. Living beings are governed by laws identical with those which govern inanimate matter. The most obvious manifestation of life is spontaneous movement, but physicists have shown that precisely similar movements occur in non-living substances. The movements of oil drops, of organic and inorganic mixtures, and even of mercury globules are indistinguishable from those termed "ameboid." The chemistry and physics of the living organism and of nitrogenous colloids are essentially similar. Protoplasm always takes the form of a colloid solution in which the colloids are associated with crystalloids (electrolytes). Enclosing the living substance thus constituted is a film permitting diffusion between the colloid solution constituting the protoplasm and the circumambient medium. Other similar films or membranes occur in the interior of the protoplasm. These films have specific characters, favoring the diffusion of special kinds of material. The changes produced under these conditions, associated with those caused by active chemical agents formed within the protoplasm and known as enzymes, effect assimilation and dissimilation. Similar changes can be produced outside the body (*in vitro*) by purely chemical and physical methods.

Since the initial processes and final results in the transformation of material in a living body are the same as they would be on the assumption that the changes are brought about in conformity with the laws of chemistry and physics, it may be concluded that all the changes in living substances are brought about by ordinary chemical and physical forces. The contention that growth and reproduction are characteristic of life is wrong. Crystals grow and multiply and reproduce their like, given a supply of the requisite pabulum. Even such a complicated process as karyokinesis can be initiated with solutions of sodium chlorid containing a suspension of carbon particles, which arrange themselves under the influence of the movements of the electrolytes. The researches of Loeb show that the fertilization of the egg can no longer be regarded as the result of living matter brought to it by the spermatozoon, since it can be produced by a simple chemical reagent.

The elements composing living substance are few, and when the chemist succeeds in building up the colloid compound which they form, it will without doubt exhibit the phenomena which we call life. The evolutionary process is continuous and shows no gap at any part of its course. This points to the conclusion that life must have been produced by a gradual change from lifeless material on the borderland between animate and inanimate. The last place to look for such change is in hermetically sealed flasks; we should look for it under natural conditions. There is no valid reason for the belief that at some previous period the earth was more favorably circumstanced than now for the production of life. If living matter has been evolved from lifeless in the past, its evolution is possible in the present and the future. At first, it must be life of a far simpler character than any that has yet been observed, so that, if we are able to detect the material, we shall be uncertain whether to call it animate or inanimate. Probably we shall not be able to visualize it after we have become convinced of its existence.

The Love Marriage Advocated on Eugenic Grounds

In his presidential address at the annual conference of the Sanitary Inspectors' Association, Sir James Crichton-Browne advocated the love marriage on eugenic grounds. He said that much more precise information as to the transmission of char-

acters was necessary before any extensive control could be exercised over human mating, but even now something might be done by physicians to found a moral sentiment in the community in connection with marriage and the welfare of future generations. He believed in the "love match" not only from the romantic but from the eugenic point of view. "Love at first sight" of the right kind was a physiologic epoch corresponding with the installation of new circuits in the brain.

Health Certificates for Chauffeurs

The necessity of medical certificates for chauffeurs has been brought forward in consequence of the death of a driver from heart failure while driving a motor car. He had suffered from heart disease practically all his life. The coroner's jury declared that a medical certificate of fitness should be produced before a license was issued to the driver of a hired car. A proposal advanced some months ago that chauffeurs should be periodically examined by physicians at bureaus, met insurmountable obstacles, and it was abandoned after the Automobile Association had been approached. The men themselves did not regard this supervision too kindly. The 16,000 licensed chauffeurs of buses and taxicabs in the metropolis are required to hold physicians' certificates, and for the large majority there is no medical supervision after the license has been obtained. A periodical medical supervision after the issuing of a license, as well as a preliminary examination, is advisable in the public interest.

Detention of a Consumptive

Under a recent act, a consumptive was for the first time forcibly detained in this country. The town clerk of St. Helens applied to the magistrate because the health officer certified that a man suffering from consumption lodged with his wife, two children and four other adults in a small house. It was impossible under the circumstances to take precautions against the spread of infection. An order was made for the detention of the patient in hospital for three months.

Tropical Disease in Northern Australia

While tropical diseases are rare in northern Australia, the report recently made by the Preliminary Scientific Expedition shows that white settlement is primarily a medical problem. As Dr. Breinl, the director of the Australian Institute of Tropical Medicine, points out, "the number of deaths due to fever," in most instances malarial fever, has been high." In 1909 and 1910, malaria accounted for 26.47 and 20 per cent. respectively of the total death-rate. Dysentery also accounts for a certain number of deaths, and in certain years epidemics have occurred. Other diseases, such as beriberi, ankylostomiasis, yaws, trachoma and leprosy are not unknown, but so far the cases have been for the most part sporadic. Despite the tropical climate those residents and their children who care to live a reasonable life, taking adequate exercise, enjoy good health. As yet, however, there is little if any evidence of the effect of the climate on a third generation. Dr. Breinl says: "Life on the stations is ideal from a health point of view. The active and mainly outdoor life, the comparatively cool and dry winter on the tablelands, are all conducive to splendid physical development and robust constitutions." The most elementary precautions are not taken against the spread of malaria. The conditions in the mining settlements are such that it would prove a comparatively simple matter effectively to eliminate malaria by kerosening the breeding-places of mosquitoes, or by removing the mining camps from the rivers, where such treatment is not economically practicable.

The Campaign Against Tuberculosis

Sir William Osler recommends that under the national insurance act a comprehensive scheme be adopted for coordinating the various agencies which can be used in the struggle against tuberculosis. These are as follows: (1) a head department at the local government board with lay and professional representation; (2) central institutes in London, Dublin and Edinburgh dealing with the educational, social and scientific aspects of the work; for research purposes the energies should be concentrated in one large laboratory; (3) dispensaries officered by trained men whose work can be supervised directly from the central bodies; (4) sanatoriums and hospitals; (5) doctors, health officers and nurses. The fighting line will center about the dispensaries. Sir William Osler recommends also that provision be made for special training of the dispensary officers in methods of work and particularly in diagnosis, as the diagnosis of tuberculosis is often difficult and mistakes are common, which will cost the country much money. He thinks that the tuberculosis work should be linked

with the existing hospitals and dispensaries. Of this the advantages are many. Patients who are not tuberculous will often apply to the dispensary and can be turned over promptly to the proper department. Many cases of bone, gland and other forms of local tuberculosis need surgical advice and treatment, which patients can receive while attending this special dispensary. It is also important that the staffs of the general hospitals should not be deprived of the opportunity of seeing so important a disease as tuberculosis. This plan Sir William Osler has found to work well in what he describes as "one of the most successful of tuberculosis dispensaries," which he started by the generosity of Mr. Henry Phipps in connection with the Johns Hopkins Hospital. This now forms an important part of a great medical school through which every student as a matter of routine passes as a clinical clerk. He thinks that before any great outlay is made on sanatoriums the dispensaries should be in full working order, so that in each district the patients needing home and shelter, sanatorium and hospital treatment may be ascertained.

A Scheme to Revive Bath by a Radium Syndicate

A scheme to revive Bath, which was famous more than a century ago for the healing properties of its waters and a great resort for fashionable people, has been brought forward. As was reported in a previous letter to THE JOURNAL, Sir William Ramsay, the distinguished scientist, has found that the Bath waters possess remarkable radio-active properties. The scheme includes leasing the bathing establishment, pump-room, antiquities and other properties to the syndicate, which is expected to spend over a million dollars in its development. As a result of the publication of Sir William Ramsay's investigations Bath has already enjoyed an appreciable revival of its old-time popularity. Sir William Ramsay states that the baths contain a quantity of niton, or radium emanation, which is more potent than radium. He proposes to increase the absorption of the emanation by means of cataphoresis.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Aug. 30, 1912.

Medical Congresses

For some years medical congresses have been multiplying beyond reasonable limits. In the *Journal des Praticiens*, Prof. Albert Robin discusses their utility and asks whether it would be better to suppress these congresses or merely to reform them. What ends should be served by medical congresses? They bring together medical men who do not know each other, draw closer the bonds of fraternity among those who are already acquainted, promote relations of international interchange by which science cannot fail to profit, and enlarge minds by conflict with other minds. Except for these benefits, Robin believes that congresses as held to-day, except here and there a congress limited to a specialty, have had almost no usefulness. No discovery of value has ever been announced at one of them and no question has received even a temporary solution. When a scientist has achieved something worth while, he does not wait for a congress to make it known, for opportunities to publish it are not lacking. Moreover, the meetings are rare in which papers are discussed; and when they are discussed, the personalities injected into the discussion obscure the subject almost more than they illuminate it. As an example of the scientific inutility of these congresses Robin cites the recent tuberculosis congress at Rome, which was a pretext for personal advertising and for the exploitation of many new and worthless treatments. As at present organized congresses accomplish no scientific or practical work. Unless they are radically changed it would be best to suppress them. Perhaps they are already undergoing a slow death since those physicians who could restore life to them are deserting them more and more. Yet Robin believes that medical congresses may be made to serve a useful purpose by revolutionizing the system of management. In the first place each congress should have an independent committee of organization which is not a close corporation, a condition far too common at present. These committees of organization ought to be composed of representatives from various scientific and professional bodies elected because they will devote themselves actively to the organization of the congress. In order to have the scientific and practical function which it lacks at present, each congress should take a single subject for discussion. Independent essayists should sum up the present condition of science on a question and each phase of the question should be the subject of a paper. The discussion should take up

successively all these papers, each member of the congress bringing to it the results of his researches or his personal observation. After each session a summary of the discussion should be made, to be discussed at the beginning of the following session. After the session preceding the last one there should be drawn up, from these partial summaries, general conclusions which should be read, discussed and voted on in the last session. This would establish the status of the question at the time when these conclusions were drawn and would be a point of departure for further work. In this way at a medical congress competent men would concentrate their efforts on a single point instead of scattering them in communications which are chiefly useless or faddish.

The Consumption of Alcohol

The *Bulletin de statistique* has just published complete reports on the production and consumption of alcohol in France during the last year, permitting an exact estimate of the alarming progress made by alcohol in all countries. The total amount of alcohol produced in 1911 was 2,272,130 hectoliters of pure alcohol. This is 21,301 hectoliters more than in 1910 and 63,983 hectoliters more than the average of the ten previous years. A part of the alcohol produced is denatured for industrial use, another part is consumed in the form of spirits, brandy, etc. In 1911, 1,574,013 hectoliters of pure alcohol (100°) were consumed. This figure should be trebled to indicate the volume of alcoholic drinks consumed by the inhabitants of France. This figure is the highest that has been attained since 1901 when the tax was laid on alcohol consumed. The consumption of alcohol has increased by 11 per cent. from 1910 to 1911. The seriousness of the evil may be estimated better by deducing from these figures the average consumption for each inhabitant of France—man, woman or child. In 1907 the annual consumption of pure alcohol was a little less than 3.31 liters (about 3½ quarts). It has risen by regular gradations to something over 4 liters in 1911. The departments where the consumption of alcohol has been highest are those of Normandy.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Aug. 31, 1912.

Personal

Professor Heubner, our distinguished pediatricist, will resign his position at the end of the winter semester. Next January he will reach his 70th birthday and although he enjoys relatively great intellectual vigor, he feels the justifiable desire to enjoy his leisure with dignity. It is rumored that the cultivation of his loved music will play a great rôle in it.

Professor Schreiber of Königsberg has been appointed a regular honorary professor.

A change has been effected in the arrangement of the Munich medical clinics to the extent that Prof. Friedrich Müller, instead of retaining the second clinic has taken the first, left vacant by the death of Professor Bauer, while Professor Romberg from Tübingen comes to take Müller's former place.

Regulation of the Sale of Milk in Prussia

The minister of commerce, the minister of the interior and the minister of agriculture have promulgated a decree to the provincial presidents regarding the sale of cow's milk.

The decree points out in the first place that in view of the different conditions under which milk is produced and marketed in the different parts of Prussia it is not feasible to impose the same conditions without modifications. This is especially true with regard to the regulations for the production of milk and for the trade in choice milk. The regulations of the police which have hitherto governed the trade in milk have quite generally laid a one-sided emphasis on a definite fat content. In addition to this it should be noted that the cleanly production of milk and its freshness are of special importance.

Milk should be excluded from sale which is so unclean that when 0.5 to 1 liter is allowed to stand for half an hour in a cylindrical or flask-shaped glass vessel made of colorless or nearly colorless glass with a flat bottom, whose diameter is about half the height to which the vessel is filled with milk, a readily demonstrable sediment appears on the bottom. Milk is not marketable when water or ice or preservatives have been added, although an addition of milk ice (*Milcheis*) is permissible to fresh milk and of lactic acid bacteria (*Lactoder Säurebakterien*) to sour milk or sour cream. Milk is also to be excluded from sale which is foul smelling, putrid, discolored, bloody, slimy or bitter; also that which is milked

shortly before or a few days after calving, so long as it coagulates on boiling, or has not the appearance, smell and taste of ordinary milk; also milk from cows whose general condition is markedly disturbed, unless a veterinarian certifies that the milk is marketable.

Milk which does not coagulate on boiling or on mixing with an equal quantity of spirits of 70 per cent. by volume is regarded as fresh. It shall be labeled only as full milk, or skim milk. As full milk shall be reckoned without more exact investigation of its composition any milk which consists of the whole yield, thoroughly mixed, of at least a single milking of at least one cow, which has received no admixture aside from full milk ice and from which nothing has been abstracted, and which contains at least 2.7 per cent. of fat. In this respect in certain localities a higher minimum requirement of fat may be demanded. Full milk whose fat content does not reach 2.7 per cent. is to be labeled as "full milk of second grade" or as "full milk with less than 2.7 per cent. of fat." All fresh milk in which changes have been made in the fat content may only be labeled skim milk. The minimum fat content, if determined, may be stated.

It is essential that the vessels from which or in which milk is sold should be plainly marked so that the public may at any time be in position to determine that milk of the required kind and composition is being sold. As to the question under what conditions heated milk may be sold as sterilized or sterilized milk the following may be taken as throwing light on the matter. Milk is to be regarded as sterilized when it has been heated at least to 70 C. (138 F.). Milk shall be labeled as sterilized only when it has been heated to 100 C. for at least fifteen minutes in vessels the opening of which shall be closed air-tight either during the heating or immediately after, and shall be kept closed air-tight until delivered to the consumer.

The ministers in their decree emphasize the importance of instant control of the sale of milk in view of the importance of milk as a foodstuff. Such control will give the opportunity for the removal of nuisances. In addition every feasible means should be employed for promoting an understanding of the proper production and handling of milk among farmers, dairymen, milk dealers and the public generally. Instructive articles in the daily papers are especially suited to this purpose in addition to the circulation of the official leaflets on milk.

Association for the Exchange of Anatomic Preparations

In close connection with the German Pathological Society an association for the exchange of anatomic preparations has been formed, which almost all of the German pathologists and a number of foreign pathologists as well as many others have joined. An association for the exchange of anatomic preparations is contemplated for Germany and Europe, similar to that which has for some years been successfully operated in the medical museums of North America. The central bureau of the association is located in the Senckenberg Pathologic Institute (Senckenberg Pathologisches Institut, 9 Gartenstrasse, Frankfurt a. M.). The association has also established a microscopic central station connected with the central bureau, which will collect and preserve in future illustrative preparations in all the important branches of histology. The opportunity will thus be afforded after the lapse of years to reinvestigate and study the descriptions in the literature on the basis of the original preparations. The directors of scientific institutes, clinics and hospitals are asked to support these efforts at collecting microscopic preparations in far as they are able. Histologic preparations illustrating articles which have already appeared will also be gladly received at the institute. The executive committee of the association consists of Fraenkel of Hamburg, Paltanuf of Vienna and Aschoff of Freiburg, the chairmen of the German Pathological Society, M. B. Schmidt of Marburg and B. Fischer of Frankfurt. The annual dues are 75 cents (3 marks).

Classification of Human Races

At the meeting of the German Anthropological Society, whose proceedings I have already partly reported, Professor Baelz, the distinguished anthropologist of Stuttgart, delivered an interesting address on the method of classification of the races of mankind. The first scheme was that of the noted botanist, Linné, which divided man into the American, European, Asiatic and African varieties. This entirely sufficient and unscientific grouping was followed by that of Blumenbach which designated the Caucasian, Mongolian, Ethiopian, Malay and American races. This also is a geographic but scarcely scientific nomenclature and was replaced by Cuvier by a classification into the white (Caucasian), black

(Ethiopian) and yellow race. This classification has been the basis of many later systems, but the further the study of anthropology has extended, the more the need has been felt of finding exact scientific criteria for a classification of races. Baelz directed attention to the skeleton and especially to the skull, and discussed critically the value of knowledge of the skeleton. He still maintains the assertion he made many years ago, that the study of the face was neglected in favor of the skull and the study of the living man in favor of the skeleton. In the examination of fossil man, to be sure, we must always remain limited to the skeleton, but it is doubtful whether the scanty findings and particularly the "disjecta membra" in the proper sense of the word are found in sufficient amount to determine different races as has been done. When it is considered how difficult it is in living forms, with their greater numbers and with their innumerable individual marks, to establish distinct limits of the racial types, one cannot be too distinctly warned to be cautious with regard to the skeleton. Even ten years ago there was a disposition to regard primitive man as entirely extinct and different from the men of the present day, but it is now certain that not only in Australia but even with us types occur quite similar to those of the Neanderthal man. If the human beings one meets on journeys and in crowds are accurately observed, it will be found that such types are much more frequent, but the attempt is made from the scanty diluvial bone remnants not only to construct characteristic prehistoric races, but to bring them into quite definite relation to the anthropoid apes on the one hand and to the human race of the present day on the other. The attempt is even made to trace the paths of their migrations.

But the fate of the Neanderthal brain cavity should be a warning. Particularly the projection over the eye, the retreating forehead and the flattened vault of the skull are regarded as an evidence of a lower stage of human development and a correspondingly small brain. When the pithecanthropos was discovered and so beautifully fitted to its place, the entire series of forms from the anthropoid apes to the European of the present day was presumably established. To the Neanderthal man, 1,200 c.c. of cranial content were assigned, and therefore he found his position naturally at the lowest limit of mankind. Now we know that the Neanderthal race, in spite of their small stature, had a larger brain than the average of tall and highly cultivated Europeans of the present day, so that all the trouble expended on the measurement of the cranial content, the volume of the brain, was in vain.

Everything warns us to be cautious in osteology. Hasty conclusions have discredited the entire theory of the skull and the skeleton, so that now many ethnologists give it scarcely any value. This is, however, a great error, for our knowledge of fossil man depends entirely on this measure and furthermore, through the relationship with the parts of the face and their proportions as determined by Broca, Virchow and Kollmann and others and by the newer investigations, particularly, of J. Schwalbe and Klaatsch, the examination of bones has been so amplified that it furnishes a number of important factors for the discrimination of the races. Its manifold results appear to be of greater value for the knowledge of races than another physical character, which has been of late put very much in the foreground in the classification of races, namely, the character of the hair.

BUDAPEST LETTER

(From Our Occasional Correspondent)

BUDAPEST, Aug. 10, 1912.

Pellagra in Hungary

In 1905 an attempt was made by the government to check pellagra by the distribution of good flour and the instruction of the people in prophylaxis. Bakeries were established in various districts where bread could be obtained at cost. Bad harvests recently have nullified the benefit obtained. More careful examination has revealed the disease in new districts. In 1901 there were 251 cases reported; in 1906 there were 1,575 and in 1909 the number was 2,148. Last year 135 pellagra patients were admitted to the hospitals. In eighteen districts last year \$30,000 were spent in preventive measures with the result that 76 per cent. were reported as improved, 22 per cent. not improved, 1 per cent. became worse and 1 per cent. died. Treatment consisted in free distribution of healthy food and quinin and iron. Surgical measures were applied where necessary. Sixty thousand dollars has been appropriated by the government this year in order that prophylactic and therapeutic measures may be extended to all the affected districts.

Marriages

TRUMAN LAWRENCE SAUNDERS, M.D., to Miss Elizabeth Gorham Bacon, both of New York City, at Yarmouthport, Mass., September 5.

JOHN HOWARD RAHTER, M.D., Harrisburg, Pa., to Miss Helen Mathewson of Dauphin, Pa., at Atlantic City, N. J., September 3.

DWIGHT ALLISON, M.D., to Miss Ethel Lund, both of Taos, N. Mex., at the Lund ranch near Cienegueilla, September 4.

WILLIAM BERNARD MCGLENNON, M.D., East Newark, N. J., to Miss Mary Powell of Washington, D. C., September 4.

RAND P. CRANDALL, M.D., U. S. Navy, to Miss Hazel Clark Trey of Chicago, at Elizabeth City, N. C., September 3.

CLARK E. CONGDON, M.D., Fort Plain, N. Y., to Mrs. Maria Margaret Sisum of St. Johnsville, N. Y., September 2.

JAMES THURSTON WOLFE, M.D., Washington, D.C., to Mrs. Mattie Leigh Walker, at Farmville, Va., September 7.

JACOB HINDEN, M.D., to Miss Myra A. Marvin, both of Strong City, Kan., at Kansas City, Mo., August 27.

WILLIAM BARTON BRADER, M.D., Brooklyn, N. Y., to Miss Harriet Hartzog of Wellsboro, N. Y., August 31.

CHARLES NEWLAND SLATER, M.D., Clarksburg, W. Va., to Miss Viola Worden of Philadelphia, September 7.

HOWARD J. MALDEIS, M.D., Baltimore, to Miss Louise Cecil Watkins of Arlington, Baltimore, September 7.

RALPH M. BOLMAN, M.D., Fort Wayne, Ind., to Miss Vita McNair of Kendallville, Ind., September 4.

GEORGE GILE RICHARDS, M.D., to Miss Florence Farnsworth, both of Salt Lake City, September 3.

HENRY C. WERNER, M.D., to Miss Elsa Elizabeth Mast, both of Fond du Lac, Wis., September 9.

SAMUEL ROBERT MCKELVEY, M.D., to Miss Lovenia Dell Neel, both of Denver, September 5.

TRUMAN COATES, M.D., Oxford, Pa., to Miss Deborah Pownall of Christiana, Pa., September 4.

EDWIN EVERETT MADDEN, M.D., to Miss Marion Hyman, both of Chicago, recently.

HARRY JACKSON, M.D., to Miss Theresa Wertheimer, both of Chicago, September 10.

Oral Sepsis and Life-Insurance Risks.—The relation to life-insurance of septic mouths and carious teeth as sources of various infections is discussed by Nodine (*Oral Hygiene*, May, 1912). He says that the weak link in life-insurance medical examinations is the failure to appreciate the fact that diseased teeth and gums are a considerable and constant menace to the health of the individual and a dangerous source for the dissemination of disease to others. He calls attention to the fact that about 30 per cent. of policy-holders who die before the age of 30 die of tuberculosis. If the mucous membrane of the mouth and gums is in a healthy condition it is almost impervious to infection, but when it becomes congested, irritated or injured from any number of frequent causes, it becomes an avenue of infection. The infection may be taken into the stomach or drawn into the lungs or may enter through a break in the mucous membrane, through the tonsils or through carious teeth or infected pulp canals. Nodine believes that primary tuberculosis of the mouth is not a rare disease, though it is often overlooked. He also concludes that the mouth and gastro-intestinal tract constitute a general avenue of tuberculous infection; the septic mouth with carious teeth is a center for the insidious dissemination of the disease; the constant absorption of pyogenic microorganisms from the mouth and alimentary canal produces toxemias which reduce resistance. A number of life-insurance companies have undertaken the work of educating their policy-holders in personal hygiene and in human conservation. Nodine believes that the mouth as a source of infection and consequent ill health deserves the attention of medical examiners and insurance companies in their work of education and of human conservation.

Deaths

James Caldwell Willson, M.D. University of Michigan, Ann Arbor, 1859; a member of the Michigan State Medical Society and a pioneer resident of Flint, Mich.; surgeon of the Eight Michigan Volunteer Infantry during the Civil War; mayor of Flint in 1879; a member of the board of education from 1881 to 1884 and treasurer of the board of trustees of the Michigan School for the Deaf for six years; died at the home of his son, in Flint, August 25, from stricture of the esophagus, aged 79.

Charles Thorndike Parker, M.D. College of Physicians and Surgeons, New York City, 1887; for four years thereafter demonstrator of anatomy and later instructor in operative surgery in his alma mater; formerly attending surgeon at the Chambers Street Hospital, Manhattan Hospital and J. H. Wright Hospital, New York City; who retired from practice on account of ill health; died in his home in South Hamilton, Mass., August 31, from pneumonia, aged 53.

George Hultz Cocks, M.D. Bellevue Hospital Medical College, 1882; of New York City; a member of the American Medical Association and New York Academy of Medicine; secretary of the New York Ophthalmic Society; ophthalmic surgeon at the Institution of Mercy, and for many years assistant surgeon to the New York Eye and Ear Infirmary; died at his summer home in Pleasantville, N. Y., September 8, from angina pectoris, aged 51.

Elizabeth Hedges Blauvelt, M.D. Johns Hopkins Medical School, Baltimore, 1902; afterward an intern in Woman's Hospital in the State of New York, for six years a missionary in China, and during three years of that time superintendent of the Dutch Reformed Church Hospital at Amoy; died at Saranac Lake, N. Y., September 1, from tuberculosis, aged 33.

Fremont Swain, M.D. Central College of Physicians and Surgeons, Indianapolis, 1884; of Indianapolis; formerly director of physical culture at Lehigh University; while riding a bicycle across the Monon tracks at Michigan Street, was struck by a train and received injuries from which he died September 3, aged 50.

Joseph W. Lane, M.D. Queens University, Kingston, Ont. 1874; once president of the Ontario Medical Council; one of the oldest coroners of the province; medical health officer of Mallorytown, Ont.; formerly reeve of Front of Yonge and a veteran of the Fenian raids; died at his home in Mallorytown, June 7, aged 65.

Charles Robert Nyberg, M.D. Northwestern University Medical School, Chicago, 1911; a member of the American Medical Association; formerly physician on the Indian Reservation at Gila Crossing, Ariz.; school physician of Phoenix; died in that city, August 26, from hemorrhage of the lung, aged 24.

Benjamin Bert Putman, M.D. Washington University, St. Louis, 1872; a member of the Missouri State Medical Association, and formerly president of the Linn County Medical Society; local surgeon of the Santa Fe System; died in his home in Marceline, Mo., July 14, from pernicious anemia, aged 68.

Fouman F. Tong (license, New York, 1908), a graduate of the Imperial Medical College, Tientsin, China, in 1900; also a practicing lawyer; secretary to the Chinese Consul and prominent in the Chinese Republic; died in his apartment in New York City, about August 29, from heart disease, aged 33.

George W. Daniels, M.D. Cincinnati College of Medicine and Surgery, 1871; a veteran of the Civil War; for about forty-five years a practitioner of Gerrardstown, W. Va.; a member of the West Virginia house of delegates from 1908 to 1910; died at his home, September 4, from senile debility, aged 72.

George Buntin Grober, M.D. College of Physicians and Surgeons, Chicago, 1909; a member of the Illinois State Medical Society; formerly of Chicago and later of Kelliher, Minn. was found dead in his room in a hotel in Wadena, September 2, from the effects of an overdose of morphine, aged 24.

John Henry Wilson, M.D. Victoria Medical College, Coburg, Ont., 1858; afterward a professor of anatomy in his alma mater; a member of parliament from East Elgin in 1871, 1875 and 1882, and later a member of the provincial senate; died at his home in St. Thomas, Ont., June 4, aged 78.

Ernest Smith Bishop, M.D. College of Physicians and Surgeons, New York, 1892; a member of the Associated Physicians of Long Island; for many years a practitioner of the Bedford district of Brooklyn; died at the home of his brother in Guilford, Conn., August 9, from nephritis, aged 46.

Frank Wallace Brett, M.D. College of Physicians and Surgeons, Boston, 1894; a member of the American Medical Association; for several years a member of the board of health of South Braintree, Mass.; died in his home in that city, September 1, from cerebral hemorrhage, aged 50.

John R. Phillips, M.D. Victoria University, Coburg, Ont., 1884; a member of the American Medical Association; a member of the Minnesota house of representatives in 1908; for twenty-eight years a resident of Northfield; died in a hospital in Chicago, September 4, aged 50.

Hamilton H. Hulcee, M.D. University of Louisville, Ky., 1876; a Confederate veteran, and for more than twenty-five years a practitioner of Louisville; died in the infirmary of the Kentucky State Confederate Home, Pewee Valley, August 29, from nephritis, aged 66.

Joel Williston Wright, M.D. College of Physicians and Surgeons, New York City, 1866; of Albany, N. Y.; emeritus professor of principles and practice of surgery in the University of Vermont, Burlington; died at his summer home, Lake Placid, N. Y., September 2.

Charles A. Smith, M.D. Minnesota Hospital Medical College, 1888; a member of the American Medical Association; for more than ten years a member of the staff of Ashbury Hospital, Minneapolis; died at his home in that city, September 1, from nephritis, aged 48.

Charles H. Hough, M.D. Homeopathic College Hospital, Cleveland, Ohio, 1884; of Champaign, Ill.; president of the Mississippi Valley Improvement Association; died suddenly in Champaign, September 10, from cerebral hemorrhage, aged about 50.

Charles Delano Cook, M.D. Castleton (Vt.) Medical College, 1848; a member of the Kings County (N. Y.) Medical Society; for more than fifty years a dentist of Brooklyn; died at his home in that city, September 5, from cerebral hemorrhage, aged 86.

Lebanon U. Howard, M.D. Western Reserve University, Cleveland, 1893; formerly a practitioner of Youngstown, Ohio, and a member of the Youngstown Medical Association; died at his country home in Rosemont, August 30, from diabetes, aged 53.

Charles H. Foertmeyer, M.D. Medical College of Ohio, Cincinnati, 1872; a member of the Ohio State Medical Association and one of the oldest practitioners of Cincinnati; died at his home in that city, August 31, from bronchitis, aged 71.

William T. Kile, M.D. State University of Iowa, College of Homeopathic Medicine, Iowa City, 1885; a member of the Nebraska State Medical Association; died in his office in Plainview, August 31, from cerebral hemorrhage, aged 55.

Andrew H. McCord, M.D. Missouri Medical College, St. Louis, 1879; surgeon of the State Penitentiary, Rusk, Tex.; president of the Young Men's Business League; died on Irby Mountain, August 29, from heart disease, aged 55.

John A. Chesney, M.D. Columbus (Ohio) Medical College, 1879; a member of the Ohio State Medical Association and local surgeon of the various railways centering in Bucyrus; died suddenly in his office, August 31, aged 55.

Solomon F. Ballinger, M.D. Medical College of Ohio, Cincinnati, 1865; a surgeon in the Federal service during the Civil War; for more than thirty years a practitioner of Alliance, Ohio; died at his home, September 4, aged 76.

Clarence Edgar Carruth, M.D. University of Vermont, Burlington, 1880; mayor and formerly city physician, and a member of the school board of Cohoes, N. Y.; died at his home, August 31, from heart disease, aged 56.

Cyrille Emile Vaillancourt, M.D. Laval University, Quebec, 1871; once mayor of St. Anselme, Que., and from 1892 to 1896 a member of parliament from Dorchester County; died at his home in St. Anselme, June 7, aged 64.

Alexander Smith, M.D. Medical College of Ohio, Cincinnati, 1878; who had previously attempted to commit suicide by taking morphin, hung himself to a tree near his home in Marysville, Ohio, August 31, aged 61.

George L. Calloway, M.D. Eclectic Medical Institute, Cincinnati, 1892; died in his office in Osgood, Mo., September 2, aged 39, from the effects of phenol believed to have been self-administered with suicidal intent.

Ezra Armstrong Hebard, M.D. Berkshire Medical College, Pittsfield, Mass., 1851; for many years a physician of Lapeer and Kent counties, Mich.; died at his winter home in Asheville, N. C., September 6, aged 82.

J. C. Dillon, M.D. Medical College of Ohio, Cincinnati, 1870; of Rushville, Ind.; died recently in a sanatorium in Oxford, Ohio, aged 67.

James C. Holloway, M.D. Homeopathic Medical College of Missouri, St. Louis, 1886; of Galesburg, Ill.; formerly a clergyman of the Christian church; died after a surgical operation, August 25, in a Chicago hospital.

Josiah Wayne T'Miller, M.D. University of Pennsylvania, Philadelphia, 1878; for thirty years a practitioner of Ridgeville, Pa.; died at his home in Parkerford, Pa., August 6, from cerebral hemorrhage, aged 69.

Francis Henry Pope, M.D. Western Reserve University, Cleveland, Ohio, 1854; Victoria University, Coburg, Ont., 1868; died suddenly near his home in Bothwell, Ont., July 30, from cerebral hemorrhage, aged 83.

William Thomas Klein, M.D. College of Physicians and Surgeons, New York City, 1895; bacteriologist of the New York Health Department; died at his summer home, Sea Cliff, L. I., September 7, aged 37.

James Cornelius Murphy, M.D. Harvard Medical School, Boston, 1905; a member of the American Medical Association; of Norwood, Mass.; died in Carney Hospital, Boston, September 3, aged 31.

Glenn W. Rosborough, M.D. Lincoln (Neb.) Medical College, 1910; of Cheyenne, Wyo.; died in St. John's Hospital, Cheyenne, August 31, from septicemia following an operation for carbuncle, aged 25.

Benjamin Burkett, M.D. Indiana Medical College, Indianapolis, 1879; for many years a practitioner of Warsaw, Ind.; died at his home in that city, August 28, from senile debility, aged 83.

John Morrison Ireland, M.D. Medical College of Evansville, Ind., 1854; for fifty-eight years a practitioner of Francisco, Ind.; died at his home, September 3, from senile debility, aged 87.

Willard Crafts Crocker, M.D. University of Vermont, Burlington, 1887; formerly a member of the Massachusetts Medical Society; died in his home in Foxboro, Mass., September 4, aged 53.

Noah Anthony Wayne Stoker, M.D. Ohio Medical University, Columbus, 1897; formerly health officer of Rossford, Ohio; died at his home in that city, September 3, aged 50.

William Milliken, M.D. Jefferson Medical College, 1895; for many years a practitioner of Nebraska; died at his home near Birdsboro, Pa., July 27, from heart disease, aged 42.

Frederick Roy Branscombe, M.D. University of Vermont, Burlington, 1912; of Corn Hill, N. B.; died in the Mary Fletcher Hospital, Burlington, June 24, aged 30.

Purnell W. Adams, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1867; died at his home in Camden, N. J., June 4, from heart disease, aged 65.

W. S. Baker, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1870; died at his home in Farmington, Iowa, August 15, from disease of the stomach.

Albert P. Murray, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1878; a veteran of the Civil War; died at his home in Albany, Ind., September 3.

William Thomas Bellomy, M.D. College of Physicians and Surgeons, Chicago, 1884; died at his home in Pleasantview, Ill., August 18, aged 50.

J. B. Gage, M.D. New Orleans School of Medicine, 186—; (license, Mississippi Board of Health); died at his home in Grenada, September 3.

Tobias Campbell, M.D. Jefferson Medical College, 1886; died at his home in Martinsburg, Pa., September 1, from cerebral hemorrhage, aged 55.

William Chattles Alspaugh, M.D. Bellevue Hospital Medical College, 1868; died at his home in High Bridge, N. J., August 13, aged 70.

Nathan Smith McDonald (license, Kansas, 1901); a practitioner since 1868; died at his home in Climax, August 20, aged 67.

William Fielding Barnes, M.D. Halifax (N. S.) Medical College, 1911; of Halifax; died at Hopewell, N. S., August 5, aged 23.

Henry J. Bruce, M.D. Long Island College Hospital, Brooklyn, 1874; died at his home in Bridgeton, R. I., August 8, aged 64.

William H. Barber, M.D. Hahnemann Medical College, Chicago, 1883; died at his home in Fullerton, Neb., July 4, aged 56.

James M. Perkins, M.D. Missouri Medical College, St. Louis, 1890; died at his home in Laclede, Mo., August 24, aged 58.

Thomas D. Clegg, M.D. Hahnemann Medical College, Philadelphia, 1889; died at his home in that city, June 26.

T. R. Bridges (license, Missouri, 1883); died at his home in Syracuse, August 1, aged 69.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

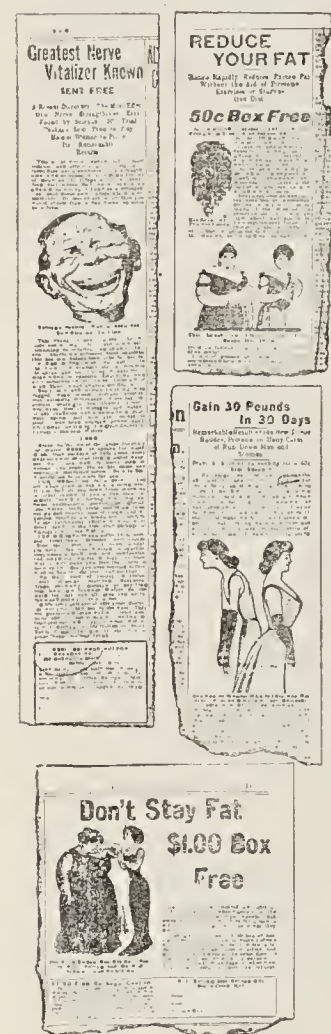
KELLOGG'S OBESITY CURES AND OTHER FRAUDS

Frank J. Kellogg of Battle Creek, Mich., finds quackery profitable. Starting, it is said, with practically nothing, Kellogg is now rated in the millionaire class and is said to be a director of one of the Battle Creek banks. Kellogg has made his thousands selling fraudulent anti-fat and anti-lean preparations. He has headquarters both at Battle Creek and at Detroit, Mich. From Battle Creek, he sells "Kellogg's Safe Fat Reducer," and "Sanitone Wafers;" from Detroit, he conducts the Rengo Company and the Protone Company. Rengo

is sold as an obesity cure; Protone is advertised as a flesh builder. As a sideline, the Protone and Rengo companies both sell "Muldo Fruto," a constipation cure. All of the Kellogg products are dispensed on the medical mail-order plan by methods that are typical of that class of fakes. Advertisements in newspapers and magazines bring to Kellogg the necessary mailing list; follow up letters and advertising circulars do the rest.

Sanitone Wafers

Sanitone Wafers are advertised as the "greatest Nerve Vitalizer known" and the reader is advised that a "fifty cent trial package" will be sent free to anyone who applies for it. Those who write for the free sample receive a small box in which are a few orange-colored tablets, and by the same mail, a larger box containing a "complete thirty days' treatment" for which \$5 is asked. If no further notice is taken of the Kellogg concern, the unwilling recipient of the \$5 "treatment" is bombarded with a series of follow-up letters each succeeding letter being more insistent than its predecessor in urging that the money be sent for the treatment. Like all mail-order medical fakers, Kellogg has a sliding scale of prices. The first two letters ask \$5 for the "treatment" that was sent unasked;



Some typical Kellogg advertisements.

the third and fourth letters offer to accept \$3.50 while the fifth and sixth letters inform the prospective victim that a mere \$2.50 will square the account. The sixth letter ends with the statement "This is final," and, apparently it is, for no further reduction in the price of the treatment is made and neither is the postage sent for the return of the \$5 treatment. As it only takes four cents to send the \$5 treatment by mail, and as, apparently, the Kellogg company would lose money by sending that four cents for the return of the treatment that was sent unasked the evident value of this \$5 package of pills is less than four cents.

Kellogg's Safe Fat Reducer

Kellogg's Safe Fat Reducer used to be known as Kellogg's Obesity Food. It is not a food and never was, hence when the Food and Drugs Act went into effect and falsifying became illegal as well as immoral, the name was changed. The preparation has been analyzed at various times and its ingredients, as reported by Dr. Kebler, Chief of the Division of Drugs of the Bureau of Chemistry, at Washington, were:

Thyroid gland.

Poke root.

Toasted bread.

Before the Food and Drugs Act became operative, Kellogg's Fat Reducer was sold under the claim that "these tablets are not a drug but a food" and further that the preparation "turns fat into muscle." Both statements were unequivocal falsehoods.

Protone

The Protone Company and the Rengo Company are essentially identical concerns. They are both practically owned by Frank J. Kellogg and both managed by Charles H. Shaw. There is nothing in the advertisements to give any hint as to the connection between the two; in fact, the Protone Company advertises its address as the "Protone Building, Detroit." There is no such building. Both concerns occupy rooms on the third floor of a building at 58 Lafayette Avenue. Protone is advertised as the "best flesh restorer in the world" and is said to be "a new triumph in medical science." Like the Sani-



Rengo, Protone and Muldo-Fruto come in packages as shown in this picture. Protone is supposed to put on flesh; Rengo is supposed to remove it. Muldo-Fruto is a laxative.

tone Wafers, a "free fifty cent package" will be sent to all applicants. With the "free" treatment comes the first of the follow-up letters, which explains that the sample box could not be expected to have any special effect as it invariably takes six weeks' treatment to produce the necessary amount of flesh. The "six weeks' treatment"—six boxes—will be sent for \$5. The second follow-up letter is a reiteration of the first and still holds to the price of \$5 for six boxes; the third letter cuts the price nearly in half, six boxes for \$3; the fourth letter urges you to send in \$1.66 for the three boxes; the fifth—and last—letter contains an offer to send twelve boxes for \$2.50.

It is hardly necessary to say that the business of the Protone Company is a fraudulent one and the product itself is a humbug.

Rengo

"Rengo used to be known as "Rengo Fruit" and the claim was made that its active constituents were derived from a luscious tropical fruit which grows in clusters similar to grapes. These statements are no longer made specifically although the deceit is still carried out inferentially. The same "free trial treatment" method is used with Rengo as with the other Kellogg products; in fact, the method of exploiting Rengo is practically identical with that used in selling Protone. The prospective purchaser is urged to get six weeks' treatment for \$5. As time goes by the price is reduced from six packages for \$5 to six packages for \$3 and finally an offer is made to send three packages for \$1.66.

Rengo has been analyzed and, according to Dr. Kebler's analysis, contains:

Thyroid gland.
Poke root.

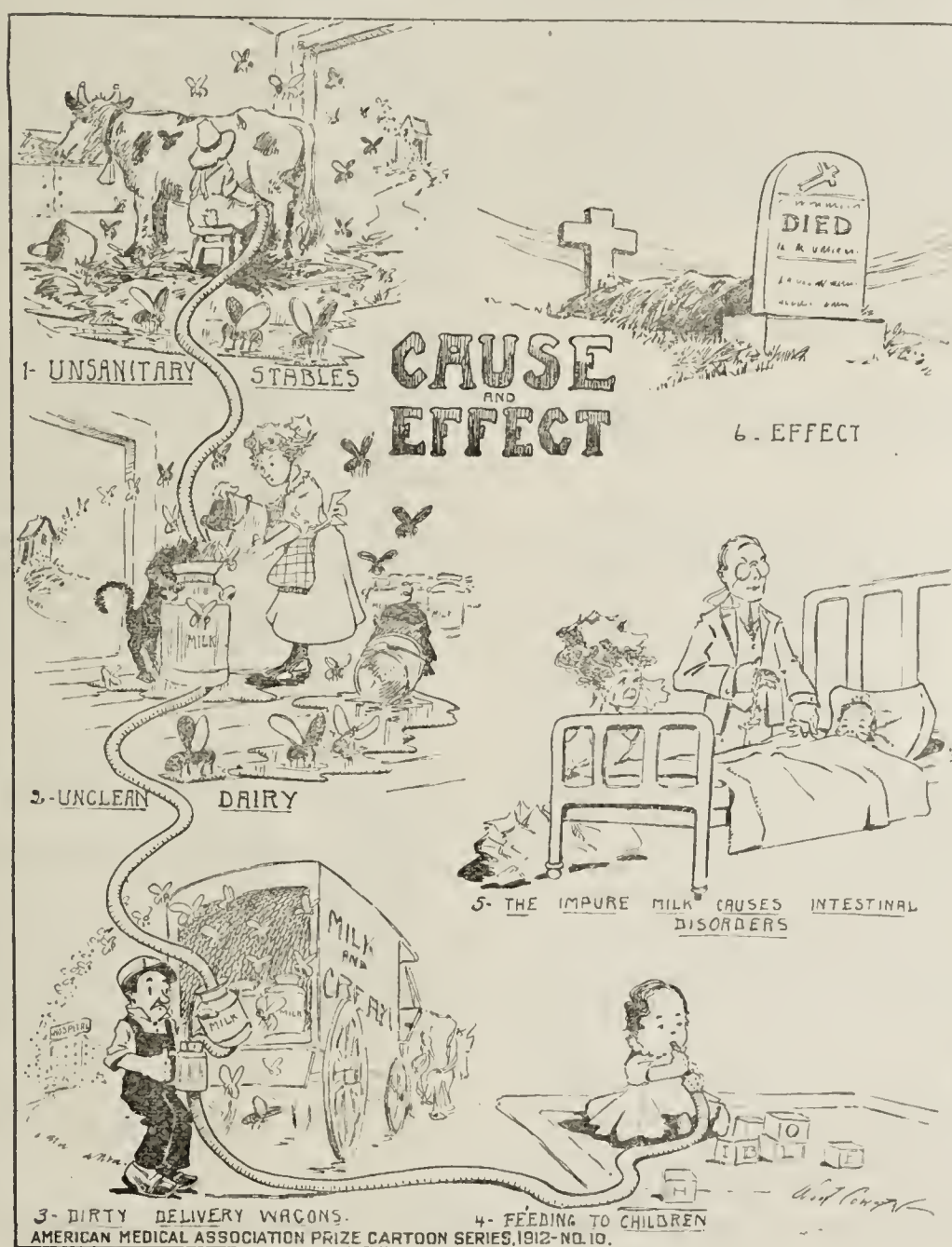
Cascara.
Cassia fistula.



That the prolonged administration of thyroid gland will sometimes bring about a marked reduction in weight is true but its use even under skilled medical supervision is fraught with danger. It is little less than criminal that ignorant packers of Kellogg's type should be permitted to distribute indiscriminately drugs that have the potency for harm that is possessed by the thyroid preparations.

THE DETERIORATION OF DRUGS

The investigations of Hale¹ on digitalis, of Edmunds and Hale² on ergot, and Dohme³ on calabar bean, coca and conite, have revealed the facts that many drug preparations deteriorate, and that drugs are often several years old when they reach the patient. These facts have been emphasized, also, through a report of the Council on Pharmacy and Chemistry dealing with the testing of epinephrine solutions in which the Council recommends that manufacturers stamp the age of manufacture on the container, to guard against samples which are obviously "overaged." Naturally some manufacturers have asserted that the reported deterioration is accidental, or have tried to put the blame on the pharmacist. Some have shifted their previous claims as to strength in such a way as to avoid responsibility. Some firms, however, instead of attempting to dodge responsibility, are doing what ought to be done, and indicate the date of manufacture on the label of those preparations which are prone to deterioration. This, for instance, has been done by Fairchild Bros. & Foster for their Lactic Bacillary Tablets (N. N. R. Supplement, 1912, p. 5); by Hynson, Westcott & Co. in the case of their Bulgara Tablets (N. N. R., 1912, p. 127) and by the H. K. Mulford Co. for their Eucrintol (N. N. R. Supplement, 1912, p. 2) and Digital (N. N. R. Supplement, 1912, p. 3). A serious attempt to overcome deterioration has been made in a recent report by Pittenger and Vanderkleed,⁴ of the scientific staff of the H. K. Mulford Co., on methods for the preservation of fluidextract of ergot. They found that a fluidextract of ergot, put up in hermetically sealed vials, kept its strength for a year without the least change. While most pharmaceutical houses appear indifferent to the demands of modern medicine, there are signs, nevertheless, that scientific pharmacy is making headway.



3- DIRTY DELIVERY WAGONS. 4- FEEDING TO CHILDREN
AMERICAN MEDICAL ASSOCIATION PRIZE CARTOON SERIES, 1912-NO. 10.

Correspondence

Stanley's and Livingston's References to Mosquitoes and Miasma

To the Editor:—On reading "The Mystery of Miasma as Darwin Saw It" in THE JOURNAL (August 31, p. 736), I thought the following from two celebrated African explorers would be of interest in this connection:

Henry M. Stanley ("In Darkest Africa," ii, 33) says, in his observations on malaria: "Emin Pasha informed me that he always took a mosquito curtain with him, as he believed that it was an excellent protector against miasmatic exhalations of the night."

Dr. David Livingston ("Livingston's Expedition to the Zambesi and Its Tributaries," 1858-1864) says of the mosquito and malaria: "A large brown sort, called by the Portu-

guese *mouso* ("tame"), flies straight to its victim and goes to work at once as though it were an invited guest. Some of the small kinds carry not only sharp lancets and very potent poison. 'What would these insects eat if we did not pass this way?' becomes a natural question. The juices of plants and decaying vegetable matter in the mud probably form the natural food of the mosquitoes, and blood is not necessary for their existence. They appear so commonly at malarious spots that their presence may be taken as a hint to man to be off to more healthy localities."

ST. CLOUD COOPER,
Fort Smith, Ark

Fraudulent Impersonation

To the Editor:—In February, 1912, Dr. C. J. Albaugh of Salt Lake City, Utah, a graduate of the University of Pennsylvania of about 1908, was approached by a man who gave his name as Dr. E. S. Everhart of the class of 1907 (my graduating class), University of Pennsylvania. Thinking that the man's face was familiar and that he was telling the truth, Dr. Albaugh was persuaded to endorse a draft on a Boston bank for \$40, which he had to pay. I have reason to believe that other physicians were swindled, especially University of Pennsylvania men. In order to help in the apprehension of the miscreant and to clear my name, please publish this statement in THE JOURNAL.

EDGAR S. EVERHART, Crabtree, Pa

Goethe's Reference to Pellagra

To the Editor:—It may be of interest to students of pellagra in this country to know that the German poet, Goethe, has a curious reference to what appears to be this disease in his "Letters From Italy," written in 1786. Writing

1. Referred to editorially in THE JOURNAL A. M. A., April 22, 1911, p. 1198.

2. Referred to editorially in THE JOURNAL A. M. A., March 9, 1912, p. 705.

3. Dohme, A. R. L.: Am. Druggist, 1909, iv, 37.

4. Pittenger, P. S., and Vanderkleed, C. E.: Jour. Am. Pharm. Assn., 1912, 1, 799.

from the shores of Lake Garda in northern Italy, he says that he was particularly displeased by the pale-brownish complexion of the women, whose features indicated wretchedness. "I imagine," he continues, "that the cause of this sickly condition may be found in the frequent consumption of Indian corn and buckwheat. Both the former, which they also call 'yellow blende,' and the latter, which is called 'black blende,' are ground, made into a thick pap with water, and thus eaten. The Germans pull out the dough and fry it in butter. The Italian Tyrolese, on the contrary, eat it just as it is, often with scrapings of cheese, and do not taste meat throughout the year. This necessarily glues up and stops the alimentary channels, especially with the women and children, and their cachectic complexion is an indication of the malady."

I do not pretend to a wide acquaintance with the literature of pellagra, so it may be that this interesting note by Goethe may not have escaped the attention of others. Goethe has been credited with being ahead of his times in a number of scientific matters, especially the doctrine of evolution; it is therefore additionally noteworthy that he also took a foreglimpse at what many consider to be the cause or one cause of pellagra. I think most neurologists will agree that anything that glues up and stops the alimentary channels must be bad for the nerves.

JAMES HENDRIE LLOYD, Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SENSITIZED LIVING CULTURES IN TYPHOID

To the Editor:—What is meant by the term "sensitized living cultures," referred to in the editorial (THE JOURNAL, August 24, p. 656) in reference to vaccination against typhoid?

HARLAN SHOEMAKER, Shelby, N. C.

ANSWER.—This term is used to designate live cultures of an organism to which has been added an antiserum, and the mixture allowed to remain in contact for a certain length of time, the serum then removed by washing and centrifugation, and the deposit suspended in physiologic salt solution. The sensitized living cultures of typhoid bacilli used by Metchnikoff and Besredka for vaccination against typhoid are prepared as follows: The growth on a twenty-four-hour agar slant of typhoid bacilli is washed off in 1 or 2 c.c. of physiologic salt solution. To this suspension of living bacilli are added about 10 drops of antityphoid serum prepared from the serum of a horse which has been highly immunized by intravenous injections of living typhoid bacilli. The mixture of serum and typhoid bacilli is allowed to remain in contact over night. The next morning the sensitized bacilli are washed twice in physiologic salt solution, the centrifuge being used to remove the supernatant fluid. After the second washing the deposit in the bottom of the tube is suspended in 100 c.c. of physiologic salt solution; from 1 to 1.5 c.c. of this suspension represents the initial dose. The second dose, given eight days later, is 2 or 3 c.c. The bacilli used by Metchnikoff and Besredka have been isolated from man and are of an average virulence for laboratory animals.

PREPARATION OF ACID SOLUTION FOR EXAMINATION OF CEREBROSPINAL FLUID—DIAGNOSTIC VALUE OF TUBERCULIN

To the Editor:—1. Please tell me how to keep and how to prepare the acid solution for the cerebrospinal fluid examination described in THE JOURNAL, Aug. 17, 1912, p. 544.

2. What is the prevailing opinion, if there is any, regarding the use of tuberculin, both as a diagnostic and as a curative agent? Is there any unanimity of opinion whatever?

A. B. C.

ANSWER.—1. The solution referred to in the editorial is a 1/300 normal hydrochloric acid solution. This would be prepared by diluting normal hydrochloric acid to 300 times its volume. If one has an accurate preparation of one-tenth normal solution, the best way would be to measure exactly 1 c.c. into a graduated cylinder and fill up with distilled water exactly to 30 c.c.

2. As a diagnostic agent tuberculin is specific in its action. A positive reaction indicates the presence of tuberculosis.

It does not distinguish with certainty, however, between an active tuberculous process and one which is latent or practically cured. Inasmuch as adults have, in the majority of cases, experienced tuberculosis, a positive reaction to tuberculin gives no positive evidence of an active tuberculous process unless focal symptoms are produced by the subcutaneous injection. In children, the cutaneous reaction of von Pirquet indicates, as a rule, an active tuberculous process without affording evidence of the location of the lesion. In children over 5 and in adults, a positive reaction may also be due to a latent condition which produces no symptoms and needs no treatment. If focal symptoms are produced by the subcutaneous injection of tuberculin, we have evidence of an active process located in the organ which is the seat of the symptoms. There seems to be no doubt that in properly selected cases, the therapeutic use of tuberculin is a valuable adjunct to other forms of treatment. It must, however, be carefully used by one who is experienced in its application.

ALCOHOL INJECTIONS FOR NEURALGIA

To the Editor:—Please send me the index of articles appearing in THE JOURNAL on the subject of alcohol injections for neuralgia as well as the names or titles of some works on the subject, giving the technic.

A. H. STAPLES, M.D., Washington, D. C.

ANSWER.—We do not find any books devoted to the subject. As to articles, we might refer our correspondent simply to the index to THE JOURNAL, but as the subject is of general interest we cite the following articles. These are found by consulting the index to THE JOURNAL, which is printed in the last issue of each six months.

Patrick, H. T.: Further Report on Deep Injections of Alcohol for Facial Neuralgia, *Lancet-Clinic*, Dec. 28, 1907; abstr. in THE JOURNAL, Jan. 18, 1908, p. 238.

Kilian, O.: Schlösser's Alcohol Injections for Facial Neuralgia. Sixteen Months' Experience with Fifty-Five Cases; Three Failures, *Med. Rec.*, Jan. 18, 1908; abstr. in THE JOURNAL, Feb. 1, 1908, p. 399.

Ostwalt: Injections of Alcohol in Neuralgia, *Bull. de l'Acad. d. méd.*, April 21, 1908; abstr. in THE JOURNAL, June 6, 1908, p. 1947.

Bodine, J. A. and Keller, F. C.: Injections of Alcohol for Relief of Trigeminal Neuralgia, *New York Med. Jour.*, Sept. 26, 1908; abstr. in THE JOURNAL, Oct. 10, 1908, p. 1276.

Alexander, W.: Treatment of Neuralgia with Injections of Alcohol, *Berl. Klin. Wchnschr.*, Nov. 3, 1908; abstr. in THE JOURNAL, Jan. 16, 1909, p. 255.

Harris, W.: Alcohol Injection Treatment for Neuralgia and Spasm, *Lancet*, London, May 8, 1909; abstr. in THE JOURNAL, June 5, 1909, p. 1890.

Walker, R. J.: Trifacial Neuralgia Treated by Alcohol Injections, *Jour. Mich. State Med. Soc.*, May, 1909.

Patrick, H. T.: Seventy-Five Cases of Trifacial Neuralgia Treated by Deep Injections of Alcohol, THE JOURNAL, Dec. 11, 1909, p. 1987.

Leszynsky, W. M.: The Alcohol Injection Treatment of Trifacial Neuralgia, *Med. Rec.*, April 30, 1910; abstr. in THE JOURNAL, May 14, 1910, p. 1646.

Offerhaus, H. K.: Technic for Alcohol Injections in Trigeminal Neuralgia, *Arch. f. klin. Chir.*, xcli, No. 1, 1910; abstr. in THE JOURNAL, Aug. 13, 1910, p. 630.

Ball, C. R.: Treatment of Neuralgia by Deep Injections of Alcohol, *Ohio State Med. Jour.*, Aug. 15, 1910.

The Treatment of Neuralgia with Injections of Alcohol, editorial, THE JOURNAL, June 17, 1911, p. 1818.

Blair, V. P.: Notes on Trifacial Neuralgia Treated by Deep Injections, THE JOURNAL, Feb. 4, 1911, p. 335.

Patrick, H. T.: The Technic and Results of Deep Injections of Alcohol for Trifacial Neuralgia, THE JOURNAL, Jan. 20, 1912, p. 155.

CRISCO AND THE ALLEGED IRRITANT EFFECT OF COTTON SEED OIL

To the Editor:—In an abstract of an article on "Soaps and Their Effects on the Skin" by F. H. Gardiner in the *Edinburgh Medical Journal*, June, 1912, printed in THE JOURNAL (July 27, p. 310), it is stated that cotton-seed oil is irritant to the skin. How about the effect of cotton-seed oil on the stomach? I refer to a lard substitute for cooking purposes, advertised under the name of Crisco.

DR. W. L. MILNER, Cincinnati.

ANSWER.—There is no evidence which proves that properly purified cotton-seed oil acts differently from other edible oils either on the skin or internally. If cotton-seed oil is found to be irritant to the skin it will, in all probability, be when it contains impurities. While Gardiner, in the abstract of the article referred to, says that cotton-seed oil uncombined is a skin irritant, he admits that it is a matter for further inquiry. We understand that Crisco is a solid synthetic vegetable fat made by chemical means from various vegetable oils, such as peanut oil, corn oil, coconut oil and cotton-seed oil, depending on market conditions. This process is a new industry and consists in converting the liquid olein of fats into the solid stearin by absorption of hydrogen. In this reaction each

unsaturated oleic radical of the olein is made to absorb through the action of catalytic agents, we are told, 2 atoms of hydrogen, thereby being converted into the saturated stearic acid radical. An examination of Crisco by the food department of the North Dakota State Board of Health showed that it bears a close resemblance to cotton-seed stearin, although it was not positively identified as such. Our laboratory has not yet investigated the product.

TEMPERATURE IN CEREBROSPINAL MENINGITIS

To the Editor:—I would like an explanation of the peculiar temperature which I have observed in a case of epidemic spinal meningitis. At the first visit I found the temperature by mouth 104.5 F. and pulse 130. At the second visit, within twelve hours of the first, the temperature had dropped to 99.8 and the pulse was 125. The patient was comatose with all the symptoms of meningitis. Serum was given and repeated in twelve hours. On the third day the patient's condition was good; he was mentally bright, but the temperature presented the peculiarity that it was higher in the axilla than in the mouth, being by mouth 101, by axilla 102. This condition of the temperature lasted three days, always higher in the axilla than in the mouth. On the sixth day the temperature was 99.4 both in the mouth and in the axilla and from then on was normal. The patient made a good recovery.

P. NETTLE, M.D., Haverhill, Mass.

ANSWER.—The temperature in cerebrospinal meningitis pursues an irregular course. We find no mention of local variations in temperature. Such variations, however, are not to be wondered at in view of the irritation of the trophic nerves and the tendency to lesions of the skin manifested in this disease.

THE ADDRESSES OF PERIODICALS

To the Editor:—It is possible that others have as poor a memory as I and are unable to locate certain magazines in which are wished-for articles. Would it not be a convenience to run a list? W. M.

ANSWER.—In our department of Current Medical Literature we give the name of the city after the name of the periodical, and by looking back through a few issues of THE JOURNAL one can usually find the name and address of the periodical. In the Guide to Current Medical Literature is printed a list of domestic and foreign periodicals with the street address and the frequency of publication, and the price per year. This "Guide" is a reprint of the index together with the titles that appear in small type from week to week. It was described more fully on advertising page 4 of THE JOURNAL, July 13, 1912.

THE SAMUELS FAKE

To the Editor:—I am seeking some information concerning Prof. H. Samuels' Remedy Company of Wichita, Kan. They claim to have a cure for epilepsy. A patient of mine brought some of their medicine into my office, and I want to be able to tell him that the remedy is nothing but a fake. W. H. LUCKETT, New York.

ANSWER.—The Samuels fraud was exposed in THE JOURNAL (Dec. 24, 1910, p. 2248), and the matter has been reprinted in "Nostrums and Quackery." This impudent humbug has also been the subject of editorial comment in THE JOURNAL (Oct. 21, 1911, p. 1372; March 23, p. 863, and June 1, p. 1693).

LIQUID PETROX

To the Editor:—In THE JOURNAL (Jan. 9, 1909, p. 136) was an item recommending iodine crystals in saponated petrolatum, 30 to 40 grains to an ounce, for the treatment of insect bites and stings. I have never been able to find any other reference to petrolatum saponatum liquidum, and would like to know what it is and how prepared. E. D. BURKHARD, M.D., Del Agua, Colo.

ANSWER.—Petrolatum saponatum liquidum, otherwise known as "liquid petrox," is a National Formulary preparation which is described as "a yellow liquid made by shaking together liquid petrolatum 10 parts, oleic acid 5 parts, and spirit of ammonia 2½ parts." It is practically identical with the preparation known as "liquid vasolinimentum."

TRIKRESOL

To the Editor:—Please inform me what trikresol is. I find it commented on in the journals as a powerful germicide in weak solutions. C. M. GREINER, M.D., Jacksonville, Fla.

ANSWER.—Trikresol is described in New and Nonofficial Remedies, 1912, p. 256, as follows: "A liquid said to consist of: orthocresol, 35 per cent.; metacresol, 40 per cent., and paracresol, 25 per cent. It closely corresponds to cresol. U. S. P."

Cresol is a strong germicide and is the basis of the official germicidal preparation, liquor cresolis compositus.

REQUESTS FOR REPORTS ON VACCINE THERAPY IN TYPHOID

To the Editor:—Will anyone who has used vaccines in treatment of typhoid, in one case or more, kindly communicate to me that fact accompanied by name and address of the reporter? If the results have already been reported, a note of the journal in which they appeared will be sufficient. If they have not been reported, a short blank form will be sent to the physician to be filled out. Due credit will be given in the article to each person making a report. If any physician happens to know of confrères who have had any such cases, it will be appreciated if he sends their names, as they may not happen to read this note. It is hoped that by this means a sufficient number of cases may be collected to settle somewhat definitely the now mooted question whether vaccines are or are not of benefit in typhoid therapy.

W. H. WATERS, M.D., Boston.

Director of the Department of Pathology and Bacteriology, Evans Institute for Clinical Research.

REACTION IN CHILDREN TO ANTITYPHOID VACCINE

To the Editor:—In THE JOURNAL (August 31, p. 738) is an inquiry regarding antityphoid vaccine in children.

In a circular of instructions, issued for the guidance of Army surgeons, occurs the following reference to the subject: "This prophylaxis is borne well by children and by women, using doses proportionate to the body weight, taking 150 pounds as the unit. Women should not be given the first dose during or near the time of the menstrual period."

We have vaccinated many children, some hundreds, using doses proportioned to the body weight, and find that they have very mild reactions, seldom enough to interfere with their play, and the protection given against infection has been absolute so far as I know.

F. F. RUSSELL, Medical Corps, U. S. Army, Washington, D. C.

Miscellany

Abnormalities of the Testicles.—An imposing monograph on this subject by R. Hofstätter fills the 155 pages of the last *Klinisches Jahrbuch*, xxvi, No. 2. It presents the experiences at the surgical clinic at Vienna, in charge of von Eiselsberg, and reviews the literature, citing 912 articles, with summaries of such of the ninety-five personal cases as are specially mentioned in the general discussion of incompletely descended or misplaced testicles requiring operative measures. Hofstätter noted a familial tendency in a number of cases, but malignant disease of an undescended testicle was encountered in only four. He remarks that no case is known of permanent cure of cancer of an undescended testicle; local recurrence after removal is almost certain. Szymanowski, who had made a special study of retained testicle and who had published several communications on the subject, succumbed himself to multiple metastasis after removal of a cancerous testicle retained in the inguinal region. Irritation from a truss seemed a contributing factor in one of Hofstätter's cases; a double truss had been worn for years and caused much discomfort, sarcoma finally developing. The preferable technique for correcting the various abnormalities is discussed and compared with the final outcome in the experience at the clinic. The ultimate outcome, ascertained in seventy-two of the cases, confirms anew the advantages of restricting operative measures to what is actually indispensable and simplest. When the patient has other anatomic abnormalities, the ultimate result of operative measures is very uncertain. Orchidopexy is promising only under the age of 14 and with favorable conditions; medical massage a few weeks before and after orchidopexy seems to be a valuable adjuvant. Removing the testicle to an intra-abdominal, preperitoneal position is advocated as the best treatment when orchidopexy is not possible, unless the testicle is too much injured, in which case it had better be excised. When the testicle is inside the abdomen, it can be left unmolested.

Work as a Factor in the Cure of Tuberculosis.—Bämmler contributes an article on this subject to the *Zeitschrift für Tuberkulose*, 1912, v. 521. He emphasizes the fact that some occupation is an important factor in the treatment and management of tuberculosis. He says that patients should not be allowed to go from a prolonged rest in a sanatorium directly to resume their former occupation. They should be gradually accustomed to resume work, being given some occupation with gradually increasing demands under the supervision of a physician while still in the sanatorium. Individual care

should be given each patient; otherwise the more energetic will overwork and do themselves more harm than good, while others will fear the effect of any work and shrink from it. Accurate observations must be made as to the effect of definite amounts of work on the temperature, pulse, respiration and physical findings in the lungs. The kind and the amount of work should be adapted to each patient. At the Frimley sanatorium near London the women patients do housework and light work in the garden and poultry yards. For the men there are all sorts of outdoor work ranging from the making of mats, brooms, etc., for the weakest, to the digging of drains and laying of water pipe. They mow the grass, saw wood, cultivate the ground and sow seed. Those going out to a certain employment work at that for three weeks before their discharge. Six years of experience have demonstrated that only about 20 per cent. of the patients can do the heavier kinds of work. In the King Edward VII. Sanatorium 75 per cent. of the patients with beginning tuberculosis do some kind of work; 50 per cent. in the moderately advanced cases, and 21 per cent. in the advanced cases. Reexamination of the patients two years after their discharge from the sanatorium showed 76 per cent. of the patients still living in the first group; 71 per cent. in the second, and 35 per cent. in the third.

Keeping in Touch.—Some members of the dental profession in Muskogee, Okla., placed an announcement in the local papers stating that they would be absent from their offices on certain dates while in attendance on the meeting of their state association. The *Journal of the Oklahoma State Medical Association* uses this as a text for some comments on the duty of the medical as well as the dental profession to keep in touch with the progress in their respective lines by attending meetings of their organizations, all of which we heartily endorse. The *Journal* says: "These are all busy men and their work keeps them closely confined at home and the fact that they deliberately close up shop for the purpose of attending a dental meeting indicates that they know the value of such meetings. We hear so much of the man who is detained at home at the time of the annual meeting by some trivial case, often detained not by the case but by the hope of getting him, that he is becoming tiresome; we also have the man who year after year climbs into the program column yet never delivers himself of the promised paper. Society attendance should be one of the sacred duties and also a pleasure of every member; it is true there are times when it seems impossible to make the necessary arrangements to attend, but usually the greater number of members can arrange some way to be present a part of the time at least. Meeting your coworkers in the profession and exchanging ideas is stimulating to better work and increased endeavor, and you can all make this year an exception; if you are not in the habit of attending, be with us; you will be the gainer by doing so."

Auto-Vaccines in Treatment of Cancer.—Blumenthal reports encouraging results from his and Lewin's experimental work in this line, in the *Zeitschrift für Krebsforschung*, 1912, xi, 427. He states that the sarcomas in rats retrogressed after treatment with autolysates of their own tumors in 80 per cent., and a complete cure was realized in 35 per cent. With alien vaccines the proportions were only 35 and 10 per cent. Toluol as a preservative has the least destructive action on the effectual substances of the various chemicals tested, and the efficiency is retained better when the autolysate is kept in the incubator rather than on ice. Blumenthal says that nothing in his experience to date has proved so effectual as this method of treatment on the rat, a sarcoma the size of a duck egg seeming to melt away after a single subcutaneous injection of the autolysate. The tumors weighed up to 50 gm. on rats weighing 150 gm. By the end of a week or two they were reduced to a third of their original size after which they subsided more gradually. The tumor softens and is gradually absorbed or sloughs away. The best results in the clinic to date with auto-vaccines have been obtained with

sarcomas; Rovsing has reported three cured out of seven patients with inoperable sarcoma. Blumenthal keeps the emulsion of tumor substance in the incubator for three days to ensure autolysis. In none of his experiments has any tendency to a return of the tumor been observed. He has been working along these lines since 1902, his position as chief of the Berlin welfare station for cancer patients and suspects giving him exceptional opportunity for cancer research, and he thinks the time is ripe for the introduction of this autolysate method into the treatment of sarcomas. All who have tried the method in any way agree that it is absolutely harmless, he reiterates.

Sanitary Advice for Summer Tourist.—Typhoid fever is a disease which summer tourists frequently contract; therefore, it is always well to bear the avoidance of this disease in mind in choosing a summer residence. Typhoid fever is a disease of man. The germ which causes it leaves the body of the person sick with the disease in his discharges, and when these are taken by a well person a secondary case of the disease is caused. The germs of typhoid fever are carried from the sick to the well in water and food and by flies and the fingers. If one does not take into the system the discharges of another person having typhoid, he does not get typhoid fever. At the present time typhoid fever is essentially a disease of the country, because in the country the opportunities for the transference of the germs of the disease from the sick to the well are greater than they are in the city. Therefore, in the choice of a place to spend the summer one should inquire into the occurrence of typhoid fever in the community in which it is intended to stay, and one should determine the opportunities which exist there for the carrying of the germs of typhoid fever from the sick to the well visitor.—W. C. Rucker in *Pub. Health Reports*.

Bacteriology of Bathing-Pools.—Many investigations have recently been made concerning the infectiousness of bathing-pools following epidemics of skin disease or pink-eye which seem to have their origin in such pools. H. F. J. Porter, in the *Surrey*, July 27, gives a summary of the results of investigations of swimming-pools conducted at various places. He quotes Atkins, of the department of bacteriology, Chicago University, who tells of five epidemics following bathing in rivers or in pools filled from rivers where sewage contamination exists. He also reports that five pools whose water-supply was supposed to be clean were the source of cases of eye, ear, throat, intestinal and venereal diseases, including one epidemic of vulvovaginitis which spread among 236 girls using a school swimming-pool. Porter says that, as ordinarily conducted, swimming-pools are little better than cesspools, and clear themselves of bacteria largely on the septic tank-principle. Investigations of public pools at Hamburg and at Purdue, Brown, Chicago and Yale universities, as well as of New York public swimming-pools, show that the impurities are bacterial and chemical. Tests made of Hamburg pools showed fifty-seven microbes per cubic centimeter in water fresh from the tap. After seventy-four persons had bathed in the water it contained 1,800 bacteria per cubic centimeter; after 494 persons, 64,400; after 829 persons had bathed, only 154,000 microbes were found, which illustrates the septic tank principle, or the fact that the microorganisms had reached the maximum which the water could sustain. At Purdue University the water showed 930 microbes per cubic centimeter; after thirty swimmers, previously bathed with a soap shower, had entered the pool, the number increased to 109,200. Another pool first showed thirty-five bacteria, increased after bathing to 190,000 and then to 630,000. In this instance also, bathing was required before entering the pool. The condition of public bathing-pools which are largely used and infrequently emptied and cleaned may be imagined, and these pools are undoubtedly the source of much contagion. The hypochlorite method and the method by the electrolysis of salt have been used for purification in some of the New York pools and at Brown, Purdue and Yale universities and these methods have been found to sterilize the water to the extent of at least 99 per cent. of the bacteria.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, October 7-8. Sec., Dr. John Wix Thomas.
 COLORADO: Denver, October 1. Sec., Dr. David A. Strickler, 612 Empire Building.
 GEORGIA: Regular, Atlanta, October 8-10. Sec., Dr. C. T. Nolan. Marletta: Homeopathic, Atlanta, October 3. Sec., Dr. R. E. Hillman, 106½ Whitehall St., Atlanta.
 IDAHO: Idaho Falls, October 1-2. Sec., Dr. O. J. Allen, Bellevue.
 ILLINOIS: Coliseum Annex, Chicago, September 24-26. Sec., Dr. James A. Egan, Springfield.
 KANSAS: National Hotel, Topeka, October 8. Sec., Dr. H. A. Lykes, Lebanon.
 MICHIGAN: Capitol Bldg., Lansing, October 8-10. Sec., Dr. B. D. Harrison, 504 Washington Arcade, Detroit.
 MINNESOTA: State University, Minneapolis, October 1. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.
 MISSISSIPPI: Capitol, Jackson, October 22-23. Sec., Dr. W. W. Smithson.
 MISSOURI: Coates House, Kansas City, October 1-3. Sec., Dr. Frank B. Hiller, Jefferson City.
 MONTANA: The Capitol, Helena, October 1, 1912. Sec., Dr. William C. Riddell.
 NEW JERSEY: Capitol Bldg., Trenton, October 15-16. Sec., Dr. H. G. Norton.
 NEW MEXICO: Santa Fe, October 11. Sec., Dr. W. E. Kaser, East Las Vegas.
 OKLAHOMA: Muskogee, October 7-9. Sec., Dr. John W. Duke, Guthrie.
 RHODE ISLAND: State House, Providence, October 3. Sec., Dr. Gardner T. Swarts.
 UTAH: Salt Lake City, October 7-8. Sec., Dr. G. F. Harding, 310 Templeton Building.
 WYOMING: Riverton, October 9-11. Sec., Dr. A. B. Tonkin.

Higher Requirements in New York

As has already been stated,¹ to obtain a medical student's certificate, after Jan. 1, 1913, qualifying for admission to a medical school in New York State, the student must have completed a year's study in physics, biology and inorganic chemistry. A letter from Mr. Augustus S. Downing, First Assistant Commissioner of Education of New York, states that students will not be allowed to carry conditions in these subjects to be made up while they are studying medicine. He says this higher entrance requirement means, as one would infer, that on and after Jan. 1, 1917, all applicants for license to practice medicine in that state must have had at least an equivalent education—whether obtained in a medical college in New York or in another state—which must also have been completed prior to entering on medical study. Mr. Downing says it also means that in 1917 and thereafter New York cannot reciprocate with other states which do not maintain a similar standard.

Arkansas May Report

Dr. F. T. Murphy, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock, May 14-15, 1912. The number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 94 of whom 73 passed and 21 failed. Three candidates have been licensed through reciprocity since January, 1912. The following colleges were represented:

College	PASSED	Year Grad.	Per. Cent.
University of Arkansas, (1902) 75; (1912) 75, 75, 75, 75, 75.1, 76, 77.2, 77.2, 77.4, 77.7, 78.6, 79.4, 79.9, 80.6, 81, 81.2, 81.6, 81.9, 82.5, 82.6, 83.6, 83.7, 84.2, 84.6, 85.1, 85.2, 86.6, 86.6, 87.2, 87.9, 89.1, 90.3, 90.3, 90.6, 98.3.			
Bennett Medical College.....	(1886)		82.8
Chicago College of Medicine and Surgery.....	(1912)	82.8	83.4
Barnes Medical College.....	(1910)	77	75.7, 78.6
American Medical College.....	(1912)	79.2, 82.2	
Washington University, St. Louis.....	(1912)		91.6
St. Louis University.....	(1912)	89, 90.6	
Bellevue Hospital Medical College.....	(1895)		87.5
University of Pennsylvania.....	(1910)	80.6; (1911)	89.6
College of Physicians and Surgeons, Memphis.....	(1910)		84
University of Tennessee.....	(1912)		76.6
Memphis Hospital Medical College, (1884) 85.2; (1902) 75.9; (1912) 75.6, 76.3, 81.1, 81.7, 81.7, 82.2, 82.8, 83.8, 84.3, 84.6, 85.9, 88.3.			
McHARRY Medical College.....	(1912)	75, 79.1, 80.3,	83.6
Vanderbilt University, (1910) 80.6; (1911) 77.5; (1912)			83.3

FAILED

University of Arkansas, (1911) 71.4; (1912) 60.8, 65.3, 66.6, 67.6, 69.8, 71.2, 71.6, 71.6.
 College of Physicians and Surgeons, Little Rock... (1910) 49.8, 49.1
 Barnes Medical College..... (1909) 45.8
 St. Louis College of Physicians and Surgeons..... (1908) 73.1
 American Medical College..... (1912) 65.2
 McHARRY Medical College..... (1903) 64.5; (1912) 71.1, 71.7
 Vanderbilt University..... (1910) 73.8
 Memphis Hospital Medical College..... (1912) 67.8, 68.7, 71.2

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago....	(1903)	Illinois
College of Physicians and Surgeons, Baltimore....	(1893)	Texas
Croighton Medical College.....	(1907)	Nebraska

The following questions were asked:

ANATOMY

1. Name the bones of the face, describing the inferior maxillary. 2. Describe the shoulder-joint. 3. Describe the patella, giving muscular and tendinous attachments. 4. Give origin and insertion of trapezius muscle with nerve and blood-supply. 5. Name the parts severed in amputation of leg 4 inches below knee. 6. Give the anatomic divisions of the alimentary canal. 7. Give name and course of vein involved in varicose veins of leg. 8. Describe the circle of Willis. 9. Describe the rectum, giving nerve and blood-supply. 10. Give origin and distribution of pneumogastric nerve.

PHYSIOLOGY

1. Describe a red blood-corpuscle and tell of its functions. 2. Describe a white blood-corpuscle and tell of its functions. 3. Describe the fetal circulation. 4. Describe the circulation through the heart and lungs. 5. Describe a cross-section of the spinal cord in the mid-dorsal region. 6. Describe the fifth cranial nerve. 7. Describe the large intestine and tell of its functions. 8. Name all the known functions of the liver. 9. Describe the kidneys and tell of their functions. 10. Describe the skin and tell of its functions.

PATHOLOGY

1. Define gangrene and name varieties. 2. Describe briefly the changes which take place in atrophy and those which occur in degeneration. 3. What are usual methods of metastatic extension of sarcoma and carcinoma? 4. What conditions are most commonly accompanied with increased blood-pressure and what are the results if this increased pressure is maintained for a considerable time? 5. State briefly the pathologic changes found in pellagra. 6. State briefly the changes that take place in the entire organism as a result of chronic nephritis. 7. What are the principal parts involved in acute anterior poliomyelitis? 8. What are the more common pathologic conditions found in scarlet fever? 9. Give the pathology of chronic gastritis. 10. Give pathology of scorbutus.

THEORY AND PRACTICE OF MEDICINE

1. What complication is likely to appear in the last part of the second week and all of the third week of typhoid fever? 2. Give (a) physical signs of pneumonia; (b) treatment for first stage of lobar pneumonia. 3. (a) At what age do patients usually suffer from catarrhal stomatitis? (b) Give treatment. 4. Give etiology and treatment of acute gonorrhea. 5. Give cause and treatment of epidemic cerebrospinal meningitis, carefully giving detailed technic of treatment. 6. Outline the normal liver dulness. 7. Give diagnosis and treatment of measles. 8. (a) Give the causes of malaria. (b) Name two forms of malarial fever and give the varieties of organisms found in each form. (c) Give treatment for estivo-autumnal form of malarial fever. 9. Give causes, diagnosis and treatment of rickets. 10. What would you do for pulmonary hemorrhage occurring in the course of tuberculosis?

SURGERY

1. What are the causes of ptosis and the remedial measures employed? 2. Give the indication and technic of operation for ligation of common carotid artery. 3. What surgical landmarks of the elbow-joint would aid you by their position in diagnosis between a fracture of the upper end of the radius and a posterior dislocation of the ulna? 4. Describe in detail the operation of lumbar puncture. What are the indications for this operation? 5. Describe amputation at the hip-joint. Give the method of inserting Wyeth's pins. 6. Give etiology, symptoms and treatment of psoas abscess. 7. Describe the following tumors: keloid, papilloma and epithelioma. 8. Define coxa vara; give causes and symptoms. 9. Give indications and contraindications for salvarsan (606) in treatment of syphilis. Technic of your method of administration. 10. Why do foreign substances such as bullets, splinters, pieces of glass, etc., cause suppuration when embedded in tissues?

CHEMISTRY

1. Give names and symbols of elements in halogen group, stating why so called. 2. Name three alkaloids of opium most used in medicine, giving dose of each. 3. Give test for strychnin and treatment for an overdose. 4. How is potassium iodide made? Give formula. 5. Give chemical formula of lunar caustic, naming antidote. 6. Give chemical composition of urine, stating normal amount of urea excreted in twenty-four hours. 7. What are the enzymes? Give their functions. 8. What are proteids and from what are they derived? 9. What is pyroxiolin and how produced? 10. Complete the following formula: NaNO_3 plus H_2SO_4 = ?

BACTERIOLOGY

1. Give the morphology of bacteria. 2. State briefly a method for obtaining a pure culture. 3. What is the difference between active and passive immunity? Give example of each. 4. What are the protective agencies by which the body protects itself against the harmful effects of pathogenic bacteria? 5. What is the difference between an antitoxin and a bacterial vaccine? 6. What are opsonins and what do you understand by the opsonic index? 7. Describe the *Bacillus typhosus* and state briefly how you would differentiate it from the *Bacillus coli communis*. 8. Describe in detail the process of finding tubercle bacilli in urine. 9. In what disease may the pneumococcus be the etiologic factor? 10. Differentiate between the gonococcus and the *Diplococcus intracellularis meningitidis*.

1. THE JOURNAL A. M. A., Sept. 7, 1912, p. 811.

OBSTETRICS

1. How would you determine the death of a fetus *in utero*? 2. Define abortion, miscarriage, premature labor. 3. Name possible sources of puerperal hemorrhages and treatment of each. 4. Define menstruation; age at which it appears; the name given to this period of woman's life; the age at which it ceases. 5. Give the normal duration of pregnancy. Give limit of duration from a medicolegal standpoint. 6. How frequently must you examine the urine during pregnancy? To what particular normal or abnormal constituents would you pay attention in this urinary examination? In the presence of general edema with albumin and casts in urine, which increased in spite of proper treatment, what symptom would lead you to bring on artificial labor? 7. What would lead you to suspect extra-uterine pregnancy? 8. How would you determine that a dead infant had been born alive? 9. In breech presentations describe the different methods of delivering the after-coming head. 10. What are the dangers of traction on the child and placenta?

GYNECOLOGY

1. Give the most common causes of sterility in the female. 2. Name the dangers of the use of the uterine sound. 3. Differentiate subinvolution, rectocele, pyosalpinx, cervicitis, metritis, vaginismus. 4. Describe the technic of catheterization. 5. How would you determine whether cancer of cervix is operable or not? 6. What may be revealed by digital vaginal examination? 7. Differential diagnosis of appendicitis and right tubo-ovarian disease? 8. Give symptoms of acute pelvic peritonitis? 9. Give diagnosis symptoms of carcinoma of the breast. 10. Mention three pathologic types of endometritis.

MATERIA MEDICA

1. Define an aperient and give an example. 2. Define a vascular contractor and state uses. 3. Define a vascular dilator and state what drug you consider the most valuable as such. 4. Define a solvent and excipient and give an example of each. 5. What is meant by the physiologic effect of a drug. 6. Name and give dose of the most powerful hydragogue cathartic. 7. Name the three most-used preparations of opium, and state how much of each represents 1 grain of opium. 8. Give primary and secondary effects of carbolic acid when locally applied. 9. What change takes place in morphin after having been kept for some time in solution? 10. Name the principal remedy used to promote the absorption of morbid products.

THERAPEUTICS

1. Differentiate between materia medica and therapeutics. 2. Differentiate between empirical and rational therapeutics. 3. What is meant by suggestive therapeutics? 4. Name a remedy that is especially indicated in the stage of resolution of pneumonia. 5. Name objective and subjective symptoms of phenol poisoning. 6. How would you treat such a case? 7. Name an antidote for each of the following, and state whether this is physiologic or chemical: arsenic, opium, copper and strychnin. 8. What therapeutic agent liberates formaldehyd in the urine? State in what class of cases it is indicated? 9. In case of sudden collapse, name the quickest and most efficient remedy, and give its mode of administration. 10. Describe the technic in the administration of antimeningitis serum.

HYGIENE

1. Describe a thoroughly safe method of disposing of sewage in the absence of water-works. 2. Name the diseases carried by infected water. 3. Define epidemic, endemic and pandemic diseases. 4. What precautions should every consumptive take to prevent spreading the infection? 5. What are the practical necessities of pure food and drug laws? 6. What are the effects of chronic alcoholism? 7. Give full directions for nursing a case of typhoid fever to prevent its extension. 8. Define disinfectant; germicide. 9. Give full directions for ventilating an ordinary bed-room. 10. What is the most common cause of blindness in young children, and how is it to be prevented?

Illinois June Report

Dr. James A. Egan, secretary of the Illinois State Board of Health, reports the written examination held at Springfield, June 13-15, 1912. The number of subjects examined was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 212, of whom 158 passed and 51 failed. Three candidates did not complete the examination. The following colleges were represented:

PASSED

College	Year	Total No.
	Grad.	Examined.
Bennett Medical College.....	(1911, 1) (1912, 3)	4
Chicago College of Medicine and Surgery.....	(1912)	33
Hahnemann Medical College and Hospital, Chicago.....	(1912)	10
Hering Medical College.....	(1912)	1
Northwestern University Medical School. (1911, 1)		
	(1912, 41)	42
Rush Medical College.....	(1912)	13
College of Physicians and Surgeons, Chicago.....	(1911, 1) (1912, 36)	37
Kentucky School of Medicine.....	(1903)	1
University of Michigan, Dept. of Med. and Surg., (1912)		1
American Medical College.....	(1912)	2
St. Louis University.....	(1912)	7
Washington University, St. Louis.....	(1912)	5
Vanderbilt University.....	(1912)	1
Milwaukee Medical College.....	(1912)	1

FAILED

Bennett Medical College.....	(1912)	1
Chicago College of Medicine and Surgery.....	(1912)	2
College of Medicine and Surgery, Physio-medical, (1908, 1) (1909, 1)		2
Hahnemann Medical College and Hospital, Chicago, (1912)		8
Hering Medical College, Chicago.....	(1912)	1

National Medical University, Chicago.....	(1910)	1
Northwestern University Medical School.....	(1912)	2
Reliance Medical College.....	(1911)	1
Rush Medical College.....	(1912)	1
College of Physicians and Surgeons, Chicago, (1911, 2) (1912, 10)		12
University of Louisville.....	(1912)	2
American Medical College.....	(1912)	8
Barnes Medical College, (1906, 1) (1910, 1) (1911, 1)		3
St. Louis College of Physicians and Surgeons, (1910)		1
St. Louis University.....	(1912)	2
Meharry Medical College.....	(1908)	1
Milwaukee Medical College.....	(1912)	2
Queen's University, Ontario.....	(1912)	1

Book Notices

TUMORS OF THE JAWS. By Charles Locke Seudder, M.D., Surgeon to the Massachusetts General Hospital. Cloth. Price, \$6 net. Pp. 391, with 353 illustrations. Philadelphia: W. B. Saunders Company, 1912.

While the author has made use of all available general medical literature in the study of this subject, the basis for the monograph is a study of the clinical material at the Massachusetts General Hospital. When it is remembered that tumors of the jaw are not so very frequent, the material at the author's disposal is sufficient to be of considerable value. One of the chief merits of the work is the clear and concise manner in which the author has recorded the facts. The case histories are brief but ample for the purpose. One cannot read the case histories and note the illustrations without being struck by the great frequency with which procrastination has led to the destruction of the patient. Tumors are allowed to grow for months and even years until they produce the most hideous deformities of the jaw and face and become inoperable, or if operable leave a condition after the operation almost worse than death. How long is it going to take the people and particularly the profession, which after all is largely to blame, to learn that there are no good tumors and that all tumors are pathologic and should be removed as soon as possible? If those who read this excellent little volume—and the number should be many—could only learn this simple lesson from it the author might well feel repaid for his efforts.

THE TREATMENT OF SHORTSIGHT. By Prof. Dr. J. Hirschberg, Geh. Med. Rat in Berlin. Translated by G. Lindsay Johnson, M.D., F.R.C.S. Cloth. Price, \$1.25. Pp. 123, with 12 illustrations. New York: Rebman Company, 1912.

This is a translation of a lecture on myopia by Professor Hirschberg. It contains a multitude of interesting facts largely based on the experience of the author, and will be read with interest by all ophthalmologists. As a guide to the treatment of myopia, however, it will not be seriously considered by the large majority of Americans. We are not able to make satisfactory studies of our cases without mydriasis. We have learned that astigmatism is an important factor in the production of myopia, and that it cannot be accurately corrected, even in myopes, without complete cycloplegia. If one had not seen the refraction work of the great German clinics, the following statement (p. 17) would seem almost unbelievable: "In the first place the amount of myopia, especially in young subjects, can easily be overestimated. The exact objective measurement by means of the ophthalmoscope, which is the best method to begin the examination with, ought entirely to prevent this error. In the same way the determination of the astigmatism can be made at the same time by this means."

The following quotation discloses a practice entirely at variance with our experience and seems equally archaic (p. 20): "In medium degrees of myopia (from 3.5 to 6 D) entirely or nearly corrected glasses are only to be used for distance purposes, while for near work weak glasses or none at all should be given. Occasionally Franklin's or other bifocal glasses may be prescribed. In the higher grades of myopia (6 D and upward) two separate pairs of glasses should invariably be given, one pair for distance, and another weaker pair for near work. The last should possess about half the power of the former, or a little over."

In this country it is our custom, and has been for many years, to make our patients as nearly emmetropic as possible. We have made no exception of the high myope, and have found that by accurately correcting his astigmatism, and not overcorrecting his myopia, we have made him comfortable. We feel confident that those who have had Hirschberg's experience in the full correction of myopia have ignored astigmatism, overcorrected the myopia, and given too little consideration to the muscle balance.

We are much disappointed to find no reference to American literature.

GASTROSCOPY. With a Description of a New, Easy and Efficient Method of Esophagogastroscope, Combining Direct and Indirect Vision, and a Plea for Its Employment by Gastric Experts. By William Hill, B.Sc., M.D., Surgeon for Diseases of the Throat, Nose and Ear, St. Mary's Hospital, London. Cloth. Price, 3 shillings, 6 pence net. Pp. 46, with 47 illustrations. London: John Bale, Sons & Danielson, 1912.

Hill has written a monograph on gastroscopy and esophagoscopy in which he recommends strongly the combination of direct and indirect or periscopic vision in gastric work. His latest apparatus consists of a Killian esophagogastroscope which he has modified so that it can be inflated, and a Heymann indirect periscopic tube, 9 mm. in diameter and 70 cm. in length, which is passed through the Killian tube. He advises in addition that the operator have at hand, as a matter of convenience, two outer tubes both 60 cm. in length, one being oval in section, with diameters of 13 and 15 mm. and the other a thicker one, circular in section, with a diameter of 16 mm. The new principles involved in the procedure are the direct esophagogastroscope under inflation and the combination of direct and indirect vision methods by passing the indirect vision periscope through the esophagogastroscope. General information as to the position of the patient, anesthesia, etc., is given, and considerable space is devoted to the appearance of the gastric walls in various diseased conditions. The work is well illustrated and a complete bibliography of gastroscopy is appended.

GNOCOCOCCAL INFECTION. By Major C. E. Pollock, Royal Army Medical Corps, and Major L. W. Harrison, Royal Army Medical Corps. Cloth. Price, \$2. Pp. 222. London: Henry Frowde, 1912.

This book covers the main features of our present clinical knowledge of gonococcal infections. The authors discuss the older-established methods of treatment and the recent developments in our knowledge of gonococcal immunity.

The characteristics of the gonococcus and the pathologic changes which it causes in the body tissues are taken up. Methods of treatment are outlined in a practical way, each being fully described and its therapeutic value discussed. The specific treatment by vaccines is advised especially for the prevention or cure of complications. There is a full explanation of the primary anatomic lesions and complications by extension and general infection. They are separately and fully discussed, with suggested treatment in each instance.

The book is designed for the practitioner who wishes a general up-to-date knowledge of the infections by the gonococcus. The thorough discussion of treatment is perhaps the most prominent feature.

KLINISCHE BACTERIOLOGIE UND PROTOZOENKUNDE. Von Dr. Julius Hiron, Assistenten der Medizinischen Klinik der Universität Berlin. Volume V. Paper. Price, 6.40 marks. Pp. 172, with 65 illustrations. Leipzig: Werner Klinkhardt, 1912.

The work is a brief, concise, yet comprehensive treatise on pathogenic bacteriology, written with special emphasis on the practical side of the subject as seen in the large medical clinics of the University of Berlin. The author gives importance to points which pertain to diagnosis, and describes in detail such technical methods as are of practical value. Questions of a purely scientific nature and methods which have no clinical usefulness are given little attention. The work is fully illustrated and contains a number of colored plates in which much care and pains have been used to reproduce faithfully minute details of form and color. The last four chapters are devoted to a consideration of the pathogenic organisms of higher order, including amebas, plasmodia, spirochetes, trypanosomes and other protozoa. The work can be heartily recommended as a practical handbook of clinical bacteriology.

Society Proceedings

COMING MEETINGS

Amer. Assn. for Study, etc., of Infant Mortality, Cleveland, Oct. 2-5.
American Association of Railway Surgeons, Chicago, Oct. 16-18.
Assn. of Military Surgeons of the United States, Baltimore, Oct. 1-4.
Clinical Cong. of Surgeons of North America, New York, Nov. 11-16.
Colorado State Medical Society, Pueblo, Sept. 24-26.
Delaware State Medical Society, Wilmington, Oct. 8.
Indiana State Medical Association, Indianapolis, Oct. 9-11.
Internat. Congress on Hygiene, etc., Washington, D. C., Sept. 23-28.
Kentucky State Medical Association, Louisville, Oct. 29-31.
Medical Association of the Southwest, Hot Springs, Ark., Oct. 8-10.
Mississippi Valley Medical Association, Chicago, Oct. 22-24.
National Association for Study of Pellagra, Columbus, S. C., Oct. 3-4.
Nevada State Medical Association, Reno, Oct. 8-10.
Pennsylvania State Medical Society, Scranton, Sept. 23-26.
Southern Medical Association, Jacksonville, Fla., Nov. 12-14.
Utah State Medical Association, Ogden, Sept. 24-25.
Vermont State Medical Society, Montpelier, Oct. 10-11.
Virginia Medical Society, Norfolk, Oct. 22-25.

Medicolegal

Liability of Manufacturers for Ptomain Poisoning

(*Roberts vs. Anheuser-Busch Brewing Association (Mass.)*, 98 N. E. R. 95)

The Supreme Judicial Court of Massachusetts holds that this case, brought to recover damages for alleged ptomain poisoning from a bottle of Malt Nutrine, whereby the plaintiff's wife was made ill and his young son died, should have been submitted to the jury, instead of a verdict being directed for the defendant. The form of action was what is called in tort, or for a non-contract liability; and not for a breach of warranty. As there was no contractual relation between the plaintiff and the defendant, the Malt Nutrine having been purchased from a druggist, the action against the defendant could not be maintained on the ground that there was any warranty by the defendant of the good qualities of its mixture. There cannot be a warranty where there is no privity of contract.

There was evidence that the defendant had by advertisements represented that its mixture was healthful, free from all injurious substances, beneficial to women and children and to those needing strength and nourishment, and that it was compounded with great care. These representations could be found to have been made as of the defendant's own knowledge. It could be found that the plaintiff had seen some of these advertisements, and the court cannot say that the jury might not have found that his purchase of a bottle of the mixture was on the faith of and in reliance on these representations. There was also evidence, although meager, tending to show that this bottle had been put on the market by the defendant and had come from it through a wholesale dealer to the druggist who sold it to the plaintiff. It also could be found that the sickness of the plaintiff's wife and child was due to ptomain poisoning, caused by the contents of this bottle, though as to the last point it was true that the evidence was but meager. Still it was for the jury to pass on. If this sickness was due to ptomain poisons contained in a bottle which had come from the defendant, there was evidence of the falsity of its representations.

If these facts were found in accordance with the plaintiff's contention, there might have been a verdict in his favor. If the defendant made such representations as of its own knowledge, and put its mixture on the market to come through wholesale and retail dealers to the ultimate consumers, who in reliance on such representations bought and drank the mixture in the manner intended by the defendant, these representations must be regarded as continuous, intended to be accepted and relied on by all who finally should purchase the article for their own consumption. This rule often has been declared.

It was claimed that these representations should not be given an indefinite continuance, and that this bottle either

was or might have been so long out of the possession of the defendant that its representations ought to have been regarded as no longer in force when the plaintiff made his purchase. There may be a lapse of time after which this fairly could be maintained; but it cannot be held as matter of law that such was the case here. The bottle was corked with a stopple which had to be pulled out by the plaintiff after the seal over it had been removed by his wife. This would indicate that any outside contamination had been guarded against, and might tend to relieve a purchaser from any fear of such contamination. This contention presented only a question of fact.

Death From Traumatic Erysipelas

(*Caldwell vs. Iowa State Traveling Men's Association (Ia.)*, 136 N. W. R. 678)

The Supreme Court of Iowa affirms a judgment for \$5,000 accident insurance, holding that the death of the assured was caused solely by external, violent and accidental means, where the immediate cause of his death was erysipelas, and the beneficiary contended that the assured received a slight accidental injury on his cheek, causing a slight abrasion of the skin, which resulted in traumatic erysipelas. The attending physician testified to the discovery of the abrasion of the skin. He also testified that in his opinion the disease from which the assured died was wholly infectious, and could not have resulted, except through infection of some wound or abrasion of the skin; that it made its first appearance at the edges of the alleged wound, and that in his opinion it resulted solely from the infection of such wound. This testimony was corroborated by other medical testimony. The court holds that this evidence was sufficient to sustain a finding that the death of the assured was the proximate result of the wound or abrasion referred to. It also holds that the appearance of the wound would clearly support the finding that the cause of the wound was violent and external, while it has been repeatedly held that, in the absence of direct evidence on the subject, a presumption arises that the wound was not intentionally inflicted either by the assured or by another. This presumption is almost the equivalent of a presumption that the wound was inflicted through accidental means, although the authorities stop short of announcing the presumption in this latter form, but simply hold that the presumption first stated is available to the plaintiff as affirmative evidence, and that an inference may be drawn therefrom by the triers of fact that the wound was caused by accidental means as the only other alternative.

in seventy-five of seventy-eight active cases. The other three cases were typical clinically, one patient passed out of observation and the other two died, autopsies not being obtainable. Organisms were recovered from the blood of seventy-three of the seventy-five cultured cases. In seventy-one cases the cocci characteristic of the disease were obtained, and in four the influenza bacillus. The symptoms and lesions found in the latter group were practically the same as those found in the former, except that thus far the glomerular lesions in the coccus cases have not been discovered in the kidneys of the influenzal cases that have come to post mortem examination. There were two supposedly active cases in which the blood-cultures were negative. Besides the seventy-seven active cases, Libman has observed eleven cases which he believes belong in the group of subacute bacterial endocarditis, but in which the lesions were found free from pathogenic bacteria. In ten of the cases blood-cultures were made during life (in a few anaerobically), and no bacteria were found. In one case as many as nine cultures were made during a period of ten months, all with negative results.

A study of frequency of involvement of the valves, the left auricle and the chordæ in the hearts from thirty-four cases of the disease in which the blood-cultures were positive during life was made with the following results:

Auricle, mitral valve, and chordæ.....	17 cases
Auricle, mitral valve, chordæ, and aortic valve.....	5 cases
Auricle and mitral valve.....	2 cases
Mitral valve and chordæ.....	1 case
Aortic valve only.....	3 cases
Aortic valve, chordæ, and aortic flap of mitral.....	4 cases
Mitral valve, chordæ, and aortic valve.....	1 case
Auricle, mitral and aortic valves.....	1 case
Total	34 cases

The auricle was involved twenty-five times, the mitral valve twenty-seven times, the chordæ twenty-eight times, and the aortic valve nine times. These eleven cases, Libman believes, are cases in which patients who had a subacute bacterial endocarditis overcame the infecting agent without their having been seen at a time when the infection was still active. In one, poorly staining cocci were still seen in small numbers in part of the lesions. In seven of the cases the mitral valve was involved in a way seen practically only in subacute bacterial endocarditis. In the remaining three cases only the aortic valve was involved and in it large calcareous lesions were found. In all of these he has the proof afforded by the presence of the glomerular lesions that they were almost surely the result of infections by the endocarditis coccus.

2. Glomerular Lesions of Subacute Bacterial Endocarditis.—

In the kidneys of nearly all individuals dying during the course of subacute bacterial endocarditis, Baehr says, there exists a pathologic lesion which affects one or more loops of a variable proportion of the glomeruli. The number of involved loops of a glomerular tuft varies in the different diseased Malpighian bodies. Furthermore, there is a great variation in the relative number of glomeruli involved in different parts of the kidneys. The uninvolved loops of involved glomeruli show no changes. The very earliest stage of the process appears to consist of a swelling of the glomerular epithelium in the involved loops. This may be situated at any portion of the glomerular tuft. If the lesion is large, a segment of the glomerulus, or even the entire Malpighian body, may be involved by the process. At first the outlines of the swollen epithelial cells in the diseased segment can be made out. Subsequently they are lost and the entire structure is fused into a homogeneous, finely granular material. In this mass some of the nuclei are fading or undergoing karyorrhexis, although a few may still remain fairly well preserved. If the deep staining, finely granular mass is situated at the periphery of the glomerulus, the epithelium of the visceral layer of Bowman's capsule over the involved part is usually found to be swollen, proliferating and desquamating into the capsular space.

When the mass with its overlying epithelium comes into contact with the parietal layer of Bowman's capsule, the latter then probably also takes a share in the desquamation,

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

September, CXLIV, No. 3, pp. 313-468

- 1 *Endocardial Lesions of Subacute Bacterial Endocarditis. E. Libman, New York.
- 2 *Glomerular Lesions of Subacute Bacterial Endocarditis. G. Baehr, New York.
- 3 Relation of Hypertension to Urinary Excretion. C. H. Lawrence, Boston.
- 4 *Brain Lesions Produced by Electricity as Observed After Legal Electrocutation. E. A. Spitzka and H. E. Radasch, Philadelphia.
- 5 Hospitals and Typhoid Carriers. J. W. Brannan, New York.
- 6 *Therapeutic Use of Vaccines in Typhoid. J. G. Callison, New York.
- 7 Stenosis of Duodenum: Statistical Study With Report of New Case. J. M. Anders, Philadelphia.
- 8 *Complement-Fixation Test in Differential Diagnosis of Acute and Chronic Gonococcal Arthritis. H. J. Schwartz, New York.
- 9 Critical Commentary on Free Eye Infirmary, With Suggestions as to Reforms in Ophthalmic Hospitals, Dispensaries and Schools. H. V. Würdemann, Seattle, Wash.
- 10 Treatment of Locomotor Ataxia. E. L. Hunt, New York.
- 11 *Tuberculin Therapy in Surgical Tuberculosis. T. W. Hastings, New York.

1. Endocardial Lesions of Subacute Bacterial Endocarditis.

Eighty-nine cases of subacute bacterial endocarditis have been studied carefully by Libman. Blood-cultures were made

and perhaps in the proliferation. Eventually this epithelium undergoes necrosis, as did the previously swollen epithelium of the involved loops of the glomerulus. It also becomes part of the homogeneous, finely granular mass which now fuses with the parietal layer of Bowman's capsule. At this stage, the mass may become flattened out over the area of fusion with Bowman's capsule in a crescentic fashion. The homogeneous cellular material is seen to be traversed by a very delicate network. Eventually the entire mass becomes thoroughly organized.

The healed stage of the lesion presents the following picture: A hyaline mass having roughly the shape of a truncated pyramid; its base fused with the adjacent interstitial tissue; its mesial aspect adherent to the remainder of the glomerulus; its sides clothed by a reflection from the adjacent epithelium of Bowman's capsule. The typical lesions were found in twenty-three of the twenty-five cases due to the endocarditis coccus. In two cases, one of which was due to the influenza bacillus and one to the gonococcus, the lesions were not found. The percentage of glomeruli involved varied from 2 to 75 per cent. in various cases.

4. Brain Lesions Produced by Electricity.—Investigations by Spitzka and Radach on the brains of five criminals executed by electricity revealed at all levels peculiar areas, varying in size and number. These areas are circular in outline, ranging in diameter from 25 to 300 microns. The most marked areas measure from 150 to 200 microns. They are seen to consist of two portions, a central rarified part and a peripheral condensed zone. The most characteristic areas contain a blood-vessel (capillary or precapillary), surrounded by a delicate small-meshed reticulum representing the central four-fifths of the area. The fibrils of the reticulum are, in the main, radially directed, and nuclei are sometimes observed along this course. The peripheral zone surrounding the central portion in a ring-like manner appears to be condensed, staining more deeply than the surrounding unaffected tissue, and is sometimes seen to be composed of circularly arranged strata, which are usually free from nuclei. The head-like arrangement of the lesions along the blood-vessels, the condensation zone limiting each lesion and the radially disposed fibers and torn tissue would seem to indicate a sudden liberation of the bubbles of gas due to the electrolytic properties of the current as it seeks the paths of the least resistance along the vessels. The maximum number of lesions are found in the most constricted parts of the brain stem in the path of the current, and are most numerous along the longitudinal fiber tracts and blood-vessels.

6. Use of Vaccines in Typhoid. Thirty-eight patients with typhoid have been treated with vaccines by Callison. In these thirty-eight cases there have been five deaths and one relapse, with an unusual absence of complications. The causes of death were a femoral phlebitis and its sequelae, a double lobar pneumonia, a meningococcus septicemia, a ruptured spleen and asthenia. The dosage Callison has been using in this series of cases was an initial injection of 500,000,000, repeated at four-day intervals as long as required, and increasing the dose 100,000,000 at each subsequent injection. He has continued using a stock vaccine, as it causes less local reaction and is less toxic than an autogenous vaccine. It is as efficient a producer of bactericidal substances (opsonins and bacteriolysins) as the more recently isolated strains, and has fewer undesirable side actions.

8. Fixation in Gonococcic Arthritis.—In Schwartz's opinion a positive complement-fixation test is an absolute indication of gonococcic infection somewhere in the body. A positive reaction should not be expected earlier than about the beginning of the fourth week from the onset of the infection. A positive reaction is obtained in a certain number of cases of gonorrhea where bacteriologic examination fails. This is especially the case in women. A negative reaction does not exclude gonococcic infection, but is to be given some weight on account of the reasons detailed earlier. It is to be remembered that gonorrhea is a common affection in both sexes. This fact should not be lost sight of in interpreting a positive result in connection with any given case of arthritis. A

person may suffer from two infections: for example, acute rheumatic fever and gonorrhea, as shown in Schwartz's records. Interpreted, however, in the light of the clinical history and clinical findings it seems to Schwartz that the complement-fixation test should prove an addition to our means of diagnosis between gonococcus arthritis and other form of arthritis of obscure etiology.

11. Tuberculin Therapy in Surgical Tuberculosis.—From the nature of the process of active immunization, Hastings says, one should expect the results with tuberculin in surgical tuberculosis to be much the same with all anatomic types, and such is the fact. The one modifying factor, aside from that of the individual's response, is that of secondary infection, and one may state that "closed" cases, in the sense of Petruschky, do well; and often cases vary according to the summation of toxic effects from the tubercle bacillus and the secondary invaders. In surgical conditions the secondary invader is not so to be feared as in the pulmonary and pleural conditions, and the secondary invasions in surgical conditions always call for some other than tuberculin treatment. Hastings believes that in Koch's tuberculin we have a valuable agent for treating incipient tuberculosis; and until specific therapy has been tried one should never despair of a seemingly hopeless case.

American Journal of Public Health, New York

August, II, No. 8, pp. 591-662

- 12 Municipal Disinfection in New York City as Recently Reorganized. M. C. Schroeder, New York.
- 13 Device for Keeping Garbage Cans in Place. M. E. Connor, Ancon, C. Z.
- 14 Tuberculosis and Quarantine. A. G. Dominguez, Havana, Cuba.

Cleveland Medical Journal

August, XI, No. 8, pp. 551-630

- 15 Undescended Testicle. V. C. Rowland, Cleveland.
- 16 Visit to Some Hospitals of Italy. S. W. Kelley, Cleveland.
- 17 Work of Division of Tuberculosis of Cleveland Health Department. R. H. Bishop, Cleveland.
- 18 *Oral Sepsis With Special Reference to Antiseptic Properties of Tobacco. W. D. Fullerton, Cleveland.

18. Oral Sepsis.—Fullerton says that the smoking or chewing of tobacco, the former more so than the latter, is decidedly germicidal in laboratory experiments, though the results of examinations of a small number of months would seem to give the use of tobacco somewhat less, though noticeable, effects practically; by exercise of the teeth it helps their nutrition and eliminates pathologic organisms, both by destroying them *in situ* and by removing them in the expectoration. Of seventy-four males examined, twenty-three, or 31 per cent., did not use tobacco in any form; twenty-six, or 35 per cent., smoked only; nine, or 12 per cent., chewed only; sixteen, or 22 per cent., both smoked and chewed. Of this number only twenty-three, or 31 per cent., took any care of their teeth. Of those who brushed their teeth, 43 per cent. showed a gingivitis marginalis as compared with 82 per cent. who took no care of their teeth. Of those who did not use tobacco, 74 per cent. showed pus under their gums, as did 69 per cent. who smoked, 77 per cent. who chewed and 68 per cent. who smoked and chewed. Fullerton says that these results, though bearing out in the most part that tobacco is toxic to bacteria, are not nearly so striking as one might expect, and one might with considerable certainty argue that, with the same individuals and the same lack of care, the conditions might be much worse without the use of tobacco. Of twenty-two women, none of whom used tobacco, twenty, or 90 per cent., brushed their teeth, 50 per cent. showing a gingivitis.

Mississippi Medical Monthly, Vicksburg

September, XVII, No. 5, pp. 89-110

- 19 Salvarsan: Its Administration. D. C. La Verne, Senatobia.
- 20 Some Puzzling Thoracic Symptoms in Acute Malaria. S. W. Glass, Dublin.
- 21 Cerebrospinal Meningitis. H. S. Capps, Gulfport.
- 22 Pellagra. D. J. Rush, Philadelphia.

New Mexico Medical Journal, Las Cruces

August, VIII, No. 5, pp. 329-352

- 23 Roswell: Metropolis of Eastern New Mexico. H. A. Ingalls, Roswell.
- 24 Some Blood-Pressure Observations. C. Beeson, Roswell.
- 25 Cesarean Section for Albuminuria. F. T. B. Fest, Las Vegas.

Maryland Medical Journal, Baltimore

September, LV, No. 9, pp. 209-234

- 26 *Massacre of Tonsil. J. N. Mackenzie, Baltimore.
27 Typhoid and Way to Prevent It. C. W. G. Rohrer, Baltimore.

26. **Massacre of Tonsil.**—We are, says Mackenzie, going through to-day in laryngology what the gynecologist went through years ago. The ovaries were removed then under as little provocation as the tonsils are being taken out today. The so-called "tonsil question" is one of simplicity and comparatively small dimensions when viewed in the light of sanity and common sense, but it has been made to assume formidable proportions by unsound observation and reckless surgery. It has come to a point when it is not only a burning question to the profession, but also to the public. This senseless, ruthless destruction of the tonsil is often so far-reaching and enduring in its evil results that it is becoming each day a greater menace to the public good. Until we have more definite knowledge concerning the use of the tonsils no one can tell the damage done to the children of the present generation or the influence of wholesale tonsil removal on the children of the next.

Whatever a more exact examination of the tonsil may reveal as to its function, Mackenzie believes it was placed in the throat, not with evil, but with good intent; to serve a teleologic rather than a pathologic purpose; that its mission is physiologic, and that it was not designed by Nature as a natural, easy and convenient avenue of infection. It is, of course, not open to debate that there are a multitude of conditions that call for partial destruction or more or less complete removal of the tonsils, but radical operation should not be done without definite and sufficient reason. The tonsil should not be sacrificed any more than any other organ without convincing evidence that it is the cause of the disease to be removed. Hasty theory, which sees in destruction of the tonsil the only means of treatment, and which, unmindful of the lymphatic and other anatomic arrangement of the neighboring structures and their physiology, and which, losing sight of the further fact that it is hard, if not impossible, to determine during life that the tonsil is the only avenue of entrance in a given infection, throws differential diagnosis to the winds, should have no part in modern scientific laryngology.

Journal of Nervous and Mental Disease, Lancaster, Pa.

September, XXXIX, No. 9, pp. 577-647

- 28 Case of Alexia and Hemianopsia: With Localization of Such Lesions. L. Casamajor and M. J. Karpas, New York.
29 Syphilis a Possible Cause of Systemic Degeneration of Motor Tract. W. G. Spiller, Philadelphia.
30 Progressive Muscular Atrophy With Necropsy, Probably Syphilitic in Origin. S. Leopold, Philadelphia.

American Journal of Urology, New York

August, VIII, No. 8, pp. 399-453

- 31 Phenolsulphonephthalein Test in Surgery of Genito-Urinary Tract. L. E. Schmidt and H. L. Kretschmer, Chicago.
32 Intravenous Administration of Sublimin. Hyrgolum, Oxy-cyanid and Sublimin in Salvarsan Relapse. M. L. Heldingsfeld, Cincinnati.

Archives of Pediatrics, New York

August, XXIX, No. 8, pp. 561-640

- 33 *Typhoid in Infancy. Analysis of Seventy-Five Cases. J. P. C. Griffith, Philadelphia.
34 *Vaccines in Treatment of Pertussis. M. Ladd, Boston.
35 Case of Mastoiditis Followed by General Sepsis, With Symptoms of Tetanus. M. Nicoll and F. S. Fielder, New York.
36 Tuberculosis in Young Children. A. Hymanson, New York.
37 Mental Deficiency. M. S. Reuben, New York.
38 Certified Milk. H. L. Coit, Newark, N. J.

33. Abstracted in THE JOURNAL, July 6, p. 61.

34. **Vaccines in Treatment of Pertussis.**—The use of pertussis vaccine in nine cases leads Ladd to the belief that the treatment is worthy of further trial, using larger doses and at more frequent intervals than in his series. The cases were clinically typical cases of pertussis, as the disease occurs in infants and young children. In every instance a characteristic paroxysm occurred in the clinic. The blood-counts showing the relative increase in mononuclear cells made the clinical diagnosis reasonably certain. A minimum interval of five days was allowed to elapse between injections. Sometimes, owing to shortage of material or negligence on the part of

the mothers in bringing their children to report, the interval was increased to ten days or two weeks, or even longer. It was soon evident that no harmful effects were produced. There were no general constitutional symptoms nor local reaction at the site of the injections.

In the early cases it was soon found to be safe to give 20,000,000 (1 c.c.) at each treatment, even to an infant. Later as much as 40,000,000 (2 c.c.) were injected at one time with no ill effects. One infant of seven weeks received, on May 18, 3,000,000; on June 9, 12,000,000; on June 14, 10,000,000. This was the youngest child treated. It recovered quickly in three and one-half weeks. The blood was not examined in this instance. Injections of 40,000,000 were given four times to babies nine months of age. In another series of cases Ladd would be inclined to start with this dose and repeat at intervals of five days and perhaps oftener. Considerably larger doses could probably be given in the course of this disease, possibly with more marked effects. No other treatment was given than the vaccine. In general, it appeared that after three injections the severity and number of paroxysms diminished. All of the children recovered without complications on an average in five weeks after beginning treatment. On an average the cases were in the third week of the disease when the vaccines were started.

Kentucky Medical Journal, Bowling Green

September, X, No. 17, pp. 667-718

- 39 Kidney Infection. S. H. Ridgway, Shepherdsville.
40 Stomach Troubles and Their Management by General Practitioner. G. G. Thornton, Lebanon.
41 Epitome of Medical Achievements. W. J. Shacklette, Nolin.
42 Lobar Pneumonia. J. W. Acton, Glasgow.
43 Address of Welcome to Annual School of County and City Health Officers. M. Weissinger, Louisville.
44 Competent, All-Time, Well-Paid, Local Health Officers as Investment. J. N. McCormack, Bowling Green.
45 Problems and Difficulties of Health Officer. M. W. Steele, Corbin; C. W. Kavanaugh, Lawrenceburg; B. W. Smock, Louisville; H. D. Rodman, Bardstown; A. V. Menefee, Williamstown; J. B. Kinnaird, Lancaster; J. G. Foley, Pineville; J. W. Kincaid, Catlettsburg; W. Byrne, Russellville; T. A. Frazer, Marion; J. F. Young, Monticello; U. L. Taylor, Columbia; A. W. Walden, Owingsville; J. A. Yates, Edmonton; J. L. Atkinson, Campbellsville; E. B. McMorries, Clinton.

New Orleans Medical and Surgical Journal

September, LXC, No. 3, pp. 185-264

- 46 Summary of Literature on Etiology of Beriberi. J. M. Swan, Rochester, N. Y.
47 *Investigation of Louisiana Rice with Reference to Etiology of Beriberi. C. Wellman, C. C. Bass, A. C. Eustis, New Orleans.
48 *Public Health Aspect of Beriberi. R. H. Creel, U. S. P. H. S.
49 *Sodium Citrate in Treatment of Pneumonia. W. H. Weaver, Ocean Springs, Miss.
50 Congenital Syphilis. F. T. Brown, New Orleans.
51 Eradication of Malaria. J. H. White, New Orleans.

47 and 48. Abstracted in THE JOURNAL, July 27, p. 298.

49. **Sodium Citrate in Pneumonia.**—Since most cases of pneumonia are seen during the first three days of the illness, Weaver says, if treatment is immediately instituted by full doses of sodium citrate, an immediate and rapid lysis should be obtained. If the pulse and temperature remain stationary for from twelve to twenty-four hours the dose of sodium citrate may be increased until we have a falling pulse and temperature, when the dose may be considered correct for that patient. This dosage should be continued night and day until the lung has entirely cleared up. In some cases lysis may be delayed and slower than in others, but so long as we get any improvement in conditions, or stay in the progress of the disease for the first twenty-four to forty-eight hours, we may confidently expect that the third day will inaugurate a more or less rapid lysis, the character of the lysis depending probably on the permeability of the hepatized lung tissue, as well as the natural plus the temporarily increased defensive elements in the blood. Fortunately bronchopneumonia is as amenable to the treatment as is lobar pneumonia. Other means, such as strapping for pleurisy and bathing for high temperature are not to be neglected if symptoms call for them.

Journal of Oklahoma State Medical Association, Muskogee

September, V, No. 4, pp. 125-179

- 52 One Hundred Consecutive Laparotomies With One Death. T. M. Aderhold, El Reno.
53 Venereal Infections With Reference to Criminal, Mental and Nervous Disturbances. C. R. Day, Oklahoma City.

- 54 Postponement of Physiologic Arteriosclerosis. A. D. Young, Oklahoma City.
55 Etiology and Treatment of Nasal Catarrh. W. B. Newton, Muskogee.
56 Ischemic Paralysis. R. L. Hull, Oklahoma City.
57 Serous Effusions. Pericarditis With Effusions. M. H. Foster, Oktaha.
58 Outbreak of Malaria Associated With Malaria and Uncinariasis. Infection. C. D. Blachly, Norman.

Bulletin of Johns Hopkins Hospital, Baltimore*September, XXIII, No. 259, pp. 255-288*

- 59 *Hexamethylenamin In Treatment of Systemic Infections With Special Emphasis on Its Use as a Prophylactic. S. J. Crowe, Baltimore.
60 *Effect of Jaundice, Produced by Ligation of Ductus Chole-
dochus, on Pancreatic Secretion. T. R. Brown, Baltimore.
61 Present Status of Anti-Typhoid Campaign in Germany. W. W. Ford, Baltimore.
62 Seasonal Variations in Bacterial Flora of Baltimore City
Water. W. W. Ford and E. M. Watson, Baltimore.
63 Midwives of Anne Arundel County, Maryland. H. Jeldell and
W. M. Fricke.
64 Undescended Cecum In Sub-Hepatic Position. J. M. Flint, New
Haven, Conn.

59. **Hexamethylenamin in Systemic Infections.**—Crowe calls attention to the fact that this drug is of value, not only as a therapeutic, but especially as a prophylactic, measure in a great variety of maladies. Among the conditions which may be favorably influenced by the administration of hexamethylenamin, the following are the most important: (1) Infections of the genito-urinary tract and typhoid bacilluria. (2) Infections of the bile-ducts and gall-bladder. (3) Infections of the cerebrospinal system, poliomyelitis, epidemic meningitis, meningeal infections following injuries or infectious processes elsewhere in the body. (4) Infections of the respiratory tract, including infections of the paranasal sinuses and ears, acute rhinitis, acute tonsillitis and some forms of bronchitis. (In lobar pneumonia and pulmonary tuberculosis it is doubtful whether this drug is of any value.)

Hexamethylenamin, given either by mouth or by rectum, makes its appearance in the bile and in the urine almost simultaneously. Provided large doses of hexamethylenamin are given, at least 75 grains a day, this drug appears in the gall-bladder in a concentration which suffices to render the bile an unsuitable media for the growth of bacteria.

Since 1908 it has been a routine measure in the Johns Hopkins Hospital to administer hexamethylenamin in all cases in which a meningeal infection is a possible or threatened complication. There have been twenty cases of compound fracture of the vault, similar in that there was a laceration of the meninges and underlying cortex in each instance. In eight of the earlier cases hexamethylenamin was not given and the mortality from infection was 50 per cent. To each of the remaining twelve cases, hexamethylenamin was given immediately after the injury, and at frequent intervals until all danger of infection was past; ten of these patients recovered, while two succumbed with a pneumococcal meningitis.

There have been forty cases of hypophysis tumor in which the neighborhood symptoms were sufficiently marked to warrant an operative interference. In each case hexamethylenamin has been administered as a prophylactic measure; from 40 to 60 grains are given during the twenty-four hours preceding the operation, and even larger amounts for several days after the operation. In thirty-one cases there were no post-operative complications whatever; in nine cases there was an escape of cerebrospinal fluid through the nose for several days following the operation, together with an elevation of temperature, headache, slight stiffness of the neck and other symptoms suggesting a meningeal infection. Three of these patients finally succumbed with meningitis; the other six patients, however, recovered.

This drug is often of the greatest value in aborting an acute coryza, provided it be given in large doses and during the earliest stages of the infection. There have been but very few instances in which toxic symptoms have resulted from the administration of large doses of hexamethylenamin, although from 200 to 300 grains daily for four or five days were given; even in children, doses of 100 or 125 grains a day have produced no irritative symptoms, provided it was possible to administer the drug sufficiently diluted with water.

They have abandoned the custom of giving this drug in doses of 10 to 15 grains at stated intervals, since it is often difficult to induce the patient to take, at one time, the 250 or 300 c.c. of water in which doses of this amount should always be dissolved. In case the patient is very ill, the drug is usually administered per rectum, from 50 to 100 grains being dissolved in a liter of salt solution and allowed to slowly flow into the bowel, a drop at a time. In no case has there been the slightest evidence of undue irritation of the intestinal mucosa, when the drug is thus given, and as a rule the salt solutions are well absorbed, even after one or two weeks of almost continuous administration by this method. If the patient is able to take nourishment by mouth, from 2 to 3 grains of hexamethylenamin are added to every ounce of liquid, since the drug is practically tasteless, and it is often possible, in this way, to give from 60 to 100 grains a day without the patient's knowledge and without producing gastric or renal irritation.

In ninety-five cases in which the average dose of hexamethylenamin was 75 grains a day for ten days, painful micturition and hematuria occurred in seven instances. Two of these cases were fatal meningeal infections of otitic origin; the patients were desperately ill when brought to the hospital, and the drug was given in unusually large amounts with the hope of checking the progress of the infection. A third was a case of tuberculous meningitis in a child seven years of age. In each of these cases there was a well marked hematuria, but at the post-mortem examination it was apparent that it had its origin from the mucous membrane of the bladder and was not due to an acute renal irritation. In the remaining four cases the urine rapidly became normal on the withdrawal of the drug.

Although there are undoubtedly certain individuals who have a personal idiosyncrasy for hexamethylenamin, and even a small dose may cause uncomfortable symptoms, such as a skin rash, catarrh of the mucous membranes, gastric or urinary irritation, Crowe says, this fact does not invalidate the use of the drug. Aside from personal idiosyncrasies the experience has been that untoward symptoms usually arise as a result of insufficient dilution, and such symptoms have invariably disappeared on withdrawing the drug and producing active diuresis by forcing liquids.

60. **Effect of Jaundice on Pancreatic Secretion.**—A series of experiments made by Brown showed that after the ligation of the gall-duct and the consequent production of a rapidly developing jaundice there is a marked reversal in the pancreatic juice both as regards amount and ferment-richness after the different types of foods: there is more juice with milk than with meat, and where before the trypsin or the diastase showed a definite increase, now a decrease would be likely to be met with, and vice versa. The removal of the bile from the intestine after the previous withdrawal of the major portion of the pancreatic secretion produces in a very short time a rapid loss of weight and strength, ending in sudden death, and emphasizes anew the great importance of the bile as a partial substitute for the pancreatic secretion, if the latter is absent or markedly diminished.

Journal-Lancet, Minneapolis*September 1, XXVII, No. 17, pp. 451-478*

- 65 Some Things Practical in Serodiagnosis. C. E. Riggs, St. Paul, Minn.
66 Functional Results In Prostatectomy. E. S. Judd, Rochester, Minn.
67 Rectosigmoidoscopy. A. C. Strachauer, Minneapolis.
68 Case of Traumatic Incontinence of Urine and Congenital Absence of Vagina, With Operation and Suggestions for Improved Technic. J. E. Engstad, Minneapolis.

New York Medical Journal*September 7, XCVI, No. 19, pp. 465-512*

- 69 Yellow Fever a Strictly Human Disease. A. Agramonte, Havana, Cuba.
70 *Pneumonia in Children. H. Lowenburg, Philadelphia.
71 Wassermann Test. D. M. Kaplan, New York.
72 Vesical Neoplasms. J. F. McCarthy, New York.
73 Ten Sex Talks to Girls. I. D. Steinhardt, New York.
74 Endourethral Chancre. E. H. Marsh, New York.
75 *Completed Treatment for Tonsillitis. F. Griffith, New York.
76 Massive Tuberculosis of Liver. D. Fellerbaum, New York.
77 Cinematograph as Aid to Medical Education and Research. R. Matas, New Orleans.

70. Pneumonia in Children.—Lowenburg has employed the hydrochlorid of quinin, hypodermically, in doses of 1 grain, with some probable benefit. The same is true of the natural preparation of sodium salicylate, grain $\frac{1}{2}$ to grains 2; sodium benzoate, grains 2 to 3; hexamethylenamin, grains 2 to 3; and euquinin (quinin ethyl carbonate), grain $\frac{1}{2}$ to 2. All these measures are designed to control temperature and combat infection. With antipneumococcic serum and bacterins he has had no experience. In strong children suffering from the second stage of a diffused acute bronchitis, with mucus and many râles, who are "rattling" in the chest, or in cases of bronchopneumonia where the same condition prevails, where the children are said to be "choked up," Lowenburg has adopted the following plan of treatment with much success, based on the principle that what these patients need is drainage and something to control the inflammatory process as much as possible, thereby preventing the large reaccumulation of mucus. With this in view he seeks to empty the bronchial tubes in two ways, by the mouth and by the bowels, and to control further production of mucus through drugs which act on the secretory apparatus and to apply antiseptics directly to the mucous membrane. These patients first receive from $\frac{1}{2}$ to 2 teaspoonfuls of castor oil within one to one and one-half hour; they get 30 drops of ipecac and 15 minims of the wine of antimony every hour until emesis occurs, but not more than three doses are given. They then receive tincture of belladonna and the aromatic spirit of ammonia. The first is given in 5 minim doses every four hours, gradually increased to 15 or 20 drops, and the latter is given in 5 to 10 minim doses. Every other hour inhalations of the following are given: Oil of eucalyptus, 4 drams; beechwood creosote, 4 drams; oil of turpentine, enough to make four ounces. From 1 to 2 tablespoonfuls are added to a quart of water, which is kept boiling in the room for at least a half to one hour. During the interim the room is ventilated. The diet is kept low, and fever and other symptoms are combated on general principles. Stimulation in these cases is rarely needed, but if it is, reliance is placed on strychnin, quinin and alcohol.

75. Treatment of Tonsillitis.—Medical treatment is commenced by Griffith by giving calomel grain $\frac{1}{8}$ or grain $\frac{1}{4}$ (gram 0.008 or 0.016) tablets, one every thirty minutes until 2 grains (gram 0.130) are taken, or until the patient's bowels are well moved; so keep regulated thereafter. When first seen a hot mustard foot bath is given (heaping tablespoonful of powdered mustard stirred up in a pail of hot water), having the patient wrapped in a blanket in which he is afterward put to bed. The diet should be light and meat is better wholly refrained from. In cases accompanied by prostration, home-made meat juice may be employed. The course of treatment is planned to extend over a period of one, two or three days to suit requirements of acute attacks of tonsillitis. The specific treatment consists of quinin bisulphate (used because most soluble) grains 2 (gram 0.130) with Dover powder grains 5 to 10 (gram 0.333 to 0.666) when the patient is first seen, then administered night and morning thereafter during the course. Separate and distinct is the following treatment, which is directed to be regulated according to the amount of purulent exudate dripping from the infected tonsils, for it is these throat droppings, absorbed down in the stomach and intestines, which cause the exacerbations of systemic reaction in tonsillitis. To combat this Griffith gives drops 1 or 2 (i.e. 0.05 or 0.1) of pure phenol, stirred into a quarter of a glassful of cold water, to be administered from two to eight times a day of twenty-four hours as required.

Local cleansing of the throat may be employed by the patient with a mild gargle and oily spray, which latter does good by aiding suspension of the falling exudate. Hydrogen peroxid Griffith finds too harsh for use. The throat and tonsils may be gently wiped over once every one to three days by a solution of tannic acid, one part, in glycerin, four parts, or one of tincture of chlorid of iron, one part, in glycerin, five parts. Throat lozenges containing guaiacum grain 1 or 2 (gram 0.066 to 0.130), or made up with camphor, grain 1/10 (gram 0.006), menthol grain 1/10, and cocain

hydrochlorid, grain 1/32 (gram 0.002), may be administered at the rate of six or eight a day. Lumps of cracked ice may be sucked to relieve thirst and lessen local inflammation. An ointment or hot poultice application to the neck under the angles of the jaw when lymphatic glandular involvement is manifested by swelling and pain, may be used. Marked mechanical obstruction to breathing is to be met by a linear slash with a guarded bistoury through the bulging tonsil; one organ offending more than the other by its prominence is the rule. One or more cuts are to be made as necessary, reliance in this method depending on shrinkage obtained by blood depletion and sacrifice of the least amount of tonsillar tissue. Griffith does not object to a proper shortening of an elongated uvula, provided it is causing a symptomatic cough.

Tonic treatment, as of the hypophosphites, is employed subsequently if necessary. Excessive diarrhea, or the pressure of smoky urine, calls for reduction or cessation of the phenol medication.

Medical Record, New York

September 7, LXXXII, No. 10, pp. 445-460

- 78 False Gigantism, Complicated by Traumatic Osteosarcoma. W. W. Griffin, New York.
- 79 Research Work in Life Insurance Medicine. F. L. Hoffman, Newark, N. J.
- 80 Case of Accessory Pancreas in Gastro-Intestinal Tract. C. L. Gibson, New York.
- 81 Treatment of Hyperacidity: the French Viewpoint. M. E. Rehfuss, Paris, France.
- 82 Enlargement of Mediastinal Glands. G. F. Boehme, New York.
- 83 Plea for More Careful Examination in Dermatology. B. F. Ochs, New York.

Boston Medical and Surgical Journal

September 5, CLXVII, No. 10, pp. 311-346

- 84 *Use of Lactic Acid Soured Milk and Lactic Acid Bacilli in Pulmonary Tuberculosis. P. C. Bartlett and C. V. Murphy, Rutland, Mass.
- 85 Two Cases of Diverticulum of Bladder Treated by Operation. A. L. Chute, Boston.
- 86 Present Status of Salvarsan. A. Post, Boston.
- 87 Two Cases of Orchitis Due to Mumps Treated by Operation. G. G. Smith, Boston.

84. Lactic Acid Soured Milk and Lactic Acid Bacilli in Pulmonary Tuberculosis.—The authors present certain types of cases in which lactic acid soured milk has proved of undoubted value. They give the method of application and the means adopted for preparing it on a relatively large scale in hospital practice, together with a brief consideration of the particular ferment employed, and their experience with other lactic acid culture.

Northwest Medicine, Seattle

August, IV, No. 8, pp. 227-260

- 88 Increase of Malpractice Suits. E. A. Sommer, Portland, Ore.
- 89 Pathology and Treatment of Membranous Pericarditis. R. V. Dolbey, Vancouver, B. C.
- 90 Surgery of Colon. A. E. Rockey, Portland, Ore.
- 91 Impressions Gathered on Recent Trip to Some of Surgical Clinics of Europe and America. R. C. Coffey, Portland, Ore.

Lancet-Clinic, Cincinnati

August 31, CVIII, No. 9, pp. 221-248

- 92 Case of Pellagra. A. Ravogli, Cincinnati.
- 93 Treatment of Structural Scoliosis. A. H. Freiberg, Cincinnati.
- 94 Diphtheria Bacillus Carriers and Staphylococcus Pyogenes Aureus. A. J. Bell, Cincinnati.

Laryngoscope, St. Louis

August, XVII, No. 8, pp. 997-1075

- 95 Contribution to Pathology and Clinical Diagnosis of Status Lymphaticus. G. H. Cocks, New York.
- 96 Operation for Reduction of Redundant Alar Cartilages. J. Leshure, New York.
- 97 Vincent's Fusiform Bacillus: Experimental Researches. F. Lasagna, Parma, Italy.
- 98 Case of Scleroma. S. Iglaue, Cincinnati.
- 99 Case of Lingual Thyroid. G. Fetterolf, Philadelphia.
- 100 Acute Inflammation of Thyroid. O. J. Stein, Chicago.
- 101 Black Hairy Tongue (Lingua Villosa Nigra): Report of Two Cases. W. W. Carter, New York.
- 102 Neglect of Trachea. J. A. Thompson, Cincinnati.
- 103 Adductor Paralysis of Left Vocal Cord Due to Mediastinal Tumor, with Skiagraph. C. D. Van Wagenen, New York.
- 104 Diseases of Labyrinth with Special Reference to Fistula Symptom. F. R. Spencer, Boulder, Colo.
- 105 Hypophysis Cerebri. I. W. Voorhees, New York.
- 106 Use of Alcohol in Accessory Sinus Disease. S. H. Lutz, Brooklyn.
- 107 Adjustable Open Speculum. H. P. Mosher, Boston.
- 108 Automatic Tonsil Suture Demonstrated at Docent's Verein, Austria. L. J. De Swarte, Milwaukee.
- 109 New Lock for Nasal Wire Snare. J. Szymanski, Chicago.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

August 24, 11, No. 2695, pp. 405-464

- 1 *Further Experience of Specific Curative Action in Amebic Disease of Hypodermic Injections of Soluble Salts of Emetin. L. Rogers.
- 2 Granule-Shedding in *Trypanosoma Gambiense*. H. S. Ranken.
- 3 Results of Sanatorium Treatment. F. W. Burton-Fanning and W. J. Fanning.
- 4 Use of Antiformin in Sputum Examination. G. H. K. Macallister.
- 5 *Pikrin Method of Staining Tubercle Bacilli. H. Wilson.
- 6 Education of Specialist on Continent. H. Mygind, P. Watson-Williams and H. S. Birkett.
- 7 Acute Suppurative Otitis Media, Its Neglect and Proper Treatment. R. H. Woods, C. Rundle and G. Alexander.
- 8 Value of Decompressive Operations in Intracranial Complications of Otitic Origin: Special Reference to Treatment of Otitic Meningitis. W. Milligan.
- 9 Prevention of Deafness in Non-Suppurative Cases. J. K. Love.
- 10 Indications for Schwartze Operation. G. J. Jenkins.
- 11 Factors Affecting Marching Powers of Troops. N. D. Walker.
- 12 More General Use of Iodin in First-Aid Treatment of Accidental Wounds. A. G. Wilkey.
- 13 Eyestrain in Royal Navy: With Reference to Gunnery and Other Ratings. W. A. Whitelegge.
- 14 Treatment of Syphilis by Salvarsan. N. Raw.

1. **Emetin in Amebic Disease.**—Taken as a whole, Rogers believes that the twelve cases of amebic abscesses of the liver and spleen treated by him by emetin injections are full of promise. Either the hydrochlorid or the hydrobromid of emetin are equally useful, the former being the more soluble, while the latter requires about 2 c.c. of sterile water or saline to dissolve it. At first Rogers chiefly used $\frac{1}{3}$ grain doses, but now very seldom employs less than $\frac{1}{2}$ grain at a time, and often gives as much as $\frac{2}{3}$, the equivalent of 60 grains of ipecacuanha, and has twice injected 1 grain doses subcutaneously without any vomiting or depression, but such a quantity is only required in extremely acute amebic dysentery. The salts can be safely boiled for a very short time, but it is better to dissolve them in sterile saline, or to boil the solution first and then add the emetin salt.

The extraordinary rapidity with which very marked improvement follows the subcutaneous injections of $\frac{1}{2}$ grain doses of emetin is of the greatest diagnostic importance, for cases of bacillary dysentery and other nonamebic causes of the presence of blood and mucus in the stools are not materially affected by the drug, although it has done no harm in them. Thus, in a case of chronic bacillary dysentery complicating kala-azar, emetin injections had no effect, and the disease steadily progressed to a fatal termination. In Rogers' experience, whenever active amebas of the *histolytica* type, including the variety described by Noe and shown by Grieg to be the common one in India, have been found in dysenteric stools, the disease has eventually proved amenable to full doses of ipecacuanha, if not too acute or far advanced. Still, facilities and time for the microscopic examination of the stools of the large number of dysentery cases which often have to be dealt with in the tropics, are seldom available, so a simple and harmless clinical method of differentiating amebic from other forms, such as is now put forward by the author, is clearly of the greatest practical importance and will lead to the early adoption of suitable treatment in those cases which prove not to be amebic in nature. (See also abstract in THE JOURNAL July 20, p. 227.)

5. **Pikrin Method of Staining Tubercle Bacilli.**—It is claimed for the pikrin method of staining tubercle bacilli that bacilli deprived of their waxy coating can be detected by this means, and also that degenerate, "splitter," or spore forms may be recognized when sustained by the Ziehl-Nielsen method. As these spore formations under suitable conditions may develop into active virulent tubercle bacilli, it is of the utmost importance to recognize them in sputum from the point of view of infectiveness of a patient. This the pikrin method enables one to do.

Spengler's method is simple, and is conducted as follows: Having made a suitable film: 1. Stain with carbol fuchsin, warm, but without too much heat. 2. Pour off the stain without washing. 3. Pour on picric acid alcohol (consisting of equal parts of saturated solution of picric acid and absolute alcohol). After three seconds: 4. Wash with 60 per cent.

alcohol. 5. Treat with 15 per cent. nitric acid till yellow (thirty seconds). 6. Wash again with 60 per cent. alcohol. 7. Counterstain with picric acid alcohol till lemon-colored. 8. Wash with distilled water and dry gently at a low heat.

The bacilli appear bright red on a lemon-colored ground, and, if present, are more perceptible than by any other method. In Wilson's opinion, it is the best stain for urinary residues in which the tubercle bacillus is suspected.

Lancet, London

August 24, 11, No. 4643, pp. 497-568

- 15 History of Syphilis, Wassermann Reaction and Parasyphilis and Treatment. H. Morris.
- 16 *Vaccination for Typhoid by Living Sensibilized Typhoid Bacilli. W. Broughton-Alcock.
- 17 *Method of Vaccine Therapy of Surgical Tuberculosis. J. Fraser and J. P. McGowan.
- 18 Nerve-Ending Anesthesia. C. Clarke.
- 19 *Nature of Colon Bacilluria. E. M. N. Williams.
- 20 Septicemia Following Septic Laryngitis. A. Abrahams.
- 21 Roentgen-Ray Treatment of Hypertrichosis. A. F. Savill.

16. **Vaccination for Typhoid.**—The following conclusions are drawn by Broughton-Alcock: 1. The successful experiments on man by the method of Besredka have taken us one step forward in the application of vaccination. Cannot the sensitized living *B. typhosus* be considered in the same light as the virus of small-pox, attenuated or modified by the immunized calf-lymph, and which gives rise to a specific immunity that may be veritably called ideal? 2. The sensitized living bacilli remain alive over four months without exceptional precautions and their preparation is simple, rapid and practical. 3. The first dose for a woman of average size should be 500,000,000 sensitized living bacilli in 1 c.c. of 0.8 per cent. saline. For a man of good physique the first dose should be 750,000,000 in 1 c.c. of 0.8 per cent. saline. The second dose, seven to nine days later, should be double these quantities. The dose of 500,000,000 represents 1 c.c. of a culture of twenty-four hours on gelose without peptone in 100 c.c. of saline. Diluted 1 to 40 and at the dose of 0.1 c.c. it fixes 0.1 c.c. of titrated guinea-pig's complement. 4. There is no general reaction and only an insignificant local reaction following these injections. The patient is in no way obliged to change his daily routine of living. These results are in marked contrast with Broughton-Alcock's experience of the reactions following the injections of the same number of killed bacilli in the vaccine of Wright-Leishman. 5. An elevated temperature, a previous history of typhoid, and the time of menstruation are not contra-indications to the giving of the living sensitized bacilli typhosi. 6. The sera of persons injected with sensitized bacilli typhosi have not been found to deviate complement and only rarely to agglutinate an emulsion of a young culture. Their addition, however, markedly increases phagocytosis. Probably they also contain anti-endotoxin bodies. 7. The detected presence of specific amboceptors, agglutinins, bacteriolysins, cannot be said to show the degree of immunity attained. The results of experiments *in vitro* cannot be interpreted as denoting the state of the patient's resistance. 8. As it has been asserted by all authors that vaccination by living microorganisms is the most effective, and, moreover, this has been proved by the experiments on chimpanzees made by Metchnikoff and Besredka, and as Broughton-Alcock's observations on man have proved the innocuousness of the living sensitized *B. typhosus*, he presumes to conclude that this method ought by preference to be applied to man. Since the writing of this article 750 persons, including many soldiers, have been inoculated. The results are most satisfactory and encouraging.

17. **Vaccinal Treatment of Surgical Tuberculosis.**—Acting on the supposition that while artificially prepared tuberculin may contain many of the toxic substances responsible for the pathologic changes present in a tuberculous focus, the whole of these toxic substances would be most likely obtained in tuberculous foci as they occur in the naturally infected human body, the authors have used such material for the preparation of a vaccine. In short, instead of using artificial medias for the growth of the tubercle bacillus in the preparation of vaccinal material, the products occurring where

human tissues have acted as the culture medium have been employed. Further, they have made, as far as possible, the vaccinal treatment autogenous, using the patient's own tuberculous material, obtained at an operation or otherwise, as the source of the vaccine. In some cases this was impossible as no operation had been performed, and in such instances material from other patients was used; but bone cases were always treated with material from bone tubercle and gland cases with material from gland tubercle.

A portion of tuberculous tissue, preferably caseous, was taken at the operation and ground up in an agate mortar with washed silver sand, saline was then added, and the emulsion allowed to stand for an hour to allow the grosser particles of the sand and tissue to settle. The supernatant fluid was then centrifuged to get rid of the finer particles. This supernatant fluid was pipetted off and sterilized by heating to 60 C. for an hour. The fluid so obtained was tested for sterility, and finally put up in measured quantities in sterile capsules which were sealed. They began their experiments with a very small quantity of the vaccinal fluid, 5 c.mm., and if the patients did not react too severely the next dose, which was given a week after, was increased to 10 c.mm., and so on with increments every week of 5 c.mm. until at the end of ten weeks a dose of 50 c.mm. was given.

After the injections there were rise of temperature and malaise in most of the cases. In some such symptoms were slight or absent. The focal symptoms, however, present in all, were acute and always well marked. There was considerable congestion, in some cases to the extent of extravasation of blood. Caseation appeared to be hastened in certain of the cases. In none of the cases was there any lesion, abscess or otherwise, produced at the site of inoculation. Such inoculation was done by painting the skin, usually of the upper arm, with tincture of iodine and inoculating the vaccine subcutaneously.

No attempt was made to choose special cases in the above series. The first ten which presented themselves were put on the treatment. The majority were cases also which had not improved under the usual means of treatment. The most encouraging results were seen in gland tubercle, the reason probably being that, from their greater accessibility to clinical examination, improvement was more readily detected. Even more striking than the local improvement was the general change, and this was all the more important when one recalls that the hygienic surroundings of the patient were in no way improved while the treatment was going on. Another noticeable feature was the rapidity with which improvement made its appearance; in one case only did the treatment exceed ten weeks. An improvement began to be noticeable usually after the third inoculation.

19. Nature of Colon Bacilluria.—This investigation was undertaken with the hope of throwing light on the etiology of colon bacilluria and cystitis and on the relations of these two conditions. The urines of seventy cases, taken at random from patients seen in the course of a general practice, were examined for the presence of colon bacillus. The disorders found correlated with the bacilluria were carefully noted in each case and tabulated. Of the seventy patients examined, forty-four (Series A) suffered from some chronic disorder of the intestine, usually of long standing. In the remaining twenty-six cases (Series B) there was no history of any chronic irregularity of the bowels; most of them complained of frequency of micturition or pain on passing urine, which in several dated from the passing of a catheter. Sixteen cases of colon bacilluria were found among the seventy patients examined; all occurred in Series A; two only had definite symptoms of cystitis, though all sixteen had some frequency of micturition. In other words, bacilluria occurred in a little more than 22 per cent. of the whole number of patients examined, while it occurred in more than 36 per cent. of Series A, and in none of Series B.

Journal of Tropical Medicine and Hygiene, London

August 15, XV, No. 16, pp. 241-248

22 Tropical Pellagra. L. Nicholls.

23 Meteorology of Malaria. M. D. O'Connell.

Journal of Obstetrics and Gynecology of British Empire, London

July, XXII, No. 1, pp. 1-64

24 *Pelvic Inflammation in Woman. N. F. Lock.

25 *Experimental Work on Physiologic Function of Ovary. A. L. Mellroy.

26 *Axial Rotation (Cervical Torsion) of Myomatous Uterus. J. A. Kynoch.

27 Case of General Edema of Fetus With Fetal Ascites and Hydramnios. T. Davies.

24. Pelvic Inflammation in Woman.—Lock's paper is based on 118 cases in St. Thomas' Hospital during the year 1911. The total number of patients operated on for inflammatory conditions of the uterus and its appendages and the neighboring peritoneum and cellular tissue was 100. Eighteen patients were discharged without operative treatment. In thirty of these cases the pus found at the operation was examined bacteriologically. While collecting these cases Lock noticed that a very definite relation obtained between the organism present and the class of case in which it occurred, and that the type of lesion caused by any one organism was remarkably constant. In a large proportion of the more chronic cases of pelvic inflammation no organism can be found by bacteriologic methods, as there is a tendency for the organism which caused the condition after a certain time to die out.

The commonest course for the infection to pursue is an ascending one; the organisms gaining access to the genital tract during sexual intercourse and parturition, and, less commonly, during examination and operation. A descending infection is comparatively rare; it is the common route taken by tuberculous infection, while occasionally the tubes are infected by the passage of organisms from the appendix, or some other portion of the gut. This sometimes occurs as a reinfection of an old pyosalpinx or salpingitis in which the original causal organism had died out. The pelvic peritoneum and fallopian tubes are involved when general peritonitis occurs from whatever cause; but the local effects are lost in the general invasion of the peritoneum.

Apart from tuberculosis, the common causes of pelvic inflammation are the gonococcus, and the group of pyogenic cocci and bacilli. The gonococcus in some cases ascends soon after infection as far as the fallopian tubes, and there gives rise to salpingitis, in the majority of cases double, with consequent sterility. In others, however, after an acute attack of vaginitis or cervicitis, it may apparently become latent, and the patient may become pregnant. The pregnancy may proceed to full term or may terminate in abortion. Then after an interval the gonococcus seems to ascend and reach the fallopian tubes and give rise to salpingitis. This does not seem to occur till some weeks at any rate have elapsed since the confinement, and it is always questionable whether the patient may not have become infected subsequently to the pregnancy.

The group of septic organisms again falls into two divisions: in one the streptococcus is found, either alone or occasionally in association with other organisms; while in the second a large number of organisms seem to occur indifferently, either singly or two or more together. The former condition occurs in puerperal cases with a history of the onset of symptoms within a few weeks of confinement.

25. Physiology of Ovary.—Mellroy concludes that ovarian grafts prevent atrophy for a time but ultimate degeneration takes place in the transplanted tissue followed by atrophy of uterus. The rate of degeneration varies with the site of implantation, the more vascular the site the longer the persistence of graft. Degeneration takes place first in the cells of the corpus luteum as evidenced by hyaline changes and leukocyte infiltration. The follicles show cystic degeneration. The interstitial cells persist much longer than the follicles and they appear to control the nutrition of the uterus as atrophy takes place when these cells are degenerated and no atrophy when they are present without any trace of follicles.

In the course of a series of experiments now in process on the effects of castration on calcium and phosphorus metabolism, the ovaries were removed from a female dog during

proestrus. The uterine discharge ceased immediately after operation and was not again observed. Examination of the ovaries showed that corpora lutea were present and follicles in all stages of development. The interstitial cells were much enlarged, and in the neighborhood of the corpora lutea they were found to contain the lipoid substance so characteristic of lutein cells. It is therefore possible that the interstitial cells have an important function in the maintenance of the nutrition of the uterus, and in the production of an internal secretion, and that they undergo various changes during proestrus and estrus.

26. Torsion of Myomatous Uterus.—From a study of the reported cases it would appear to Kynoch that pain associated with a uterine fibroid is more frequently due to slight torsion than is generally supposed, and that cases of acute axial rotation of the uterus must be regarded as one of the gravest risks to which women with uterine fibroids are liable, and therefore demands prompt operative interference.

Annales de Gynécologie et d'Obstétrique, Paris

July, XXXIX, No. 7, pp. 385-448

- 28 Spontaneous and Criminal Abortions. A. Herrgott.
- 29 Prophylactic Method of Treating Eclampsia. (Traitement de l'éclampsie par la méthode prophylactique dans les cliniques obstétricales de Berlin.) B. Stroganoff.
- 30 Serodiagnosis of Pregnancy. (Séro-diagnostic de la grossesse.) A. Quintella.
- 31 Treatment of Tuberculosis of the Female Genital Organs. M. Patel. Commenced in No. 6.

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

June, I, No. 6, pp. 497-619

- 32 *Experimental Research on Transmission of Antibodies to the Offspring. (Etude d'ensemble sur la transmission des anticorps des ascendants à leur progéniture.) M. et Heurlin.
- July, No. 7, pp. 1-48
- 33 *Torsion of Normal Ovary or Tube. (De la torsion spontanée de la trompe et de l'ovaire normaux.) M. Auvray.

32. Transmission of Antibodies to the Offspring.—Nearly a hundred pages of this article are devoted to the report of extensive experimental research in this line and comparison with 222 articles on the same subject in international literature. The clinical and experimental record is thus brought down to date in regard to most of the infectious diseases of man and animals.

33. Spontaneous Torsion of Normal Ovary or Oviduct.—Auvray reports a case in which a normal fallopian tube became twisted without apparent cause. The patient was a girl over 14, menstruating regularly for a year, and the sudden disturbances in the right side were ascribed to appendicitis. An ice bag arrested the pain and vomiting, and menstruation recurred at the regular period. As the right flank was still tender, she entered the hospital the fourth day, but as appendicitis seemed beyond question, palpation through the rectum was neglected. The third week the appendix was removed. It proved to be normal and further search revealed torsion of the right tube. This proved also to be histologically normal but it was removed. The only morbid feature in the patient's previous history was a hemorrhagic vaginal discharge noticed for twenty-four hours after birth. Auvray summarizes from the records nineteen cases of torsion of sound adnexa outside of the abdominal cavity and six inside, all in the non-pregnant, and three occurring during a pregnancy. In the first group the torsion occurred in connection with a hernia in all but one case, and all were in children from 1 month to 5 years old. Among all the other cases only three of the patients were free from some previous pathologic condition in the pelvic organs.

Lyon Médical, Lyons

June 16, XLIV, No. 24, pp. 1309-1368

- 34 Technique for Estimation of Blood-Pressure. (Sur quelques points de technique sphygmomanométrique.) C. Finck.
- June 23, No. 25, pp. 1369-1432
- 35 Combined Treatment of Motor Disturbances. (Des associations du massage, de la mécanothérapie et de la rééducation motrice dans le tabes, la paraplégie spasmodique et l'hémiplégie, pendant la cure thermale de Lamalou.) Michaud.
- June 30, No. 26, pp. 1431-1496
- 36 *Nerve Grafting. (Les greffes nerveuses.) J. P. Morat. Commenced in No. 25.
- July 14, No. 28, pp. 61-120
- 37 Total Arrhythmia and Fibrillation of the Auricles. (Arrhythmie complète et fibrillation auriculaire.) L. Gallavardin and A. Dumas.

July 21, No. 29, pp. 121-156

- 38 *Cyanid of Mercury in Ophthalmology. (Utilité et mode d'emploi du cyanure de mercure pour prévenir ou guérir les infections exogènes de l'œil.) Grandclément.

July 28, No. 30, pp. 157-188

- 39 Pathologic Anatomy of Certain Severe Nervous Disturbances Without Apparent Lesions. (Les données de l'anatomie pathologique dans certaines affections nerveuses graves sans lésions apparentes.) L. Bériel. To be continued.

August 4, No. 31, pp. 189-228

- 40 Prehistoric Syphilis. (Syphilis osseuse préhistorique.) M. Gangolphe.

36. Nerve Grafting.—Morat describes an experiment on a dog which tends to show that nerve function cannot be restored by replacing the injured portion of a nerve by a segment from another. He chloroformed the dog, ligated the left sciatic so firmly as to be equivalent to sectioning it; removed a section 5 cm. long from the right sciatic and "spliced" it over the ligation with silk threads. After four days the animal seemed to be in normal condition. Ten days later the dog was anesthetized again and with all possible precautions to assure the accuracy of the experiment the proximal end of the ligated nerve was stimulated with an induced electric current. No contraction took place in the muscles supplied by the nerve. On histologic examination the proximal end of the nerve was found normal, the distal end degenerated and the graft degenerated somewhat but not so much as the distal end of the nerve.

38. Use of Cyanid of Mercury in Ophthalmology.—Grandclément uses a solution of cyanid of mercury, 1 to 2,000, for disinfecting in all operations on the eye. He bathes the eye with it several times a day for three days before the operation, and has never had a case of suppuration since adopting this method. Moreover he claims that this solution is a very effective remedy for chronic iritis and iridochoroiditis, and particularly for atrophic chorioretinitis.

Revue Mens. de Gyn., d'Obstétrique et de Pédiatrie, Paris

July, VII, No. 7, pp. 401-464

- 41 Uterine Fibroma and Pregnancy; Three Cases. (Fibrome utérin et grossesse.) F. Fraipont.
- 42 *Asphyxia Neonatorum. (Quelques traitements nouveaux de la mort apparente du nouveau-né.) P. Delmas.
- 43 Acute Dilatation of the Stomach After Childbirth. J. Audibert.

42. Asphyxia Neonatorum.—Delmas discusses some of the later methods of combating the subaeration and excess of carbon dioxid in the blood of a new-born child. Permitting blood to escape from the umbilical cord releases some of the dioxid, and transfusion of artificial serum into the umbilical vein, in "white asphyxia," has also proved useful. Delmas' own method of passive oxygenation of the lungs by intra-tracheal insufflation of oxygen was mentioned in THE JOURNAL, July 6, p. 73. He makes a point of keeping the infant after reanimation in an incubator for a day under close supervision. Aside from cases of subaeration from debility, prematurity or severe obstetric injury, lumbar puncture is liable to clear up the diagnosis and prognosis. If the cerebrospinal fluid is clear, showing that there is no vascular injury of the nerve centers, the outlook is favorable. If the fluid is hemorrhagic, repeated puncture may restore the child.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXIII, No. 4, pp. 455-559. Last indexed Aug. 31, p. 754

- 44 Pathology of Tuberculous Peritonitis. H. Voss.
- 45 *Experimental Tuberculin Treatment. II. Haupt.
- 46 *Etiology of Tuberculosis and Phthisis. (Heilstättenerfahrungen über Tuberkuloseinfektion und Schwindsuchtsentstehung mit bes. Berücksichtigung der Römerschen Anschauungen.) W. Freymuth.
- 47 Albumose-Free Tuberculin. (Therapeutische Erfahrungen über das Kochsche albumosefreie Tuberkulin.) O. Orszag and I. Splitzstein.
- 48 Lung Findings After Injection of Iodipin Simulate Advanced Tuberculous Process. (Schwere Lungentuberkulose röntgenologisch vorgetäuscht durch Niederschläge nach subkutanen Jodipinjektionen in Rücken.) A. Schmitt.
- 49 *Albumosuria in the Tuberculous. H. Deist.
- XXIV, No. 1, pp. 1-144
- 50 Artificial Pneumothorax in Treatment of Advanced Pulmonary Tuberculosis; Five Cases. (Beitrag zur Pneumothorax-Behandlung schwerer Lungentuberkulose.) Bochall.
- 51 Experimental Research on Absorption and Effusion with Artificial Pneumothorax. W. Meyerstein.
- 52 *Exacerbations in Tuberculosis. (Ueber tuberkulöse Exazerbation.) K. Dietl and F. Hamburger.
- 53 *"Scrofula" in Adults. (Skrofulose Erwachsener.) A. Bauer.

- 54 Pulmonary Tuberculosis with Much's Granula Alone; Fourteen Cases. (Ueber Lungentuberkulose-Formen mit ausschliesslichem Vorkommen Muchscher Granula.) W. Neumann and R. C. Matson.
- 55 Tuberculosis in a Rural Community. (Die Sterblichkeit der Bevölkerung der Bauerschaften Schlangen und Kohlstadt an Tuberkulose von 1801-1908 inkl.) Werner.
- 56 *Acute Hemorrhagic Nephritis with Pulmonary Tuberculosis. F. Tobiesen.

45. **Experimental Tuberculin Treatment.**—Haupt reviews the conflicting results of various workers in this line, and then reports extensive research of his own in which he inoculated guinea-pigs and rabbits with small doses of tubercle bacilli and then applied tuberculin treatment, approximating as closely as possible clinical conditions. The findings were practically negative.

46. **Origin of Tuberculosis.**—Freymuth writes from the Belzig sanatorium that in his experience scarcely any child escapes infection with tuberculosis among the classes of the population most exposed. Consequently pulmonary tuberculosis in adults usually develops in an organism already infected. The primary infection varies in importance according to the age at which it occurs. Almost absolutely fatal in young infants, it becomes milder after the first two years; between the ages of 6 and 15 most of the tuberculous infections display a pronounced benign character. The only exception to this is pulmonary tuberculosis which seems to be as serious in children as in adults. His experience further shows that pulmonary tuberculosis in adults cannot be regarded as the simple continuation of a tuberculous process in the lungs in childhood; it is a new affection, either from new external infection or the further development of some old latent pulmonary process, persisting since childhood, or there may be an endogenous infection of the lungs. Of decisive moment for the manifestation of the disease are unhygienic conditions, the personal predisposition and a tuberculous environment. On the other hand, the factors which influence the course of the disease are the presence of immunity left from the primary infection and the severity of the second infection. Prophylaxis of tuberculosis must begin with the children, and the most important measure is to protect infants during the first two years. Prophylaxis of pulmonary phthisis is best realized by radical treatment of the benign forms of tuberculosis in children of the school age. There is not much hope of influencing pulmonary tuberculosis in children, but fortunately this is rare; such children should be segregated. All the measures hitherto in vogue to protect adults against tuberculosis must be scrupulously enforced as, so far, there is nothing to show that once healed tuberculosis renders the individual immune to a second infection from without.

49. **Albumosuria in Tuberculosis.**—Deist found albumosuria in the urine only in the third stage of tuberculosis. The albumose is probably derived from the bodies of the tubercle bacilli. Tuberculin contains such small amounts that in the usual dosage it cannot be responsible for persisting albumosuria. His research shows, however, that albumosuria after an injection of a solution of albumose is transient, while after injection of large amounts of tuberculin it can be detected for three days. This fact might be utilized in diagnosis and prognosis. If the reaction for albumosuria persists longer than this, some fresh inflammatory focus in the lungs may be assumed, that is, that the tuberculosis is active. The constant afebrile albumosuria after tuberculin injections is evidently due to the reaction, and the degree of the albumosuria and its duration may thus serve as a guide in the dosage of the tuberculin.

52. **Exacerbations in Tuberculosis.**—The experimental research described shows that the immunity of tuberculous guinea-pigs to reinfection serves to protect only against small reinfecting doses. Hamburger has recently shown that, weeks and months after the reinfecting dose, changes suddenly develop at the point of inoculation which must be regarded as exacerbation of the tuberculosis. The experiments here related were made with guinea-pigs; they were inoculated with a small dose of tubercle bacilli and then later were reinoculated at the same time as untreated controls. The results sustain anew the importance of the predisposition. This method affords a means of experimental research on the

predisposition, such as has not been attainable before. The findings are tabulated for comparison.

53. **"Scrofulous" Adults.**—Bauer protests against the neglect of the manifestations of "serofula" in adults. Signs and symptoms suggesting serofula in the past or its persistence can often be found on careful search and throw much light on the diagnosis in dubious cases of tuberculosis in adults. The connection of tuberculosis with serofula is as manifest in adults as in children. The manifestations in the eye are less frequent and less severe in adults than in children, but the former suffer more from chronic catarrh of the upper air passages, which, however, does not induce such hyperplasia as in children. He has sometimes witnessed serofula develop in the course of pulmonary tuberculosis in adults. Certain peculiarities of the "serofula" in adults suggest that it is a manifestation of the immunity process or the loss of a previously acquired immunity; its spontaneous retrogression signifies the reacquirement of immunity; its obstinate persistence or aggravation may be a sign of the impossibility of active self-immunization against tuberculosis. In conclusion Bauer regrets that the specialists in the fields of these serofulous symptoms pay so little attention to their connection with tuberculosis.

56. **Acute Hemorrhagic Nephritis in Pulmonary Tuberculosis.**—Tobiesen reports twenty-one cases of this kind; in twelve the nephritis developed in the hospital or in the sanatorium. Only two of the patients were in the first stages of tuberculosis, the others were in the third stage; all but two were males. The course was insidious and no new symptoms developed. When the pulmonary process was not too severe, the aspect of the urine rapidly improved and in four of the cases the cure seems to be complete and permanent.

Centralblatt für die Grenzgebiete der Med. u. Chir., Jena

July 26, XV, No. 5, pp. 347-514. Last indexed July 6, p. 73

- 57 *Acquired Fistula in Gastro-Intestinal Canal. (Die erworbenen Fisteln des Magen-Darmkanals.) H. Hilgenreiner.
- 58 *Angiosclerotic Gangrene of the Legs and Operative Treatment. (Die angiosklerotische Gangrän der unteren Extremitäten und die neueren chirurgischen Bestrebungen zu ihrer Behandlung.) D. G. Zesas.
- 59 Isolated Sigmoiditis and Perisigmoiditis. R. Köhler.

57. **Acquired Fistula in Gastro-Intestinal Tract.**—Hilgenreiner reviews 271 articles published on this subject since his previous compilation in 1905. The records show 160 cases of acquired fistula in the stomach. Those located near the pylorus allow stomach contents to escape so that a prompt operation is indispensable, but when the opening is near the cardia it is liable to heal up spontaneously so that operative treatment need not be discussed for the first six or eight weeks. On suspicion of syphilis, specific treatment may do wonders. An alkaline powder scattered on the edges of the fistula prevented corrosion from the gastric juice in Mann's case. The records show 119 cases of a fistula between the stomach and large intestine and two into the duodenum. The technic for managing the fistulas at different points and the complications is reviewed in detail.

58. **Operative Treatment of Gangrene of the Legs.**—Zesas lists 284 articles on gangrene from hardening of the blood-vessels, and reviews the various operations that have been attempted to remedy it, especially arteriovenous anastomosis, which has been done in sixty-three cases. In eight of the cases marked improvement or a cure was realized, and this justifies further attempts in this line. The favorable cases were reported by Wieting, Heymann, Glasstein and Bernheim. In twenty-eight of the cases there was thrombosis, and in twenty-six cases amputation became necessary. The anastomosis had a favorable influence on the pain in nearly every case, even although this relief was not always permanent.

Deutsche medizinische Wochenschrift, Berlin

July 25, XXXVIII, No. 30, pp. 1401-1440

- 60 *Operations on Diabetes. (Indikation und Prophylaxe chirurgischer Eingriffe bei Diabetikern.) F. Umber.
- 61 Anaphylaxis from Excessive Functioning of the Thyroid? (Thyreosis und Anaphylaxie.) G. Wolfsohn.
- 62 Colon Bacillus and Suppuration. (Experimentelle Untersuchungen über das Bacterium coli als Eitererreger.) O. Hess.
- 63 Hemorrhagic Nephritis in Purpura; Six Cases. A. Lippmann.

- 64 Symptomatic Importance of Changes in the Hearing with Central Neurofibromatosis. (Hörbefund bei zentraler Neurofibromatose.) Engelhardt.
- 65 *Source of Error in Phenolphthalein Test for Occult Blood. (Eine Fehlerquelle bei Anwendung der Phenolphthalein-Blutprobe.) B. Vas.
- 66 Methylene Blue-Iodin Test for Acetic Acid in Urine. (Neues Verfahren zum Nachweis der Azetessigsäure in Urin.) B. v. Ondrejovitch.
- 67 Alimentary Galactosuria in Liver Disease in Neuroses. M. Hirose.
- 68 Distention of Sigmoid Flexure. (Megasisigmoidum als Ursache einer 4-monatlichen Verstopfung.) R. Luria.
- 69 Serodiagnosis of Echinococcus Disease. (Komplementablenkung in Echinococcenfällen.) R. Hertz.

August 1, No. 31, pp. 1441-1480

- 70 *Electrophysical Means to Enhance Action of Drugs and Toxins. (Ueber Arzneimittel und Gifte.) J. Traube.
- 71 Mutation Phenomena in Bacteria. Baerthlein.
- 72 Diagnosis of Abdominal Growths from Displacement of Large Intestine. (Die Röntgendiagnose intraabdominaler Neubildungen aus der Verlagerung des Dickdarms.) E. Stierlin.
- 73 Instantaneous Roentgenography of the Thorax. (Ueber Röntgenschnellaufnahmen des Thorax.) A. Wolff-Eisner.
- 74 Mesothorium Radiotherapy in Gynecology. (Ueber Versuche direkter Tiefenbestrahlung in der Gynäkologie mittels radioaktiver Substanzen—Mesothorium.) W. Friedländer.
- 75 Endobronchial Epinephrin Spray in Asthma and Bronchitis. (Wirkung des Adrenallins beim Asthma bronchiale und bei der chronischen Bronchitis.) A. Ephraim.
- 76 Epidemic of Jaundice. (Eine Ikterusepidemie.) S. Weissenberg.
- 77 Treatment of Ruptured Extra-Uterine Pregnancy. (Zur Behandlung der geplatzten Extrauterin gravidität mit freier Blutung.) A. Wagner.

60. Operations on Diabetics.—Umber declares that internists as a rule shrink from having an operation done on a diabetic and are liable to postpone it until too late. It is of the greatest importance to determine whether the diabetes in an operative case is essentially severe or whether the phase observed is a transient aggravation by the surgical process of a mild diabetes. But everything should be done to reduce the glycosuria as much as possible beforehand and afterward, and to ward off coma by prophylactic treatment of acidosis. He insists that the indications for operative treatment should not be materially restricted in the diabetic. The gangrene in diabetes is the result of hardening of the arteries and not directly of the diabetes. In mild cases removal of the gangrened part, with its noxious influence on the metabolism, permits the diabetes to resume its former mild character after the transient aggravation of the disease. Even severe diabetes with acidosis does not peremptorily contra-indicate a needed operation, as he proves by some examples. He has found the "oatmeal cure" a useful preliminary to an operation, following von Noorden's technique. If the oatmeal is not well borne, he gives milk or cream in its place, with 120 or 240 gm. of apple, raw or cooked. The food is given every two or three hours. If there is no acidosis or if it subsides under dieting, bouillon and fat can be allowed on certain days (bouillon, beef-marrow, butter, tea, coffee, brandy, red wine). This helps to reduce the glycosuria more rapidly. Sodium bicarbonate or magnesia must be given at the same time until the urine becomes neutral or weakly alkaline, no more. When the operation is urgent, he gives the alkali by mouth and gives small doses of opium. He warns against intravenous injection of the alkali before the operation as this favors thrombosis. The best time for operating on a diabetic seems to be before breakfast, and local anesthesia should be preferred when possible.

65. Source of Error in Testing for Occult Blood.—Vas warns that a previously taken purgative containing phenolphthalein may interfere with the findings in the stools.

70. To Enhance Local Action of Drugs.—Traube comments on the law that a toxic substance in the blood or colloidal vehicle becomes less toxic as its particles grow larger. An antitoxin may reduce the noxious action of a toxin merely by agglutinating or clumping the particles of the latter. The neutralizing action of the antitoxin may be of a physical nature as well as a chemical. The workings of this law permit the hope that by applying an alkali locally to the disease focus a drug, taken internally, may have its particles so broken apart or otherwise physically altered by the alkali that it will display an elective action at this point. Recent experiments on the eye with sodium carbonate showed that it enhanced the action of cocaine and atropin, and rendered it more durable.

Medizinische Klinik, Berlin

July 21, VIII, No. 29, pp. 1181-1220

- 78 Complications of Acute Otitis Media. (Komplikationen der akuten Mittelohrentzündung.) Stenger.
- 79 Importance of Further Research on Diagnostic Importance of Cerebrospinal Fluid. (Bedeutung der Untersuchung der Spinalflüssigkeit.) F. Eichelberg.
- 80 *Prophylaxis of Pulmonary Tuberculosis. G. Löffler.
- 81 Physical Measures in Treatment of Gastro-Intestinal Disturbances. (Ueber die Wirksamkeit der physikalischen Behandlungsmethoden bei Störungen des Verdauungsapparats.) S. Landsberg.
- 82 Treatment of Ankylosed Joints in Thermal Baths. (Mobilmachung von Gelenksteifigkeiten während Thermalkuren.) B. Bosanly.
- 83 Case of Polymyositis After Salvarsan in Syphilis. (Beitrag zum Kapitel: R. cochlearis n. VIII und Salvarsan.) O. Levinstein.
- 84 Nitroglycerin or Amyl Nitrite in Seasickness. O. Burwinkel.
- 85 Chemical Explanation of Action of Mercury. (Neuere Anschauungen über den Chemismus der Gift- und Heilwirkung organischer Quecksilberverbindungen.) W. Schoeller and W. Schrauth.
- July 28, No. 30, pp. 1221-1258 and Supplement
- 86 Relics of Syphilis in the Tissues. (Ueber syphilitische Reste in den Geweben und ihre prognostische Bedeutung.) S. Ehrmann.
- 87 Indications for Operative Treatment of Internal Ear Disease. (Indikationen zur Eröffnung des entzündlich erkrankten Labyrinths.) F. Lange.
- 88 Hypoplastic Aorta. (Zur klinischen Diagnose der hypoplastischen Aorta bei Lymphatikern.) E. Stoerk.
- 89 Influence of Therapeutic Baths on Electrocardiogram. (Einfluss balneotherapeutischer Massnahmen auf das Herz und die Form des Elektrokardiogramms, sowie über die Bedeutung des Elektrokardiogramms für die Klinik der Herzkrankheiten.) A. Strubell.
- 90 Influence of Sea Climate on the Circulation. (Einfluss des Seeklimas auf den Blutkreislauf.) J. Ide.
- 91 *Iodin and Thyroid Extract as Factors in Exophthalmic Goiter. (Jod und Thyreoidin als Ursache der Basedowkrankheit bei Kropfbehandlung.) A. Pulawski.
- 92 Death Under Alyn Local Anesthesia After Morphine and Adalin. G. Ritter.
- 93 Dressings for the Eye. (Der Verband in der Augenheilkunde.) H. Feilchenfeld.
- 94 Colloids and Mineral Springs. F. Krieg.
- 95 Principles of Dietetics. (Diätmodifikation—Diätform—Diätverordnung—Diätdurchführung.) C. Jürgensen.

80. Prophylaxis of Pulmonary Tuberculosis.—Löffler calls attention to the frequency of a mechanical and functional lack of proportion in the chest and lungs of certain children and young people, which gives cause for suspicion of tuberculosis. Time reveals that this is a mistake, but the conditions favor infection and every effort should be made to help the child to outgrow them. Breathing exercises are especially useful, and outdoor play.

91. Iodin and Thyroid Extract as Factors in Exophthalmic Goiter.—Pulawski reports three cases in which he witnessed Basedow symptoms develop in the course of iodine or thyroid treatment of a goiter. In one case the Basedow symptoms persisted long after the treatment had been suspended.

St. Petersburg medizinische Zeitschrift

July 28, XXXVII, No. 14, pp. 207-220

- 96 Evolution of the Treatment of Paralysis. (Entwicklung der Lähmungstherapie.) O. Vulpius.
- 97 Senile Arteriosclerosis. (Arteriosklerose des Greisenalters.) P. Hampeln.
- August 14, No. 15, pp. 221-234
- 98 Industrial Diseases and Injuries. (Die Gefährdungen und Schädigungen des Mannesalters durch den Beruf.) E. Schwarz.
- 99 Influence of Status Lymphaticus on the Course of Diseases. (Bedeutung der lymphatischen Konstitution für den Verlauf der Krankheiten.) S. Unterberger.

Therapeutische Monatshefte, Berlin

August, XXVI, No. 8, pp. 549-632

- 100 *Necessity for Official Examination of Claims Made for New Drugs. (Prüfungs- und Anknüpfstellen für Arzneimittel.) E. Seel.
- 101 *Diet in Prophylaxis and Treatment of Tuberculosis in Children. (Zur Prophylaxe und Ernährungstherapie der Lungenerkrankungen im Kindersalter.) H. Vogt.
- 102 Epinephrin in Therapeutics. (Zur Pharmakodynamik und therapeutischen Verwendung der Adrenalinwirkung.) F. Gaisböck.
- 103 Reform in Advertising Medicinal Articles. (Zur Arzneimittel-liste des Deutschen Kongresses für innere Medizin.) Arzneimittelkommission des Deutschen Kongresses für innere Medizin.

100. Official Examination of Claims Made for Medicinal Articles.—Seel devotes sixteen pages to his arguments on the necessity for, and the possible equipment and scope of a central institution to investigate the medicinal articles on the market. He lauds the Council on Pharmacy and Chemistry of the American Medical Association as an ideal arrangement for the purpose, and states that Japan has had a regulation in force since last April requiring all medical articles and

drugs not listed in any pharmacopeia to be submitted to the government before they are offered on the market. Samples of the article and information in regard to its composition must be submitted. Seel looks to the government in Germany to inaugurate something of the kind, and first of all to organize some central institution for the purpose.

101. Diet in Prophylaxis of Pulmonary Tuberculosis.—Vogt insists that young children should be protected against infections with as much care as a surgeon protects an operative wound. Adults with acute affections of the air passages should keep away from the vicinity of young children. If this is impossible, they should wear a face mask in the presence of the child. Adults with a tendency to recurring sore throat and bronchitis should be regarded as not suited for service as a nurse or governess. The better resistance of breast-fed infants to infections is possibly due, he thinks, to the larger fat content in the milk. This assumption is sustained by the results of experiments on animals; animals given fat in their food displayed a higher immunity to tuberculosis than the animals fed on carbohydrates. It is known also that animals with the largest proportion of water in their tissues yield to infection more readily than others. Fat-rich food favors development of a water-poor body, and hence enhances the resistance to tuberculosis. Another factor too often neglected in the prophylaxis of tuberculosis is breathing in such a way as to have the diaphragm do its full share of work and thus keep the circulation normal. This is even more important for the infant than the adult as the infant is restricted to diaphragm breathing. This requires normal tone in the abdominal walls to keep it normal. The diaphragm breathing suffers on a diet that causes the abdominal walls to grow flabby or to be unduly distended or with abdominal deposits of fat. On a too long and exclusive milk diet, the infant has flabby abdominal walls, and on too exclusive carbohydrate diet, the child grows too fat and its abdomen becomes distended even when no acute digestive disturbances develop. A tendency to dyspnea and cyanosis develops, and the child acquires an intercurrent infection much more readily than a child with strong muscles. Still another point to be regarded is that acute digestive disturbances interfere with the circulation in the lungs, and hemorrhagic infiltration is liable, thus providing a nest in which secondary bronchopneumonia may develop. This form of disturbance in the circulation in the lungs is most common in infants who lie mostly on their backs. With strong muscles the child sits and stands more, and this in turn aids in warding off tuberculosis. The diet is thus seen to be the key that opens or locks the door against tuberculosis.

Therapie der Gegenwart, Berlin

August, LIII, No. 8, pp. 337-384

- 104 Thorium in Therapeutics. (Der jetzige Stand der Thorium-X-Therapie mit eignen Beobachtungen bei Leukämie und Anämie.) G. Klemperer and H. Hirschfeld.
- 105 *Differential Atmospheric Pressure in Treatment of Heart Disease. (Praktische Ergebnisse bei der Behandlung Herzkranker mit Druckänderung der Lungenluft nach meiner Methode.) E. Albrecht. Concluded in No. 9.
- 106 *Stuttering. (Zur Kenntnis des Stotterns für den praktischen Arzt.) T. Hoepfner.

105. Differential Pressure in Treatment of Heart Disease.—Albrecht applies different atmospheric pressure, varying from positive to negative and transitional phases at one sitting, in treatment of heart disease. He aims to alter thus mechanically the circulation of the blood through the lungs and thus exert an active influence on the abnormal distribution of the blood in the heart. Previous efforts in this line have been directed exclusively to altering the blood content in the lungs. By alternating and combining negative and positive pressure with expiration into ordinary air, a remarkable effect on the heart is produced, especially in cases of dilatation. He has now a record of 2,032 sittings of the kind; in only 195 was negative pressure alone used. He has never witnessed any by-effects or inconveniences in any of his ninety-two patients with various forms of heart or vascular disease. He cites a number of typical cases but does not describe the apparatus he uses.

106. Stuttering.—Hoepfner warns physicians to be on the lookout for the early symptoms of stuttering, possibly in

children only 2 or 3 years old. He comments on the great handicap that stuttering is to any individual, rendering him unsocial and altering the character. The assumption that stuttering can be outgrown is very rarely sustained by facts, he says. He has never known idiots to develop stuttering; it is most common in the mentally unbalanced, degenerates and paranoiacs. Treatment therefore should be more than merely to correct the speech.

Wiener klinische Wochenschrift, Vienna

July 25, XXV, No. 30, pp. 1155-1182

- 107 Case of Hysterical Aphasia. (Zur Kenntnis der hysterischen kortikalen motorischen Aphasie mit Amnesie, Alexie und Agraphie.) A. Schönfeld.
 - 108 Spherical Concretions in Dammed Appendix. (Kugelbildungen im Wurmfortsatze.) H. Poindecker.
 - 109 Alimentary Galactosuria of Nervous Origin. (Ueber neurogene Galaktoseintoleranz.) H. Pollitzer.
 - 110 The Cranial Nerves in Early Syphilis. (Zur Kenntnis der Hirnnervenstörungen im Frühstadium der Syphilis, Speziell nach Salvarsan.) A. Zoloziecki and R. Frühwald. Continued in No. 29.
 - 111 Serodiagnosis of Cancer. (Zur Einwirkung des Karzinomserums auf Karzinom und zur Oxyproteinäurevermehrung bei Karzinom.) H. Salomon and E. Freund.
- August 1, No. 31, pp. 1183-1214
- 112 *Prognostic Value of Urochromogen Reaction in Urine in Pulmonary Tuberculosis. (Verwertung des Urochromogens nachweis bei der Indikationsstellung der Tuberkulinbehandlung.) M. and A. Weisz.
 - 113 Spastic Hour-Glass Stomach as Sign of Duodenal Disease. (Spastischer Sanduhrmagen bei duodenalen Affektionen.) A. Baron and T. Barsony.
 - 114 General Infection With the Neisser Gonorrhea Micrococcus. K. Rotky.
 - 115 Treatment of Syphilis. L. Löw.

112. Urochromogen in Urine as Guide in Treatment of Tuberculosis.—Weisz regards a positive diazo reaction as an indication that the system is incapable of vigorous recuperation, and consequently that tuberculin treatment has no hopes of success as this requires the active cooperation of the body. The presence of urochromogen in the urine is part of the diazo reaction and even precedes the latter, so that determination of it by the simple permanganate test answers all purposes and reveals the cases in which the tuberculosis is beyond help from tuberculin and those in which the body is liable to respond favorably to its action, thus practically deciding between life and death. All that is necessary is to add 3 drops of a 1 to 1,000 solution of potassium permanganate to 1 c.c. of urine diluted with 2 c.c. of distilled water. The appearance of a yellow color reveals the presence of urochromogen, the fluid remaining clear. Weisz gives the ultimate history of twenty-three patients tested in this way, the outcome confirming the great prognostic value of this test. He accepts positive findings as contra-indicating tuberculin treatment, and advises occasional repetition of the test during a course of tuberculin treatment. [Compare with abstract 30 in THE JOURNAL, Feb 24, 1912, p. 587.]

Zeitschrift für Kinderheilkunde, Berlin

July, VI, No. 4, pp. 265-364

- 116 *Chronic Albuminuria After Scarlet Fever. (Chronische Albuminurien nach überstandener Scharlachnephritis.) J. Rosenfeld and S. v. Rechtenstamm.
- 117 "Scrofula." (Was ist Skrofulose?) K. Hochsinger.
- 118 Natural and Acquired Defective Thyroid Functioning. (Ueber hypothyreotische Konstitution und über frühzeitig erworbene Athyreose.) E. Wieland.
- 119 Masturbation in Children. (Beobachtungen über kindliche Onanie.) J. K. Friedjung.
- 120 Acute Painful Swelling of the Breasts in Older Children. (Ueber die akute schmerzhafteste Brustdrüsenanschwellung grösserer Kinder—"Mastitis adolescentium.") J. Zappert.

116. Chronic Albuminuria After Scarlet Fever.—Ninety-three patients from the Vienna children's clinic who had had nephritis following scarlet fever were reexamined as to the condition of heart, blood-pressure and urine. Fifty-two of them had had albumin in the urine when dismissed from the hospital. The interval since dismissal varied from one to ten years. In no case was there a severe chronic nephritis; ten children showed albuminuria; in seven there were casts accompanied by sediment, and in one by increased blood-pressure. The postural test was applied (kneeling for ten minutes in a lordotic position) and twenty-eight of the children showed albuminuria after this test, while it had been absent before, and in eight cases there was a marked increase in the urine. The severity of the original kidney affection—so far as it

was shown by uremic symptoms—bore no relation to the later albumin findings; but those children who had left the hospital entirely free from kidney trouble, showed a much smaller percentage of albuminuria than those who had been dismissed with albumin still in the urine. Tables are given showing in detail the findings.

Zentralblatt für Chirurgie, Leipsic

July 20, XXXIX, No. 29, pp. 985-1016

- 121 Formalin Injections in Echinococcus Disease. F. Franke.
122 Improved Technique for Suture of Vessels. (Zur Technik der Gefäßnaht.) E. Jeger and H. Lampl.
July 27, No. 30, pp. 1017-1048
123 Improved Technique for Draining Hepatic Duct. H. Kehr.
124 *Blocking the Sciatic Nerve. (Leitungsanästhesie des N. ischiadicus.) W. F. Jassenetzky-Woino.
125 *Treatment of Elephantiasis by Excision of Tissue. (Die operative Behandlung der elephantiasischen Oedeme.) E. Kondoleon.
August 3, No. 31, pp. 1049-1088
126 Technique for Irrigation in Peritonitis. (Zur Methodik der Spülung bei eitriger Bauchfellentzündung.) R. Gutzeit.
127 Maximal Relaxation of Rectal Walls as Early Symptom of Septic Appendicitis. (Die Maximaldehnung des Mastdarms als ein sehr frühes Symptom bei Appendicitis acuta septica.) C. Springer.
128 Advantages of Plaster Cast After Resection of the Knee. (Zur Nachbehandlung der Kniegelenksresektion.) K. Blauel.

124. **Blocking the Sciatic Nerve.**—Woino states that three years of experiments have demonstrated that the best point to reach the sciatic nerve is at the intersection of a horizontal line through the tip of the greater trochanter and a vertical line passing through the outer margin of the tuberosity of the ischium. In three of twenty cadavers tested the horizontal line had to be from 1 to 1.5 cm. higher, but in all the others the nerve was directly accessible at this point, just as it emerged from the great sacrosciatic foramen. In every cadaver a stain injected at this point bathed or permeated the nerve. The anesthetic acts more rapidly and intensely when from 5 to 10 drops of epinephrin are added to the 10 or 20 c.c. of the 2 per cent. anesthetic he uses to block the nerve. He inserts the needle in the corner of a square wire frame, two sides of which form the guiding lines. Operations on soft parts can then be commenced in half an hour, but on bones not before an hour. He has applied this technique in twelve cases with gratifying results. In most cases it is necessary to block at the same time the femoral nerve, according to Læwen's technique. These techniques, as also Kulenkampff's method of blocking the brachial plexus, might be utilized, he suggests, for injecting tetanus antitoxin.

125. **Operative Treatment of Elephantiasis.**—In six cases at Athens Kondoleon has successfully removed strips of fascia in treatment of elephantiasis. The edema subsided afterward, partially or totally, and the leg became soft, but the interval of one or two months since is too brief to determine the ultimate outcome. The relief even to date, he declares, has been such as to justify the operation.

Zentralblatt für Gynäkologie, Leipsic

July 20, XXXIX, No. 29, pp. 945-976

- 129 Advantage in Tying the Umbilical Cord Only Once. (Ist eine doppelte Unterbindung der Nabelschnur bei Entbindungen notwendig oder vorteilhaft?) W. Möller.
130 The Midwife Question. (Zur Reform des Hebammenwesens.) F. Weisswange.
July 27, No. 30, pp. 977-1008
131 *Management of Third Stage of Labor. (Ueber das "Halten der Gebärmutter," Erfahrungen mit der Dubliner Methode in der Leitung der dritten Geburtszeit.) J. Reich.
132 Intrapartum Transmission of Germs in Vagina to the Child's Mouth, Umbilicus or Mamma and Secondary Infection of Mother's Breasts. (Der Uebergang mütterlicher Scheidenkeime auf das Neugeborene und indirekt auf die Mutter.) W. Lindemann and F. Noack.
133 Isolation of Syncytium Cells. (Die Isolierung von Syncytium ev. Placentarzellen.) Kiutsl.
134 Criminal Abortion. (Der Kampf gegen die kriminelle Fruchtabtreibung.) M. Hirsch.

August 3, No. 31, pp. 1009-1040

- 135 *Death from Prophylactic Camphorated Oil Injection. (Tödliche Kampfervergiftung nach Anwendung von officinellem Kampferöl zur postoperativen Peritonitisprophylaxe.) W. Rübsamen.
136 Ovarian Abscesses of Appendicitic Origin. R. Wanner.
137 Attempt at Abortion with Tubal Pregnancy; Three Cases. (Abortversuche bei fehlender Schwangerschaft und bei Tubargravidität.) P. Jung.
138 Eleventh Case of Artificial Vagina Made from Intestine. (Bildung einer künstlichen Vagina aus dem Dünndarm.) Papanicolaou

131. **Management of Third Stage of Labor.**—Reich has paid special attention to the effect displayed by various methods of management of the third stage of labor on the hemorrhage after cesarean section. His experience showed that the more rapidly the child was extracted after the uterus had been opened, the less the hemorrhage. Also that when the separation of the placenta was left to the natural forces, while the uterus was held in concentric compression (what he calls the English or Dublin method), the hemorrhage was least severe. Restricting the hemorrhage to the minimum is of extreme importance for rapid convalescence, and the concentric compression best guarantees this, he declares. He has applied it systematically in the last 800 maternity cases with excellent results.

135. **Fatal Camphor Intoxication After Prophylactic Injection.**—Rübsamen's patient was a woman requiring panhysterectomy for an ovarian cyst with adhesions. The operation was done under light scopomorphin-ether anesthesia. Before suturing the wound, 170 c.c. of the standard 10 per cent. camphorated oil was poured into the abdominal cavity. The pulse was 130, regular and full. The patient died two days later, the pulse climbing to 160; the necropsy findings pointed to camphor poisoning. All but 70 c.c. of the 10 per cent. camphorated oil had been absorbed from the abdominal cavity.

Zentralblatt für innere Medizin, Leipsic

August 3, XXXIII, No. 31, pp. 773-796

- 139 *Importance of Salicylic Medication in Chorea. (Ueber Sydenham'sche Chorea.) F. W. A. Weber.
139. **Chorea.**—Weber treats chorea as if it were a case of acute articular rheumatism, and has been much pleased with the results. He has the tonsils removed as an additional measure in case there is suspicion of anything wrong in them. He does not hesitate to give children from 1.5 to 3 gm. of sodium salicylate daily or from 0.6 to 2 gm. of salicylic acid, supplemented by sweating procedures if the heart is in good condition.

Brazil Medico, Rio de Janeiro

July 15, XXVI, No. 27, pp. 273-282

- 140 Case of Toxoplasmosis in the Dog. L. Millagno.
July 22, No. 28, pp. 283-294
141 Venereal Granuloma and Its Microbe. H. de B. Aragão and G. Vianna.
August 1, No. 29, pp. 295-304
142 Certain Signs of Paralysis Agitans. A. de Castro.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 16, XXXIII, No. 85, pp. 881-888

- 143 Dubious Findings in Regard to Sulphur Reaction in Urine of Cancer Patients. (Reazione specifica nell'urina del cancro?) G. Malan.
July 18, No. 86, pp. 889-896
144 Advantages of Pieric Acid in Various Fields of Medicine. V. Bruni.
July 21, No. 87, pp. 897-912
145 Invasion of the Blood by Various Germs. (Concetti moderni della invasione schizomicetica ematica e della suppurazione.) E. Bertarelli.
146 *Proteolytic Test of Pancreas Functioning. (L'esame della funzione pancreatica studiata con la ricerca del fermento proteolitico.) G. Libertini.

July 23, No. 88, pp. 913-920

- 147 Results of Twelve Years of Prophylaxis of Yellow Fever. (Risultati della profilassi contro la febbre gialla dopo dodici anni di applicazione.) E. Bertarelli.
July 28, No. 90, pp. 929-944
148 Bactericidal Action of Alcohol. E. G. Sottile.
July 30, No. 91, pp. 945-952
149 *Hematoma in Pelvic Cellular Tissue. (Ematoma o trombo del cellulare pelvico.) R. Cingalia.
August 1, No. 92, pp. 953-960
150 Disadvantages of Ether Anesthesia by Way of the Rectum. (La eteronarcosi rettale non è preferibile alla cloronarcosi.) N. Federici.

146. **Tests for Pancreas Functioning.**—Libertini has applied the proteolytic test in fourteen cases and found the response harmonize with the clinical findings and the results of other tests. In one patient with mild diabetes the pancreas seemed to be functioning nearly normally, the trypsin index being 1 to 20 and the amylase 1 to 430, while in another case, in which the diabetes was very severe, the trypsin index was 0 and the amylase 450. Normal findings in regard to proteolysis are not conclusive, but the absence of trypsin or its presence only in small amounts demonstrates that the pancreas

is not functioning properly. He summarizes the various methods of applying the test; Carpi's method (1910) seems most exact but he preferred Schlecht's simple technic, namely, dropping a gelatin capsule, weighing exactly 1 gm., into each of a set of test-tubes containing stool diluted with water to a concentration of 1.01, 1.2, 1.3, 1.4, or 1.5. The amount of fluid in each tube is reduced to 1 c.c. before the capsule is added, and the more or less rapid digestion of the capsule is the reaction on which the test is based. The index is the dilution of the stool in the test-tube giving the reaction after the set of tubes has been kept at 40 C. for an hour. The patient takes an active purgative the evening before to hasten the stool along before bacterial action becomes pronounced. This also increases the ferment content of the stools. It is best to keep the patient on a standard diet for a day or so beforehand to facilitate comparison of the findings.

149. Hematoma in the Pelvic Cellular Tissue.—Cinaglia remarks that while a hematoma in the vulva or vagina is readily diagnosed, this may be more difficult with a hematoma in the pelvic cellular tissue, which may long escape recognition. The rapid development is suggestive, as also the spherical form of the tumor, its elastic consistency, the severe pains and especially its location on the side. Treatment should be expectant as a rule unless the anemia compels speedy operation. The hematoma is generally absorbed but rupture or infection of the hematoma is possible. Continuous pains and fever suggest infection and require prompt operative measures, as also when the hemorrhage is threatening. In a personal case reported the hematoma developed during delivery and severe pain kept up afterward but as the pulse and general condition were good, Cinaglia merely gave a little morphin and applied ice to the ecchymotic area which gradually developed in the vulva, buttocks and perineum. The pains ceased in three days and the blood was gradually reabsorbed until only a few traces were left by the end of the second week.

Riforma Medica, Naples

July 20, XXVIII, No. 29, pp. 785-812

- 151 *Test for Hyperchlorhydria. (Considerazione sopra una personale reazione atta a dimostrare un eccesso di HCl nel succo gastrico.) A. Cipollina.
152 Advantages of Inguinal Method of Access to Femoral Hernia. (Del vantaggi del metodo inguinale di cura radicale dell'ernia crurale dimostrati in un caso di ernia inguino-crurale strozzata.) E. Magni.

July 27, No. 30, pp. 813-840

- 153 *Sulphur Reaction in the Urine of Cancer Patients. (La nuova reazione dello zolfo nelle urine dei cancerosi di Salomon-Saxl.) M. Mazzitelli.
154 *The Acetic Acid Sputum Test in Diagnosis of Tuberculosis. (La reazione di Rivalta introdotta nell'esame degli espettorati; sua importanza diagnostica.) R. Casali.
155 Venous Thrombosis in Infants; Three Cases. (Sulla trombosi delle vene nell'età infantile.) E. Mensi.

August 3, No. 31, pp. 841-868

- 156 Aneurysms of the Sinuses of Valsalva. T. Carpentieri.

151. Color Test for Hyperchlorhydria.—Cippolina here brings the evidence down to date in regard to the color test he published eight years ago. Further experience has confirmed its reliability, he says, if certain simple precautions are observed, and the reaction is complete in two or three minutes. He gives first a test breakfast of 200 gm. boiled potato, well salted, with 200 c.c. of white wine diluted to one-third. The test is made by mixing 2 c.c. of filtered gastric juice with 0.5 c.c. of anilin water and then adding 4 or 5 drops of the standard solution of sodium hypochlorite. A yellow tint and the tendency of the water to become turbid show that there is little if any acid present. With a persisting violet tint, the test should be repeated with gastric juice diluted to one-half with distilled water. Persistence then of the violet tint indicates that there must be more than the maximal normal proportion of HCl. The reaction is very sensitive, even a fraction of a milligram of HCl sometimes turning the scale in favor of the yellow or violet tint.

153. Sulphur Reaction in the Urine With Cancer.—Mazzitelli has applied Salomon and Saxl's technic in fifty cases with especial reference to the findings in cancer cases with or without cachexia. In eighteen cases of cancer without cachexia the reaction was positive in fourteen, and in all but two of the ten patients with tuberculosis. The reaction was positive in

sixteen of twenty-six patients with cachexia of various origin, including eleven with cancer and four with tuberculosis. In the tuberculous giving a positive reaction were two patients with advanced apical processes but no fever, one with a febrile process in the knee, and three with moderate apical findings. One patient with the juvenile form of diabetes responded positively, and one with influenzal bronchitis. [The technic for the test was described recently anew in THE JOURNAL, Aug. 31, p. 738.]

154. Rivalta's Acetic Acid Test for Albumin in Sputum.—Casali has slightly modified this test which seems to be of value in differentiation of tuberculosis (it was described in THE JOURNAL, July 9, 1910, p. 178), and tabulates the findings in sixty-three patients with various affections including thirty-four with tubercle bacilli in the sputum. They show that, if lobar pneumonia can be excluded, the findings of the test may be regarded as conclusive when the sputum is diluted to above one-tenth, positive findings testifying to the presence of a tuberculous process in the lungs. He reviews the history and mechanism of the test and experiences in this line on record. Ten c.c. of sputum are thoroughly stirred with 10 c.c. of distilled water and then slowly filtered. Two drops of acetic acid are stirred into a glass containing 100 c.c. of distilled water. Holding the glass before a light, a drop of the filtrate is cautiously dropped into the fluid. In case of a positive reaction, the drop becomes surrounded with a little cloud as it falls through the fluid. By graduated dilution of the filtrate with a weak solution of sodium carbonate (one drop in 100 c.c. of water), the test can be carried to its extremest limits.

Hospitalstidende, Copenhagen

July 24, LV, No. 30, pp. 833-856

- 157 Principles of Dietetics. (Diætmodifikation—Diætform. Diætforordning—Diætgennemførelse.) C. Jürgensen. Commenced in No. 29.
158 Balanitis as Complication of Gonorrhea. (Om Forholdet mellem Balanitis areata og de endogene gonorrhøiske Lidelser.) O. Haslund.

July 31, No. 31, pp. 857-880

- 159 The Carbon Dioxid Tension in the Alveolar Air in Acute Febrile Diseases. (Undersøgelser over Kulsyrespændingen i Lungernes Alveolærluft ved akut febrile Sygdomme.) L. S. Fridericia and O. Olsen.

August 7, No. 32, pp. 881-904

- 160 A Case of Bradycardia with Changes in the Bundle of His-Tawara. (Et Tilfælde af Bradycardi med Forandringer i His-Tawara's Bndt.) O. V. C. E. Petersen and H. C. Hall.

Ugeskrift for Læger, Copenhagen

July 18, LXXIV, No. 29, pp. 1047-1076

- 161 *Treatment of Eclampsia with Injection of Air Into the Mammæ. (Behandling af Eklampsia med Luftinjektion i Mammæ.) C. de Fine Licht.

July 25, No. 30, pp. 1077-1106

- 162 Trichinosis in Denmark. (Bidrag til Trikinosens Forekomst i Danmark.) H. M. Højberg.

August 1, No. 31, pp. 1107-1144

- 163 Catarrh in Greenland. (Erfaringer om Luftvejskatarrers Optræden i Grønland.) A. Bertelsen.

August 8, No. 32, pp. 1145-1174

- 164 Rapid Treatment of Scabies. (En ny Hurtigkur mod Fnat.) E. L. Ehlers.
165 "Recurrence" of Cancer Sixteen Years After Removal of Adenoma in the Mamma. S. Hansen.

161. Injection of Air Into the Mamma in Treatment of Eclampsia.—This measure has proved its efficacy in an afebrile affection common in cows after calving; the cow may be healthy and strong, but a few days after calving, paresis develops and the animal falls and is unconscious. Convulsions are sometimes observed and the animals died as a rule, until it was discovered that injection of a solution of potassium iodid into the udder put an end to the disturbances. Later it was found that the same benefit was derived from injection of air alone, by a bicycle pump. Licht thought that possibly puerperal eclampsia might be amenable to the same measure, and he reports its application in three clinical cases. In every instance the convulsions ceased after the injection of air from a morphin syringe. A total of 300 or 400 c.c. of air was injected at five or six points around each nipple, supplemented by the usual measures. No by-effects were observed from the injection of air, but one patient succumbed later to puerperal sepsis.

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SECTION ON OPHTHALMOLOGY

PAPERS[†] AND DISCUSSIONS

SYMPATHETIC CHORIOIDITIS *

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ST. LOUIS

Since the immortal Koch first succeeded in proving to a doubting medical world the microbic origin of disease, and since we have learned more and more of the manner in which microbes gain entrance primarily or secondarily into a wound and how, having once entered, they may invade the whole body, the search for the specific microbic irritant in such diseases in which it has as yet not been found is continuously going on.

This is also the case with sympathetic inflammation, and quite naturally so. In the vast majority of these cases, of which after all even a very busy man sees not very many in a life-time, the affection begins with a wound, whether accidental or operative, in the one eye, which causes this eye to become more or less severely inflamed. Usually only a few weeks later the fellow eye also becomes the seat of an inflammation, which in the great majority of cases leads to its destruction. What more natural, therefore, than to assume that the inflammatory process in the first affected eye is due to a microbic infection, which has taken place when the wound was received, or secondarily, and that the resulting inflammation, or perhaps its cause itself, travels gradually over to the fellow eye? What more simple than to assume that the way by which this migration takes place is the preformed way of the optic nerve and intervaginal space, around in front of the chiasma and down the nerve and the intervaginal space to the fellow eye?

That such a transition of noxious substances and microbes from one eye to the other is possible has, it seems, long ago been proved experimentally by R. Deutschmann, H. Gifford, myself and others. Most recently such experiments with most brilliant results have been made and published¹ by F. Deutschmann, who also found that the anterior half of the chiasma showed signs of inflammation and thus supplied a link in the chain which has been hitherto wanting. After such definite results this possibility surely cannot be doubted by

any one. Unfortunately, however, but few observers have apparently been able to demonstrate, at least to their own satisfaction, the offending microbes in the injured eye even. The majority were unable to find any. Even in his now celebrated series of eyes with sympathizing inflammation, from which Fuchs evolved a picture which he considers an absolutely separate one and characteristic of this form of inflammation, quite distinct from that of a septic endophthalmitis, he did not find any microbes. In a number of cases, which I have studied most diligently, I have been no more fortunate. Still, I doubt whether our present inability in this direction should force us to assume that the unknown specific microbe of sympathetic inflammation circulates in the blood and comes into activity in the eye only after an injury has been received, or to assume that, at the time when the first affected eye is removed and subjected to microscopic examination, the infecting microbes have been destroyed by the activities of the tissues of the eye, and, perhaps, their toxins only have kept up the inflammation. Yet, after all, whatever theory we assume—and you know there are others not mentioned here—especial and exceptional conditions must prevail in all such cases, or sympathetic ophthalmia would be a much more common disease.

There are other puzzling questions. Why should sympathetic ophthalmia sometimes appear years after the original wound has been received—sometimes many years afterward? Schirmer thinks that the greater the interval between the affections of the two eyes, the less probability of a correct diagnosis. Yet observers whose judgment can hardly be doubted have described such late cases. We know that there are microbes which may, so to speak, remain dormant or inactive in the human body for years and then be again aroused to activity. A similar condition might account for such late cases of sympathetic inflammation. Why does sympathetic inflammation appear in a variety of forms? In a general way, of course, we know that it involves preeminently the uveal tract, but, it seems, it will not do to look on the different pictures under which sympathetic inflammation appears as simple gradations of one and the same uveal affection. Whoever has seen and studied a case of sympathetic optic neuritis—and we shall hear something about such cases at this meeting—or a case of so-called sympathetic chorioïditis, must surely come to the conclusion that these are special and distinct forms of sympathetic inflammation.

* Chairman's address.

¹ Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

[†] As the footnotes indicate, certain papers are here printed in abbreviated form.

1. Deutschmann, F.: Arch. f. Ophth. (von Graefe's), 1911, xxviii, 494.

Why does the removal of the first affected eye apparently have a beneficial influence on the course of an already well-established—that is, macroscopically recognizable—sympathetic inflammation? Elschnig says it has no such influence; yet how can we doubt it, when we see an eye saved after enucleation of its injured fellow, which, had we waited longer before performing this operation, according to our experience and observation, would in all probability have been lost?

While, then, to a great many of us, although no specific microbe has been as yet demonstrated, a microbic origin seems still to be the most probable explanation of this peculiar inflammation. Elschnig has lately attempted another one, which has in it much that is enticing and is certainly worthy of careful study. In assuming that sympathetic inflammation is an anaphylactic uveitis due to the absorption of disintegrated uveal tissue in the injured eye, and that both sympathizing and sympathetic inflammation are due to the anaphylactic reaction of a thus oversensitized uveal tissue to an anomalous condition in the organism, Elschnig has directed the theoriz-

the second edition of Graefe-Saemisch, mentions only Colsmann, Rothmund and Eversbusch, Dolschenko, Lep-lat and himself as having described characteristic cases of sympathetic chorioiditis without a previous sympathetic iridocyclitis. He states, further on, that, after or contemporaneous with a sympathetic iridocyclitis, chorioiditic changes have been observed by Graefe, Haab and Hirschberg. A beautiful illustration of a case of sympathetic chorioiditis made by Haab accompanies Schirmer's work. The following case is the first of this kind of sympathetic inflammation which I have been in a position to observe:

Patient.—E. R., aged 9, a thin boy, who, however, showed no specific dyscrasia, was brought to my office on Nov. 5, 1911, his left eye having been injured, probably by a playmate on November 1. He has never given an explanation of how the injury came about, but his family think that the offending instrument was the end of a dirty whip.

Examination.—When I first saw him there was some chemosis and ciliary injection of the injured eye, yet the pupil was fairly large, but slightly displaced toward a wound about 3 mm. in length, which was situated exactly in the corneo-

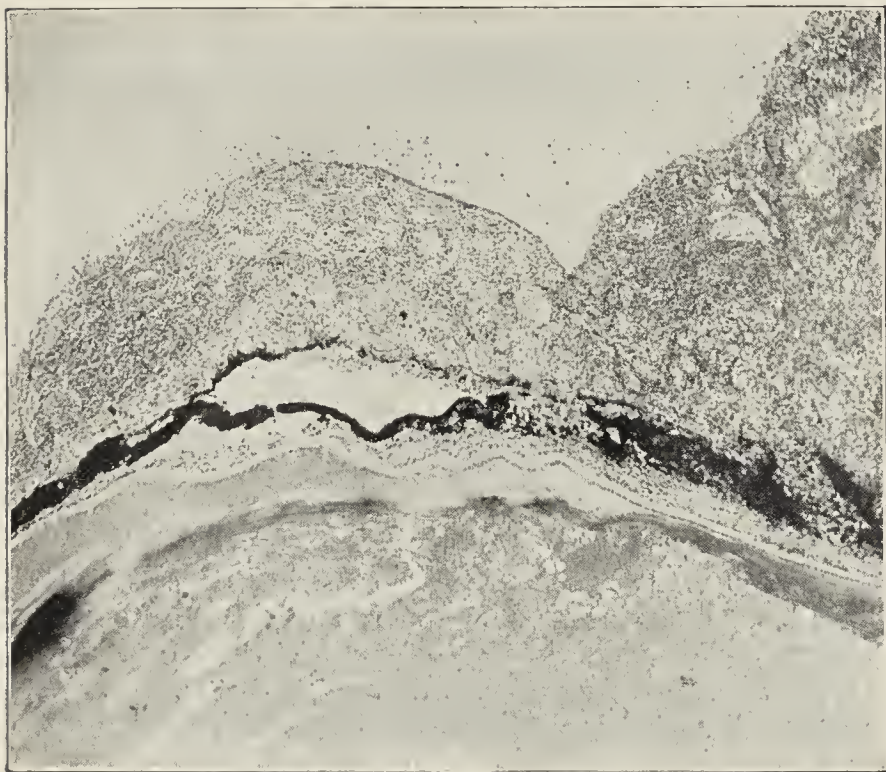


Fig. 2.—Iris thickly infiltrated with lymphocytes. Hemorrhagic space severing the posterior layers. Lens capsule wrinkled. Traumatic cataract.

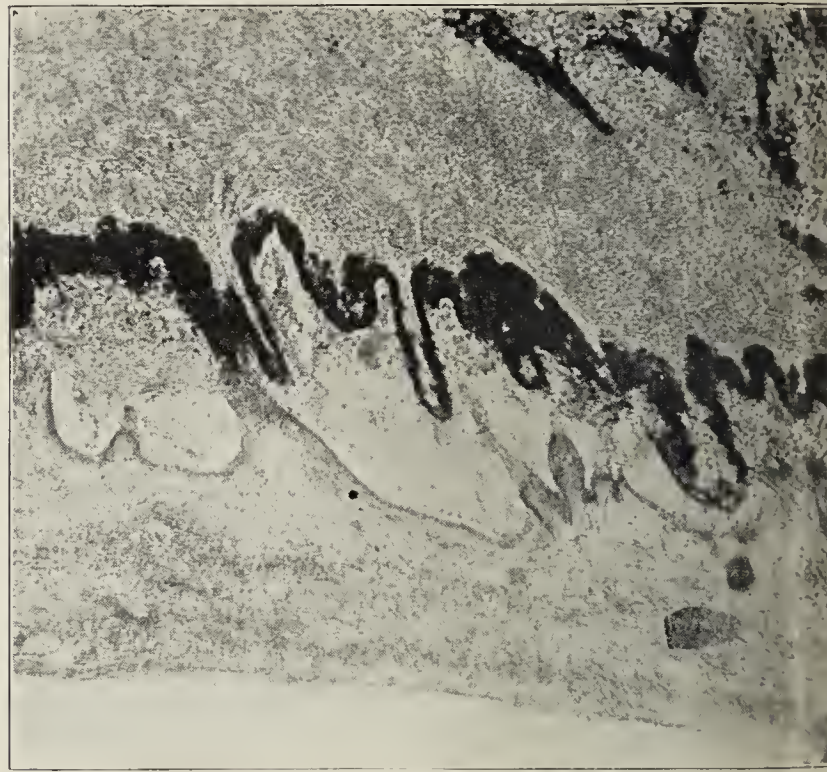


Fig. 3.—Above, ciliary body filled with lymphocytes. Paler parts epithelioid cells. Below, cyclitic membrane. Non-pigmented epithelium of ciliary body pressed inward in the shape of blebs.

ing about sympathetic inflammation into a new direction. Perhaps, his may prove to be the right conception. Yet, like all theories, that of Elschnig has its weaknesses, and they have already been pointed out by Reis.²

It seems, then, that there is still room for much study in this chapter of ophthalmology and still a chance for a glorious achievement and a laurel wreath for the one who some day shall solve this riddle. To accept such a possibility it is only necessary to remember how often the malaria germ was apparently found and denied, and more recently how many organisms have been demonstrated as the contagium of syphilis, before Schaudinn succeeded in proving that the *Spirochæta pallida* was the real one, and I still hope for a similar solution of the cause of sympathetic inflammation.

After these rambling remarks, permit me now to relate to you a case of sympathetic chorioiditis, a form of sympathetic inflammation, which, according to literature, has not as yet been observed very often. Schirmer, in

scleral margin of the inner upper quadrant. The wound had penetrated the corneoscleral tissue and the iris at its very periphery and was plugged by a small amount of vitreous body. The iris periphery was also caught in it and some pus could be seen lying just in front of the apex of the ciliary body. The lens was perfectly opaque, rendering an ophthalmoscopic examination impossible. Vision was nil.

Treatment and Course.—In spite of a careful cleansing of the wound, the application of the necessary local treatment and the immediate internal administration of mercury and aspirin, the inflammatory symptoms increased for some time. a small hypopyon made its appearance and the pupil gradually became much smaller. Yet the boy never acknowledged suffering any pain whatever. An x-ray examination showed no foreign body within the eye.

Gradually the inflammatory symptoms receded, although the pupil was finally closed up altogether, and the eye became somewhat softer. December 5 the patient had distinct light perception, and I almost dared hope that it might be possible to give this eye some sight by operative measures.

During this whole period of time the fellow eye was, of course, watched anxiously and most carefully, but never showed the slightest sign of irritation.

2. Reis: Arch. f. Ophth. (von Graefe's), 1911, lxxx, 69.

Now, the patient, in spite of the earnest warnings given to his parents, disappeared from observation and did not return till Jan. 11, 1912, with the statement that he was well and had neither had drops put into the eye nor taken any medicine internally for three weeks. And it proved to be fortunate that he returned just then. For, as soon as he sat down before me, I noticed a flushing of the episcleral vessels in the good eye and saw, also, that the pupil was contracted. It hardly reacted to light. Atropin solution, immediately instilled, produced its dilatation *ad maximum* so promptly that I thought that no iritis could as yet have developed. Yet, a broken circle of minute brownish pigment deposits corresponding with the size of the pupil could be demonstrated on the anterior lens capsule, both by oblique illumination and the ophthalmoscope. There was, also, a fine, dust-like opacity of the posterior parts of the vitreous body, the papilla was reddish, its outlines were veiled here and there and the retinal veins were somewhat tortuous. I do not think there can be any doubt but that this eye was just beginning to be attacked by sympathetic inflammation.

In spite of an urgent message to him the father brought the boy back to me only two days later. He at first refused to believe in the urgency of removing what he thought now was a healthy eye, but finally yielded to my entreaties. For external reasons I had the boy taken to the Free Children's Hospital, where Dr. W. F. Hardy was kind enough to enucleate the left eye the same evening (January 13) and to undertake

"Up to this date (May 5) the treatment has been but slightly relaxed and the eye now appears normal, except for the chorioidal spots, a slight redness of the papilla and a slight tortuosity of the retinal veins.

"His V = 20/15 with a + 1.75 D. lens; he wears an artificial eye with great comfort."

I wish to describe a little more in detail what I know about the chorioidal spots. In the first place, I had carefully examined the eye with the ophthalmoscope on March 12, when there was nothing pathologic to be detected in the chorioid, but one week later, on March 19, I found the chorioidal spots. They, therefore, had put in appearance some time between these two dates. That means that the chorioiditis developed about four and one-half months after the injury to the first affected eye and a little over two months after the onset of the sympathetic inflammation, and, furthermore, at a time when all other symptoms, except a slight redness of the papilla and a slight tortuosity of the retinal veins, had disappeared.

When I first saw these spots, I counted seven of them. They differed in size and appearance, but were striking



Fig. 4.—Anterior part of ciliary body infiltrated with lymphocytes and epithelioid cells; the latter have broken through the lamina vitrea in several places. Near the middle part to the right, several giant cells.

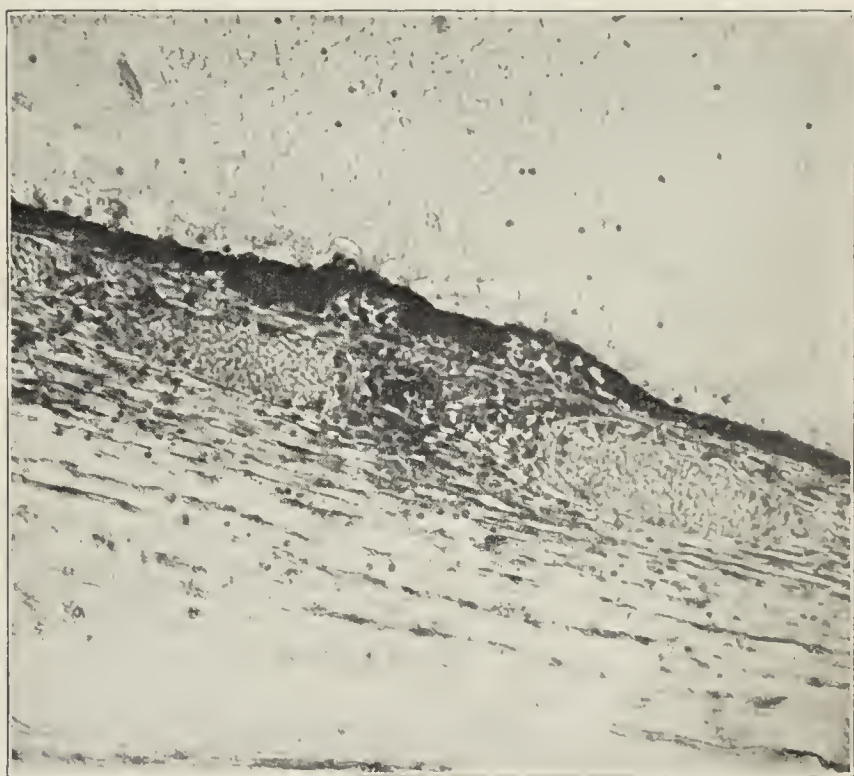


Fig. 6.—Anterior part chorioid. Small nests of epithelioid cells forming on the lamina vitrea, derived from the pigment epithelial cells. Lymphocytic infiltration.

the further treatment. Dr. Hardy gave the following short further history of the case:

"The patient was kept in the hospital for the six weeks following operation for treatment and observation.

"When he entered the hospital the right eye showed the following conditions: slight episcleral injection; pupil *ad maximum* dilated; numerous minute pigment dots arranged in a circle on the anterior lens capsule, evidently remnants of a slight iritis. The vitreous body was somewhat cloudy and the outlines of the disk were indistinct. The retinal vessels were tortuous.

"The treatment consisted in keeping the pupil widely dilated, daily mercurial inunctions and aspirin (30 grains) internally. Under this treatment a gradual improvement took place. The pigment spots on the lens capsule disappeared, the outlines of the disk became more and more distinct and the vitreous body cleared up. At the end of two months the conditions of this eye were apparently again normal.

"At this time Dr. Alt, who saw the case with me every Sunday, detected a number of chorioidal spots in the inferior equatorial region, the remainder of the fundus being free from them.

in the uniform round and sharp outline, as if they were cut out with a punch. The two largest ones were about the size of a fifth of the disk diameter; the smallest ones were minute dots. The larger ones had an ivory color; the smaller ones were more yellow and the smallest ones had a bright golden, shining appearance, which somewhat resembled that of colloid excrescences of the chorioid, but was perhaps more brilliant. During the following week some new spots of the same sharp round outline made their appearance. One of the ivory-colored larger spots showed a central pigment spot. Near this one a large hemorrhagic effusion sometime later appeared in the chorioid, which was oval in shape and a little larger than the disk. Gradually the larger spots assumed a more pinkish tint and some slight pigment disturbances were visible at their edges. At this date, some of the spots have altogether disappeared, but some of the smallest ones still shine with their peculiar luster.

We have, then, in this case, one of the few hitherto observed cases of characteristic sympathetic chorioiditis

without a previous cyclitis, though preceded by a neuritis, and by an iritis which was of the mildest type, and which never interfered with an ophthalmoscopic examination in the least.

The microscopic examination of the enucleated injured eyeball proved to be as interesting as was the clinical observation.

When I cut the eyeball equatorially in two, the slightly yellow fluid vitreous body ran out. Of this I made a number of specimens, which I stained after different methods for bacteria. However, I found none. There were only a few leukocytes and lymphocytes in the fluid.

From the site of the healed wound a band of tissue could be traced entering the eyeball between the iris periphery and the ciliary body and joining a cyclitic membrane behind the shrunken and cataractous lens. The anterior surface of the lens was covered throughout by the swollen iris. The anterior chamber was deep and a small amount of hardened exudate adhered to its walls. The ciliary body, as usual, was merged everywhere into

conjunctival tissue there are a few foci of infiltration with lymphocytes (Fig. 1).

The iris tissue is very densely infiltrated with lymphocytes. In a general way this infiltration is densest in the posterior parts, yet there are here and there places in which these cells lie so close to each other that no space seems to be left between them. In the sections taken from the neighborhood of the pupil only a few transverse sections of the filled blood-vessels are found near the anterior iris surface, while in sections from the iris periphery a great many are still visible. Between the lymphocytes numerous plasma cells and erythrocytes are found. Near the pupillary edge of the iris the pigment layer on the back of the iris has become detached, so as to form a cyst-like opening, which suggests the possibility of an artefact. As this space, however, contains quite a quantity of blood, it was probably formed before the enucleation by a hemorrhage. It may have been aided in its formation by the contraction of a small amount of newly formed connective tissue, which agglutinates the posterior iris surface to the wrinkled anterior lens capsule (Fig. 2).

The anterior surface of the iris, as well as the posterior surface of the cornea, is covered with a small amount of exudation in which some leukocytes, lymphocytes and plasma cells are suspended.

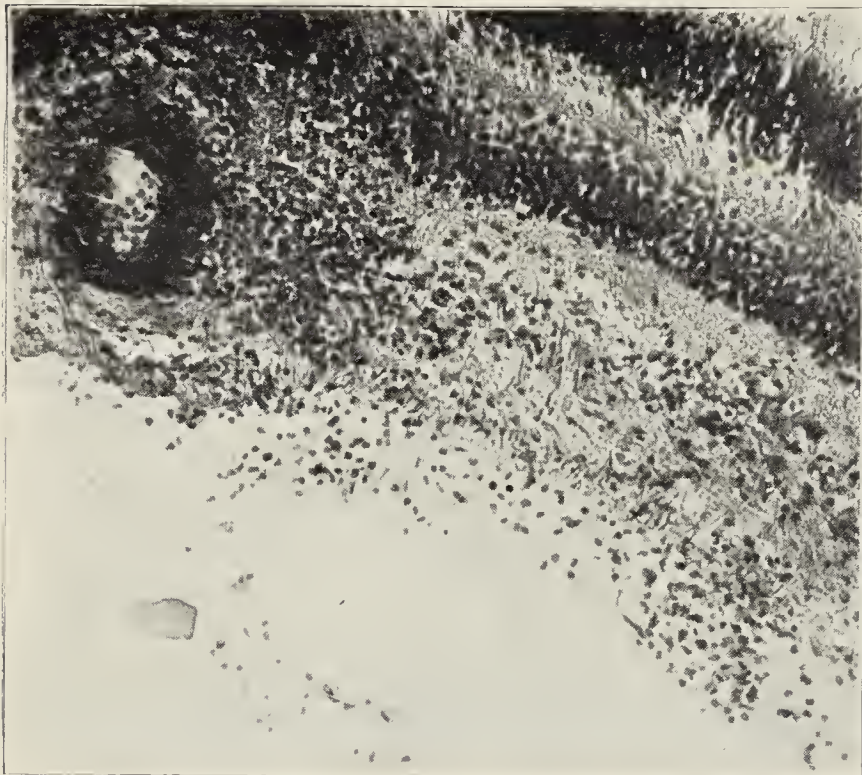


Fig. 9.—Lymphocytic infiltration of retina especially around a blood-vessel. Limitans interna detached in small folds by lymphocytes and small hemorrhages.



Fig. 10. Optic nerve and papilla. Lymphocytic infiltration and edema. Newly formed connective tissue covers papilla and retina and is lifted up, on left, by hemorrhage.

the cyclitic membrane. There were a number of hemorrhages in the retina without any special arrangement. The most peculiar picture, however, was that of the papilla and the macular region. The papilla could barely be recognized as such, although it protruded somewhat into the eye, since its surface was perfectly flat. From its temporal side a large transparent vesicle was seen to start, which reached beyond the macula lutea. Its anterior wall floated about and it contained some blood. At first this impressed me as a detached part of the retina, but when studying it with an electric lamp I found that the retina could be seen forming the bottom of the vesicle.

The following are the results of the microscopic examination:

Microscopic Examination.—The band of tissue which reaches inward from the site of the wound is solid connective tissue, which has replaced the vitreous body originally lying there. It fills the former gap and joins the cyclitic membrane. There are few blood-vessels in this tissue. In the episcleral and sub-

Evidently the injuring foreign body had ruptured the posterior lens capsule. In consequence the capsule is folded and wrinkled and the lens tissue, especially its posterior part, not only is undergoing cataractous degeneration, but also is pervaded by innumerable leukocytes and lymphocytes and has been partly dissolved. In spite of such great changes the capsular epithelium appears almost unaltered.

The ciliary body, in its anterior portion, is changed into a mass of lymphocytes, between which no muscular or connective tissue can be found. Here and there are nests of epithelioid cells, and numerous giant cells. The muscular fibers become visible backwards near the pars plana only and are here widely separated by a blood-stained serofibrinous exudate, which reaches back between chorioid and sclerotic to the optic papilla, spreading the endothelial layers of the suprachorioid in places widely apart. The cells of the pigmented retinal layer of the ciliary body are dragged inward by the cyclitic membrane, as we see often. The cells of the unpigmented retinal layer are not only here and there separated from the pigmented ones by intervening infiltration, but in places are lifted off *in toto*, so that cysts of considerable size are formed between the two layers, which contain remains of former hemorrhage and some lymphocytes; some are even

still filled with blood. The cyclitic membrane, which completely shuts off the anterior third, is still very rich in cells and blood-vessels (Fig. 3).

In the posterior part of the ciliary body and the anterior part of the choroid, epithelioid cells are frequent, and they form the now well-known, less-stained islets between the deeper-stained lymphocytes. In numerous places they have broken through the lamina vitrea and grown through the retinal layers into the new-formed cyclitic tissue (Fig. 4). There are, also, numerous little nodules of epithelioid cells here and there lying on the lamina vitrea, lifting up the partly disintegrated pigment epithelium cells from which they are probably derived (Dalén, Fuchs—Fig. 5).

The tissue of the cyclitic membrane has pulled the periphery of the retina forward to a different degree in different sections, yet more so near the original wound than elsewhere. The folded retina in these parts is attached to the pars plana of the ciliary body by intervening newly-formed tissue. There are here and there hemorrhages, separating these folds from each other or from the tissue outside of them. On the inner side the folds are covered with a few layers of newly-formed connective tissue in such a manner that their surface is rendered smooth (Fig. 6).



Fig. 12.—Retina at temporal side of large vesicle where limitans interna and newly formed connective tissue join the retina. Lymphocytic infiltration. Blood in angle between retina and vesicle wall (left side). External molecular layer almost gone. In upper right-hand corner a hemorrhage between the nuclear layers.

The anterior part of the choroid shows, next to the iris and ciliary body, the most intense infiltration with lymphocytes. This infiltration in places is thickest around the large blood-vessels, but frequently the whole thickness of the choroid is densely packed with lymphocytes. The visible blood-vessels are gorged with blood. An irruption of lymphocytes into the blood-vessels, such as Fuchs has described, I have not been able to find (Fig. 7).

Toward the equator the lymphocytic infiltration of the choroid diminishes gradually and then ends rather abruptly. The posterior parts of the choroid show hardly any infiltration, but are hyperemic and contain a serofibrinous exudate.

The blood-vessels and nerves which penetrate the sclerotic back of the equator and at the posterior pole are accompanied by very few lymphocytes and not surrounded by a thick infiltration, such as Fuchs described. Neither have the lymphocytes broken through the sclerotic in any place.

Contrary, also, to Fuchs' observation, in the eye here described, the retina is highly affected, almost throughout. In the least affected portions there is only a lymphocytic infiltration around the blood-vessels (Fig. 8). In others the lymphocytes pervade especially the nerve-fiber and inner molec-

ular layer. In the more peripheral parts the nerve-fibers have almost altogether disappeared and their layer is represented mainly by the supporting fibers of Mueller, between which numerous lymphocytes are lying. The ganglion cells are undergoing degeneration or have disappeared altogether. In numerous sections, especially of the posterior parts of the retina, sometimes the inner, sometimes the outer molecular layer is wanting, and there are evidences of former edema. The rods and cones, however, are, as a whole, strangely well preserved, only, where an exudation or hemorrhage has pressed against them, they are degenerated to a varying degree.

Almost the whole inner surface of the retina is covered with a thin, newly-formed membrane. In many places, by shrinking, hemorrhages or infiltration this newly-formed membrane is detached from the retina together with the inner limiting membrane (Fig. 9). In some places, and especially where a large area has become thus detached, this seems to have been due to a hemorrhage, as blood-cells and lymphocytes are found in the now apparently empty vesicle-like spaces. The largest one of these vesicles starts from the edematous temporal edge of the papilla and reaches uninterruptedly to beyond the macular region (Figs. 10 and 14). The continuation of the newly-formed membrane on the nasal side of the papilla is

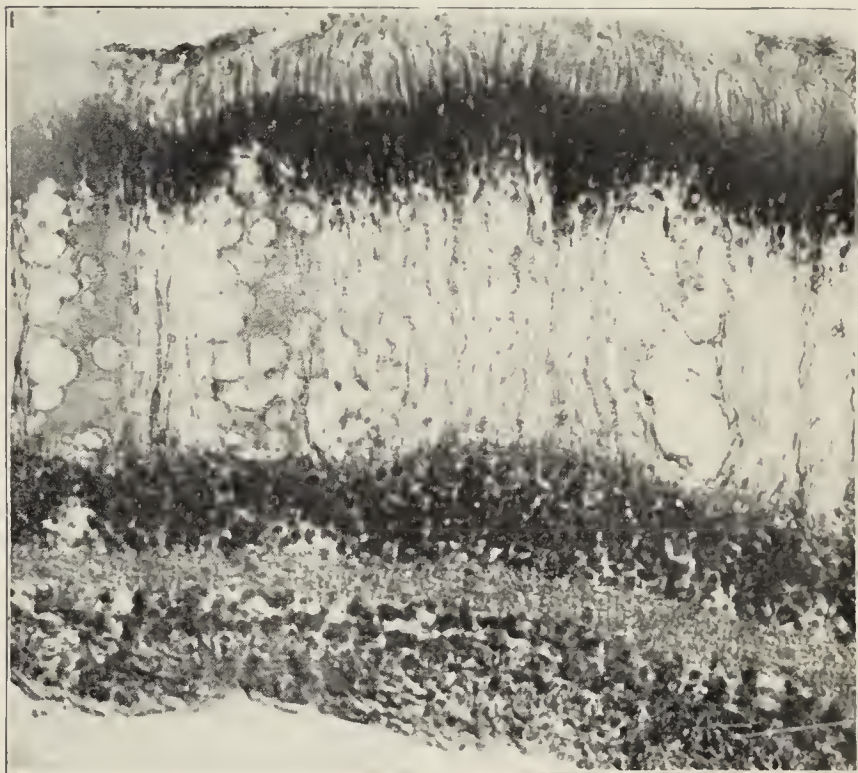


Fig. 13.—Retina from temporal side of large vesicle. Some lymphocytic infiltration. Numerous hemorrhages between the nuclear layers.

but slightly separated from the retina. The large vesicle lying over the macula still contains a considerable amount of blood, although during the staining process most of it has fallen out (Fig. 11). The macular region itself is strangely free from pathologic conditions, but somewhat to the temporal side of it a number of hemorrhages of an elongated shape lie between the nuclear layers, arranged in the manner in which we usually find the fibrinous exudation in albuminuric retinitis (Figs. 12 and 13).

The optic papilla is edematous and swollen, especially on its temporal side. It is pushed far enough into the interior of the eye to cause the neighboring retina to be thrown into numerous folds. Its central blood-vessels are in parts surrounded by large quantities of lymphocytes, as far back as the nerve reaches. Similar foci of lymphocytic infiltration are found here and there in the arachnoid and pia mater sheath (Figs. 14 and 15).

The inner surface of the papilla is covered with the newly formed membrane, which also covers the inner surface of the retina and forms the vesicle over the macula, described above. There are numerous blood-vessels within the newly-formed tissue. At the temporal side of the papilla a club-shaped process containing blood-vessels has grown toward the interior

of the eye, and in some sections a number of very thin membranous excrescences accompany it. This condition is apt to remind one of a persistent hyaloid artery. Yet, it is impossible to find any connection between this appendix and the central retinal blood-vessels in the papilla. It probably owes its origin to former hemorrhages and is similar in nature to what Manz termed proliferating retinitis.

No microbes could be found in the tissues of the eye.

From this description it is seen that the pathologic conditions in this eye, which undoubtedly caused a sym-

all the tissues—the severest inflammatory signs, either still actively present or shown by their results, are found in the retina, and especially in the posterior parts, where the chorioid is but little affected, quite contrary to the usual experience.

The character of the sympathizing inflammation in this case seems to have been preeminently a hemorrhagic and proliferating one. From this it seems that Fuchs laid out the limits of the range of what may be called a sympathizing inflammation somewhat too narrowly.

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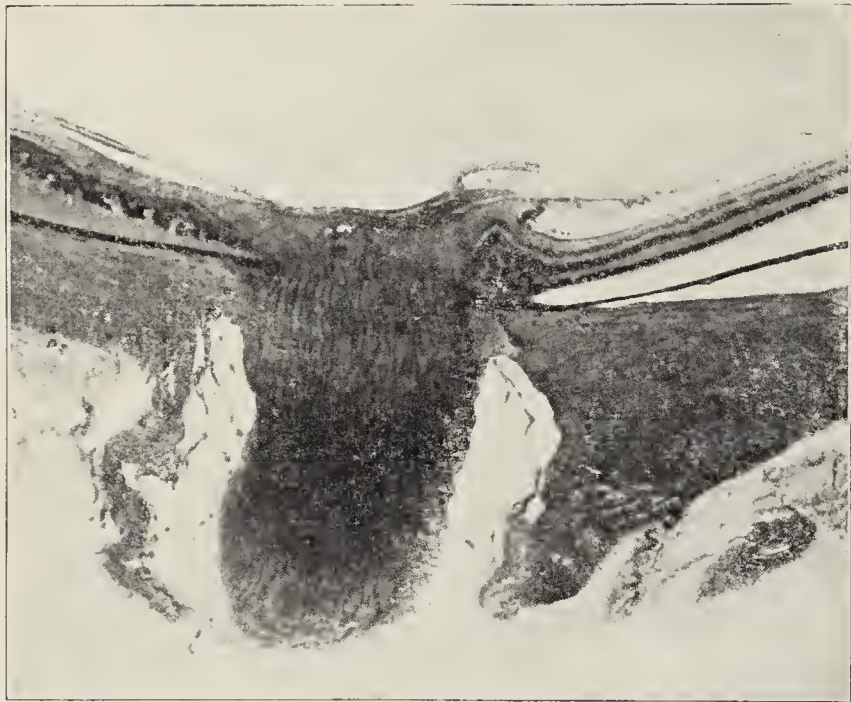


Fig. 14.—Optic nerve and papilla. Infiltration and edema. Newly formed connective tissue covers retina and papilla and is detached, together with the limitans interna on the right, by hemorrhage, forming the large vesicle reaching beyond the macular region. From this newly formed tissue a teatlike process has grown into the vitreous chamber.



Fig. 15.—Optic nerve-head. Edema by lymphocytic infiltration, especially around the central blood-vessels. Retina thrown into folds by edema. Newly formed connective tissue covering the papilla.

pathetic inflammation of the fellow eye, while showing much which Fuchs considers as essentially characteristic of the sympathizing inflammation, differ in other points very materially from his description. While he states that the retina and optic nerve are usually but slightly affected, in this eye—aside from the considerable inflammation in the anterior parts near the wound which affects

SCLEROSIS OF THE LIGAMENTUM PECTINATUM AND ITS RELATION TO GLAUCOMA *

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In the pathologic examination of glaucomatous eyes I have several times noted a condition that seemed of considerable significance in regard to the pathogenesis of glaucoma, namely, sclerosis of the ligamentum pectinatum with an open filtration angle. The condition, I find, has been previously described by a few other observers, all of whom have evidently regarded it as the cause of the advanced glaucoma with which it was associated. Brief mention is made of it by Schmidt-Rimpler,¹ and single cases have been recorded by Tartuferi,² Sarti³ and De Vries.⁴ The latter explained the sclerosis as due to toxins carried in the aqueous humor, an explanation which suggests that we have here a form of glaucoma dependent on the same cause as arteriosclerosis.

Thomas Henderson,⁵ in his theory of glaucoma, which, as I understand it, is a variation of the old retention theory, postulates a sclerosis of the ligamentum pectinatum. He maintains that with age the trabeculae of the ligament become thicker so that finally in some cases glaucoma ensues, owing to the cutting off of the access of aqueous humor to the canal of Schlemm and the consequent rise of intra-ocular venous pressure. At the same time, as a result of congestive edema, the iris swells, causing its root to become adherent to the ligamentum pectinatum. The actual existence of this advanced sclerosis, however, he has not demonstrated, no doubt because at the stage when glaucomatous eyes are usually obtained for histologic examination, adhesion of the iris root had been of such long standing that it was impossible to determine whether the sclerosis of the ligament was the cause or the result of the adhesion. It is true that in the few recorded cases in which glaucomatous eyes were examined at very early stages sclerosis of the ligament was not noted, but it is possible that they were not examined with special reference to this point.

It is obvious, therefore, that if it could be shown that cases of glaucoma occur in which there is primary sclerosis of the ligamentum pectinatum with the filtration angle partly or wholly open, Henderson's theory would receive strong support, since it would not be

* From the Massachusetts Charitable Eye and Ear Infirmary.

1. Schmidt-Rimpler: Graefe-Saemisch Handbuch der Gesamten Augenheilkunde, 1908, II, 104.

2. Tartuferi: Cited by Sarti, note 3.

3. Sarti: Bull. d. Soc. med.-chir. di Bologna, 1882, lxiv, 147; Centralbl. f. Augenheilk., 1895, p. 488.

4. De Vries: Nederl. Tijdschr. v. Geneesk., 1907, II, 263; Nagel's Jahresbericht, 1908, p. 680.

5. Henderson: Glaucoma, London, 1910.

expected that the assumed edema of the iris would always be sufficient to cause peripheral synechia. Even if Henderson's theory was not accepted in its entirety—and his argument does not seem altogether convincing—sclerosis of the ligament would no doubt be accepted as an essential cause of glaucoma. The evidence, however, that I have to bring forward, seems to point in an opposite direction, so that sclerosis of the ligamentum pectinatum as a cause of glaucoma yet remains to be demonstrated.

Following are brief summaries of the findings in ten cases in which there was sclerosis of the ligamentum pectinatum with an open filtration angle:

CASE 1 (2-1780).—Clinical History.—The patient, a man aged 38, was struck in the left eye while boxing twenty years ago. Cataract resulted, which was removed by dissections thirteen years ago. Nine years ago he was again struck in the left eye with a fist. After this the patient could see but little, and the eye was painful at times. Eighteen months ago paracentesis for acute glaucomatous attack was performed. The right eye was normal. The left eye was enucleated Dec. 18, 1909.

Pathologic Condition.—There were advanced secondary glaucoma following dissection of the lens, with prolapse of the vitreous into the corneal incision, equatorial staphyloma, deep cupping of the optic disk and advanced atrophy of the retina,

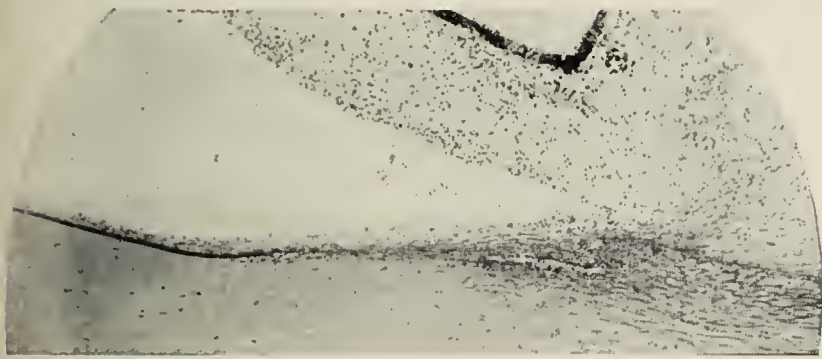


Fig. 1.—Case 7. Primary glaucoma. Hyaline fibrous tissue extending over surface of ligamentum pectinatum and membrane of Descemet. The underlying trabeculae are still well seen.

iris and ciliary body. The pupil was free; the filtration angle was everywhere open. The ligamentum pectinatum was covered with fibrous membrane continuous with the anterior boundary layer of the iris. The spaces of Fontana and the canal of Schlemm were obliterated.

CASE 2 (2-891).—Clinical History.—The patient, a man aged 32, had an old injury of the left eye with traumatic cataract. Ten years ago the cataract was extracted, after which there was much pain. The tension was +3. The right eye was normal. The left eye was enucleated May 25, 1904.

Pathologic Condition.—There were advanced secondary glaucoma, old perforation of the cornea, traumatic cataract, ciliary staphyloma, deep cupping of the optic disk, advanced atrophy of the retina and atrophy of the ciliary body, marked at the site of the staphyloma, but slight elsewhere. The pupil was free; the iris was almost normal, except at the pupillary margin, where there was beginning ectropion. The filtration angle was everywhere open. The ligamentum pectinatum was covered with a smooth layer of hyaline tissue, which was lined by flattened pigmented cells. The trabeculae were visible, but the spaces of Fontana and the canal of Schlemm were obliterated (Fig. 3).

CASE 3 (2-2097).—Clinical History.—The patient, a man aged 73, twenty-seven years ago was struck in the right eye with a chip from a hammer. The eye soon afterward became blind and has since been very irritable at times. The tension was +1. The left eye was normal. The right eye was enucleated Nov. 10, 1911.

Pathologic Condition.—There were advanced secondary glaucoma, an old perforating wound of the cornea and lens, a small foreign body encysted on the posterior part of the ciliary

body, slight siderosis bulbi, localized chorioretinitis in the lower outer quadrant (due to movement of foreign body before it became encysted?), deep cupping of the optic disk and moderate atrophy of the retina. The pupil was free, partly excluded. The iris and ciliary body were almost free from atrophy, but showed slight recent iridocyclitis. The filtration angle was everywhere open. The ligamentum pectinatum was in places almost free from sclerosis. In these places the stroma cells of the ligament were greatly pigmented (pigment bleaches, hence not iron pigment) and the spaces of Fontana contained chronic inflammatory cells. Elsewhere, and to some extent also here, the ligament was covered with a thin hyaline layer lined by pigmented cells continuous around the angle with the anterior boundary layer of the iris. The underlying trabeculae and spaces of Fontana were almost normal.

CASE 4 (2-557).—Clinical History.—The patient, a man aged 48, was struck in the right eye with a piece of steel twenty-two years ago; the left eye was normal. The right eye was enucleated May 1, 1901.

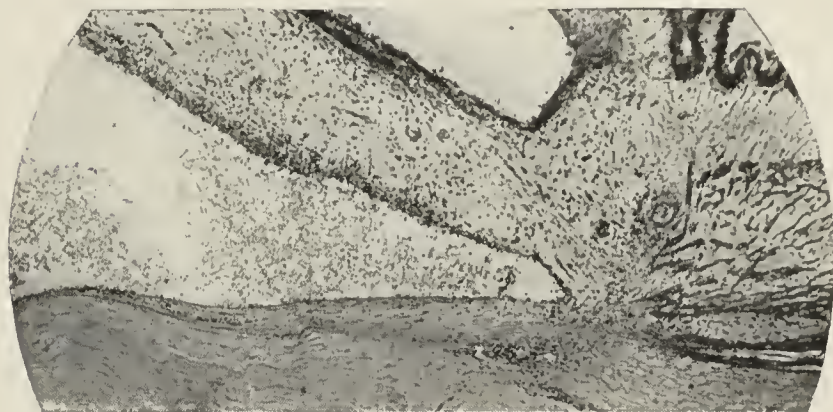


Fig. 2.—Case 7. Primary glaucoma. Dense hyaline fibrous tissue on surface of ligamentum pectinatum. The underlying trabeculae are greatly compressed so that the new tissue might readily be mistaken for the ligament itself.



Fig. 3.—Case 2. Secondary glaucoma. Ligamentum pectinatum covered with a smooth layer of hyaline tissue lined by flattened pigmented cells. The almost complete absence of iris atrophy indicates that the separation of the peripheral synechia occurred early. The atrophy of the ciliary body here is due to a ciliary staphyloma.

Pathologic Condition.—There were advanced secondary glaucoma, traumatic cataract, equatorial staphyloma, foreign body in the vitreous chamber, slight siderosis bulbi, deep cupping of the optic disk and advanced atrophy of the retina, iris and ciliary body. The pupil was free. The filtration angle was mostly open, being closed only along a small part of the circumference. The ligamentum pectinatum was covered with a thin dense hyaline layer presenting a smooth surface lined by endothelium. The spaces of Fontana and the canal of Schlemm were obliterated.

CASE 5 (2-2057).—Clinical History.—The patient, a man aged 53, received a perforating wound of the corneal limbus of the left eye thirty-four years ago. The foreign body was retained in the globe. Four years ago the patient was told that he had a cataract in the left eye. The eye was painful and moderately injected; the cornea was clear, the pupil free, the lens cataractous, and vision was nil. The right eye was normal. The left eye was enucleated Oct. 4, 1907.

Pathologic Condition.—There were secondary glaucoma, an old perforating wound of the cornea limbus, remains of the foreign body encysted in the sclera near the optic disk, slight siderosis bulbi, moderate cupping of the optic disk and moderate atrophy of the retina. The filtration angle was open on one side and closed on the other. On the closed side the ciliary body and the root of the iris were greatly atrophied. Elsewhere the ciliary body was almost free from atrophy. The ligamentum pectinatum in places was covered with a delicate hyaline membrane. The spaces of Fontana were not obliterated. The iris was practically normal except at the point where the root adhered and at the pupillary margin (probably due to the fact that the peripheral synechiæ became separated on one side before there was atrophy of the iris root, so that the circulation of the iris was not seriously interfered with even on the adherent side).

CASE 6 (2-998).—*Clinical History.*—The patient was a man aged 41. Eleven years ago the left eye was inflamed and painful (iritis?). The present attack of pain and redness began five days ago. Vision was *nil*. There were posterior synechiæ

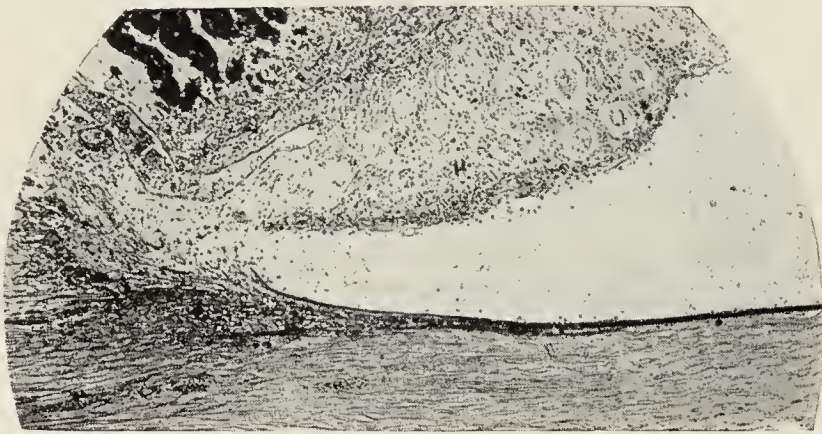


Fig. 4.—Case 9. Primary glaucoma. Ligamentum pectinatum covered with a new-formed elastic membrane continuous with the membrane of Descemet. Elastic-tissue stain.



Fig. 5.—Case 7. Primary glaucoma. Iris in act of pulling away from ligamentum pectinatum.

and hyphemia. The tension was $+1$. Right eye, vision 20/50. The left eye was enucleated Aug. 1, 1904.

Pathologic Condition.—Advanced secondary glaucoma was present and old iritis with exelusia pupillæ; no cyclitis, old or recent. There were deep cupping of the optic disk, advanced atrophy and complete separation of the retina (subretinal coagulum), recent hemorrhagic retinitis and obstruction of both central retinal vessels from endovascularitis. The iris was highly atrophied; the ciliary body only slightly so. The filtration angle was closed on one side only. The ligamentum pectinatum was not greatly altered, even where the iris was adherent, the trabeculæ and spaces of Fontana everywhere being well seen. On the open side, along the surface, the spaces of Fontana were closed off by proliferation of the stroma cells. On one side, at the site of the adhesion, there was evidently a state of tension, broken strands of iris tissue bridging the angle. The strongest adhesion here was that between the anterior part of the ligament and the iris. It is evident that ultimately the picture seen in Case 8 (Fig. 7)

would have resulted. The internal spaces of Fontana were dilated, due, probably, to traction on the trabeculæ. The dilated spaces of Fontana and the irregular spaces formed by the breaking adhesion were frequently found filled with blood, which was continuous with an interstitial hemorrhage in the root of the iris. The canal of Schlemm was almost obliterated.

CASE 7 (2-1646).—*Clinical History.*—Patient was a woman aged 61. About six years ago a cataract began in the left eye. For several years past the eye had been painful and for the past eighteen months it had been absolutely blind. The tension was $+1$. The right eye was normal (?). The left eye was enucleated Jan. 23, 1909.

Pathologic Condition.—There were advanced primary glaucoma, deep cupping and cavernous atrophy of the optic nerve, advanced atrophy of the retina, moderate atrophy of the iris and almost no atrophy of the ciliary body and active recent iritis with posterior synechiæ and pupillary membrane. The filtration angle was open almost everywhere. The ligamentum pectinatum showed three grades of sclerosis: a, vascularized connective tissue over its surface without complete obliteration of underlying spaces of Fontana; b, thick layer of dense fibrous tissue on its surface, with almost complete obliteration



Fig. 6.—Case 10. Hemorrhagic glaucoma. Iris in act of pulling away from ligamentum pectinatum.

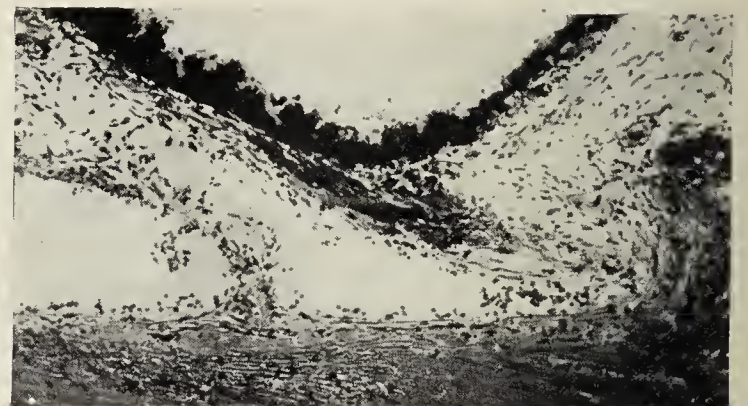


Fig. 7.—Case 8. Primary glaucoma. Iris root pulling away from ligamentum pectinatum and held only by a strand of iris tissue containing a blood-vessel.

of the spaces of Fontana (Fig. 2), and c, condition intermediate between a and b (Fig. 1). Where the angle was closed the adhesion was evidently old, but was in the act of pulling away from the ligament. Here the spaces of Fontana have disappeared, and irregular strands of iris tissue, clearly under tension, some of them containing capillaries, stretched between the surface of the ligament and the iris (Fig. 5).

CASE 8 (2-1900).—*Clinical History.*—The patient, a man aged 67, has had no vision in the left eye for fifteen years. Three years ago he began to have attacks of redness and pain. Six weeks ago he began to have pain in the right eye and to see colored rings around lights. Vision of the right eye was 20/30; field considerably contracted. The left eye was enucleated April 16, 1910.

Pathologic Condition.—There were advanced primary glaucoma, deep cupping of the optic disk and advanced atrophy of the retina and iris. The ciliary body was moderately atrophic. The pupil was free. The filtration angle was everywhere free, except as noted below. The ligamentum pectinatum in places

was covered with a layer of vascularized hyaline tissue, sometimes containing elastic tissue and presenting a smooth surface lined by endothelium. In other places the spaces of Fontana were partly opened and the surface of the ligament was ragged, showing portions of iris tissue adherent to it. Here, the opposite surface of the iris was also ragged. In one place the angle was bridged by a strand of iris tissue containing a blood-vessel (Fig. 7). The spaces of Fontana were for the most part obliterated, and the trabeculae were not easily recognized.

CASE 9 (2-1792).—Clinical History.—The patient, a man aged 66, twenty-eight years ago was struck in the left eye with a stone, but the eye gave no trouble until two years ago, when it became inflamed and painful; it had been subject to recurring attacks since then. The cornea showed an old central scar with calcareous deposits—atheromatous ulcer. After the calcareous deposits were scraped out the patient neglected treatment and ulcus serpens ensued. The right eye was not glaucomatous; vision was 20/30. The left eye was enucleated Nov. 28, 1909.

Pathologic Condition.—There were advanced primary glaucoma, deep cupping of the optic disk, advanced atrophy of the retina, moderate atrophy of the iris and ciliary body, active ulcus serpens without perforation and purulent iritis. The filtration angle was for the most part open; in places partly closed. The ligamentum pectinatum was covered with a new-formed elastic membrane continuous with the membrane of Descemet (Fig. 4). The spaces of Fontana were not obliterated and the trabeculae were well seen. Where the angle was partly open, the adhesion covered about two-thirds of the ligament. Here it was sometimes seen that the adhesion was in the act of separating at the apex of the angle, leaving only the anterior part adherent.

CASE 10 (2-1935).—Clinical History.—The patient, a man aged 57, had hemorrhages into the vitreous of the right eye five years ago. Three years ago the vitreous was clearer, vision equaled hand movements. One year ago he had an acute attack of glaucoma, which lasted about one month. There was recurrence of tension and pain. The left eye showed sclerosis of the retinal vessels, no glaucoma and normal vision. The right eye was enucleated Dec. 10, 1910.

Pathologic Condition.—There was advanced hemorrhagic glaucoma. The retina was atrophic and covered with hemorrhages. There was deep cupping of the optic disk. Complete obstruction of the central retinal vein. The filtration angle was open around one-half of its circumference. On the adherent side, the iris and ciliary body were highly atrophic and there was ectropion nveæ; on the open side there was distinctly less atrophy and no ectropion. The ligamentum pectinatum on the open side was covered wholly or in part with a layer of vascularized connective tissue, having a smooth surface and continuous around the angle with the iris. At the place of transition between the closed and open angle, the adhesion was in the act of pulling away from the ligament, the tissue intervening between the iris and ligament evidently being under tension (Fig. 6). In places the apex of the angle was freed, leaving the anterior portion of the ligament adherent, but in other places the anterior portion was being freed first.

In each of the above ten cases the glaucoma was in an advanced stage, with deep cupping of the optic disk and marked atrophy of the retina. Three cases were of primary, one of hemorrhagic and six of secondary glaucoma. Of the latter, one was due to old iritis of unknown etiology, with exclusion of the pupil, one followed discissions of a traumatic cataract, and four followed perforating wounds of the globe in three of which there were retained foreign bodies and siderosis bulbi. In only the first three cases was the filtration angle open all around. In the others there were peripheral synechia of greater or less extent which might well have been overlooked if the eyes had been sectioned without this point in view.

These cases seem to me to offer convincing evidence that the sclerosis of the ligamentum pectinatum that has

thus far actually been observed in glaucoma, is not the cause of the latter, but the result of preceding peripheral anterior synechia. The most important evidence, perhaps, is furnished by the last five cases in which the iris is found in the act of pulling away from the ligament (Figs. 5, 6 and 7), thus showing plainly that peripheral synechia had once been complete. This is strongly supported by the fact that the changes in the ligament in all the cases involved chiefly its surface. Moreover, the fact that the condition in question occurred in secondary, as well as in primary, glaucoma, is almost alone sufficient to prove that the sclerosis was not the cause of the increased intra-ocular pressure. In three of the cases, it is true, there was slight siderosis, so that it is conceivable that here the sclerosis was due to iron pigment deposited in the ligament which later disappeared, but this explanation is improbable from the fact that it does not apply to the other seven cases in which the changes in the ligament were similar.

The question as to the cause of the preceding peripheral synechia has no direct bearing, necessarily, on the question as to the cause of sclerosis of the ligament, and need not be discussed here. In the case of primary glaucoma, it no doubt involves the fundamental question relating to the cause of the increased intra-ocular pressure, which thus far has never been satisfactorily answered. In the case of secondary glaucoma, Fuchs⁶ has shown that peripheral synechia frequently is due to an inflammatory condition of the iris and ligament which leads to their contact.

In all of the above cases the changes in the ligament were essentially similar, differing chiefly in degree only, and consisted in the occurrence of new tissue on its surface with more or less obliteration of the spaces of Fontana. The new tissue consisted of vascularized connective tissue, hyaline or elastic tissue, or in one case partly of tissue closely similar to the iris stroma. These changes were perhaps produced in this way. During the persistence of the adhesion of the iris root to the ligament, the openings of the spaces of Fontana into the anterior chamber became permanently obliterated by cell proliferation. If the iris then pulled away early, a comparatively smooth surface remained; if late, more or less tissue from the iris was left. Over this surface the corneal endothelium grew, and beneath it was gradually formed a hyaline layer, or even an elastic membrane (Fig. 4), identical with and continuous with the membrane of Descemet. The obliteration of the spaces of Fontana deeper down was probably due chiefly to compression.⁷

Granting that sclerosis of the ligamentum pectinatum in the above cases was due to peripheral anterior synechia which became separated, how was this separation brought about? In three of the traumatic cases the iris was almost free from atrophy, so that no doubt the separation occurred early, as was indicated also by the fact that the changes in the ligament were comparatively slight. Here, evidently the traction exerted by the sphincter pupillæ was alone sufficient to accomplish the separation. Fuchs⁶ suggests that peripheral synechia

6. Fuchs: Arch. f. Ophth. (Graefe's), 1909, lxi, 254.

7. It may be well to emphasize here the fact that this paper is concerned only with the type of sclerosis of the ligament described in the literature and illustrated by the above cases. I have sections of an eye (2-1642) in which there is an entirely different type of sclerosis. Here the internal portion of the ligament is relatively normal, while in places there is marked cell proliferation immediately about Schlemm's canal. In this case there is no cupping of the disk and the filtration angle is everywhere open. On the other hand, there is albuminuric retinitis and endovascularitis of all the intra-ocular vessels, so that the sclerosis involving the wall of Schlemm's canal is no doubt simply a part of a general angio-sclerosis.

associated with traumatic iritis may be freed in this way, without, however, discussing the possible effect on the ligament thereby resulting. In the cases in which there was marked atrophy of the iris, it is evident that the freeing of the adhesion must have taken place relatively late, and that it could not have been due to traction of the sphincter alone. The explanation of these cases, no doubt, lies in the cicatricial contraction of the atrophied iris. This contraction, being resisted all around by the ciliary body, must have produced a state of tension in the iris which caused traction on the peripheral synechia in a direction practically at right angle to the plane of the iris. The pull was therefore not toward the pupil, as at first might be supposed, but backward, or even slightly toward the periphery. The reason that such separations of peripheral synechia do not occur more often is no doubt due to the fact that the adhesion is apt to be especially firm in just those cases in which the cicatrization of the iris is greatest.

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ABSTRACT OF DISCUSSION

DR. M. FEINGOLD, New Orleans: What constitute the essential features of glaucoma? Is it the increased tension alone that constitutes glaucoma? Or are other symptoms of glaucoma correlated and equally essentials of the disease, such as the affection of the optic nerve? Most authors agree that glaucoma is essentially and solely increased tension and that all symptoms found in glaucoma are either symptoms leading to glaucoma or symptoms that are the consequence of increased tension. In the former group would belong such symptoms as shallow anterior chamber, small cornea, cyclitis, occlusion and seclusion of the pupil, adherent leukoma, etc. To the latter group would belong the defective epithelium and edema as well as the loss of sensitiveness of the cornea, atrophy of the iris, oval pupil, and above all the glaucomatous excavation. If it be true that glaucoma be purely and simply nothing else but increased tension we must ask, how is increased tension brought about?

Problems seen in daily practice, convince one that no one of the theories of glaucoma can satisfactorily account for all cases of glaucoma, and that for the present we are compelled to call in several of the theories to explain a single case of glaucoma. Sclerosis of the pectinate ligament, as proclaimed by Henderson to be the sole cause for glaucoma, may possibly in the future be demonstrated as the primary factor in causing glaucoma. Dr. Verhoeff's pictures prove that, at least in his case, the sclerosis of the ligament existed with peripheral anterior synechia, these anterior synechia having been separated during the course of the disease. Such pictures are rare because in most instances the iris is so much in contact with the cornea that the coexistent sclerosis of the ligament cannot alone be blamed for the glaucoma. Ranvier remarked years ago that the pectinate ligament becomes sclerotic with age, but no undoubted case of pure sclerosis of this ligament has been found as yet as the sole cause for glaucoma. Still such possibilities may be admitted. Could not syphilis, that plays so important a part in the morbidity of the colored race, could not syphilis with its consequent vascular changes, be held responsible for the simple glaucoma that we see in the colored race almost to the exclusion of any other form of primary glaucoma?

DR. WALTER BAER WEIDLER, New York: Will Dr. Verhoeff explain just what he means by a sclerosis of the ligamentum pectinatum; whether there was any infiltration present or not; whether there are any cases of hypopyon or whether there was any pus present in any of the specimens shown? I thought I saw deposits in the anterior chamber.

DR. F. H. VERHOEFF, Boston: By sclerosis of the ligament I mean, in a general way, thickening of the framework of the ligament. In these cases there was also new formation of

connective tissue on the surface. The leukocytes in the filtration angle shown in some of the illustrations were due in one case to an active uveitis serpens, and in another to recent iritis. These, of course, were of too recent occurrence to have had anything to do with the sclerosis of the ligament.

THE KRÖNLEIN OPERATION AS AN EXPLORATORY PROCEDURE IN AFFECTIONS OF THE ORBIT

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The purpose of this paper is to draw attention to the facility of the osteoplastic resection of the temporal orbital wall, commonly called the Krönlein operation, as an operative procedure, and its adaptability as a diagnostic step to obtain exact information of conditions present in the depth of the orbit such as morbid processes in the orbital walls, in the optic nerve and in the soft parts.

I take it for granted that this operation is accepted to be the best method of removing circumscribed tumors in the depth of the orbit with the preservation of the eyeball and, in many instances, with the preservation of sight and unimpeded ocular motility.

The operation, furthermore, permits the best determination of the extent of many orbital tumors, often their operability, and the securing of a proper specimen for microscopic examination as a preliminary to an orbital exenteration if found necessary, or, in the case of rapid malignancy, the abandonment of further operations. The question of the advisability of the Krönlein operation in inflammatory conditions of the orbit seems to me to be still open, for it is now known that most inflammatory conditions in the orbit are secondary to disease of the nasal accessory sinuses, in which case operation at the internal orbital wall is the best.

The method of performing the Krönlein operation is sufficiently well known not to require a detailed description, yet the following points are of practical importance in my experience. The cutaneous incision should be slightly to the outer side of the periosteal incision and of the bony wound, so that the line of cutaneous cicatrix shall not be directly over and adherent to the bony margin of the orbit. The incision of the periosteum along the bony margin should be carefully made with the point of the knife directed against the bone, so that a perforation of the orbital periosteum with premature prolapse of the orbital contents can be avoided. The separation of the orbital periosteum can best be done with a sharp flat periosteal elevator. The bone-flap is formed by a medium-sized osteotome and hammer from the orbital surface, and forcibly displaced outward.

This displacement is aided by two incisions of the deep muscular tissues and periosteum, each radiating from the anterior extremities of the bony wedge. If the bone in the deeper part of the wedge has been fractured, more bone can be removed with the rongeur forceps in order to give the greatest possible access to the orbit. The bone externally at the orbital margin and malar process must not be removed, as the wedging of the bony flap in this position is necessary to keep it in place and prevent deformity when the bone flap is replaced at the end of the operation.

The horizontal incision of the orbital periosteum is held apart with small retractors and avoiding the

external rectus muscle, the index or little finger of the operator is carefully introduced into the orbital cavity. The optic nerve can then be easily identified and followed along its course to the eyeball; the orbital walls, upper, inner and lower and the apex of the orbit can be palpated. If a small tumor be present, its connection and degree of adhesion to the surrounding tissues are noted. The tumor may be isolated with the finger or a path should be carefully made to it principally by blunt dissection. The path is held open by long, narrow, blunt retractors, and the tumor extracted. The periosteal wound is closed with fine catgut sutures. The bone flap is replaced and wedged firmly back into its old position. The skin and subcutaneous parts are sutured, leaving a small opening for a cigarette drain of rubber tissue leading into the orbit if hemorrhage during the operation demands it. It is advisable to suture the eyelids, as considerable chemosis is apt to follow which will prevent the closure of the eyelids.

If the tumor in the orbit be not circumscribed and infiltrating, further steps depend on the extent of the infiltration and the possibility of a radical removal with preservation of the eyeball. If the nature of the tumor is not known, a piece of the growth can be removed for examination to determine whether the orbital contents should be exenterated or further operations abandoned.

During the past winter two cases illustrating the advantages of the Krönlein operation from this point of view were operated on by me and their operative features are briefly reported.

CASE 1.—Patient.—E. R. W., aged 31, referred to me by Dr. F. W. Marlow of Syracuse, N. Y., gave the history of an orbital tumor of one year's standing. A mass in the orbit could be felt on the outer and lower side of the protruded eyeball. The Krönlein operation revealed a thickened periosteum directly continuous with a diffuse growth which seemed densest to the outer side and below the eyeball and extended to the apex of the orbit. As there was no possibility of removing this growth in any way approaching a radical manner and preserving the eyeball, a specimen for microscopic examination was obtained. This showed a tumor consisting of fibrous tissue with hypertrophy of endothelial-like cells, which was not regarded by the pathologist as particularly malignant. The entire orbital contents were therefore subsequently removed. A report of the histology of this very interesting growth together with the clinical history will be published later.

CASE 2.—Patient.—L. L., aged 17, was operated on about seven years ago for a plexiform neuroma of the eyelid. At present there are the irregular cicatrices in the upper lid from the old operation, ptosis, the conjunctiva of the upper lid is very much thickened and there is pronounced exophthalmos. An exploratory Krönlein operation was advised. At the operation, after reflecting the osteocutaneous flap, the orbital periosteum was incised. The introduced index finger detected a normal optic nerve, normal bony walls, but a distinct oval tumor at the apex of the orbit just beneath the optic nerve to which it seemed adherent. This adhesion was carefully broken up and a path made down to the tumor, chiefly by blunt dissection, and the tumor extracted in its entirety. It measured 19 by 13 mm. and proved to be a neurofibroma. The histology of this tumor with its complete clinical history will also be published separately. The hemorrhage from the orbital wound was insignificant. The wound was closed and a small drain introduced. The course of healing was uneventful except for some orbital induration internal to the orbital margin and a small corneal ulcer. At time of discharge the motility of the eye outward was much improved and the sight of the eye had not diminished.

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THE SURGICAL TREATMENT OF EXOPHTHALMOS

MARTIN B. TINKER, S.B., M.D.

ITHACA, N. Y.

In a somewhat large number of patients on whom I have operated for exophthalmic goiter during the past few years there have been many cases of extreme bulging of the eye. The exophthalmos is usually much improved and in some cases entirely disappears after partial thyroidectomy. As a rule, however, I have found it the most obstinate of the classical symptoms of goiter. The tachycardia and extreme nervousness which we see in so many of these cases usually clear up satisfactorily after operation, followed by prolonged rest, but once the exophthalmos has become extreme it is much less usual to see the eyes go back to normal.

INDICATIONS FOR OPERATION

The deformity is very noticeable and many women will eagerly accept any means of relief, operative or non-operative, which can be offered. The disfigurement, however, is by no means the most important indication for operation in certain of these cases. The inability to close the eyes, even during sleep, causing abnormal dryness of the cornea and increased exposure to dust and injury, not infrequently causes ulceration which endangers vision. The management of the eye condition in such cases I have invariably turned over to the specialists. In a large proportion of the cases, danger has been removed by the usual measures of treatment. Rest in bed, fastening the lid down by bandaging, or with adhesive plaster, the use of eye-shields, atropin and other medicinal treatment has usually cleared up the immediate danger to the eye. If, however, the eye does not recede, the same conditions which originally caused ulceration of the cornea bring back trouble as soon as the patient leaves the specialist, and in such cases operation is indicated to prevent this recurring danger. In a few cases there has been extreme pain in the eye, in the supra-orbital and occipital regions, which has not yielded to any form of treatment which the best ophthalmologic skill could suggest and an occasional patient has sought relief from her exophthalmos chiefly because of the pain. In a number of less extreme cases of protrusion from exophthalmic goiter, the old operation of tarsorrhaphy, familiar to all, is doubtless all that is required.

The edge of the lid is freshened for a short distance at the outer canthus and two or three stitches inserted which narrow the palpebral slit sufficiently to give the exposed eyeball protection and the bulging is very much less noticeable. This is such a simple procedure and so free from risk that it seems to deserve to be more commonly used than it is at present. Before advising any procedure it is best to wait a few months after partial thyroidectomy, as in quite a number of cases the exophthalmos improves so that no operation for its correction is needed. In the more obstinate cases with bad deformity, severe pain or considerable danger to the function of the eye from exposure, the more radical operation would seem indicated.

In the treatment of pulsating exophthalmos, ligation of the common carotid seems the accepted treatment and it seems unnecessary to enter into any discussion of that subject.

The osteoplastic resection of the outer wall of the orbit in the treatment of orbital tumors and the obstinate and extreme protrusions in exophthalmic goiter has perhaps not been as commonly practiced as it deserves to be.

THE KRÖNLEIN-KOCHER OSTEOPLASTIC RESECTION OF THE OUTER WALL OF THE ORBIT

Krönlein deserves credit for having proposed a satisfactory method of exposing the posterior surface of the eyeball and Kocher has suggested some important improvements. Through the kindness of Dr. A. T. Kerr, professor of anatomy in Cornell University, I have been able to make use of anatomic material and through such study have somewhat modified the operation as described by Kocher. Careful study of the anatomy of this region gives us further valuable suggestions regarding the operation. First, as to placing the incision. The original incision suggested has many disadvantages. In the first place it leaves a larger visible scar on the face than is necessary, and, perhaps more important, it endangers certain filaments of the facial nerve, making partial facial paralysis extremely likely. The usual location of the filaments of the facial nerve in this vicinity is shown in Figure 1. While there is a certain degree of

by holding a spatula, wrapped with gauze, firmly against the bone so that the drill-point strikes it as soon as it has pierced the bone. When the zygoma has been divided, it is an easy matter with sequesterum forceps to turn the entire outer wall of the orbit outward giving very free access to the structures in the posterior part of the orbit. The periosteum which has been separated from the inside of the outer bony wall of the orbit is divided on the external rectus muscle and the orbital fat exposed giving an opportunity to examine for a new growth of any kind within the orbit. In case a tumor is present within the region of the posterior surface of the eyeball and optic nerve, there is abundant room for careful dissection. If the operation has been thus far performed by a general surgeon, at this stage, it seems to me, the removal of the growth might well be taken up by the eye specialist who is accustomed to delicate manipulation. In any case, I believe that a competent specialist should always be present at such an operation.

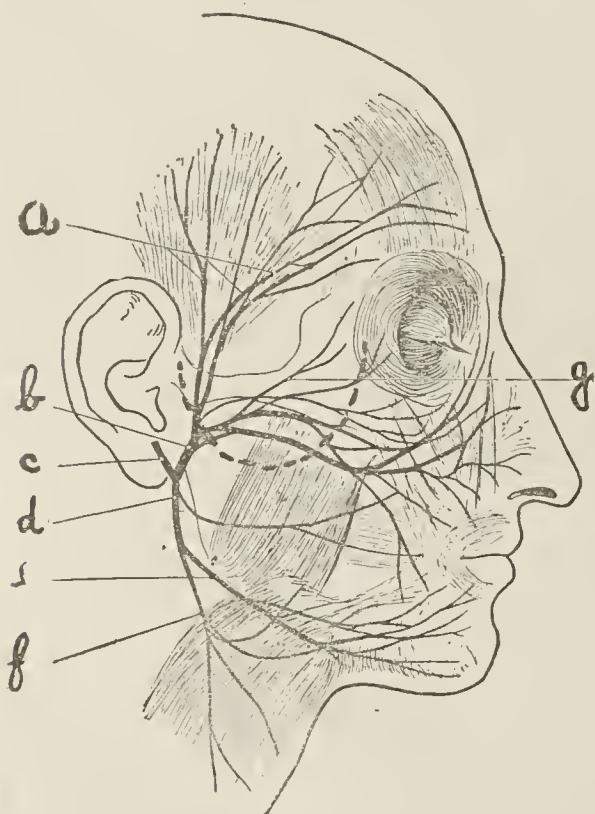


Fig. 1.—Distribution of facial nerves as shown by Corning (*Lehrb. d. Topographischen Anatomie*, after Frohse): a, temporal branch of temporomalar; b, temporofacial branch; c, facial nerve; d, cervicofacial branch; e, mandibular branch; f, cervical branch; g, malar branch of the temporofacial. Dotted line indicates Krönlein's incision as given by Bockenheimer (*Arch. f. klin. Chir.*, 1904, lxxii), who emphasizes its danger to the facial nerve. Kocher (*Operationstechnik*, fifth Ed., p. 322) also urges the danger of the Krönlein incision and quotes Domela and Helbron, who collected statistics of 120 cases with injury to the facial nerve in a very large proportion.

variation in the distribution of these filaments, it is constant enough so that an incision can be placed in the region of the eyebrow where it is fairly well covered and the skin is elastic enough to allow it to be drawn considerably toward the field of operation. The incision is carried, as shown in Figure 2, along the lower border of the eyebrow to external angular process of the frontal bone down onto the zygoma and for a short distance outward over the zygoma. The tissues are divided to the bone, the periosteum with the overlying soft parts are separated from the bone for a considerable distance and from the outer wall of the orbit. The external angular process of the frontal bone then may be conveniently divided by the use of a thin metacarpal saw. Perhaps, better still, the bone may be drilled, a Gigli saw used, and the process divided from within outward, thus avoiding any possible danger of injuring the eyeball. In drilling through the bone the eye can be protected

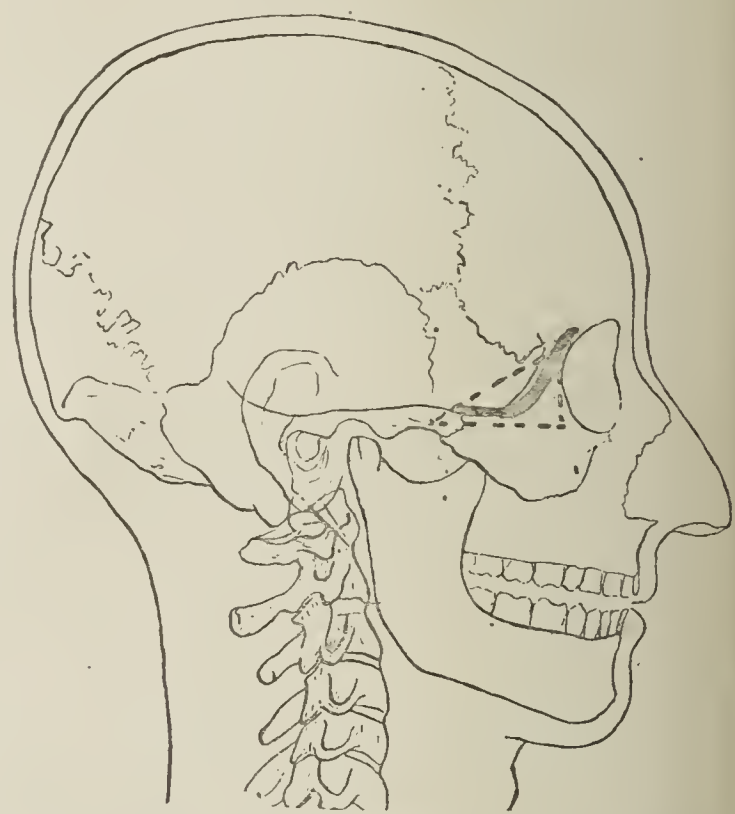


Fig. 2.—Triangle of safety for facial nerve and modified Kocher incision plotted on outline record chart in use at Anatomic Laboratory, Cornell University Medical College, Ithaca. Twenty-five student dissections plotted on this chart and verified by Dr. Abram T. Kerr, professor of anatomy, were examined. No facial filaments in triangle, twelve cases; minor filaments just above horizontal leg, eleven cases; cut by both legs, two cases; no important branches to muscles about orbit divided.

to advise, suggest and assist. In case no new growth is found to account for the bulging, a considerable portion of the outer wall of the orbit can be chipped away with rongeur forceps, giving a good deal of room for structures in the orbit to sink back, thus correcting the exophthalmos. I have closed the periosteum of the inside of the orbit with fine catgut, also partly approximated the soft parts in the remainder of the wound with catgut after the bony flap was replaced. With the soft parts attached over such a large surface, it seems unnecessary to use any means of fastening the bone after it is replaced. It usually comes readily into position and the skin-stitches of fine horsehair also help to hold it. The after-care of the case should be largely in the hands of the specialist.

I first used this operation with a patient on whom I had performed partial thyroidectomy, two years previously, for exophthalmic goiter. During the operation I received most valuable suggestions and assistance from

Dr. F. E. Cheney of Boston. A good-sized growth which proved, on examination by Dr. F. H. Verhoeff, of the Massachusetts Charitable Eye and Ear Hospital, to be a hemangioma, was removed from the posterior surface of the eyeball and along the optic nerve. The growth was removed with some difficulty by careful dissection. There was very little hemorrhage and the closure was satisfactory. The patient had suffered severe pain previous to the operation and the unilateral exophthalmos was very disfiguring. The result has been very satisfactory, the pain entirely relieved, and the eye returned to position not in any way noticeably different from that of the other eye. Vision is normal. For some time there was a good deal of swelling and some ptosis, which has now disappeared. There seems no apparent reason why the radical operation should endanger life, or the function of the eye, if the operation is properly performed. Removal of serious danger to vision, relief of severe pain in certain cases and correction of a very disfiguring deformity, makes the osteoplastic resection of the outer wall of the orbit a most satisfactory operation to both patient and surgeon in appropriate cases.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. KNAPP AND TINKER

DR. JAMES BORDLEY, JR., Baltimore: The views which Dr. Tinker and Dr. Knapp express are sadly at variance with my own experience. My impressions of the Krönlein operation have led me to look on it as an operation of last resort and a rather careful review of my case histories has not caused me to change my opinion. The operations which I have performed have, in the main, been unsuccessful. I do not mean to imply that the surgical procedure was not carried to successful termination, but that either the object for which the operation was performed was not gained or where the basal cause was relieved the resulting scar was a nightmare for the patient. Dr. Tinker's modifications appeal to me. The position of the skin wound and the method of handling the bone flap, I think, will greatly simplify the operation and materially lessen the resulting deformity. Even then the operation is not free from serious defects.

As an exploratory manipulation the operation does not appeal to me with half the force of the curvilinear orbital incision of Rollet. The special advantages of this operation over the Krönlein lie in the fact that the resulting skin scar is much less prominent; the bony contour of the orbit is not disturbed and the operator works in the long diameter of the orbit and is much less apt to injure the globe and the ocular muscles. In cases of long-standing exophthalmos in which the muscles are stretched it is really astonishing with what facility the globe can be shifted about. Indeed, I have seen fairly large masses removed from the orbit with great ease. Other points in favor of the operation of Rollet are that it is so simple to study the inner as the outer orbital wall and the secondary scar formation never interferes with the movements of the eye. The complications which I have seen as the result of the Krönlein operation are: an exophthalmos converted into an enophthalmos with poor motion of the globe as the result of muscular relaxation; partial blindness either from operative traumatism or atrophy secondary to pressure resulting from extensive postoperative hemorrhage; postoperative malposition of the bone flap undiscovered until the edema of the face and lids had subsided. I have had other complications.

DR. WELLS P. EAGLETON, Newark, N. J.: Dr. Bordley's remarks about the disadvantages of the Krönlein operation, I think, will be echoed by all those who have had experience with it. My experience has been limited to two operations, one of which left a very serious deformation in the way of an enophthalmos. I advocated before the academy of medicine about a year ago an operation for the extraction of a foreign body, which I mentioned was better than the Krönlein operation, giving a better exposure of the contents of the orbit. It

consisted of an incision through the skin and through the fascia over the temporal muscle, separating the temporal muscle in the way in which we do a decompression operation, but farther forward, opening the temporal fossa, elevating the small part of the brain and opening the whole roof of the orbit. It appears from the description as a very serious, prolonged operation. It is very simple. It is entirely extradural, and the exposure of the orbit is so complete and so much better than in the Krönlein operation, that though I have only used it in the one operation, I have said that I believed it would be applicable to the drainage of the orbit itself in all suppurative processes. Since operating on a patient I have done the operation several times on the cadaver, and I am more persuaded that it will find a place in the surgery of the orbit. It certainly does away with the deformity of the Krönlein operation and also with the facial paralysis.

DR. LUCIEN HOWE, Buffalo: I think we should not confuse a given operation with the results which we obtain from it under different conditions. The difference between the two should be kept clearly in mind. The fact that the orbit is empty after the Krönlein operation does not detract at all from the value of the operation itself in suitable cases. In regard to the excellent suggestion of Dr. Tinker of first making the opening and then cutting from within outward, I think those who have tried it will have no difficulty in making the incision just as it is set forth in the first description if the chisel used has sharp corners. The bone is so very thin that the triangle is cut out without much difficulty. The scar seems to be in some cases at least of small significance. In one case I was surprised at the rapidity of the healing, and it was so easy that I was also surprised that I had not done the operation before, and have the conviction that I shall do it again as Dr. Knapp recommends.

DR. W. C. POSEY, Philadelphia: I have done the Krönlein operation four times, and in the last three cases I was perfectly satisfied with the results. In the first case I followed the steps of the operation as given by Krönlein himself in "Operative Ophthalmology" by Haab. I chose a curved chisel to remove the segment of bone from the orbit, as Haab recommended. The patient on whom I operated was a child with dermoid cyst of the orbit. In attempting the removal of the bone, the chisel caused the orbital rim to curl and in the subsequent healing there was some loss of bone with resulting fistula. Ultimately, however, the fistula closed and the deformity was but slight. In the remaining three cases, in all of which a narrow flat chisel was employed, a fine thin line of scar tissue remained. It has been objected that enophthalmos results from the operation. That, of course, is to be expected, after the removal of a large growth from the orbit, and can not, it seems to me, be offered as an objection to the procedure.

DR. MATTHIAS L. FOSTER, New Rochelle, N. Y.: During this discussion I have been surprised to hear so much about the bad scar left after the Krönlein operation. A few weeks ago I saw a patient on whom I performed this operation when he was a child, in 1900, twelve years ago. Now he has a paresis of the external rectus and a scar in the skin so slight that unless your attention were called particularly in that direction you would hardly notice it. Dr. Posey's remark about the curved chisel recalls to me that at that time I had no such chisel as the one originally recommended. I had only one with a thin, sharp, straight edge, and I have never thought of a curved chisel since. I have performed this operation several times and I do not think I have had a bad deformity as a result. I have certainly not seen one and I think the operation excellent for exploratory or diagnostic purposes.

DR. ARNOLD KNAPP, New York: My experiences with the Gigli saw have not been satisfactory. I have not noticed any facial paralysis. I think the operation of Rollet is excellent, but it does not satisfy the purpose of the Krönlein operation which is to remove a tumor from the back of the eye; it is not possible to get at it if you do not remove some of the bone. The operation is not a cure for all orbital conditions; it is indicated only for certain cases of circumscribed tumor back of the eye, and it seems to me in these cases the attempt should be made to try this operation. If it does not succeed,

then, of course, exenteration can always be done. The objections of Dr. Bordley can be avoided. I have not been dissatisfied with the disfigurement which I have gotten in my operations.

DR. MARTIN B. TINKER, Ithaca: I am quite convinced personally that the incision I have suggested offers a good many advantages. I should be very glad to have some of you try it, and I should also like to know the results. I have the impression that some men have not used quite as extensive a bone flap of the orbit as I have proposed. The upper part of the wall of the orbit is very fragile and I have never seen a chisel sharp enough to cut it without more or less splintering. It is only fair, however, to say that there is not necessarily very much bone deformity if the periosteum is reflected before the bone flap is cut, for the reason that flat bones reproduce readily if the periosteum is left, for example, as in opening the chest wall and resetting one of the ribs. If the Gigli saw is used in the way I have used it I am sure there will be no objection to it. It cuts a smooth, clean flap in the bone.

SUBCONJUNCTIVAL INJECTIONS IN OPHTHALMIC THERAPY *

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CUMBERLAND, MD.

Since adopting the practices herein to be outlined, it has seemed to me that the most fertile field in the treatment of the graver eye diseases and injuries is, likewise, the least known and most neglected. Prior to the spring of 1904, descriptions of the methods of using, and the results obtained from, subconjunctival injections had not aroused in me sufficient enthusiasm to cause the practice to be put to trial. My first efforts were limited to salt solution only, and a few with bichlorid of mercury. Desiring a better knowledge than had been obtained from desultory reading of current journals, my earnest efforts were given to study of Darier's "Ophthalmic Therapeutics," which had been put on a shelf unappreciated. To his teachings and practice due acknowledgment is made for much of the contents of this paper, while I hope that there has been sufficient variety and extension added in some directions as to give it an individuality of its own.

I have no theory which satisfactorily explains the curative power of these injections in the wide range of conditions to which they are applicable. In inflammatory troubles they are antiphlogistic; in indolent conditions they increase circulatory activities; in septic troubles they check sepsis and, where sepsis is impending, prevent it. In specific troubles they avail much, but surely not by reason of the small amount of specific drug in them.

We may use the modern terms of "raising the opsonic index, or increasing the antibodies, etc.," or fall back on the comprehensive term of our forefathers—increasing the *vis medicatrix naturæ*. It is not drug action in itself, but some process or principle in which drugs merely figure, as antisepsis is a principle, and bichlorid or phenol (carbolic acid) merely drugs which figure in it. My practice is invariably to use as much as 2 c.c., or 30 minims, of fluid, regardless of its composition, age or condition of patient, or nature of disease or injury treated, as I believe it is the distention and flushing of the lymph-channels that is one of the chief essentials of success.

In the literature, authors often speak of injecting 1 or 2 or 5 drops of certain solutions. The only regard which is paid to the quantity of any drug used is to keep

within limits of its constitutional dose, just as in an ordinary hypodermic. Bichlorid of mercury as a base was soon abandoned in favor of cyanid of mercury for the following reasons: Cyanid is much less painful, less toxic, is compatible with all the alkaloids, with epinephrin chlorid, and various other drugs which are decomposed by the bichlorid.

Darier tells of his long hunt for some preparation to palliate the tortures of injections, which he found in acoin. One of my first patients, who had received plain bichlorid injections and who was afterward given cyanid with acoin said that, although he was a poor man, no amount of money would induce him to submit to the old as compared to the new treatment.

Acoin is so easily decomposed by alkalies that I habitually combine it with a little boric acid, and keep a stock powder of one part acoin, one part boric acid and four parts salt—about one-half grain of which is dissolved in the 2 c.c. of 1 to 1,500 cyanid. The cyanid is sometimes used double that strength. Almost immediately following injection of 2 c.c. the entire conjunctiva is raised in a bleb, one-quarter of an inch or more in thickness; swelling rapidly extends to the lids, and frequently the entire side of the face, down under the chin and to the opposite side, at which no alarm need be taken. The chemosis for several days may entirely conceal all of cornea except a small pupil area. Often the conjunctiva around the needle entrance has a devitalized blackish, or sometimes buttery look, as though it would necrose, lasting for several days, but finally clears up. Only once, out of many hundreds of such treatments, has the membrane necrosed, and that over a small area which readily granulated, with just the same amount of adhesion of conjunctiva to globe as would have resulted anyway. Every time an injection is made, the conjunctiva becomes adherent to the globe over an area about as large as a little finger-nail. In some very rebellious cases requiring eight or ten repetitions, the subconjunctival space is entirely obliterated, but it causes no limitation or discomfort of movements, or distortion of lids. The eye simply looks like white marble, and no more injection can be made for lack of space to accommodate it. One eye such as this required removal because of a subsequent injury, and the parts were solidly matted together.

In these treatments speculum and forceps are entirely superfluous, as the needle-point readily picks up the membrane. The preferable points are midway between the recti muscles, and as far away from the cornea as possible, endeavoring to prevent the raised area from immediately reaching the cornea, which it ultimately does. A few trials of 3 c.c. or more produced so much swelling that it was feared necrosis would result from the opposite sides compressing each other, and this amount is at present considered excessive.

Notwithstanding the great reduction of pain by acoin, it was still, in some cases, so agonizing as to call for a hypodermic of morphin. For the past five years I have regularly put one-eighth grain of morphin and a like amount of dionin into the injection fluid in cases not already painful, and one-quarter grain in conditions already severely painful, as glaucoma. The pain varies in different individuals from ten minutes to a half hour usually, in rare instances lasting several hours. Where a dilated pupil is also desired, 1/100 of atropin is put in, which acts very quickly on the pupil.

It requires from two to four weeks for the ecchymosis to disappear entirely, but it is not conspicuous. The majority of cases require only one treatment; obstinate

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

ases, as of interstitial keratitis, are not submitted to repetition oftener than once or twice a month. In this disease, unless peculiarly violent, only one injection is given into each eye. The same is true of most infections and traumatisms.

I believe in one strong sledge-hammer blow, instead of frequent tack-hammer licks, to which the daily or tri-weekly injections of salt solution, usually recommended, might be compared. Small children, in whom a single injection would save an eye from enucleation, have been put under a general anesthetic, but they stand the same amount of fluid as the adult. Darier's latest work speaks very highly of a watery saturated solution of guaiacol in tuberculous troubles, both as to its curative and analgesic effects. Only a few opportunities have presented for trial of this, which will probably do away with the need of morphin.

It shall be my endeavor to confine the cases reported to those in which treatment would be considered impossible by other recognized means, or in which better results are obtained than by well-sanctioned treatment, or in which the same results are obtained much more quickly and surely than by time-honored and authority-sanctioned procedures.

By far the largest use to be found for this procedure, is in advanced or dangerous corneal ulceration. Simple cases are not subjected to injection, nor those which do well under established treatments, ranging from boric acid to actual cautery or curet, but where the cornea is extensively ulcerated or breaking down, or the pupil area is involved or threatened, or the infection known to be especially virulent, the sooner used the better. Not only is healing more sure and rapid, but the cornea is remarkably clear as compared to scar formation in general, sometimes requiring oblique illumination to detect whiteness where ulceration was fairly deep. Accepted measures are used in addition, except for the few days when the swelling is so great that the cornea is practically covered by it. Non-resident patients may be sent home during this period, with instructions to keep secretions washed off, and a clean pad on the eye. If the patient is seen every day, the use of any local measures is considered as merely a placebo, to keep the patient contented while this extreme swelling persists. My first concern in all cases of corneal ulcer is to see if the tear-sac is suppurating and, if it is so, and if the ulcer is central, the tear-sac is destroyed, the ulcer burned by actual cautery and the injection made at the first treatment. These cases are usually so virulent that delay of a single day spells disaster.

After treatment as outlined above, the early ulcer usually heals promptly without any further ado. If it has nearly perforated, it will probably be destroyed because of being one or two days too late in receiving treatment. Where the ulcer is not central, the injection is withheld until other means are tried, and their inability to check advance of ulceration or infection is demonstrated. Where increased tension exists, it is well to make a paracentesis at the time of injection. The majority of ulcers, if taken reasonably early, receive only a single injection. Cases of long standing, with large or deep areas of necrosis, may require repetitions every two or three weeks until healing occurs. The greater transparency of the cornea in cases so treated has already been mentioned. I shall not report cases under this heading, but give illustrations of other conditions in which the treatment applied is believed to have demonstrated its claimed efficiency.

CASE REPORTS

SYMPATHETIC INFLAMMATION

CASE 1.—*Patient*.—April 8, 1904, J. S., a miner, applied for advice as to when he might resume the use of his one eye, the other having been destroyed by a gunshot three months previously. The destroyed eye had no cornea left, being entirely white, and square-shaped rather than round, but not inflamed or tender. The good one had full vision, and under homatropin three-fourths of a diopter of plus astigmatism and absolutely sound.

Treatment and Result.—The patient was warned of the possibility of harm to the other eye, and told to come back on the slightest sign of disturbance to it. April 26 he returned with the feeling of a foreign body in the eye, but no redness or tenderness or diminution of vision. A few almost invisible specks on Descemet's membrane were detected, and he was advised to allow prompt removal of the blind eye, which was done under local anesthesia, injection with sterile water and an infinitesimal quantity of cocain. Atropin and dionin were put in the good eye, hot fomentations used, iodid of potash given up to toleration, mercurial inunctions used to the limit, pilocarpin sweats induced, and sodium salicylate given in the massive doses recommended. In spite of these, the disease progressed until patient could hardly count his extended fingers. The turbidity of vitreous had veiled the fundus beyond vision, and it seemed as though the case was hopeless. After failure of these measures, injection of salt, then of salt and bichlorid very weak, with no apparent benefit. May 20, by an error, 30 minims of 1 to 500 bichlorid was given when the 1-5,000 was intended. Although this caused a large area of the conjunctiva to turn very dark, it did not slough, but caused the progress of the disease to check, and from that time on improvement took place steadily. June 9, the use of cyanid was begun and as this was an early case with little experience behind it, the quantity used in the twelve treatments ending August 29 ranged from 10 minims of a 1 to 4,000 to 30 minims of 1 to 3,000. By this time all active symptoms had entirely ceased, the pupil was dilated and immobile, vitreous clear, and choroid in its peripheral area studded with white spots about one-fourth disk diameter in size. The refraction was moderately myopic, and correcting-glass gave about 20/40 and fine print near. Examination Feb. 3, 1912, showed pupil natural size, responsive to light; dilated by homatropin to size fixed by adhesions originally. With S-1.50 vision 18/30+, Jaeg. No. 1—Tension normal; gives no trouble of any kind.

Several cases of chorioiditis illustrating various forms and severity will be presented.

CASE 3.—*Patient*.—Man, aged 44, reported with iritis of two weeks' duration, iris bound to lens, to free which a quadruple-strength solution of atropin was used for several days. The patient said that he had had rheumatism, for which constitutional treatment was given. Before long, maculae showed on forehead and he admitted then that he had recently been under treatment for syphilis, and constitutional treatment was changed to mercury.

Treatment and Result.—In due course of time iris became freed, pain and inflammation ceased, and vision was well on the way to restoration when it began to rapidly go down from chorioiditis. Mercury was pushed to limit, and when vision reduced to about counting his extended fingers, a single injection by the present time formula of 1-to-1,500 cyanid with $\frac{1}{8}$ grain each morphin and dionin, as well as the acain anesthetic, was administered, with very little suffering, and usual great swelling. The vision came up as rapidly as it had gone down, the fundus soon became again visible and the floating exudate absorbed, and in a few weeks vision rose to 18/40, finest Jaeg., which is its present status, eight months later. The vitreous has a small floating spot which will always remain. It is just as likely the slight reduction of sight is from the iritis as the chorioiditis.

CENTRAL MACULA CHORIOIDITIS

CASE 5.—*Patient*.—Man, aged 23; four weeks previously he had lost central vision in one eye for large headline print, and

proportionate reduction for distance. Peripheral vision was best and fundus easily seen, vitreous being clear.

Treatment and Result.—He had been taking orthodox treatment from competent oculist to no avail. Although it was late at night when patient was seen, it was not deemed prudent to defer injection at all, and this was given well nigh midnight. Very soon improvement became evident, and in less than two weeks vision became absolutely restored, far and near.

INTERSTITIAL KERATITIS

CASE 8.—*Patient.*—V. R., girl, aged 17, came in June, 1905, with ground-glass whiteness of several weeks' duration in the cornea of the right eye. Patient could count fingers only.

Treatment and Result.—After ordinary treatment for some time, cyanid injection was given with rapid clearing of cornea. This was before the use of morphin and suffering was correspondingly severe. In time, far and near vision reached full standard. She subsequently developed the same disease in the other eye, and her dread of injection was so great that her protests against its use were yielded to, and although the severity of affection in this latter eye by no means compared to the first, its final standard was very much lower.

CASE 9.—*Patient.*—A. R., a sister of Patient 8, aged 16, came in the summer of 1906 with the same disease in one eye. As Patient 9 was a deaf mute, the issue was more vital to her.

Treatment and Result.—In addition to established routine local and general measures, she was given two injections; a short time before the disease abated in this eye, the other developed the disease, and it was also given two injections. Several months elapsed between the beginning of the first and the end of the second attack, yet both corneas were not only clear, but brilliant. Asthenopic symptoms manifesting themselves one year later, the eyes were refracted, with full vision in each. Reexamination Feb. 20, 1912, showed no vestige of line or haze in either cornea and vision was full standard far and near.

Cases thus treated are relatively free from the fine thread lines permeating the cornea, which are remnants of the new-formed vessels. Some cases of pannus crassus, in which the vessels cover everything, hardly leave any visible streaks.

GLAUCOMA FOLLOWING RETINAL HEMORRHAGE

CASE 12.—*Patient.*—Mrs. H., aged 59, reported on May 6, 1911, on account of sudden loss of sight in the right eye a few days previously, which was due to extensive disseminated retinal hemorrhage. The other eye was normal. To lessen danger of vessels elsewhere giving way, patient was sent to her home in the country with directions to stay in bed and take Epsom salts up to the limit, and was put on iodine preparations, restricted diet, etc., under supervision of family physician. She had for some time been suffering severely from headaches. Things went well until she returned on May 22, with the eye congested and painful, for which epinephrin drops, and alkalies internally, were given. Things went on to the worse and developed an agonizing, painful glaucoma, which did not abate from local or internal medication.

Treatment and Results.—As all authorities say that iridectomy is useless in these hemorrhagic cases, and leads to enucleation, she was given, on June 9, after paracentesis of cornea, an injection of cyanid and morphin with a few drops of epinephrin (adrenalin P. D. & Co.) added. The relief was immediate and lasted several days, but pain gradually returned and in spite of physostigmin (eserin) became so severe as to require another injection June 17, omitting paracentesis this time. From lack of paracentesis probably, relief was not so great this time. I started for the Los Angeles meeting next day with many regrets at leaving a patient in such bad plight. A single communication a few days later reported pains as still existing; but on getting home I was gratified to find that the patient had soon become entirely comfortable; she has not had a pain up to the present, although the eye-ball continues to be as hard as ever.

Darier asserts that injections of weak solutions of epinephrin will surely reduce glaucoma tension; this I

have realized in a number of cases in which the glaucoma was a complication, but I have not had cases of the primary disease to try it on.

SEVERE EPISCLERITIS

CASE 14.—*Patient.*—F. S., man aged 28, had been suffering in both eyes with subacute episcleritis for three months. This had resisted skilled treatment at the hands of a colleague, and as the patient was handicapped in earning his livelihood as a chauffeur, he was naturally anxious to find the quickest relief possible.

Treatment and Result.—Aspirin in large doses was used a few days without benefit, and on May 17 the eye worse affected was given the dionin morphin and cyanid injection, and as soon as swelling subsided sufficiently to permit this eye coming open, which was three days, the second was given similar treatment. After the pains of the treatments passed away, there was no pain any more in either eye, and as soon as chemosis left both eyes the patient was enabled to return to work and has had no further trouble since. At some former time, not known, he had passed through attacks of mild disseminated chorioiditis on each side, but not affecting the central areas. Was highly rheumatic otherwise.

Mild cases of episcleritis, or protracted and more severe when patient has been found willing to give the time to them, have been treated in the usual way locally and constitutionally, with actual cautery to persistent nodules, and the injection reserved for the more refractory cases.

DOUBLE OPTIC NEURITIS FROM SALVARSAN

CASE 17.—*Patient.*—A girl, aged 19, reported Jan. 15, 1912. She was referred by a physician who gave her salvarsan November 10, for an infection of two months' duration. On Dec. 31, 1911, the left, and Jan. 2, 1912, the right eye had a cloud suddenly appear before it, covering the central sight. Peripheral vision unaltered. Right vision 9/200, Jaeger 14; left vision 18/120, Jaeger 8 at 15 inches. Sclera was white, with engorgement of the normally visible arteries. The right optic disk was too blurred to be definable; the left barely definable.

Treatment and Result.—Right eye was given injection of morphin, dionin and cyanid. January 19, right vision 18/120, Jaeger 12; left vision, 18/120, Jaeger 12. Injection was repeated on the left side January 25. Right vision 18/80+, Jaeger 4+; left vision 18/80, Jaeger 4+. January 27, right vision 18/50, Jaeger 2; left vision 18/80, Jaeger 2. Together Jaeger 1. Patient returned home; came back February 14 with right vision 18/40+, Jaeger 1 easy; left vision 18/40+, Jaeger 1 easy. Optic disks were still very hyperemic. Engorged vessels were decidedly reduced. Injection was repeated on the right, and on left on the 19th, on the assumption either that further good might result, or that the liability of relapse might be lessened, should such tendency exist.

Finally I turn to the great field of eyes which have been cut, penetrated, punched or smashed.¹

I shall here reproduce one of the cases reported, the history of which was given to the late Dr. Hubbell, at the Chicago Session of the American Medical Association, with the question if he with his large personal experience had knowledge of anything similar. He replied that he did not, and that it should be reported, but he could not say what the "dope" had to do with it.

CASE 19.—Oct. 14, 1907.—Oliver D., aged 48, while hunting, received in eye from a considerable distance a No. 8 shot from gun of companion. Examination was made the same evening; the eye-ball was full of blood and vision gone. A small slit

1. A paper entitled "A Method of Preserving Eyes Which Are Usually Removed" was presented by me before the Specialties Section of the Pennsylvania Medical Society, Oct. 5, 1910, and appeared in the Pennsylvania Medical Journal of January, 1911, with illustrative cases, not only cases in which these conditions were recent, but also cases in which secondary inflammatory or suppurative states had already become established.

was found at center of lower lid, near margin, where shot penetrated, but wound could not be located on the ball. After explaining to patient that removal of eye was the other alternative, he was given an injection of cyanid and dionin, and returned at once to his home in another town. No pain or inflammation of any kind resulted, and when blood in vitreous was absorbed, a large spot of perfectly white selera, many disk-areas in size, was seen in bottom of eye, most likely where shot struck, but no shot could be seen. Tension and appearance of eye were absolutely normal. It was explained to him that trouble might develop in the future, and he was told to return promptly if certain symptoms occurred. In May, 1908, he returned by reason of a fine circumcorneal congestion at lower border. No pain or tenderness. Examination showed a round bulging of iris at lower corneal angle, exactly size of a No. 8 shot. To extract it, a corneal section as for cataract was begun, and patient being absolutely without self-control, jerked away before it was completed, letting aqueous humor escape. Being compelled to go on, the section was made through front of clear lens, which was removed, and shot lifted from under iris by a scoop. Eye was bandaged and patient left to return home on a mid-day train, but he went to a saloon instead and spent the day drinking. Nevertheless, healing took place without any complication, and the eye is still in perfect condition, as far as appearances go.

"Replying Sept. 15, 1910, to a letter of inquiry, the patient says that the eye looks better than when I saw it and can distinguish light from dark."

This patient reported once in 1911, when eye looked fine, having some peripheral vision.

INJECTIONS AFTER MAGNET EXTRACTION

CASE 20.—J. L., miner, aged 23, had the right eye injured on the morning of Oct. 8, 1908. At first sight his physician perceived that the matter was serious, although the patient did not, as he suffered no pain and vision was impaired only slightly. In the afternoon the eye-ball was soft, and a small wound was recognized between the insertions of the superior and external recti.

Treatment and Result.—Entrance wound was slightly enlarged and tip of large magnet, inserted between its lips superficially, withdrew a sliver of iron 1 by 2 by 4 mm. The cyanid and dionin injection was given, and patient returned at once to his home in a nearby town. He suffered no pain or inflammation, and when swelling subsided, a large area of white selera was seen far forward in region of the wound. Appearance of eye was otherwise absolutely normal. Prior to injury its vision was supposedly acute, but it now has a high plus astigmatism, with sloping axis, and there is no accommodation whatever. My belief is that the suspensory ligament of the lens was torn, and the lens rotated on its axis. Things have thus remained up to the present, vision being 18/40 with a + 5 Cyl, and Jaeger No. 1 with S + 4.0 added.

I once heard the late Dr. Herman Knapp say that these magnet cases made a sensational beginning, but that eventually many of them underwent slow degeneration, resulting in the end in blindness. It is to prevent this that the injections should be given after each operation, should it prove as effective as we have reason to hope.

PUNCHED WOUND IN CILIARY REGION BY DIRTY NAIL

CASE 22.—*Patient.*—G. W., aged 4, came on morning of Oct. 14, 1911, having been injured on the afternoon of October 12 in the following manner: A large nail attached to a string, holding up the door to a pigeon cage, used for live bird shooting, was forcibly jerked out to drop door, and made a clean punch in selera, one-fifth inch below center of cornea, through which the dark ciliary body showed. Sight was gone, iris cupped and changed from blue to dirty-brown color.

Treatment and Result.—Patient was etherized, the conjunctiva drawn over the hole by two stitches, and standard injection given, and as soon as fully over the anesthetic, the

boy was carried home to report in one week. He suffered no pain or inflammation, and when next seen the eye had its normal blue color and flat iris. The child being entirely unmanageable, the stitches were left to cut themselves out. On examination Feb. 2, 1912, the eye which was blind could not be singled out by the ordinary observer, having normal color, tension and volume.

If these penetrating injuries can be treated at once, it is probable that vision might be retained in some of the cases in which infection of the vitreous leads to destruction of sight in less than twenty-four hours. It is also worthy of consideration that in certain especially dangerous operative, as well as accidental, wounds, to wait for some sign of vitreous infection means failure, as this probably begins in the depths of the eye and only shows its presence when nearing the exterior.

In some cases suppuration already established in the vitreous has been stopped, but in no instance has vision been retained, or rather restored. Where wounds are known to be limited to the anterior segment of eye, it is all right to wait for the signs of infection, but if this is not sure beyond the shadow of a doubt, the injection should be given at once.

Illustrative of the first proposition is the following case:

CASE 23.—*Patient.*—A man, aged 45, had lower cornea cut through by broken glass on June 11, 1911. He was seen twenty-four hours later; the eye painful, but no sign of infection; argyrol 25 per cent. was given at frequent intervals, also atropin and hot bathing. Pain continued very severe, and on June 17, pus formation showed in wound, and injection was given. This did not cause any serious suffering, and there was no more pain afterward. Leaving town next day, the patient was referred back to his physician, but healing was prompt and uneventful.

All of the patients reported slept in their home beds, and were treated as office patients, with no pretense of elaborate antisepsis, aside from sterilizing syringe and solution. What larger fields of usefulness may exist, and what drugs to apply thereto, remains to be worked out. No reference is made to strong salt or brine injections for retinal detachment, as that has plenty of advocates, nor to sodium citrate for glaucoma, which is being sponsored by Thomas, of Oakland, Cal.

The scant attention given to the possibilities of massive cyanid injections reminds one of the step-child in a fairy story.

100 Baltimore Street.

ABSTRACT OF DISCUSSION

DR. G. C. SAVAGE, Nashville: The day of subconjunctival injections is just now dawning in this country. I believe that there is a great field for subconjunctival injections, but the American profession has not availed itself of the good to come from this line of work very largely up to the present. I suppose Dr. Jones is almost the oldest as he is certainly the most persistent in the use of subconjunctival injections in this country and what he has said in his paper may be relied on to the utmost. Dr. Jones did not tell me of those ugly immediate effects following subconjunctival injections of cyanid of mercury. I became almost seared to death the first time I used the cyanid injections, as I was wholly unprepared. The patient was more shocked than I. You must not infer that subconjunctival injections are given every day and to all patients. Dr. Jones does not do that. He has told you that if you can cure your patient by means that are milder you should do it. This is what he does. The subconjunctival injection of the cyanid will not be demanded often, but when you have cases such as have been outlined in this paper you will be pleased with the results you get—not the immediate results but

for these you will be better prepared than I was. Dr. Jones has not overdrawn the picture of that swollen face and that chemosed ocular conjunctiva. I would not treat such a patient and let the patient go home. Not only would the patient not come back, but his friends would not come. I want these patients to be in a very private room in my own institution and I want to exclude visitors for a whole week. I do not want the parents of the patient to see him or her and especially the father, if he is a muscular fellow and hard to reason with. I believe that this terrible reaction that comes in these cases brings about the beneficial effect; I do not know how. There are two objections to the subconjunctival injection of cyanid of mercury. The one I have already emphasized sufficiently, that is, the severe reaction. Orbital cellulitis produces no more alarming effect than do these injections. The other objection is the adhesion of the conjunctiva to the sclera. It is as large as the little finger-nail but appears in the beginning to be larger. If it is possible to get some agent to replace the cyanid—and I think it is—then blessing on the man who will introduce that agent. The improvement in the cases that should be subjected to this treatment is in every respect satisfactory. Especially is this true in the more severe cases of interstitial keratitis, corneal ulcers which seem to be hard to control and in connection with the other severe conditions that have been mentioned in this paper. My experience is in every way satisfactory barring the two objectionable features, the terrible reaction and the consequent adhesion.

DR. L. WEBSTER FOX, Philadelphia: Some years ago I published an article in which I quoted from an article by Dr. Charles Stedman Bull of New York, entitled the "Present Status of Subconjunctival Injections," published in the *Medical Record* in 1903. Dr. Bull went over the whole field just as we are going over it to-day. In 1892 I was in Paris and saw Darier use subconjunctival injections of cyanid of mercury. I said to him, "We cannot use that treatment in America and live." I went to Liverpool and saw Dr. Bickerton use the same drug. He said of an Irishman on whom he had used it, "I had to lock him up or I never would have lived to welcome you here to-day." I took courage at the results of my friend's experience and tried it in Philadelphia. For cruelty to a patient I know of nothing so severe. I have followed out very carefully, however, the method described in this article with a very encouraging experience. A recent French writer has found that the addition of a certain amount of sugar (apparently brown sugar) lessened the irritating effect of the ordinary normal saline and also some of the preparations of mercury.

DR. ALBERT E. BULSON, JR., Fort Wayne, Ind.: When Darier's work came out, I followed his recommendations concerning the subconjunctival injection of cyanid of mercury, but, notwithstanding the use of acoin as advocated by Darier and Dr. Jones, my patients complained bitterly of the suffering. I was so discouraged that I dropped subconjunctival injections altogether. Two or three years later, while visiting in New York City, I found that the late Dr. Bull was using subconjunctival injections of salt solutions in a large number of cases with apparently good results; he had abandoned the use of cyanid of mercury on account of the pain produced. After hearing of Dr. Bull's favorable results I again resumed the use of subconjunctival injections, first employing normal salt solutions and later solutions of dionin. For the last two or three years I have used dionin to the exclusion of all other preparations in subconjunctival injections, and while the treatment is not a specific for any and all forms of eye inflammation, I have seen some very remarkable results in conditions that had resisted all other forms of treatment. If Dr. Savage is worried about the swelling caused by subconjunctival injections of cyanid of mercury he ought to see some of the patients who have recently had subconjunctival injections of dionin. They look as though they had just come from a prize-fight and had received the worst of the encounter. But there is one advantage in the use of dionin and that is that the patient suffers comparatively little pain, and what pain there is usually lasts only a period of three or four minutes. If there has been considerable pain prior to the injection, the patient invariably experiences relief and remarks about the comfort secured from

the treatment. Seldom does the patient offer any complaint about the swelling if he is assured that it is a part of the treatment and will probably bring about more satisfactory results than anything else. I have not found that the injections are of so much value in the wide variety of cases mentioned by Dr. Jones, though there are a number of diseased conditions, and particularly septic processes, in which the treatment seems to be superior to all other forms of treatment. In intra-ocular hemorrhage I know of nothing that will produce clearing of the hemorrhage like subconjunctival injections of dionin. I use from 20 to 60 minims of a 5 or 10 per cent. sterile solution and repeat the injection in from six to fourteen days, depending on results. The swelling is even greater than when other solutions are used, but the discomfort is practically *nil*, and the benefit is far in excess of the benefit from any other form of treatment used.

DR. WILLIAM ZENTMAYER, Philadelphia: I wish to report a clinical experience which seems to demonstrate that Dr. Savage's idea that it is the cyanid of mercury in the injection which was responsible for the adhesion between the subconjunctiva and the sclera is not correct. In a case of detachment of the retina in which I had used injections of saline solution, large xanthomatous areas appeared over the cornea with adhesions of the palpebral conjunctiva to the sclera. This condition persisted during the six months the patient was under observation. About a year ago I saw the patient after a lapse of ten years. The original discoloration had disappeared but there was still firm adhesion to the sclera. This would indicate that possibly future trouble might arise from this blocking of the lymphatics if the adhesion of the conjunctiva to the sclera were extended, and I should think that injections of such strong mercurial salts might have after-effects which would be quite injurious.

DR. THOMAS W. MOORE, Huntington, W. Va.: About nine years ago I used my first subconjunctival injection of cyanid of mercury. The patient was pugnacious and roaring with pain. I felt like having the patient confined until I could leave the state. The next day, however, when the pain subsided, I was astonished to see the result. The patient had come in with the iris hanging out of the eye. He had a very violent irritation and infection. The next day it was cleared up in an astonishing way. There was adhesion of the conjunctiva and sclera following, but a most excellent recovery resulted and every year the patient comes in to say what a good eye he has. I do not know of anything so good for the treatment, but we must make the injections rather weak. I think it is the violence of the reaction, possibly, that cures the disease.

DR. ROBERT L. RANDOLPH, Baltimore: I am reminded by Dr. Moore that it is not only the cyanid of mercury which is apt to produce these adhesions between conjunctiva and sclera, but that subconjunctival injections of sublimate solutions of salt, etc., may also produce the same effect and I think that this condition is not without harm to the eye. A number of such adhesions in this situation must exert a disturbing influence on the nutrition of the eyeball. In this connection I should like to say that my experience with all sorts of subconjunctival injections has been distinctly disappointing. I have never used the cyanid of mercury, though after what Dr. Jones has told us about it I might be led to think it of value in such a desperate disease as sympathetic ophthalmia.

DR. S. D. RISLEY, Philadelphia: Very early in my experience I abandoned the cyanid of mercury injections, not only because of the severe pain caused by this drug but on account of the severe and often protracted reaction. I cannot think that such extensive edemas as have been described here to-day, involving the face and periorbital tissues, are free from danger. Then, too, more or less serious and permanent impairment of function must follow the extensive adhesions of the conjunctiva to the sclera described in Dr. Jones' paper. The conjunctiva is a very important membrane—a lymphoid structure—and to destroy its function by these adhesions must interfere with the nutrition of the globe. For these reasons my judgment is against the habitual use of such large quantities of so strong a solution of cyanid of mercury, even in the serious forms of

ocular disease described by Dr. Jones. I would, therefore, employ such heroic treatment only as a *dernier ressort*.

DR. H. W. WOODRUFF, Joliet, Ill.: I have never had occasion to regret the use of cyanid of mercury. The adhesions between the conjunctiva and the sclera are of no importance because the cases in which the cyanid is used are only cases of great severity, in which the loss of the eye is imminent—serpiginous ulcer of the cornea, infection following cataract extraction, etc. I believe it is in the latter that we will find it of most value, because it is very seldom that one is able to save an eye infected after a cataract operation. I have had the misfortune to have a number of infections follow this operation, but have had the good fortune to save them by the cyanid injection. Concerning the reaction and the pain, I have not had the results some have had. I always use cocain in the solution and follow it with hot applications made constantly to the eye, and I very seldom have a patient who makes unusual complaints. Of course, the condition in which one is using it is painful. I feel so strongly on the subject that I believe a doctor instead of being put in jail for using the solution, as suggested by someone, should be put in jail for not using it where it is indicated. I use about 8 minims of a 1 to 1,000 solution with 4 minims of a 4 per cent. cocain solution.

DR. JOHN A. DONOVAN, Butte, Mont.: My observation of cyanid of mercury is that in infected eyes and in those stages of ulcer in which there is beginning hypopyon and in injured eyes, if one can get the solution in just as the infection is beginning, it can usually be checked. Guaiacol dissolved in glycerin, then in water, is a favorite solution in tuberculosis. Pain accompanies its use but does not last so long. I begin my cases with 6 minims and I never exceed 10 or 15 at the outside. If, after using cocain one injects 6 minims of the solution, then puts in dionin immediately afterward, keeping on hot applications for fifteen minutes to half an hour, the enormous reaction or pain will not be complained of to such an extent and the patient can go home.

DR. HIRAM WOODS, Baltimore: My own experience has been about the same as that of Drs. Bulson and Randolph. I have not used the cyanid of mercury injection chiefly because I saw what others did and I did not see that the results were so strikingly better than from a good many of the ordinary methods. For instance, Dr. Risley says it is a *dernier ressort*. I had a patient 78 years old with serpiginous corneal ulcer and double ectropion. His arteries were as hard as cords and he was in bad shape. One of my assistants who is an enthusiast on cyanid injections insisted that cyanid injection was the only thing that would give the man a chance. I did not feel justified in using it, so I did a Saemisch operation with very prompt recovery. It is hard to judge when we have reached the *dernier ressort*. As far as general therapeutics is concerned, except in exudative chorioiditis, I have not had much benefit from subconjunctival injections. I have seen decided results from subconjunctival injections both of salt and of dionin solutions; I cannot help thinking it must be the violence of the reaction that does good. I have seen the same thing in dacryocystitis. Most of us have had a great deal of discouraging experience in cases in which we have hesitated to take out the sac. With me, in the only cases of recovery after the injection into the sac of various solutions of copper and silver salts, etc., this injection has been followed by very intense reaction. I have seen several cases of stubborn dacryocystitis in which the reaction was intense, with swelling over the lids and down the cheek, and which resulted in cure. Whether it was a coincidence or whether it is the relation of cause and effect is a question, but the resemblance of these cases to those related by Dr. Jones is very striking.

DR. D. W. GREENE, Dayton, O.: Major Smith, with whom I had the honor of spending three months in the fall of 1909, is an advocate of subconjunctival injections of cyanid of mercury for the cure of trachoma. I did not see the patients long enough to judge of the results, but I did see a large number of patients who returned for a second injection or an injection in the other eye. The severe reaction described here I did not see. This may be a peculiarity of the natives of India. They are given 5 to 10 minims of a 1 to 2,000 cyanid solution, together with a pill of opium about as large as the end of the little

finger and are put to bed. I saw these patients every day and did not see the severe reaction described. I have had considerable experience with dionin in the treatment of plastic uveal inflammations following cataract extraction and my experience with it has been very satisfactory. Of course I do not suppose any man depends on any one remedy in these desperate cases. I have used dionin in connection with other remedies so that I am not in position to say how much of the effects should be attributed to the dionin and how much to the other remedies that I used. I recall the case of an attorney from a neighboring town on whom I did a cataract operation by the Smith method. He went home with vision 20/20. He came back in a few weeks asking for glasses. I gave him distance glasses and a short time later he insisted on near glasses, as he was obliged to read his briefs in court. I furnished him with reading glasses, but he wrote me a little later that his eyes were not doing well. He went to an oculist not far from his home, who made a diagnosis of iritis. From my experience with such cases, I thought that he was more likely to have high tension. I wrote him to come and see me immediately. I had him instil eserine, 2 grains to the ounce, 2 drops every thirty minutes, and gave him sixty grains of salicylate of soda three times a day. When he arrived he could not count fingers at one foot. I put him in the hospital. Across the street was a concrete house which he could not see at all for the first three or four days. I continued the treatment and gave in addition subconjunctival injections of dionin 10 minims of 10 per cent. solution, every third or fourth day according to the amount of reaction. In a few days he could see the house. In three weeks the vitreous cleared up and he went home with 20/20 vision. I have had a similar complication after a dissection, which yielded to the same treatment.

DR. NELSON M. BLACK, Milwaukee: Dr. Jones has stated that he has no theory to advance which satisfactorily explains the curative power of the cyanid of mercury injections in the wide range of cases to which he has applied them with success, unless it is the result of flushing out the lymph-channels. In reading over his paper, the following hypothesis suggested itself. Dr. Knapp in his paper remarked, "It is now known that most inflammatory conditions of the orbit are secondary to disease of the nasal accessory sinuses." Nasal accessory sinus disease is also now accorded a very prominent place as an etiologic factor in intra-ocular disease. The most recently advanced theory is that either by continuity or contiguity the blood- or lymph-circulation of the eye, or both are interfered with. The anatomic relation of the lymph-channels of the eyes and nasal accessory sinuses has not to my knowledge been thoroughly established, but sufficient work has been done to make it appear that the channels that drain both the eyes and sinuses empty into the same main sewer or lymph-channel. If such is the case, disease of some one or more of the sinuses will fill to overflowing the main lymph-channel or sewer and cause a backing up of the flow in the sewers draining the eye, the result being some extra or intra-ocular disease. Now will not filling the conjunctival sac with 30-45 minims of fluid make the increased lymphatic flow from such a head in the ocular channels of sufficient force to overcome this drawing back at the junction of the ocular and sinus lymph-channels with the main, and allow of more drainage of the eye with consequent improvement in the ocular condition? As a hypothesis I do not see why it would not apply to the cases of ocular injury as well. The facilities for carrying off infection and the products of inflammatory reaction would be increased by improved lymphatic drainage.

DR. E. L. JONES, Cumberland, Md.: As to the first objection in regard to the terrible appearance of the patient, I tell him what is going to happen. Cotton is cheap and I always cover the eye and let it stay covered so I do not scare the family to death. As to the pain, I spoke in the paper of the use of morphine, and with that you do not get the pain. One woman with tuberculosis of the choroid came seventy-eight miles, got the injection, walked back to the train, and went home, two hours afterward on many occasions. Very seldom does the pain last over ten or fifteen minutes. The adhesions do no harm whatever unless muscle operations are necessary. These cases have grown better after lapse of time. The patient with symp-

thetic inflammation recorded eight years ago was left with a vision of 20/40, pupil dilated and immovable. Seven years afterward that iris was movable and the vision was almost normal. As to the violent reaction of the large injection as compared with the small, I would illustrate it theoretically, by the flushing of a water-closet; a small stream of water running continuously will not flush it, but the whole charge of the tank clears it out. The other day a boy 4 years old with orbital cellulitis came thirty-six hours after the injury and in the space of one hour the swelling had increased fully 25 per cent. The eye was fixed and the veins of the retina seemed to be becoming strangulated. I gave the patient a big drink of whisky and when I was ready for the injection it was given into the brawny, inflamed tissue of the orbit. Fifteen minutes afterward the child went to sleep and had to be carried to the train. He never had a pain afterward and the eye recovered.

SYMPATHETIC OPTIC NEURITIS

WITH REPORT OF A CASE

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NEW YORK

Inflammation of the optic nerve as the result of sympathetic disease occurs in two clinical forms, of which by far the commoner is the form associated with uveal disease of the usual type. It is the opinion of most observers that this occurs far more frequently than is known to be the case, but that the plastic exudation in the anterior and vitreous chambers, to say nothing of the intolerance of the eye to light, makes thorough inspection so difficult that the condition is often overlooked.

Enough cases have been observed, however, to establish the fact that the condition occurs not infrequently, and in the patients who have recovered from sympathetic uveitis evidences of atrophy have frequently been noted.

A much rarer form is the one unassociated with uveal inflammation, which may appear as a simple neuritis, usually of low degree, or a neuroretinitis with exudates in the macula or around the disk, somewhat resembling the deposits of albuminuric retinitis.

Such cases have been reported by Hirschberg,¹ Pflüger,² Harlan,³ Pooley,⁴ Brailey,⁵ Gepner,⁶ Webster,⁷ Alt,⁸ Eversbusch,⁹ Spalding,¹⁰ and others. Schirmer,¹¹ in 1900, tabulated seventeen cases, including those above mentioned. All were of a relatively benign type, and those in which enucleation of the exciting eye was promptly done resulted in recovery with good vision. The exciting eye presented the same variety of conditions noted in cases of sympathetic iridocyclitis, though for the most part a perforating injury had occurred, and there was also the same wide difference in the interval between the injury of the exciting eye and the neuritis of the fellow eye.

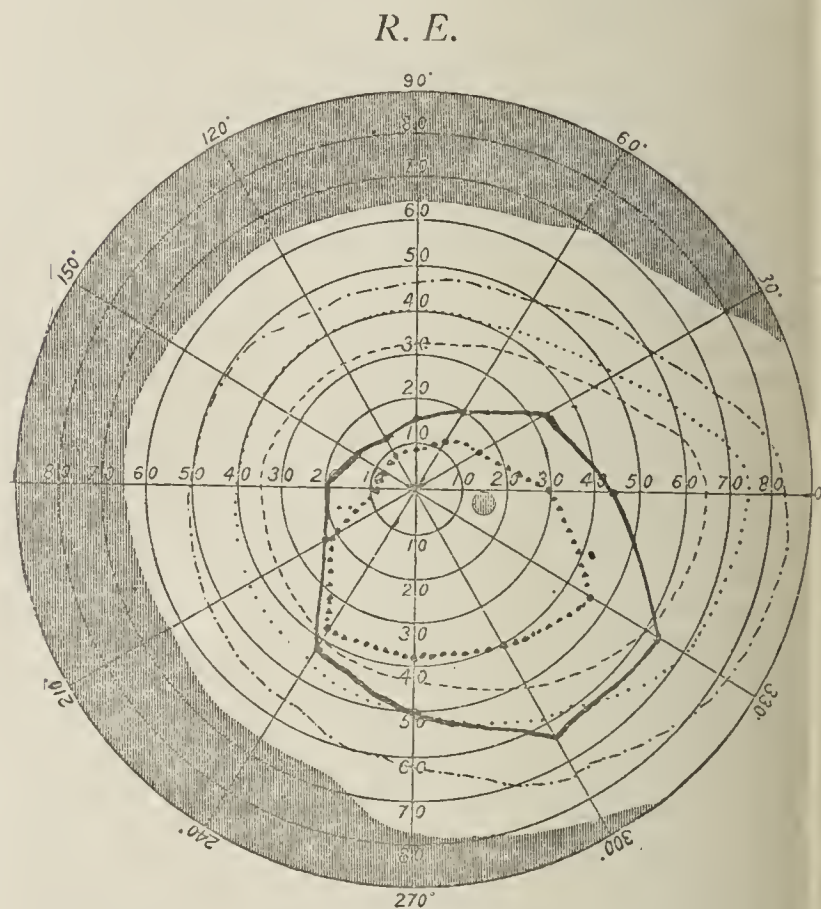
In Harlan's case, a girl of 18 had received an injury to the fellow eye "in early childhood," while in the cases of Brailey and Spalding, this interval was twenty-four and thirty-five days respectively. In some cases, the exciting eye was inflamed and tender; in others it was quiet.

1. Hirschberg: *Klinische Beobachtungen*, Vienna, 1874, p. 35.
2. Pflüger: *Corr. Bl. f. Schweiz. Aerzte*, 1875, p. 185.
3. Harlan: *Am. Jour. Med. Sc.*, 1879, lxxvii, 383.
4. Pooley: *Am. Jour. Ophth.*, 1884, p. 69.
5. Brailey: *Tr. Ophth. Soc. U. Kingdom*, 1884, p. 87.
6. Gepner: *Centralbl. f. Prakt. Augenh.*, 1886, x, 138.
7. Webster: *Med. Rec.*, New York, 1881, xix, 258.
8. Alt: *Am. Jour. Ophth.*, 1884, p. 28.
9. Eversbusch: *Arch. f. Augenh.*, 1884, xiii, 396.
10. Spalding: *Tr. Am. Ophth. Soc.*, 1883, p. 486.
11. Schirmer: *Handbuch der gesamten Augenheilkunde*, 1900, vi, Part 2, p. 86.

The following case is reported as possessing certain clinical features of interest and as emphasizing the importance of enucleating sightless eyes even where they are apparently causing no trouble.

History.—F. L. N., male, aged 32, unmarried, farm laborer, presented himself for examination Oct. 12, 1911. When a child he had been struck in the left eye with a stick, which accident had been followed by a low-grade inflammation which resulted in complete blindness. He did not remember that the eye was very painful, nor had he received any treatment. The vision in the right eye had been "growing dim" for five years. The patient had consulted an oculist at the beginning of the trouble and had been told that he probably had detachment of the retina and that it was useless to do anything. The previous year, about October, 1910, he consulted some one—whose exact standing as a physician seems uncertain—who had given him -1.50 cyl. ax. 20° , which he had worn part of the time.

Examination.—In the left eye the cornea was hazy throughout, the anterior chamber obliterated, the iris degenerated, and a faint view through the pupil showed the dense white of



Visual-field chart of patient with sympathetic optic neuritis.

a calcareous lens. The eye was not tender or red; the tension was normal; the globe apparently of normal size but with no perception of light. The patient complained of indefinite pains of a neuralgic character in the right temple, and of decided failure of vision for the past six months. There was no sign of uveal disease in the right eye; the pupil reacted normally, and the media were clear. The optic disk, however, was blurry in outline and hazy with slightly tortuous vessels and of the dull whitish appearance characteristic of the onset of a postneuritic atrophy. No retinal changes were apparent. The vision was 10/200, with marked contraction of the field, as shown in the illustration. There was slight photophobia and while the state of vision made such a test difficult it appeared that the accommodation was subnormal. A careful physical examination gave no evidences of general disease; the patient's health had always been good, and he was of temperate habits. Urinalysis was negative, as also was the Wassermann test made several days later.

Treatment and Result.—The patient was admitted to the hospital, and the left eye enucleated two days after the first examination. The globe was pulled well forward so as to cut the optic nerve at the apex of the orbit, and the nerve was found to be so reduced in volume as to be little more

than a string of fibrous tissue. The temperature, which had been $99\frac{2}{5}$ on admission, fell to normal after the enucleation, and remained so during the balance of the patient's stay in the hospital. The pupil was dilated with atropin but beyond this no treatment was instituted for a week, at the end of which time the vision was 15/200, and the haze of the nerve had almost entirely subsided. Daily hypodermics of strychnin nitrate were then given, beginning with 1/60 grain and increasing 1/60 grain a day until 23/60 had been reached, at which time the general muscular cramps became so severe that the dose was not increased further. The daily injection was then gradually decreased. The patient was discharged from the hospital November 21, with a vision of 20/100 with $+7.75$ cyl. ax. 90° , the field practically unchanged, and the optic nerve perfectly free from haze, but somewhat pale, and the vessels of normal size. He had had no pains since his admission to the hospital. He was given strychnin sulphate 1/30 grain three times a day, by mouth, to be continued for several months, until another examination could be made.

Histologic Examination of the Enucleated Globe.—The cornea was full of cicatricial tissue, the anterior chamber obliterated, and the atrophic iris adherent to the posterior surface of the cornea for the most part, the pupillary margin of the iris firmly adherent to the lens, the lens calcareous, the ciliary body full of new connective tissue deposits and much shrunk, the chorioid atrophic and empty of blood, the retina totally detached and degenerated, the optic nerve deeply cupped, and with the nerve fibers as far back as the point of section much reduced in size, and the connective tissue greatly increased. In other words, an old low-grade plastic iridocyclitis was shown, well advanced in the atrophic stage. There was nothing characteristic in the form of the iridocyclitis, which must have been a very chronic process not to have already caused shrinkage of the globe. There had evidently been a period of increased tension as was shown by the cupping of the nerve, as well as the changes in the anterior segment, but this also must have been of gradual onset as no history of pain or inflammatory attacks could be elicited. The optic nerve, beside the changes at the disk and lamina cribrosa, showed a very unusual degree of atrophy, increasing from before backward, as at the point of section the nerve fibers were very much smaller than at the lamina cribrosa. About 18 mm. of the nerve remained attached to the globe, and it may be said, roughly, that the nerve at the point of section measured only a little more than one-half the diameter of the nerve immediately back of the lamina.

Diagnosis.—The histologic findings, of too late a stage for the characteristic appearances described by Fuchs, are suggestive, but nothing more, while the main points in the diagnosis must rest on the absence of any other exciting cause, the type of the inflammation, and the marked tendency to improvement without treatment after enucleation of the exciting eye. It is difficult to assign much importance to the symptoms of ciliary irritation, which were somewhat indefinite, and might have been caused by the wearing of the minus cylinder. The gradual onset of the neuritis in the right eye, taken in connection with the evidence of low-grade, plastic inflammation in the left, is also interesting. It seems fairly certain, after having made every allowance for possible inaccuracy, that the neuritis had been coming on for at least six months, and the fact that the history was of a *gradual* failure of vision, extending even into the atrophic period, shows that at no time did the engorgement reach sufficient height to interfere seriously with the vision, which was impaired rather by the gradual extension of the inflammation. The persistence of a certain degree of atrophy is natural under the circumstances, and, taken in connection with the history, is indicative of a long-standing inflammation.

Several of the earlier cases reported are of interest, as representing the usual type of the affection.

In Harlan's case, a girl of 18, admitted February 11, had been blind in the right eye for many years; for the past week the vision in the left eye had been diminishing. The right eye had been injured by a blow from a stick, in

early childhood, and since then it had been quite blind, frequently irritable, and occasionally painful. "There was disorganization with phthisis of the right eye, apparently the result of panophthalmitis." There was no pain at the time of examination, but the ball was tender on pressure. The left eye had no other symptoms than swollen disk, and whitish deposits in the macula (urine normal), $V = 18/126$. Enucleation was done and two days later, without other treatment, $V = 18/70$. Patient was discharged April 3, with $V = 18/25$.

Pooley's case was one of pure neuroretinitis, and is interesting from the fact that the injured eye showed intense neuroretinitis. The patient recovered after enucleation of the injured eye had been done.

Lenz¹² recently examined both eyes of a patient with sympathetic ophthalmia histologically, and his observations are of interest in the present connection, and also on account of the rarity of such comparative examinations. The infiltrations were similar in kind and degree in the two eyes. He found that at first the cells came from the blood-current, in small part from the lymph-current and wandered out. Later, there was a formation of lymphocytes in the tissue. In the retina of the sympathizing eye, there were occlusions of vessels and capillaries produced by lymphocytes, leukocytes, and loosened endothelium. About the vessels was a mantle of round cells. The veins contained centrally, rather than peripherally, thrombotic masses, which narrowed the lumen. "Hence, in this patient, who did not suffer from arteriosclerosis, the process was an embolic one, the origin of which must be sought in the other eye." Lenz further remarks that the disease starts in the posterior segment of the globe, in the chorioid, and later attacks the uvea in the anterior portion of the eye.

In Brailey's case, the patient, 27 years of age, had been wounded twenty-five days before, by a cut through the ciliary body of the left eye. On admission, "the right eye looked perfectly normal; it was not tender, slight pain was mentioned, but it did not seem to be or to have been more than trifling and of doubtful position." There were no iritic symptoms; $V = 6/60$. The disk was slightly swollen, and whiter than normal, with blurred margins. Mercury was given with atropin and a bandage. The patient was in the hospital twenty-three days, and his vision improved up to 6/18. There is no mention made of enucleation, and the case is weakened by lack of the very important evidence in the behavior of the neuritis after removal of the exciting eye. But it is possible that, owing to the relatively mild character of the neuritis, ordinary measures might have secured subsidence of the inflammation even where enucleation was not done.

Webster reported two cases in 1881; one patient, a boy of 8 years, had been wounded in the right eye fifteen months before. There was only a shrunk tender stump remaining. The vision in the left had been failing for three weeks, and was only 1/200. There was no external redness, but a high degree of neuritis, with tortuosity of the vessels, and hemorrhages. Enucleation was done at once, and the patient was treated with mercurial inunctions and iodids. Eight months later, the vision was 20/70 and the optic nerve was partially atrophic. In the second case, the uveal symptoms had begun, but the neuritis predominated. After enucleation the vision was 20/20.

Alt, in 1884, reported a very interesting case, which seems hard to classify and which is certainly unusual in

12. Lenz: Arch. f. Ophth., 1909, xxxviii, 214.

type. It began with a slight iridocyclitis, which soon subsided leaving a marked neuroretinitis which recovered after enucleation of the fellow eye. This is unusual, at least, in my experience. Where the infiltration begins as an uveitis it most frequently continues as such, and the neuritis is not apt to become the more severe affection, proportionately. We see few cases of mild iridocyclitis from this cause, in any event, and these cases do not exhibit a more severe neuritis. The clinical type of Alt's case is therefore of more than passing interest, as representing, perhaps, a border-line class between the two types of inflammation.

In Spalding's case, quoted also by Randolph,¹³ a woman, 65 years old, was struck in the right eye by a cow's horn. The eye became severely inflamed and blind. Thirty-five days later the vision had failed almost to light perception. There was a typical neuroretinitis without other involvement. After enucleation of the injured eye, the vision rose gradually to two-thirds without any medication.

I have observed three other cases in consultation, which, being insufficient in detail, are not reported *in extenso*. In one, an unsuccessful cataract extraction was followed by iridocyclitis and phthisis bulbi. Two years later, the cataract of the fellow eye was extracted without the slightest secondary reaction. A year afterward a low-grade neuritis supervened, which was followed by atrophy and total blindness. Enucleation of the shrunken globe was not done.

Both the other cases followed penetrating wounds of the globe, with relatively low-grade inflammations which, nevertheless, progressed until the eyes were totally blind. The eyes were not shrunken and had not been irritable enough to suggest the propriety of enucleation. One patient received a fracture near the optic foramen, and the optic nerve, already inflamed, was totally destroyed; the other patient, who gave a history of gradually failing vision for nine months, would not submit to enucleation, and disappeared.

The exact status of these cases is still undetermined. Schirmer thinks that the papillitis is due to the metabolic products of the bacteria, while the familiar form of uveitis is a toxemia.

Randolph¹³ says that sympathetic papillitis is a benign affection and a restoration to normal vision is the rule. "The optic nerves constitute the route followed by the metabolic products, and this has been proved possible by the experiments of Horner and Knies, who found that injections of fluorescein and other chemical agents, into the subpial space of the optic nerve at its peripheral end, were followed by the appearance of these agents all along the optic nerve and in the other eye." While admitting the benign nature of the affection, as a rule, there is evidence to show that the cases go on to atrophy and total blindness, if the exciting eye be not removed.

Sattler¹⁴ reports a case of sympathetic neuroretinitis and serous uveitis after enucleation, with implantation of a glass globe. The neuroretinitis was the more marked feature. Vision was reduced to light perception. The glass globe was removed and the optic nerve resected for $2\frac{1}{2}$ cmm. The ultimate vision was 6/10.

Sattler remarks that, "contrary to accepted opinions, sympathetic neuroretinitis and certain expressions of serous uveitis may be excited even after enucleation of an eye destroyed by a non-infectious lesion," (i. e., a wound from a bird-shot). Also, "It would appear that

resection of the optic nerve yields the same prompt results which follow enucleation, if practiced for the rare and typical cases of sympathetic neuroretinitis and serous uveitis in which the operation on an infected or degenerated eye has been deferred until one or the other positive expression of this more uncommon and much smaller group of sympathetic lesions is already well under way."

It is a question if some of the cases of so-called sympathetic optic atrophy do not belong to this class, and have not begun as a low-grade retrobulbar neuritis. Certainly it is difficult to conceive of a simple atrophy from sympathetic causes, and in the cases of atrophy in which neuritis has not been observed, at least it could not be excluded.

In this connection, Pechin¹⁵ reports two cases of great interest. In the first, a man of 51 was struck in the left eye by the flying head of a rivet, Jan. 27, 1905. The patient was in the hospital for three months, but the eye was lost. After some months had elapsed, he noticed that at times his vision in the right eye was dim. In September, 1908, the attacks of dimness became more frequent, and the vision failed rapidly. A month later, a diagnosis of optic atrophy in the right eye was made. Pechin saw the patient December 2; the left eye had an occluded pupil with no light perception; the right eye had a partial atrophy of the optic nerve, with vision $\frac{1}{4}$, and concentric contraction of the field to between 15 and 20 degrees. The general health was good in every particular.

The second case was that of a man of 57, who was struck in the right eye by a flying splinter of steel, March 27, 1906. A panophthalmitis followed, and six days after the accident, exenteration was done. The piece of steel was not found. The sclera was washed out daily, but the lids remained thickened and inflamed. On the seventeenth day the splinter was washed out, and the inflammatory symptoms rapidly subsided. The left eye, however, had become almost blind by this time; before the accident the vision had always been good. Pechin saw the patient July 25, nearly four months after the accident. There was partial optic atrophy, with vision of $\frac{1}{50}$. No mention is made of enucleation in either case. In the discussion, Holth, of Christiania, said that he thought these cases should be considered as cases of retrobulbar neuritis due to intoxication by the inflammatory products of the uvea or vitreous.

It is evident that every patient with an eye capable of exciting sympathetic neuritis should be under careful observation, for the onset of the disease is insidious and is quite likely to escape the patient's notice, while even a relatively mild attack of neuritis, if unchecked, will probably be followed by a progressive atrophy and total blindness.

19 East Forty-Fourth Street.

ABSTRACT OF DISCUSSION

DR. ROBERT L. RANDOLPH, Baltimore: What concerns us most in this class of cases is the practical side of the matter and this lies in the fact that there is an element of danger in the retention of eyes which have been blinded by penetrating wounds, even though the external appearance of the eye may suggest no reason for concern. The insidiousness of the affection is remarkable. Within the last two years I have seen two cases in which the eye had been lost in childhood from a penetrating wound and retained well up into middle life. One of the injured eyes had been subject to slight attacks of redness with some pain. In the

13. Randolph: Norris and Oliver's System of Diseases of the Eye, 1898, iii, 732.

14. Sattler: Tr. Am. Ophth. Soc., 1904, p. 337.

15. Pechin: Bull. et mém. Soc. française d'ophth., 1909, p. 304.

other case a minute hole in the iris made by a bird-shot which had lodged in the orbit beyond was all that could be seen. In neither case would the ordinary observer suspect that the eye was blind. The presence of fine vitreous opacities in the one case and in both cases of transient attacks of haziness in front of the sound eye determined me to advise enucleation and yet the visual acuity of the good eye was normal and there was no contraction of the visual field. In my opinion an eye blind from an injury should always be enucleated when the fellow eye becomes the seat of symptoms such as those described by Thomson and others, no matter how little the symptoms may suggest a sympathetic affection. I think, too, that in these cases the good eye should be subjected at least once a year to a careful examination as to the visual acuity and particularly as to the visual field.

DR. E. E. HOLT, Portland, Me.: One of my first cases of sympathetic neuroretinitis was in a school teacher in a town where I taught forty years ago. The brow and right eye had been cut by a hatchet and sight was so poor that the man called it his "blind eye." The eyes looked well and gave him no trouble. I, however, told him he should have them examined if he noticed the slightest change, as he might have serious trouble in his good eye. He consulted me professionally Aug. 28, 1882. At this time the right, good eye, showed effects of neuroretinitis and was nearly blind. It now seemed too late to have the blind eye removed. It was not long before the sight of the uninjured right eye was entirely gone, and he had to depend on his injured left "blind eye," which had only qualitative vision.

MR. JAMES W. BARRETT, Melbourne, Australia: I have had a great experience with sympathetic ophthalmia in Melbourne. I can never see the sense in keeping any eye that has been inflamed and is blind. The particular interest of this subject to me is the relationship of supposed cases of sympathetic ophthalmitis to syphilis. I operated on a patient in Melbourne for cataract who had a severe attack of iridocyclitis, followed some four or six weeks later by the same condition in the other eye. Half of the staff of the hospital declared that we had to deal with sympathetic ophthalmia, the other half with something else. It turned out to be syphilis. The other eye had become affected in consequence of the syphilis and since that period I have had a Wassermann determination made. I suggest the possibility that the case described here may fall under that category. Has any one here present seen a case of sympathetic ophthalmitis improved after the exciting eye has been excised, after the ophthalmitis has begun? I have, unfortunately, had to deal with about sixty cases and in the whole of that record I cannot look back to any successful result once the disease has set in.

DR. F. H. VERHOEFF, Boston: About three years ago Dr. Feingold brought me sections of an eye which clinically he had regarded as undoubted sympathetic ophthalmia following injury. I found that the sections showed the changes in the chorioid described by Fuchs, but also other changes, especially in the retina, such as I have seen only in syphilis, and I expressed the opinion that the case was one of syphilis. Dr. Feingold wrote me later that the patient had developed tabes, thus confirming this diagnosis. This case has caused me to regard with suspicion the cases recorded in the literature as instances of sympathetic uveitis occurring without previous injury. I am also doubtful of the supposed cases of sympathetic ophthalmia associated with sarcoma of the chorioid, which it seems to me, may have been due simply to coincident syphilis.

DR. M. H. POST, St. Louis: About twenty-five years ago a man was brought into the St. Louis City Hospital with an injury of the eye. I removed it and went on treating the patient. The other eye had no apparent evidence of inflammation—none of those signs we look for as being the early symptoms of sympathetic ophthalmia. The patient insisted that his sight was failing in the other eye. I took it simply to be the fear which was acting on his mind and passed it over for a day or so, but when he still insisted, I examined

the other eye and found that he had an optic neuritis. I took it at the time to be simply a coincidence. He was put on treatment. He left the hospital and I do not know the ultimate result. If there is anything in this idea that optic neuritis is sympathetic, then in our cases of infection in which we have enucleated, we should be still on the lookout for the condition of the other eye, to be determined not simply by observation or the reaction of the pupil, but on the vision of the patient supplemented by ophthalmoscopic examination.

DR. S. D. RISLEY, Philadelphia: I should say, if I may judge from my personal experience, that cases of sympathetic optic neuritis are very rare. I am sure that Dr. Randolph's cases were thoroughly studied before he advised enucleation and I believe that in all such cases the patient should be given the prospective benefit of an enucleation. I have seen but one instance that I am willing to record as sympathetic optic neuritis, and in that case the disease was arrested, apparently by enucleation of the fellow eye. It is not easy to say whether in the early stages of these cases the hazy border of the nerve, increased congestion, etc., are not after all uveal disease; but in uveal disease of bacterial or toxic origin there is apt to be some slight loss in the range of accommodation which should be absent if the nerve alone were involved. Now there are many other causes, which may be coincidental for disease in the uninjured eye, e. g., syphilis or sinus disease. In optic nerve disease associated with an old injury of the fellow eye, these possible causes should be eliminated; for example, a contracted field of vision with a central or paracentral scotoma, I think, should lead to a search for some possible involvement of the posterior ethmoidal cells or the sphenoidal sinus. In one case in which I had advised enucleation there was a paracentral scotoma. The trouble proved to be due to a diseased sinus. This, therefore, should be excluded. Without taking more time I should like to say in reply to the inquiry of Mr. Barrett that in one instance of a genuine sympathetic ophthalmia, I saw recovery after the enucleation of the injured eye. In this case, there was the characteristic symptom-complex. The patient, then a boy of 12, was seen recently after the lapse of fifteen years and vision equaled 6/5 and normal field.

DR. SAMUEL THEOBALD, Baltimore: I recall a case, observed many years ago, of neuroretinitis, unquestionably of sympathetic origin, in which the exciting eye was enucleated, and which, under mercurial treatment, subsided. These cases, as has been pointed out, are more amenable to treatment than those in which the iris and ciliary body are involved. In reference to the great importance of carefully investigating the real trouble in supposedly sympathetic eyes before enucleating the supposedly exciting eye, I may mention a case seen several years ago in which the "good" eye was irritable and asthenopic. Because of this condition, the patient had been advised to have the blind eye enucleated. Although vision was normal, a very considerable amount of astigmatism against the rule was found. When this was corrected he had no further trouble with the "sympathizing" eye, and the other was not enucleated. One should go slowly in such cases.

DR. JOSEPH S. LICHTENBERG, Kansas City, Mo.: In the case of a locomotive engineer, aged 42, who was injured by the explosion of a glass water gauge, I had the unique experience of seeing sympathetic optic neuritis develop under observation. The patient had been treated for fourteen days before I saw him. The left eye showed a traumatic iridocyclitis, with a fine scar in the lower outer quadrant, from the limbus outward. The vision of the fellow eye was normal. The ophthalmoscopic appearance was normal. The patient was put on the usual treatment with sodium salicylate and hot applications, with no improvement. Several x-ray examinations were negative, though experiments with similar glass were positive. In about ten days the patient complained that the vision in the other eye was affected, the eye showing no external evidence of inflammation. At that time the ophthalmoscopic appearance was normal. A blush appeared on the papilla with decreasing vision. The surrounding retina was involved, and the vision in the fellow eye sank to about 20/80 or 20/100. Still the vision in the exciting eye was about

the same. At the same time the field in the fellow eye showed a contraction concentrically, with no scotoma centrally. Taking this as a guide, I finally enucleated the exciting eye and a prompt recovery took place. In the standard text-books there is practically nothing on the subject mentioned, except by Axenfeld, who devotes only a short paragraph to it.

DR. ADOLF ALT, St. Louis: I reported a case of sympathetic chorioiditis to this body in my chairman's address in which the patient regained normal vision of 20/20 with +1.75 D. Two and one-half months after the first sign of sympathetic disease appeared the eye had been enucleated.

DR. EDGAR S. THOMSON, New York: Dr. Randolphi has touched on an interesting point germane to the present subject, and that is the slight irritation that we see in the sound eye of people who have a sightless eye in the other side. Frequently, I have enucleated the sightless eye for cosmetic purposes, thinking the other eye was normal. Immediately after the enucleation the vision would jump up to 20/15. In these cases there had been some irritation which I had not been able to recognize. The diagnosis of sympathetic neuritis must be inferential; there was nothing characteristic in my cases nor in most of the cases reported. The causes mentioned by Mr. Barrett had been eliminated. My patient did not give the Wassermann reaction, the nose was carefully gone over, the urine was examined and in every way any toxic condition which might attack the nerve was eliminated. A number of the earlier cases were treated with mercury and were not improved until enucleation was performed, so that the diagnosis rested on the history of an injury, the elimination of the conditions mentioned, and most important, the improvement of the eye after enucleation before any other treatment was instituted. That rule has been applied again and again. So in my case. The eye was enucleated and I kept the patient under observation for a week or ten days and the vision improved from 8/200 to 20/200. In the other cases this marked improvement also occurred. I cannot see that this can be interpreted in any way except that the supply of toxins had been stopped. That the optic nerve is affected by toxic influences in sympathetic ophthalmia, I take for granted is so well known that it is hardly worth while to mention it. In ordinary cases of plastic uveitis with recovery (I have observed two) the evidences of inflammation of the nerve were too marked to be ignored, and I think those who have studied the subject carefully are all agreed that sympathetic neuritis can occur. Of course, in the diagnosis it is absolutely necessary to exclude everything else very carefully.

PHLYCTENULAR OPHTHALMIA AND ITS ETIOLOGY *

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Phlyctenular ophthalmia has long been of especial interest to me because among those of negro blood, who form about 40 per cent. of the patients treated in my clinic, it is very common and shows itself under unusual and severe forms. In the 451 cases studied, only sixty-three patients, or 13.9 per cent., were white, while the other 388, or 86.1 per cent., were of negro blood. In a little paper published some nine years ago¹ I showed that of 3,050 whites with conjunctival diseases, only 438, or 14 + per cent., had phlyctenular ophthalmia, while out of 2,002 blacks with conjunctival affections, 789, or 39 + per cent., were phlyctenular cases.

That liability to the disease continues through life up to a greater age in the negro than in the white cannot be doubted. The statistical study shows that among sixty-

three whites the oldest was 30 years and the youngest 8 days old, the average age being 8½ years; while among 388 persons of negro blood the oldest was 60 years and the youngest 10 months old, the average age being 16 years. In 1903, I found the average of the ages of 243 white subjects with phlyctenular ophthalmia to be 10½ years; that of 336 blacks and persons of negro blood, 15¾ years. In a group consisting of fourteen whites, twenty-two mulattoes and seventy-six negroes, the average of the whites was 10¾ years; of the mulattoes, 12½ years; and of the negroes 18 1/5 years. Not only does the disease pursue its victim among the blacks up to a greater age, but types of the disease are seen in this race that I have never met with in white people. Thus all of the bulbar conjunctiva exposed in the palpebral opening to the inner or outer side of the cornea, or on both sides, may be red and thick and present one or more foci of ulceration. To this type the name of *phlycténule en plaque* is commonly applied in my clinic. In some cases the cornea is surrounded by a ring of infiltrated material, and as the limbus in persons of color is always more or less pigmented such cases look very much like spring catarrh of the bulbar conjunctiva. Confused by these appearances I once believed, and stated that children of negro blood were exempt from spring catarrh; but Dunbar Roy has proved the existence of spring catarrh in such children, and, the assertion having been challenged, I convinced myself of my mistake by closer observation. In some of these cases, however, the resemblance between the two diseases has been so close that I must confess I have only satisfied myself that I was confronted by phlyctenular ophthalmia by seeing the condition disappear under the local application of calomel.

Here, as elsewhere, the multitude of things that have been extolled as local remedies may well lead us to doubt the real efficacy of any. With local treatment I have experimented more than once within, what seemed to me, justifiable limits. In 1903¹ I published three tables presenting the cases of 421 patients treated locally only and with mercurials alone; eighty-six treated with mercury and other agents (chiefly atropin, silver, zinc, enzymol and borax-boric acid wash); and twenty-two treated without mercurials. These tables showed the greatest, least and average duration of cases arranged in groups, according to treatment, numbering from fifty-three to one individual. I cannot do better now than to repeat the conclusions reached then: "In looking over these tables," I wrote, "we are struck first by the great variation in the duration of the disease. Thus there are found patients who were discharged cured after but three days of treatment, while other cases dragged along for some sixty to 265 days. This lengthened duration seems to depend rather on the number of patients treated on a certain plan than on the drugs employed. That is to say, if a sufficiently large number of patients be treated by any plan, a certain percentage of bad cases of long duration will be encountered. Thus in 1897, 1898, 1899 and 1900, groups of fifty, fifty, fifty-three and forty-nine cases, respectively, contained many long cases, though the cases of short duration in the same group seemed to bear flattering testimony to the treatment employed; while the average duration of the 202 cases, twenty-five, twenty-three, seventeen, and sixteen days, respectively, compares favorably with that under any of the plans of treatment. These patients were treated exclusively with yellow oxid salve and calomel, locally, a limited number being given a wash of oxycyanid of mercury (1-2,000), a drug we were then trying.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Bruns: Phlyctenular Ophthalmia in the White and the Black Races, with Notes on Its Local Treatment, New Orleans Med. and Surg. Jour., August, 1903.

But that the drugs were not wholly responsible for the long duration of some cases or for the speedy termination of others may be gathered by observing that a group of eighteen (negro) patients treated in 1901, with calomel alone, recovered in from three to thirty-two days and in the briefest average time—ten and seven-eighths days—of any group of fair size; while a group of three (negro) patients treated in the same year, with calomel, atropin being instilled once daily at the clinic, probably on account of the angry look of the eyes, took twenty-one, fifty-two and 119 days, respectively, to recover. It will be noticed also that the average duration of cases in which local treatments with mercurials alone were used, and of those in which mercurial treatments were employed together with other drugs, does not vary materially and may fairly be given as from fourteen to thirty days. The same is true of the cases in which the natural course of the disease cannot be supposed to have been affected by the agents employed. In eight apparently rather mild cases in which the treatment consisted of instillations of normal salt solution alone, six patients recovered in from five to fifteen days, an average of nine and one-half days.

Further experience has only confirmed the belief that mercury in some form is the only local remedy of any real value, with the frequent instillation of "B. & C.," (the borax, boric acid and camphor water wash) perhaps to keep the eyes cleansed and soothed. When we complicate the treatment by the use of other drugs they only serve to aggravate the natural course of the disease. The bad cases which grow worse under simple rational treatment, we must deal with as we would with any other spreading, deepening, threatening ulceration of the cornea. Atropin carefully used, touching with tincture of iodine, irrigations with weak bichlorid or oxycyanid solution, canthotomy, perhaps, will all play their part. The successful management of corneal ulcers in persons of poor general health, with feeble powers of resistance and repair, is a serious task, and our bad phlyctenular cases are always found in such unhappy subjects. As we all know, as Mackenzie knew and so clearly and forcibly taught more than fifty years ago,² the general treatment is the important thing. Hygienic living, in its widest and its most meticulous sense, alone effects real cure.

In private practice the disease, in my experience, is rare and here, where all the surroundings of our patients are good, we may often convince ourselves that a proper regulation of the diet will suffice to prevent the recurrence of attack. Some years ago a bottle-fed infant was brought to me for consultation because phlyctenulæ had appeared on the corneal limbus. The physician in charge, a very intelligent practitioner, was advised that, although the child seemed in good plight, something was wrong with the feeding. Close observation detected the fault, and on its correction a cure followed without the administration of a drug or the use of any local application.

All are agreed, therefore, that the phlyctenular outbreak is the outward sign of some general derangement. There is nothing to suggest the action of an infection from without; no ingenuity of reasoning has yet been able to ascribe liability to attack to either of the two etiologic havens of refuge, syphilis or malaria. Many have commented on its simultaneous occurrence with disease of the nose and pharynx. Mackenzie says:²

"It has been suggested by M. Morard (1847) that scrofulous ophthalmia is caused and kept up by a diseased

state of the mucous membrane of the nostrils. He cures this by the application of a solution of nitrate of silver, of a strength of a scruple to an ounce of water, and by this means, he says, the ophthalmia is removed." A similar experience is easily to be had: of the 451 cases considered in my tabulation, 112 were examined in our ear, nose and throat department, through the kindness of my colleague, Dr. R. C. Lynch. Of this number, in 105, or 61 + per cent., rhinitis, swollen tonsils, suppurative otitis, etc., were found; but on the other hand, in 67, or 38 + per cent., absolutely nothing abnormal was discovered by the rhinologist. In a number of these cases in which we purposely refrained from treatment, correction of the nasopharyngeal conditions, removal of tonsils and adenoids, etc., was followed by rapid subsidence of the ophthalmia. As these patients soon passed from under observation, it is impossible to say how lasting was the relief.

The connection between phlyctenular ophthalmia and eczema has been observed by all. Unfortunately the exact number of our phlyctenular patients having eczema, and of those not so affected, was not noted; but Dr. T. J. Dimitry (the assistant surgeon who carried on the investigation for me, and to whom I am indebted for the tables) and I were both struck by the numbers free from this complication. This was particularly true of the older patients, and especially of the negroes, among whom great numbers may be seen with severe attacks of phlyctenular ophthalmia yet showing no trace of any skin disease whatever. Stevenson found that in 100 consecutive cases eczema existed in 58 per cent., while in another group of 529 cases it was present in 49 per cent., and in still another group of 136 cases 83 per cent. He is naturally impressed with the important part played by eczema, and thinks that phlyctenular disease is due directly to an eruption of eczema or impetigo on the eyeball. On the contrary, Wrekers says the changes are entirely different from those of eczema. Still another observer, Joseph, has observed, in thirty cases of phlyctenular ophthalmia, the co-existence of phthiriasis of the head. Treatment of the latter condition seemed always to have cured the ophthalmia.

It appears from these observations that authors have been influenced in assigning the cause for this common disease of the eyes by the place and the people among whom they worked; ascribing, by a very human prejudice, an undue influence to these frequently coexisting maladies.

Stevenson found eczema present in a large number of his cases, but even in his group of 136 giving the largest percentage, 17 per cent. were free from the disease and it is notable that the largest group (529) gives the smallest number with eczema, 49 per cent. I, on the other hand, in a subtropical climate, with a large number of negroes among my hospital patients, see very many phlyctenular cases free from any trace of skin lesion. M. Morard found nasal disease in all of his patients and its cure was followed by disappearance of the phlyctenules. One hundred and seventy-two of my patients were carefully examined by a competent, conscientious rhinologist of large experience, and in more than 38 per cent. of them absolutely nothing was found. Neither eczema nor nasopharyngeal disease, therefore, seems to me to fulfill the conditions of a true cause. No one, I presume, will become, on account of the observations of Joseph, a strong protagonist of the causal relationship between pediculus capitis and phlyctenular disease: yet all will be equally willing to admit that eczema, nasopharyngeal maladies and phthiriasis are conditions we

2. Mackenzie: Diseases of the Eye, with Notes and Additions by Addison Hewson, Philadelphia, 1855.

would expect to find commonly among the kind of children oftenest attacked by phlyctenular ophthalmia.

Wrekers found, in fifty-eight children with phlyctenular ophthalmia, fifty-one, or 87.9 per cent., who responded positively to von Pirquet's test. Derby, in his paper read before this Section in 1910, reported fourteen cases in which the cutaneous reaction was positive in eleven, or 79.2 per cent.; and in his paper in the *Archives of Ophthalmology* he writes that of forty-three cases "classed as phlyctenular disease, because no better general term is available," thirty-eight reacted positively, about 88 per cent.; and this was the percentage found by Stock in his investigation. Wilder reported to this Section, for the Committee on Relation of Tuberculosis to Diseases of the Eye, that of fifty-three cases of phlyctenular conjunctivitis and keratitis forty-seven showed evidence of tuberculosis. It may be added that Nias and Patton stated that in twenty cases of phlyctenular conjunctivitis, the opsonic index was abnormal. But Mayou said that in five cases without evidence of tuberculous disease elsewhere, he had found the index normal.

I believe it fair to say that the case for the tuberculous cause of phlyctenular ophthalmia rests mainly on the evidence of the von Pirquet test, to which from 80 to 90 per cent. of those with phlyctenulæ respond. I was not able to get figures anything like as high as these from the children in my clinic. Out of 102 tested by the von Pirquet method, sixty-two, or 60.7 per cent., gave a positive reaction, and when forty out of these sixty-two were tested by the Calmette method twenty-one, or 52.5 per cent., were also found positive; but, what is more noteworthy, the thirty-seven, or 36.2 per cent., of the 102 cases negative to von Pirquet were all negative to the Calmette test also. My figures, then, approach those of Leber, and the evidence that 36.2 per cent. of my phlyctenular children were not tuberculous seems strong. Yet putting them aside, 10 to 12 per cent. seems to be the irreducible minimum that cannot be proved to be tuberculous even by the skin test applied to the children met with in the free clinics of big cities; cities in which the dwellings are more crowded and the conditions of life more difficult than in New Orleans, where the children are in the open air most of the year. So delicate is the skin test, that it has proved either that practically all of us are tuberculous or that the reaction sometimes takes place in persons who have never been infected. Hamman and Wolman⁵ found that in *adults* a positive reaction cannot be used as evidence of clinical tuberculosis. They found that in their non-tuberculous group, a group of cases from which they had excluded tuberculosis on severe clinical conditions, there were 57 per cent. of positive reactions to the skin test, while in their "doubtful group" the positive reactions rose to 83 per cent. A positive reaction, they say, to the ophthalmic test, made with a 1 per cent. solution of Old Tuberculin, is extremely strong evidence that the case does not belong to the non-tuberculous group. In the skin test a negative result is alone of clinical interest (moribund patients being, of course, excluded) and denotes, with a high degree of probability, either that the patient has never been infected with tubercle bacilli or that he was infected a very long time ago. This cannot be the case in children, and children are admitted by all to be even more susceptible to the test than adults. When, therefore, the test is applied to children—the children of the free

clinics—with phlyctenular affections, and by those favorably inclined to the theory of tuberculous etiology, and we find always an irreducible minimum of from 12 to 10 per cent. of negative reactions, by what logic can we be justified in disregarding these ten cases in a hundred and in declaring, in spite of them, that tuberculosis is a true cause of phlyctenular ophthalmia—a cause, that is to say, which invariably precedes the effect in question. Again, those who have concerned themselves with the determination of the prevalence of tuberculosis in children, present us with astonishing figures.⁶ Hamburger of Vienna, in an address on "The Incidence of Tuberculosis in Children," at the conference held in Edinburgh in July, 1910, gave the percentage of positive reactions to the von Pirquet test in children from the seventh to the tenth year as 71, and from the eleventh to the fourteenth year as 94 per cent. These are ages at which phlyctenular disease is most common. Shaw and Laird, at the same meeting, said that Albrecht of Vienna found evidences of tuberculosis in 44.3 per cent. of 1,558 autopsies on children between the first and sixth year, and in 50.1 per cent. in 335 autopsies on children between the sixth and twelfth year. Comby of Paris has lately published the findings in a series of 1,447 autopsies on children. In children over 2 years there were 435 autopsies, 283 giving evidence of tuberculosis—65 per cent. From these figures it is evident that so large a percentage of the children seen in our hospitals are tuberculous that it would be more than surprising if evidence of the disease were not found in a great majority of those with phlyctenular ophthalmia. These considerations, numberless observations of the disease in negro youths and adults of splendid physique and apparently robust health, and the fact that the recurrence of phlyctenular outbreaks is often checked by attention to the bowels and simple regulation of the diet (as in the case of the infant related above) are incompatible in my mind with belief in the tubercular theory.

Since reaching this conclusion I have found comfort in the discovery that others had felt the weight of these difficulties. Thus, Lafon divides phlyctenular disease according to its etiology into three groups. In the first, the patient has become tuberculous before the appearance of the disease, and the outbreak is probably due to the action of a tuberculous toxin; in the second, there is neither a personal nor a family history of tuberculosis, but the phlyctenules appear after an exanthema; in the third are those apparently in robust health at the time of the efflorescence. In the latter an examination will usually discover gastro-intestinal disturbance, enlarged tonsils, adenoids, etc. This is the largest class and in it the eye disease is caused by an auto-intoxication. I cannot see, however, why we should ascribe the same disease in one case to the specific toxin of tuberculosis, in another to that of one of the exanthemata, and in a third to an auto-intoxication produced by gastro-intoxication or nasopharyngeal disease. It would seem more logical to ascribe the outbreak to some cause itself the effect of the several abnormal conditions.

Schuetz and Videký divide phlyctenular cases into two etiologic groups: those of exudative origin, which do not react to tuberculin, and get well on a diet free from sugar and eggs and containing but little meat; and those which react to tuberculin and are cured by tuberculin. Igersheimer, though putting the case in

5. Hamman and Wolman: Arch. Int. Med., 1910, vi, 690.

6. I am indebted for these figures to Dr. J. B. Elliott, Jr., professor of practice of medicine in Tulane University, who most kindly looked up the subject for me.

favor of the tuberculous theory in the strongest way, does not hide from himself that phlyctenulæ appear in some who cannot by any test be shown to be tuberculous. Why, he asks, does phlyctenular disease appear in the non-tuberculous and why is the child especially prone to the disease? He recognizes also that there must be a constitutional difference between those who have phlyctenular disease and those who never have it, and must have observed, as we all have, that numbers of the tuberculous never suffer an attack. In answering his question he cites Czerny's dictum that such children are of "the exudative diathesis" and are very liable to infections other than tuberculous. This seems to be but a new way of stating the old proposition that phlyctenular ophthalmia is commonest in scrofulous persons and that such persons are of delicate constitution and especially liable to derangements of health and the attacks of disease. In the new formula "exudative diathesis" is substituted for "scrofulous," and our later perception that such subjects are especially prone in early life to tuberculous infection is incorporated.

The theory that most commends itself to me is that which likens phlyctenular ophthalmia to herpes—to the mild herpes labialis, the "fever blister." Their behavior—their sudden unexpected outbreak, their mild and regular course and disappearance without bad effect when uncomplicated—is very similar. In the especial liability of children, they are alike. Phlyctenulæ are situated at the ends of peripheral nerves according to the classic research of Ivanoff, and it seems more than probable that they are neuropathic. Dr. Isadore Dyer, professor of dermatology in Tulane University, says:⁷

"I consider all herpes essentially neuropathic and I believe that the recurrence of the 'fever blister' in some individuals as a genital lesion, or about the face, is an evidence of this. Shock, any fulminating illness, excitement, acute intestinal disturbances, auto-intoxications, nasopharyngeal or respiratory disturbances may cause herpes in any of its forms."

Many of these are the conditions that precede or accompany the phlyctenular eruption. The cause of the neuropathy would seem to be some disturbance of metabolism or an auto-intoxication. In phlyctenular disease the evidence that the intoxication is usually of gastro-intestinal origin is abundant. Scrofulous children and those infected with tuberculosis are well known to be liable to such derangements. The class that we see in our clinics, unwashed, ill-clothed, sleeping in ill-ventilated and often crowded rooms, poorly fed, and at that on a diet often the least suited to their age, must in the presence of the least constitutional weakness be almost constant sufferers. It may not be always possible to get from these patients a history of gastro-intestinal derangement; but neither, as we all know, is it easy to elicit from the majority of them an account of any but the most striking illnesses. Disorders of the gastro-intestinal functions are, perhaps, with them so constant as to be regarded as a natural state of things and entirely normal. That a brisk purgation, preferably with a mercurial, and subsequent regulation of the bowels, is the measure favoring most the safe and rapid resolution of an attack, and that recurrence may be prevented by regulation of the diet, or even by the withdrawal of certain articles of food, facts recognized by hosts of observers, speak, even in the absence of complaint, of the almost universal prevalence of gastro-intestinal derangements among phlyctenular patients. How nasopharyn-

geal disease by restricting the supply of oxygen favors auto-intoxication, and the baneful effects of diseased tonsils are now well understood. We can readily imagine, therefore, how an organism, probably from the beginning none too robust, struggling in vain against the additional handicap of any one of these morbid conditions, becomes unable properly to digest and assimilate its food; is further overwhelmed by the toxins resulting from this failure of function, and exhibits the effects of these poisons by symptoms especially conspicuous in the skin and nervous system, and at times in the conjunctiva (hyperemia, phlyctenules)—parts embryologically not unrelated. It would seem equally clear, then, that the tuberculous process having been checked by tuberculin or by hygienic measures, the eczema having been cured,⁸ adenoids or diseased tonsils having been removed, the exanthema having run its course, the especially indigestible or unassimilable food having been withdrawn, such an organism may possess strength enough to perform its functions in a fairly normal manner and the auto-intoxication and its symptoms may gradually disappear.

It seems to me, then, more logical, in the present state of our knowledge, to regard phlyctenular ophthalmia, not as the effect of a specific toxin (tuberculous) or as an ocular eczema, but rather as a neuropathic phenomenon brought about by an auto-intoxication, originating, in the great majority of cases, as the effect of treatment clearly shows, in derangement of the gastro-intestinal functions; not all persons being equally liable to these morbid processes, but much more particularly those in whom we recognize clinically the scrofulous, lymphatic or exudative diathesis; such persons being especially liable to tuberculous and to other infectious diseases, which in their turn further depress the metabolic and catabolic processes, the functions of digestion, assimilation, secretion and excretion, and thus intensify and perpetuate the state of auto-intoxication. Subjects of the disease (10 to 25 per cent.) are found, it is true, in whom we can recognize neither tuberculosis nor the signs of the scrofulous condition, but they, like nearly all those affected, belong to the least favored classes and live under conditions the least hygienic and on food but little suited to childhood, the period of life when phlyctenular disease is most prevalent. The recession of scrofula, so prevalent in all classes when all lived as only the poor live now, before advancing civilization and the increase of hygienic living, renders it not impossible that its stamp was set on the race by these unfavorable conditions, and it is possible that we see now in individuals without the earmarks of scrofula, restricted and particular effects that were once common and cumulative in the race.

ABSTRACT OF DISCUSSION

DR. RICHARD J. TIVNEN, Chicago: I am not sure I interpret Dr. Bruns correctly as saying that "only rarely opacities following on phlyctenular trouble seriously interfere with sight." My own experience is not in consonance with this view, as I have observed such serious sequelæ sufficiently often to warrant the conclusion that they are neither infrequent nor rare. I agree with Dr. Bruns except on the question of the tuberculous origin of phlyctenular trouble. I am convinced that conjunctivitis eezematosa should be regarded as a manifesta-

8. Henry W. Stelwagon says, in speaking of the constitutional causes of eczema: "Digestive debility, dyspepsia, and its frequent accompaniment, constipation, must be given a high place in discussing the causes of the disease, in fact, in my experience, stand first in importance. Important an etiologic factor as it is in adults, it is even of greater influence in eczema of infants and children."—Treatise on Diseases of the Skin, Ed. 2, 1910, p. 265.

7. In a note courteously replying to one of interrogation by the writer.

tion of constitutional tuberculosis. Its proper management must include not only the usual ocular or local treatment, but also and more particularly the constitutional measures appropriate to the treatment of tuberculosis. At the head of the constitutional agents advised I would unhesitatingly place tuberculin. Dr. Bruns' objections to the tuberculosis theory are briefly: that 10 to 12 per cent. of cases fail to respond positively to tuberculin tests; that tubercle bacilli have never been found in the phlyctenule; that inoculation with phlyctenular material in animals has failed, except in one instance; and that the phlyctenular structure shows no resemblance to tubercle; that the prevalence of tuberculosis explains the high percentage of positive reactions to tuberculin tests; that phlyctenular disease does appear in the non-tuberculous and that many tuberculous patients never suffer from an attack. Opposed to Dr. Bruns' first objection is the fact that a positive reaction is obtained in 80 to 92 per cent. of cases. In reference to Dr. Bruns' second objection, Dr. Derby's explanation may possibly be the correct one, viz., that the phlyctenule may be atypical and free from bacilli. Dr. Bruns' third objection is favorable to the tuberculosis theory, since victims of a general tuberculous process may be particularly favorable subjects for the development of a tuberculous ocular manifestation. In reference to Dr. Bruns' fourth objection, it may be said that it is not always possible to determine a tuberculosis. Many tuberculous patients never suffer from an attack but it is not essential that every case, say of pulmonary tuberculosis, have associated with it a phlyctenular trouble to substantiate the conclusion that phlyctenular trouble is of a tuberculous nature, any more than it would be reasonable to conclude, because this association is absent, that phlyctenular trouble is not a tuberculous manifestation. The tuberculosis theory of phlyctenular trouble is perhaps not absolutely established. Sufficient data, however, have been adduced to warrant thoughtful consideration.

DR. ARTHUR G. BENNETT, Buffalo, N. Y.: In an experience of a great many cases of phlyctenulosis, I agree largely with Dr. Bruns' opinion. In the Childrens' Hospital, if I am called for an eye case it is sure to be a case of phlyctenulosis. I always have a von Pirquet reaction taken and have the urine examined. One striking thing is that in every case the urinary examination shows a marked excess of indican, and my feeling has been that most cases of phlyctenulosis are due to intestinal toxemia. Undoubtedly many cases also show the tuberculin reaction but I look on it more as a coincidence than actually as an etiologic factor. In Buffalo we have a population of 90,000 Poles, and the children are kept under the most deplorable hygienic surroundings. Many of them are weaned on beer. The milk they get is horrible. They are allowed tea and coffee and the general feeding of the child is about as bad as it possibly could be. It is these children who break out with phlyctenulosis. One clinical observation brought to my attention and frequently brought to my attention by the parents is the most vile odor of the urine, and my attention has been directed to that very largely to counteract it; the therapeutic measure outside of the proper feeding which I have found to be of the greatest value is the administration of small doses of sodium salicylate. It is really surprising to notice the disappearance of indican under small doses, 1 or 2 grains three times a day. A marked improvement in the phlyctenular condition will also be seen. I am sure we can shorten an attack by putting the patient under proper hygienic conditions, such as we can get in a modern childrens' hospital. I do not feel that tuberculosis is the etiologic factor in the majority of cases.

DR. SAMUEL THEOBALD, Baltimore: Fuchs and other German authorities call phlyctenular conjunctivitis or keratitis, as the case may be, eczema of the conjunctiva or cornea. This, in my judgment, is the true nature of the affection, and just as eczema of the face and other parts of the body in children is so often due to intestinal intoxication, so, I am thoroughly convinced, is phlyctenular ophthalmia due to this same cause. Long before the term "intestinal intoxication" was coined, I taught that phlyctenulosis was due to systemic infection from the alimentary canal, and while this

form of ophthalmia is more apt to occur in tuberculous or scrofulous subjects, because of their poor resisting power, it occurs over and over again in children who show not the slightest sign of a tuberculous condition. Bad hygienic surroundings, as pointed out by Dr. Bennett, unquestionably play an important etiologic rôle. The fact that the skin and other reactions indicate the presence of tuberculosis need not by any means force us to conclude that the ocular malady is of a tuberculous nature. I entirely agree with Dr. Bruns that only in rare instances is this so. One of the most valuable remedies for phlyctenular keratitis, as might be supposed from its etiology, is an energetic calomel purge. At the Baltimore Eye and Throat Hospital a powder containing 2 grains of calomel, 2 of scammony (now an almost unknown drug) and 6 grains of rhubarb is frequently administered at the outset of the treatment. As to the importance of not always attaching too much significance to the tuberculin reactions, I may mention the case of a boy brought to my office some time since with a typical interstitial keratitis. One of the first questions I asked was, "Has the child had any trouble with his knees?" The answer was "Yes, he has been in a sanatorium all summer under treatment for tuberculosis of the knee-joint." Tuberculin tests made at the Johns Hopkins Hospital, I was informed, had given positive results and he had been treated accordingly. He was put on biniodid of mercury and in due course of time the tuberculosis of the knee-joints disappeared.

DR. F. H. VERHOEFF, Boston: Dr. Bruns brings no evidence to support his conclusion that phlyctenular disease is a form of herpes other than the observation of Ivanoff that phlyctenules occur at nerve terminals. This observation, however, is of no special significance because the surface of the cornea is so rich in nerve terminals that no matter where a phlyctenule occurred, on account of its size it would cover a number of nerve terminals. Phlyctenular keratitis certainly does not closely resemble herpes corneæ, with which we are familiar as occurring in adults and occasionally also in children. My own belief is that phlyctenular disease is always due to tuberculosis, although I must admit that the proof of this is not absolutely complete. I base this view on the large proportion of cases which show clinical evidences of tuberculosis and on the results of tuberculin tests. It is true, as Dr. Bruns points out, that the percentage of von Pirquet reactions in phlyctenular cases is about the same as that for children free from the affection. He does not discuss the fact, however, which to me is especially significant, that in certain cases the Calmette test and the subcutaneous test give rise to an outbreak of phlyctenules. In a discussion before the American Ophthalmological Society and another before the Surgical Section of the International Tuberculosis Congress, in 1908, I suggested that phlyctenular diseases, as well as the eczema often associated with it, were due to anaphylaxis, a view that later was brought forward by others. I called attention to the fact that if this explanation were correct, it would be expected that certain cases would be in a so-called refractory stage and would fail to react to tuberculin. This answers Dr. Bruns' objection, that a certain percentage of phlyctenular cases do not react to tuberculin. It would be well to test such patients again after the eye trouble had been quiescent for some time. In a similar way could be explained the fact that phlyctenular disease occurs chiefly in children, and only in a certain proportion of those infected with tuberculosis, since only after comparatively recent infection, and under certain conditions, would it be expected that the phenomenon of anaphylaxis would manifest itself locally in the eye.

DR. HIRAM WOODS, Baltimore: I know nothing more difficult than to draw proper conclusions from such data as have been given here to-day. To begin with, we take the fact that a lot of these children are ill fed, live in bad air and are dirty; we have the disease occurring in a structure that we cannot get and keep aseptic; put the patients on better food and under better conditions of cleanliness, turn them out of doors and they improve. We find, without scientific tests, that a little improvement in hygiene helps them

resist the constantly recurring infection from the nose or from the outside. Clinicians are making a careful distinction between a tuberculin skin reaction and clinical tuberculosis. Probably 75 per cent. of all children, irrespective of symptoms, will give a positive von Pirquet. What are you going to infer from that? Von Pirquet told me himself that he thought two negative results in children were positive proof of the absence of tuberculosis, but he himself did not attach an enormous importance to the positive result of the reaction in absence of clinical tuberculosis in children. Suppose you get a positive von Pirquet in these children. I question very much if that justifies us in assuming a tuberculous cause. If, on the other hand, the tuberculous origin is proved by the fact that tuberculin cures the disease, and prevents recurrence, then we have some positive proof. As to the rôle of intestinal absorption for which Dr. Theobald uses his "inherited taste" for calomel, where does a positive diagnosis of intestinal intoxication come in? Dr. Bennett has spoken of excess of indican. Undoubtedly it represents the absorption of indol, and indol is one of the conjugate sulphates resulting from intestinal putrefaction. Many internists say it is positive proof of intestinal intoxication; many others say it is not. In a recent communication de Schweinitz said he was surprised that the profession had not got rid of the fetish of indicanuria. Some clinicians in Baltimore state that after we go over all the other tests we come back to indol as the most available evidence of putrefaction. The argument against the significance of indican is that patients have these troubles without it; then they must have them from some other cause; again, they recover in spite of the presence of the indican, which means that after the various remedies, we reduce the indican to a point at which the system can tolerate it. I do not believe we can draw dogmatic conclusions from any data in our possession.

MR. JAMES W. BARRETT, Melbourne, Australia: The discussion is of extreme interest to me because of the great extent of phlyctenular disease in my section of our country. It is a disease found frequently in Melbourne in hospital practice, but almost never in private practice. Our population, although very well-to-do, has curious dietetic habits. The diet is almost entirely carbohydrate. The children have bread and butter and jam and tea for breakfast, bread and butter at 11 a. m. (what they call a "piece"), a fair meal of meat and pudding at 1 p. m., another "piece" during the afternoon and wind up with tea and bread and butter in the evening. The result is that the intestine must be loaded with cellulose just as we see among the Egyptians in the clinics of Cairo. I know that syphilis has no relation to phlyctenules and I believe, with Dr. Woods, that whatever is the result of the von Pirquet, phlyctenule is not associated with tuberculosis. And we have reached the conclusion that the importance of the von Pirquet is when it is negative. The bulk of children give it and I do not know what it may mean. All that we are clear about is that it is not usually associated with these gross lesions. I shall be interested to learn from Dr. Bruns whether there is any analogy between the diet habits of the children of whom they have been speaking here and the diet habits of our own children.

DR. GEORGE S. DERBY, Boston: It does not seem possible in the light of present knowledge to say that all phlyctenular disease is due to tuberculosis, although there are some very striking facts which point to this. I think it has not been worked out yet but evidence is being gradually accumulated to show that the incidence of phlyctenular disease bears a very close relation to the incidence of tuberculosis in childhood. Now as to why more cases of phlyctenular disease do not show the gross lesions in the body, it is well known that in only a small percentage of those affected with tuberculosis do we get the gross manifestations; these children overcome the infection without ever showing signs of the process. That is why so many react to the von Pirquet test. I should like to ask Dr. Bruns why, if tuberculosis has nothing to do with phlyctenular disease, we get phlyctenulosis as a result when we give the cutaneous tuberculin test at times and also when we introduce it into the conjunctival sac.

In Dr. Theobald's case in which tuberculosis was blamed for the knee condition, I think the mistake would not have been made if the practitioner had realized that these cases of congenital syphilis are especially susceptible to a superimposed tuberculous infection. I have had considerable experience with tuberculin in these cases during the past five years, and I feel very doubtful whether any patients have been much benefited by its use. Certainly if phlyctenular disease is a form of tuberculosis, it is an atypical form about which we do not know a great deal at the present. It has seemed impossible to cure some of the patients with severe cases of this disease until they have passed a certain age—15 or 17 years. In spite of all the care in the way of general hygiene with which we can surround them, they have recurring attacks; and although these attacks are diminished in number and milder in character, we have been unable to prevent them entirely.

DR. JOHN A. DOXOVAN, Butte, Mont.: In our state school we used to have a great deal of this disease. For the last several years everybody admitted has had the adenoids removed and the children are put under different hygienic conditions from those at home, with the result that I have seen only one case of phlyctenule in three years. In my private practice no single remedy is so efficient to prevent recurrence as removing adenoids.

DR. H. D. BRUNS, New Orleans: I have not heard from the supporters of the theory of tuberculous etiology any argument strengthening, as it seems to me, their contention. All of those who have had most experience have found that it does not do to lay any stress whatever on a positive reaction to the skin test; but a negative reaction, especially in a young person, is the best evidence that the person is neither tuberculous nor liable to tuberculosis. There is one thing on which most of the physicians who live in the north lay stress which is not true in the south, where I live. Their cases occur wholly in children. Grown-up negroes, men 50 and 60 years of age, come into my clinic in New Orleans, afflicted with phlyctenules. I have seen big muscular roustabouts with phlyctenular ophthalmia, who certainly were not suffering with any form of tuberculosis known to clinical medicine. Most of the people I see who have phlyctenules are badly fed. They live on corn-bread and bacon with some kind of dry vegetable, beans or rice. The babies are weaned on bacon-rind instead of beer. The French clinicians who have of late been studying phlyctenular ophthalmia incline to divide these cases into two classes. Some are tuberculous and the disease is cured, they say, by the injection of tuberculin; some are non-tuberculous and can be cured by regulation of diet. In fact, some go so far as to specify that if certain articles of diet are withdrawn patients recover. I cannot refine so highly, but I always advise a diet of fresh meat and green vegetables with a good supply of fresh air.

REMOVAL OF THE LENS IN HIGH MYOPIA

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Although the surgical treatment of high myopia since its revival by Fukala in 1889 has been pretty generally practiced and recognized by most ophthalmologists as a justifiable proceeding, there is still a great difference of opinion as to its immediate and permanent value and its dangers. The recent text-books on ophthalmology do not very strongly advocate this operation; they emphasize the importance of employing it in only carefully selected cases, and even then they consider it somewhat dangerous.

Robert Hesse,¹ in an article reviewing the operations in Professor Dimmer's clinic since 1891—in all sixty-seven eyes were treated—concludes that in only one case could any injurious effect be ascribed to the opera-

1: Hesse, R.: *Abst. Ophthalmology*, viii, 92.

tion—a case of infection. He considers the operation entirely justifiable.

Thompson² concludes that the growth of the long axis is not affected, that changes in the chorioid and vitreous opacities are contra-indications, and that it is doubtful if the second eye should ever be operated on—at any rate, not before a lapse of two years.

Geert³ concludes that:

1. Axis lengthening in aphacic eyes remains progressive after operation.
2. Axis lengthening is as great in the operated eye as in the non-operated eye.
3. Vision in the operated eye remains constant in a smaller number of cases than in the non-operated eye.
4. The serious complications of high-grade myopia are more numerous in the operated eyes.
5. Operative complications enhance the chance of deleterious myopic changes.
6. The most favorable age is from 16 to 30.
7. The function of the retina sinks more in aphacic eyes than in non-operated eyes.

Most authorities are of the opinion that the age limit is about thirty years, and that the amount of myopia should be at least 16 D. I have done only nine operations on five patients, and while this is a rather limited experience, the results have been so uniformly satisfactory that I may be more optimistic than those who have had a wider experience, and therefore some failures.

Two of the cases included in this paper have already been reported in the *Transactions of the American Ophthalmological Society* in 1907. The immediate results in these cases were brilliant, particularly in the second in which the fundus changes were most extensive and vitreous opacities also were present. I am still in touch with these patients and know that the good vision has been maintained.

CASE 1.—A girl, aged 16, first seen in May, 1906, had 21 D of myopia in the right eye and 16 D in the left; vision in each eye with the correction was 20/70. The fundi, except for large staphylomata, were in a very healthy condition. Fukala's method was used, the lens in the first eye being removed by linear extraction forty-eight hours after needling; the lens of the second eye was treated in the same manner. After discission of the capsules the vision for the right eye was 20/30 with + 1.50 cy. 90; for the left eye, 20/30 with + 1.50 s + 1.50 cy. 90, with + 3.00 added for near. This patient has pursued her vocation as a stenographer, and when I saw her last her vision was practically 20/20 for each eye.

CASE 2.—A woman, aged 31, first seen in October, 1904, was kept under observation until October, 1906, when the first operation was performed. Her vision for the right eye was 20/200 with —22.00; for left eye, 20/100 with —20.00. There were extensive changes in the fundus, commencing changes in the lens, and floating vitreous opacities. This case was treated in a manner similar to the first, save that three needlings were required in one eye and four in the other before the linear extraction could be made. Recovery was uneventful. Discission of the capsule was made, resulting in vision of 20/30 with —2.00 cy. 90 for the right eye and 20/30 with —1.50 s + 2.50 cy. 165 for the left eye; with 3 s added she read Jaeger 1. This vision has been maintained up to the present time, and the patient, while being careful of her eyes, reads and sews with great comfort.

CASE 3.—A woman, aged 26, had always been short-sighted. The shadow test showed a myopia of 22 D for the right eye and 21 D for the left with an astigmatism of 1° against the rule in both eyes; the vision was 20/70 with this correction. There were floating opacities in the vitreous, especially in the right eye, and large staphylomata, with a general atrophic

chorioiditis. Two needlings were required for each eye and were made at intervals of about three days. A linear extraction in each eye was followed by a discission of the capsule with the DeWecker scissors, resulting in a vision of 20/40 for the right eye with —.50 s + 2 cy. 90 and 20/40 for the left eye with + 2 cy. 165; an additional + 2.50 s enabled the patient to read and sew with comfort. There were no unfavorable symptoms at any time during the treatment. The final operation was done in October, 1910, and I saw the patient last in March, 1912; at that time the vision was the same, 20/40 for both eyes, and the floating opacities had cleared to a large extent. I may add that her vision is almost as good without her glasses as with them and she frequently dispenses with them save for close work.

CASE 4.—A woman, aged 50, gave a history of short-sightedness all her life. She was referred to me in January, 1910, by a colleague who desired an opinion as to the wisdom of an operation. Her vision had been failing rapidly, owing, apparently, to opacities in both lenses which were so dense at that time that only a very poor view of the fundus was obtainable. Her vision was reduced to little more than counting figures. My colleague informed me that there were vitreous opacities in both eyes, extensive chorioidal changes and a myopia of from 20 to 22 D. I advised a preliminary iridectomy with a subsequent extraction. The patient then disappeared and we neither saw nor heard of her until early in the spring of 1911, when she called on my colleague and was again referred to me with the request that if it still seemed wise I proceed with the operation. I therefore made a preliminary iridectomy on both eyes on April 11, 1911, extracting the lens of the left eye on May 3. There was considerable soft lens matter which irrigation with normal salt solution failed to remove entirely; that which remained was gradually absorbed, leaving a dense, opaque capsule. On June 12 a discission was made with the DeWecker scissors. I was then obliged to leave the patient in the care of my assistant and I did not see her again until November. The opening in the capsule was still insufficient and a second discission was made with entirely satisfactory results, her vision being 20/50 with —1.00 s —3 cy. 90.

On account of the soft lens matter in the first eye I decided to needle the second cataract before attempting its extraction, hoping thus to shorten the process. The eye was needled on November 10, 12 and 17. Two days after the last needling the lens was quite swollen, the anterior chamber shallow, the tension slightly elevated, and immediate extraction was indicated. Unfortunately, the patient suddenly developed a severe mucopurulent conjunctivitis which yielded after five days to treatment by irrigation of nitrate of silver, 1/20 of a grain to the ounce. No alarming symptoms, such as increased tension, etc., developed during this time, and the lens was extracted with no complications; the anterior chamber was irrigated with normal salt solution and all the soft lens matter apparently removed. A few days later, however, it was seen that a rather large amount remained, which was gradually absorbed, leaving only the capsule. A discission of the capsule is yet to be made, and we hope that fairly good vision will be obtained.

CASE 5.—A woman, aged 27, complained that her sight had gradually grown poorer for some time past. Skiaseopy showed a myopia of about 28 D for both eyes. The media was clear and the fundus of each eye in good condition except for large posterior staphylomata. Vision for both eyes was 20/70 with —27.00. The lens of the left eye was needled on Nov. 15, 1911, with practically no reaction and very little effect; five days later it was needled again with no reaction. A third needling was made November 24, and on the 29th a linear extraction was made. When the patient was discharged from the hospital on December 7 the eye was perfectly quiet but there was a good deal of soft lens matter remaining. Atropin, dionin and hot bathing were used, the lens matter being absorbed very slowly. On Jan. 30, 1912, an opening in the capsule was made with a Ziegler knife, resulting in vision of 20/70 with —2.00 cy. 115. March 14, she read 20/50 with this correction, which vision I have no doubt can be greatly

2. Thompson, A. H.: Brit. Med. Jour., Oct. 29, 1910, p. 1321.

3. Geert, C.: Ophthalmology, vii, 674.

improved, as the opening in the capsule is not satisfactory and another needling will have to be done.

My experience in these cases is that the age of the patient is not a contra-indication to this operation. The Fukala method, that is, needling of the lens followed by a linear extraction, is the best, in all young subjects at least. If the patient is 50 or over, and the lens is more or less cataractous, a preliminary iridectomy with subsequent extraction in the usual way would seem to be the wisest course. It is important that the patient be kept under close observation during the entire course of treatment in order that any unexpected complications may be promptly dealt with. I do not regard extensive fundus changes with vitreous opacities, provided that no active inflammatory process is going on, as contra-indicative of operation, and this was proved, in three of the cases reported, by the remarkable vision obtained, notwithstanding the presence of vitreous opacities and extensive chorioidal changes.

Of the danger of detachment of the retina following this operation these cases can prove nothing, as none of them have been under observation quite long enough; I cannot see, however, why it should be any more likely to occur than if the operation had not been performed.

It will be seen from the report of these cases that the younger the patient the fewer the needlings required; in Case 2, that of the young girl, only one was necessary, while in the other and older patients from two to four were required.

In all these cases the patients have been more than satisfied with the results, and they have been able to carry on their work and to enjoy life as they could never have done without this operative interference.

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ABSTRACT OF DISCUSSION

DR. PETER A. CALLAN, New York: High myopia is rare in this country as compared with Germany, France and Russia. To my mind, the operation is perfectly justifiable in young people under 30 or possibly 35. As to the dangers of infection, of course, that holds good for all operative procedures for opening the eyeball, but it is growing less and less all the time when we are more careful. The other great danger is the detachment of the retina. My private belief is that possibly a few more cases occur after the removal of a clear lens than would occur otherwise in these high myopic cases, but if we examine the statistics the percentage in these operated cases is very little greater than in other cases. Bjerke, in 1902, collected reports of 1,176 cases, with operations by twenty-five surgeons, mostly German, French and Austrian. He found 4.85 per cent. of detachment of the retina in these operations. The methods were various. Discissions with linear extraction were the most numerous. As to the results, Schweigger had fifty cases in which he operated by discission and linear extraction with 14 per cent. of detached retinas as a result. Von Hippel with 184 cases by the same method had 5 per cent. Thus, it is not altogether the method to which the failures are due in the reported cases as done abroad. Very few are willing to depend on simple discission. I have had, all told, about fifteen cases. I have operated in four cases on both eyes at the request of the patients, who were well satisfied with the result. I do not think one is justified in operating on the second eye until the patient fully realizes the danger he runs, infection, detachment of the retina, etc. Von Hippel collected a number of cases in which he compared the cases of patients operated and not operated on. He found in the latter that 6.7 per cent. had detachment of the retina. The operated cases had only 5.4 per cent. Fraeich collected a large number and he found in the operative cases 3.3 per cent. of detachment, whereas in the non-operative cases he found 2.2 per cent. If anybody has doubt in his mind about the opera-

tion he should in the young do a discission which will take a longer time but that is of small account. What is a year or eighteen months when the whole future of the eye is involved?

DR. S. D. RISLEY, Philadelphia: I have many times in the past in this Section opposed the extraction of the transparent lens in high myopia on purely theoretic grounds; that is to say, because of the well-known pathologic conditions of the fundus in highly myopic eyes. I am still opposed to such operation so long as the myopia is progressive. But of late years the question has presented other features. For example, I have had slowly accumulating in my office a considerable number of reports of cases of high myopia which for many years had been under observation and treatment. The pathologic conditions had subsided; the myopia was no longer increasing; there were no additional chorioidal atrophies; the eyes, barring the scars of former disease, were well. But in quite a number of these patients I have seen other things transpire. There was increased impairment of vision, without notable pathologic change in the fundus, due to changes in the crystalline lens. The image of the fundus details, as seen with the ophthalmoscope, was distorted; the lens was amber-colored or opalescent and was apparently undergoing contraction changes, which caused the increasing impairment of vision and a corresponding increase in the helplessness on the part of the patient. Since this was not due to pathologic changes in the fundus, I have in several of these myopic patients, during the last five or six years, advised the extraction of the lens and the results have proved that the advice was justifiable. One case has interested me very much. The patient, aged 62, had been under my direct observation since 1886. She had large patches of chorioidal atrophies including the macula in both eyes so that the central vision was gone, but the periphery of the fundus was healthy and the fields were good. She was steadily becoming more helpless. She had a myopia of 22 D. in one eye and 18 D. in the other. I explained the situation to her and advised extraction of the lens, to which she very promptly consented. A preliminary iridectomy was performed and a few weeks later the lens was extracted. A capsulotomy proved to be necessary as a final procedure. The patient was so well pleased with the result that she returned in three months and begged me to operate on the other eye which I did with equally good results. I have had four experiences with eyes which I had been watching and treating for a long period of years; but at the time of operation they were well eyes. I am still opposed to incurring the dangers which are inevitable in eyes of patients under 35 years of age with a transparent lens, progressive myopia and the pathologic chorioidal disease still present.

DR. H. D. BRUNS, New Orleans: We, in this country, see so few cases of high myopia that it seems to me we ought to report our experiences with this operation. I have operated about eight or ten times and my experience makes me think that in his late book on the treatment of myopia, Hirschberg has reassembled the exact indications for the operation. It ought not to be undertaken unless there is about 15 or 16 D. of myopia. It should be done in people not over 20, unless for special reasons. I believe this is important because the operation that offers by far the greater chances of successful result is the operation by repeated discissions. It is long, it is trying on the patient and on the surgeon, but its safety is undoubtedly very much greater than the attempt to extract the lens from a myopic eye. By explanation to the patient that the process is going to be a long one, that neither the patient nor the surgeon must take the question of time into consideration, a satisfactory understanding will be reached. I have had the good fortune to watch three of these cases over a considerable period of time, one case for three years; a woman of about 22, on whom I operated because there was constant pain in the myopic eye. The other eye was good. The patient complained so much of this pain that after full explanation I removed the lens, with entire relief of the pain. I saw the patient about three years afterward; the eye was in good condition. The other two patients I watched for five and eight years, respectively. In both cases the patient returned and requested operation on the second eye and both

were operated on. One patient I saw recently: the eyes are still in good condition and the vision is as good as it was a short time after the operation. That was true of the other case. It seems to me, considering the helpless condition of these people, that we should attempt to help them. The operation is to be undertaken only after we are sure that the eyes are free from active disease, and highly myopic and that the patient has poor prospects for a livelihood; it is therefore especially demanded in those unfortunates whom we see in hospital practice. In such cases it is an entirely justifiable operation and a beneficial one.

DR. LINN EMERSON, Orange, N. J.: Relative to operating on the second eye, my patient was a housemaid who recently came to this country and could not get about the streets without being led. She had 26 D. of myopia. I operated on the first eye and with a +2 cylinder she had 20/70 vision. She came back and I operated on the second eye without fully explaining things to her. On the whole the result in the second eye was equally good, but for the next two years that girl was the bane of my life, because I could not satisfactorily explain to her why she could not read a newspaper, and could not peel potatoes, or do similar work. I will never again do an operation on the second eye until I have fully explained the probable result to the patient.

DR. WILLIAM H. BATES, New York: I agree that this operation is justifiable in certain cases. I can recall one patient operated on fifteen years ago in whom the operation on one eye was satisfactory, but the patient did not come back to have the other eye operated on. I saw a patient last winter with a myopia of 20 D. in each eye and a vision of about 10/200. She had great difficulty in doing her work and in getting around and was anxious for any relief that could be given. I advised removal of the lenses. I gave preliminary general treatment which included large quantities of water to drink and some atropin. I tested the patient's refraction when she was looking at the 10/200 line with the retinoscope and it agreed with the glass that she accepted. I had her hold up some fine print with the glasses; at about 6 inches she was not able to read it. I told her to make an effort to read this fine print at 6 inches, and while she was doing it (by simultaneous retinoscopy), her myopia was a great deal less, and afterward when she looked at the card the vision was better than 10/200. It had gone up to 10/100. I had her repeat the exercise until now her vision is 20/40 with 20 D. She said "Doctor, you have done me a lot of good, but when are you going to operate?"

DR. FRANCIS VALK, New York: It may be regarded as heresy, but I do not believe that myopia is always due to an elongation of the optic axis; this implies that we have two kinds of myopia, one kind due to elongation of the axis and one due to the curve of the cornea. That brings up the question whether we should operate in these cases. If we have a myopia of 20 D., as Dr. Risley's case, with macula chorioiditis, we operate successfully because it is a case of refractive myopia. Such patients do well. On the other hand, if we have a case of myopia in which we have a long radius of curvature, and there is a posterior chorioiditis, then it is simply a matter of choice whether you operate or not.

DR. WALTER E. LAMBERT, New York: The greatest discretion and conservatism should be observed in these cases, but there comes a time when the patients demand relief. They are practically blind and constantly growing worse, and even though extensive fundus changes exist, and vitreous opacities, the opposition is, in my judgment based on my experience, justifiable and advisable.

NORMAL VALUES OF THE ACCOMMODATION AT ALL AGES

ALEXANDER DUANE, M.D.

NEW YORK

Three years ago I presented a report to the Association,¹ giving measurements of the accommodation in some six hundred subjects of all ages, and deducing from these measurements a revision of the standards which Donders had established for the progress of presbyopia and which for fifty years had been universally accepted. After the paper was published, its results were adopted by various authorities² as a substitute for those of Donders.

Since then my researches have been carried on continuously. A number of new cases have been added, and

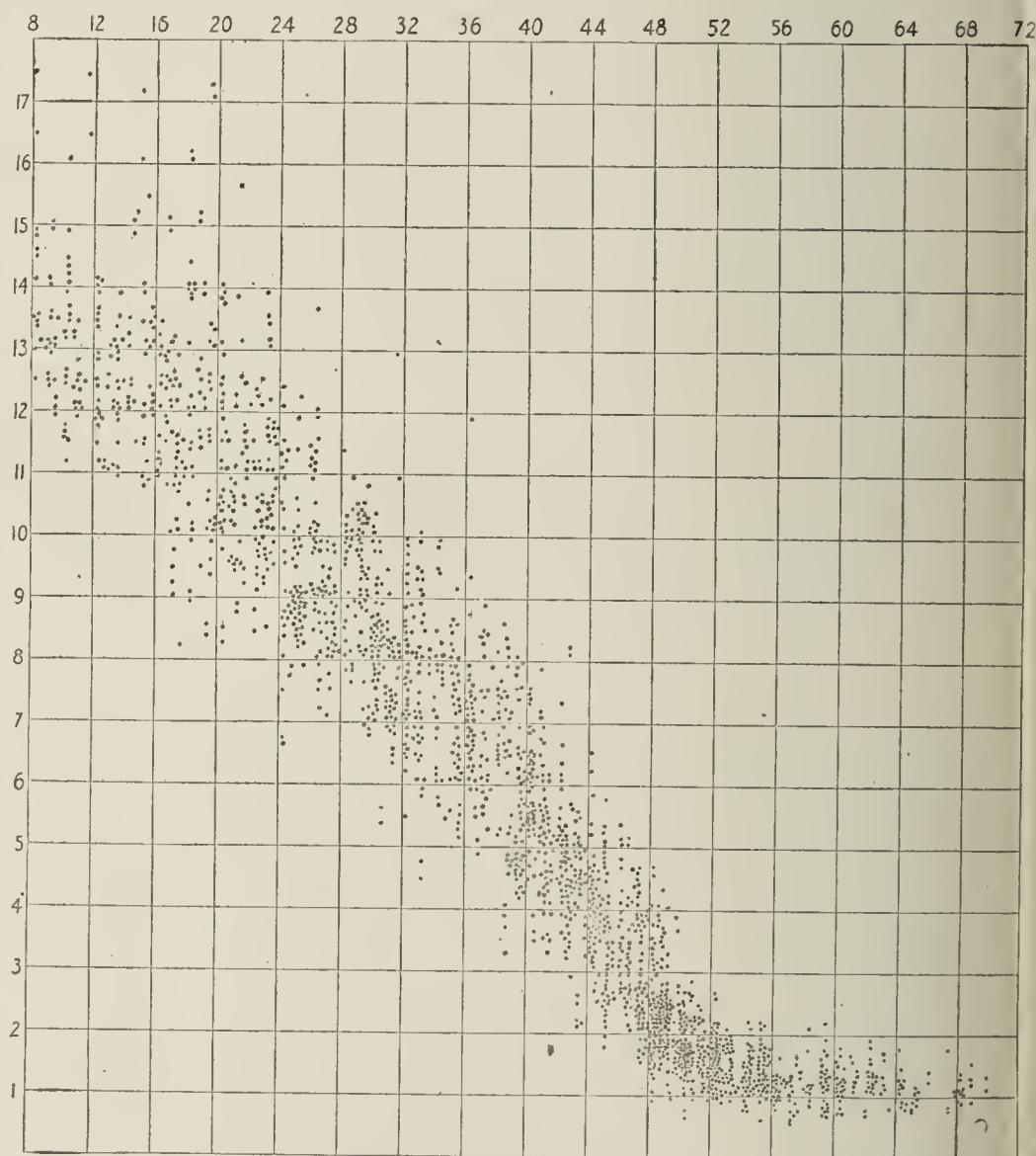


Fig. 1.—The accommodation at different ages. Each dot represents the maximum accommodative power of an individual eye at a given age, the figures on the side of the chart denoting the accommodation in D, the figures at the top denoting the age. The accommodation was determined by rendering the patient emmetropic and measuring the distance of his near point from the anterior focus of the eye, i. e., from a point 13 mm. in front of the cornea. This, of course, gives higher values for the accommodation than if the measurement is made, as is generally done, from the cornea itself.

the findings in some of the old cases have been revised. In all, nearly 1,500 subjects have been examined, and out of these considerably over 1,000 have been utilized. The results thus obtained are now presented.

The details of the method pursued in making the investigation were fully described in the previous paper, and will not be repeated here. Suffice it to say, that each subject was first rendered fully emmetropic by

1. Duane, A.: The Accommodation and Donders' Curve and the Need of Revising Our Ideas Regarding Them, *THE JOURNAL A. M. A.*, June 19, 1909, p. 1992.

2. Fuchs: *Lehrbuch der Augenheilkunde*, Ed. 12. Weeks: *Diseases of the Eye*. Percival: *The Prescribing of Spectacles*.

lasses and his accommodation was then carefully and, wherever possible, repeatedly measured, due regard being had always to the conditions under which such a test should be made.³ The value thus found for the accommodation was expressed in dioptries and plotted in a chart. Figure 1, in which each dot represents the accommodation of a single eye at a given age, shows how this was done. The aggregate of dots forms a sort of galaxy, which exhibits a very characteristic and quite regular curve. The great mass of the dots are included between the limits of the curves *AA* and *BB* (Fig. 2), and for the most part between the curves *AA* and *CC*.

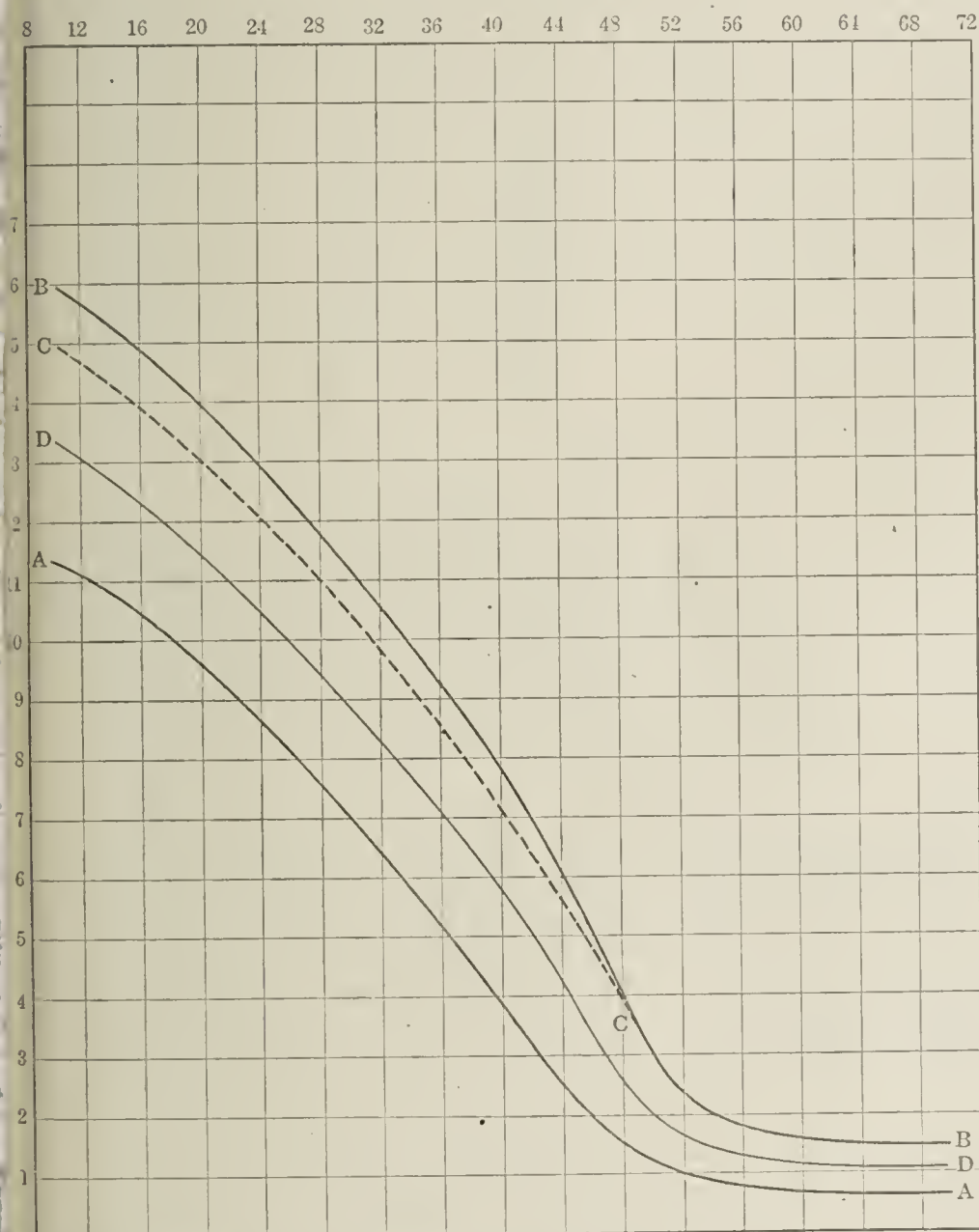


Fig. 2.—Limits of the accommodations in normal cases. The vast majority of the dots represented in Figure 1 are included between the curves *AA* and *BB*, and for the most part between *AA* and *CC*. These, therefore, represent the lower and upper limits of normal cases. Cases lying below *AA* are subnormal and above *BB* supernormal. The rate of descent of the accommodation in persons with high accommodative power is shown in *BB* and the less rapid descent in those of low accommodative power is shown in *AA*. *DD* is the "mean curve" representing the rate of descent of what may be called an average case.

These, therefore, are the upper and lower limits for normal cases. Values lying below *AA* must be regarded as subnormal and those above *BB* as supernormal, or in

3. Especially as regards illumination, the character of the test-object, the patient's condition, etc. In all the later series of cases the test-object used was my accommodation disk described in the *Ophthalmic Record*, August, 1909. This consists of an engraved black line, 0.15 mm. in diameter, bisecting a small white parallelogram which is mounted on a disk of black velvet. To render the patient strictly emmetropic he was supplied with the glass correcting his total refractive error, which glass for patients under 48 was determined with the aid of homatropin. When the near point was either too far or too near to be accurately measured, a suitable convex or concave lens was added to the correction, and a corresponding addition or deduction made in the finding. For particulars see original paper.

many cases doubtless as representing errors of measurement.⁴

Line *DD* (Fig. 2) represents what we may call the mean curve of accommodation, inasmuch as it passes in general through the densest portions of the mass of dots and indicates thus the core of the galaxy. The term "mean curve," however, has very little significance. Its position is more or less arbitrary, and other observers, using the same data as we, might doubtless give the mean curve a different placing, although in no case probably would the difference amount to over 0.5 D. After all, however, what we wish to know in any given case is whether the accommodation found lies well within the normal limits, i. e., between *AA* and *BB* (or *CC*). Whether it lies close to *DD* or not is, comparatively speaking, a matter of indifference. Indeed, the chief and perhaps the only significance that attaches to *DD* is that it gives the rate of fall of accommodation, i. e., the recession of the near point, in what may be called the average case. This rate, both in the average and in the extreme cases is shown numerically in Tables 1 and 2, given below. From these tables as well as from Figure 2, it is obvious that an accommodation which normally lies near the upper limit given, i. e., near *BB*, will fall off faster, and one that lies near the lower limit, *AA*, will fall off more slowly than the average, represented by *DD*.

It may be asked how near we are to certainty in these matters. In other words, how sure are we that the curves given do represent the normal limits and the normal rate of change of the accommodation from year to year? We think we may say we are fairly sure. When the investigation was begun, and the observations were comparatively few, the limits found at different times varied widely, and the results were obviously open to suspicion.⁵ As observations multiplied, the results became more and more concordant. This is shown, for example, in Figure 3, where the curves, as found three years ago, are compared with the curves now regarded as best established. As will be seen, the main result of complete investigation has been, first, to eliminate the sinuosities and irregularities of the previous curves; second, to diminish somewhat the upper limit before the age of 25; and, lastly, to expand both the upper and lower limits after the age of 40. The change last named, which is the only one really of importance, seems to be quite well substantiated, inasmuch as the number of good observations for the decen-

4. The convincing character of the curves *AA* and *BB* is heightened if we include a number of cases which I felt bound to reject, yet which can hardly be classed as abnormal. Such, for example, were cases in which the measurements at different times varied so widely that one could not know just what value to assign to the accommodation. Such, too, were cases in which the measurements taken at any one time were consistent but in which examination a year or more later gave higher values, showing that the first results were below the normal of the individuals concerned. The findings in both classes of cases were rejected. Yet with few exceptions they lay within the limits here assigned, and might perhaps have been included as representing simply normal variations.

5. Thus particularly the approximate results published in the *New York State Journal of Medicine*, July, 1908, and in *Tr. Am. Ophth. Soc.*, 1908.

num between 40 and 50 is particularly large. The normal limits of the accommodation, therefore, in beginning presbyopia are apparently wider than had been supposed. But even in this case, the change, though important, is not great in amount. The other changes are comparatively trifling, and in the ease of the mean

curve the two sets of observations agree very closely indeed. Moreover, we seem now to have reached the point, where the addition of each hundred eases makes no appreciable difference in the results. Since these results are based on many hundred cases, and on a method consistently carried out for a period of five

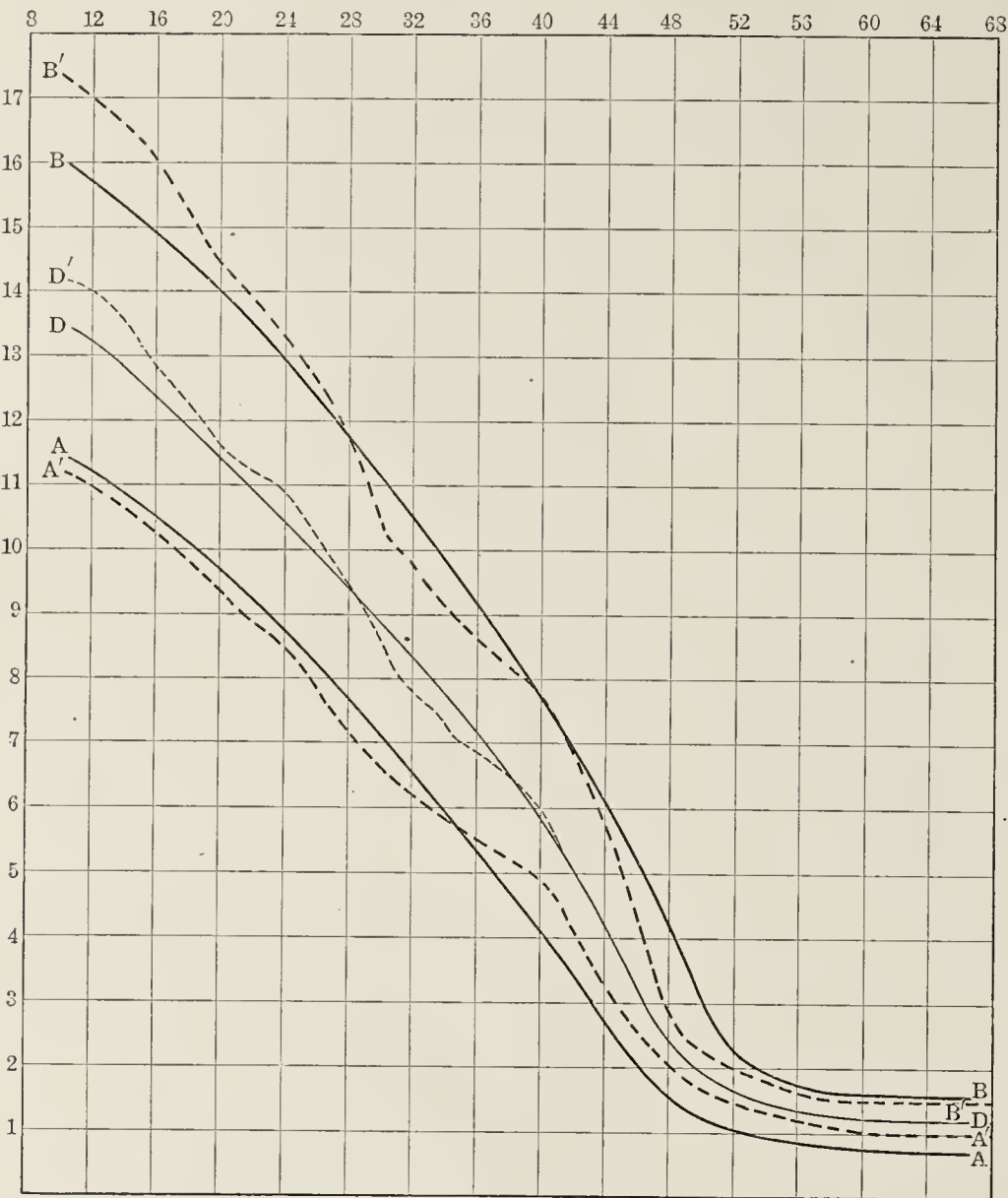


Fig. 3.—Comparison of early and final results. AA, BB and DD, as in Figure 2; A'A', B'B' and C'C', corresponding curves found three years ago. Note the more regular course of AA, BB and DD and the fact that in them the upper limit is lower before the age of 25, while after the age of 40 the upper limit is higher and the lower limit lower than previously found.

TABLE 1.—NORMAL VALUES OF THE ACCOMMODATIVE
POWER AT ALL AGES FROM 8 TO 68

Accommodation is given in D and tenths, near point being measured from the anterior focus of the eye, i. e., from a point 13 mm. in front of the cornea.

Age	Lower Limit in Normal Cases	Mean Value	Usual Upper Limit	Extreme Upper Limit
8	11.7	13.8	15.4	16.4
9	11.6	13.6	15.2	16.2
10	11.4	13.4	15.0	16.0
11	11.2	13.3	14.9	15.8
12	11.1	13.1	14.7	15.6
13	10.9	12.9	14.5	15.4
14	10.8	12.7	14.3	15.3
15	10.7	12.6	14.1	15.2
16	10.5	12.4	13.9	14.9
17	10.3	12.2	13.7	14.6
18	10.1	11.9	13.5	14.4
19	9.9	11.7	13.2	14.2
20	9.7	11.5	13.0	14.0
21	9.4	11.2	12.8	13.7
22	9.2	10.9	12.6	13.5
23	8.9	10.6	12.3	13.2
24	8.7	10.4	12.1	13.0
25	8.4	10.2	11.8	12.7
26	8.2	9.9	11.6	12.4
27	7.9	9.6	11.3	12.1
28	7.6	9.4	11.1	11.8
29	7.3	9.2	10.7	11.5
30	7.1	8.9	10.4	11.2
31	6.7	8.6	10.2	10.8

TABLE 2.—APPROXIMATE VALUES OF ACCOMMODATION AT EACH FOUR-YEAR INTERVAL

Accommodation is given in D (to the nearest 0.25 D), near point being measured from the anterior focus of the eye, i. e., from a point 13 mm. in front of the cornea.

Age	Lower Limit in Normal Cases	Usual Upper Limit
8	11.50	15.50
12	11.00	15.00
16	10.50	14.00
20	9.50	13.00
24	8.50	12.00
28	7.50	11.00
32	6.50	10.00
36	5.25	8.50
40	4.00	7.00
44	2.50	5.50
48	1.50	4.00
52	1.00	2.25
56	0.75	1.75
60	0.75	1.50

years with rigorous regard to the conditions that should obtain in such an investigation, and since, moreover, they have reached a point where they no longer vary as observations multiply, it is believed that they actually represent the normal values.

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ABSTRACT OF DISCUSSION

DR. S. D. RISLEY, Philadelphia: I have been impressed by clinical experience with the almost mathematical precision with which we can predict the range of accommodation for any given age in emmetropic eyes, or in eyes in which the ametropia has been corrected and the glasses have been worn for considerable periods of time. Dr. Duane's careful laboratory studies

TABLE 1.—Continued

32	6.4	8.3	9.9	10.5
33	6.1	8.0	9.6	10.2
34	5.9	7.7	9.2	9.9
35	5.6	7.3	8.9	9.6
36	5.3	7.1	8.6	9.4
37	4.9	6.8	8.2	8.9
38	4.6	6.5	7.9	8.6
39	4.3	6.2	7.6	8.2
40	4.0	5.9	7.2	7.8
41	3.6	5.4	6.8	7.5
42	3.2	5.0	6.4	7.0
43	2.8	4.6	5.9	6.5
44	2.5	4.2	5.5	6.1
45	2.2	3.7	5.2	5.6
46	1.9	3.3	4.8	5.1
47	1.7	2.8	4.3	4.5
48	1.5	2.5	3.9	4.0
49	1.3	2.2	3.4	3.4
50	1.2	2.0	3.0	3.0
51	1.1	1.8	2.6	2.6
52	1.0	1.6	2.3	2.3
53	0.9	1.5	2.1	2.1
54	0.9	1.4	2.0	2.0
55	0.8	1.3	1.9	1.9
56	0.8	1.2	1.8	1.8
57	0.8	1.2	1.7	1.7
58	0.7	1.2	1.7	1.7
59	0.7	1.1	1.6	1.6
60 to 68	0.7	1.1	1.5	1.5

in large numbers of eyes have verified the correctness of our daily findings in the routine work of the clinic and consulting room. I find that his paper agrees closely, not only with the early work of Donders, but with a series of observations I made to determine the normal near point, in order to verify my studies of the duration of the cycloplegia produced by the several mydriatics. The object employed was a series of fine wires stretched across a circle with an illuminated ground-glass background. For such determination I found it important to confine the study to emmetropic eyes, or to eyes in which correcting glasses had been worn for a long time, since quite different results were reached in eyes which were struggling to maintain binocular vision in the presence of abnormalities of binocular balance or errors of refraction of different degree in the two eyes.

Dr. E. E. Holt, Portland, Me.: It occurred to me when Dr. Risley mentioned how constantly the accommodation of the eyes, as found in our daily practice, corresponded to the scientific standard of measurement, that I had been able in quite a number of cases to determine the age of women who declined to give it in years but would give the day and month of the year. After determining the ametropia and the accommodation, I would say to such a patient, "You were born on such a day and year, and are, therefore, so old." The patient would say, "Why, how did you know my age?" and I would reply, "By examining your eyes."

MORGAGNIAN CATARACT *

BURTON CHANCE, M.D.
PHILADELPHIA

Morgagnian cataracts are not of very common occurrence and, among the younger generation of surgeons, have excited but little interest. Indeed, since 1890, no case has been presented to this Section; I find no report of any in the transactions of the American Ophthalmological Society, and Taylor,¹ in reporting a case before the Ophthalmological Society of the United Kingdom, says that for thirty years past not a single instance had been brought before that society. Pathologically, they cannot be rare, and, in the past, my masters spoke of them with interest, as though they had frequently seen them. It may be that now they are not common, clinically. Perhaps it is that we are consulted earlier than the older men were, so that the cataracts we see are firmer; or more probably, we are not consulted at all by those in whom extreme hypermaturity is present, whose cases we read of in startling headlines in the public prints declaring the cures of cataract by natural processes after the greatest surgeons had insisted that only operations could relieve. However this may be, references to them in the past ten years are few in number, and I can recall only four or five instances of hypermature cataracts marked by so great a liquefaction as to characterize them "Morgagnian."

It is therefore with a great deal of enthusiasm that I mention that recently, in the space of six months, I operated on two patients, and I cannot avoid recalling with peculiar interest the attitude of uncertainty and hesitation which certain of my elders manifested toward one of the cases, when I presented it for study before a clinical society.

Morgagnian cataracts are usually monocular and, as is most evident, occur in long-standing cases, that is, one eye becomes eataractous in middle age and the patient becomes reconciled to the inconvenience attending it and does not seek advice until the onset of eataractous symptoms in the other eye. Such cataracts sometimes follow

serous cyclitis and in some of the cases more or less extensive degenerative changes have taken place in the chorioidoretinal tunics, though this, of course, cannot be seen until after the extraction of the opaque lens. Other cases have been those of congenital total cataracts. Cataracts, even at birth, may be so disintegrated as to present softening of the cortex with the harder center which has sunk to the bottom of the capsule; or they may be completely fluid with the absorption of the imperfect nucleus. Such cases can hardly be considered as having ever been mature; on the contrary, they have been caused by a failure in the development of the lens, the fibers of which have been replaced by an opaque albuminous fluid. Yet clinically, as Treacher Collins² pointed out, in 1908, they are entirely comparable to the Morgagnian cataracts of adult life. I have not seen a Morgagnian cataract produced by accidental injuries, or after incomplete needling in the case of complete congenital cataracts.

In Morgagnian cataracts in old lenses the cortex liquefies, becomes milky white in appearance and the substance homogeneous. In the lower portion there is present a semicircular, dark, or brownish shadow cast by the upper half of the dense nucleus which has sunk to the bottom of the lenticular sac. The brownish shadow can be seen to change its position as the position of the nucleus is altered by the movements of the head, and, when the pupil is dilated, the difference in the color of the reflex may readily be noted—it is yellowish when the patient is standing up and milky white when he is lying down. It is not always possible to distinguish the nucleus, because its outlines may be hidden by the opaque cortical, which, as is well known, can be denser and more impervious to light than a hardened lens.

It may be of interest to consider the genesis of the Morgagnian cataract. It comprises the metamorphosis of a mature cataract into a state of liquefaction, and it is probable that the changes are truly inflammatory in type. The epithelium proliferates and we have a thickening of the capsule which retains the water of disintegration in which the cortical mass is dissolved, or, the cortical lens substance is gradually absorbed and is partially replaced by fluid to such an extent that the nucleus moves about in it and gravitates to the lowest point within the capsular sac. The fluid cortical substance may remain yellowish or become entirely opaque, whitish or murky. The nucleus remains unaltered or shows only an eroded surface due to a slight absorption of its substance, and it may contain Morgagnian droplets and cholesterol crystals, as in Claiborne's³ case and in my own. The capsule may rupture and allow the nucleus to escape through the rent into the anterior chamber, as happened in Ewing's⁴ case.

It is rather curious that Morgagni⁵ himself attributed the formation of cataract to a process the very reverse of this. He believed that a "humor" existed in the healthy state, between the capsule and lens, and that it was this humor which became opaque and formed the impediment to vision, or, "verily that the secretion of this humor having been stopped, the crystalline lens became dry and opaque."

There are many ways in which the obstruction caused by cataract may be removed by the processes of Nature. If the patient lives long enough, the lens may so far liquefy and become absorbed as to leave only a small

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Taylor: Tr. Ophth. Soc. U. Kingdom, xxxi, 146.

2. Collins, E. T.: Developmental Deformities of the Crystalline Lens, THE JOURNAL A. M. A., Sept. 26, 1908, p. 1051.

3. Claiborne: Arch. Ophth., 1909, p. 513.

4. Ewing: Am. Jour. Ophth., 1909, p. 328.

5. Morgagni: Quoted from Dixons' Guide to Dis. of Eye, Ed. 2, 1859, p. 230.

remnant within the capsule, or the capsule itself may be absorbed. Sometimes the lens may be dislocated and without harm sink into the vitreous humor, thus effecting the restoration of sight to ardent devotees on pilgrimage to famous curative shrines. In my notes of unusual cases observed while resident at the Wills Hospital in 1894, I find one relating to the extraction of a hypermature cataract:

"Surgeon R., when about to lay down his knife at the completion of the incision, was startled to see the lens ejected from the eye through the wound and light on the pillow some distance from the patient's head. The lens resembled a large white pearl, but after a few oscillations the capsule ruptured and a milky fluid ran out leaving a dense nucleus within the folds of the capsule. This extraordinary occurrence was followed by an uneventful recovery."

Sometimes the fluid is completely transparent and the nucleus may fall below the pupil sufficiently to allow the vision to be corrected by an appropriate lens, as in a case reported by von Reuss.⁶ In others, the capsule has remained more or less transparent, so that the sight has even improved. In a case reported by Calderaro,⁷ the absorptive processes must have progressed far, for the fluid surrounding the nucleus was entirely transparent, and, on microscopic examination, the lining cells of the capsule were completely lacking.

REPORT OF CASES

The cases I desire to record are as follows:

CASE 1.—The patient, a woman, aged 73, of unusual vivacity, a native of Ireland, but long resident in this country, became suddenly blind in her right eye at the age of 55, but fearing that she had a cataract did not consult an oculist. In October, 1910, when the sight began to fail in the other eye, she came to me. She had been in perfect health for one of her years, with jet-black hair and was quite self-sustaining. She had never had any inflammatory disease in either eye; the visual acuity of the left eye equaled 5/10, but that of the right was equal to light perception only.

The corneas and irises were healthy but the lenses were cataractous. The right lens was particularly remarkable. The fundus was obscured by a dense milky-white opacity occupying the pupillary space. It was granular and without formal structure; it seemed to be solid or like a fluid compactly retained by the capsule. The globe was at normal tension, the anterior chamber somewhat shallower than that of its fellow. When the pupil was dilated the crystalline lens presented a striking picture. In the lower quarter lay a deep mahogany-colored body, thought to be the nucleus, which slowly changed its position, but in a definite way. The shape was a flattened ellipse which maintained a more or less vertical balance, and would float upward until the convex border appeared well within the pupillary space. The nucleus had a sharply outlined contour; it was very much smaller than any senile nucleus I had ever seen, and in its substance it contained a number of bubbles or Morgagnian globules.

When I exhibited the patient at the meeting of the Wills Hospital Society, much interest was taken in her case and elements of uncertainty in the diagnosis were discussed. This seemed rather extraordinary, for in my private study of the case, the appearance was exactly like that which Fuchs so masterfully describes in his text-book.⁸ While the patient maintained the erect posture, the nucleus fell forward in the sac, yet was entirely surrounded by the fluid, the density of which prevented easy movement and held the nucleus upright. This appearance, after a few moments' steadying, was quite changed by rapid movements of the head and of the globe. The nucleus would sink below the pupil border so that the changes were quite misleading; so much so that one distin-

guished visitor did not hesitate to regard the case as one of "black cataract," dependent on deep-seated inflammatory disease. It was determined, however, to extract the lens. On the day of the operation the patient had been kept in bed for several hours. It is needless to say that there was no sign of the nucleus when I approached her bedside. It reappeared when she was made to sit up for a few moments.

During the incision the tension of the globe fell, so that it was not possible to make a perfect linear incision; the knife was brought out too high to enable me to make a satisfactory iridectomy. It was my intention to attempt the extraction of the entire capsular body, and a loop or vectis was inserted well behind the cyst-like body which flopped and wobbled, so that it was difficult to engage it and just as the cyst entered the wound, the capsule ruptured and the anterior chamber was flooded with the opaque fluid. After this collapse it was easy to reintroduce the loop and to engage and withdraw the nucleus, but as the hyaloid had been lacerated no further attempt was made to withdraw the capsule. A thin film of vitreous and a rather large air-bubble mixed with the cortical fluid. The toilet was performed without further accident and atropin was instilled. A roller bandage was applied. I was assisted in the operation by Dr. William Zentmayer, to whose kindly help I owe my success. The patient behaved with the utmost composure throughout the rather lengthy ordeal, but later she became restless and quite wilful, with lack of control. In spite of this, however, in two days the wound became firmly closed. On the ninth day there began a sharp attack of iridocyclitis which lasted for four weeks, accompanied by headaches and deep pain in the globe. It is not at all unlikely that the iridocyclitis was caused by the swelling of some of the cortical debris which was left behind in the aqueous chamber, although a large quantity gushed out at the time of the operation. Notwithstanding these symptoms the aqueous in time became perfectly clear and at the end of the sixth week the patient returned to her home. The eye was then quiet; there was a small coloboma, the pupil being spanned by a dense capsular sheet studded with brownish pigment masses, and in the upper outer angle there was a circular rent. The patient returned to the hospital as I was leaving for a voyage to Europe and Dr. Schwenk incised the capsule and later extracted the other cataract with most favorable results. Considering the length of time since the cataract had begun to form and the degree of dissolution of the cortex, the nucleus showed a marked resistance to the processes of disintegration. It measured approximately 3 by 5 mm., was of a most pronounced lenticular form, of a dark mahogany color and exceedingly dense and firm, except for two or three vacuoles rather deep in the substance. On section the fibers were quite condensed except here and there where they were separated, the intervening spaces being filled with a granular coagulated fluid.

CASE 2.—The patient was a healthy and florid woman of 60, of large frame and the general physique of the natives of Western Pennsylvania. She had had symptoms of cataract for fifteen years. The history is quite confused. For reasons which she could not recall, she had consulted an irregular practitioner, who, from time to time, at each of her visits to his office, did what he told her was "needling." A month or so before she consulted me, March, 1911, her left eye had been painfully inflamed. The sight of the right eye had always been good, but that of the left gave her only shadows. The left globe was deeply congested in the ciliary and scleral regions, yet the cornea was clear. The iris was somewhat injected, but presenting in the pupil was a shriveled lens which seemed to have been luxated on the vertical meridian so that the circumferential edge projected through the pupil. The lens was chalky in appearance and showed numerous cholesteric crystals, so that it reminded one of a small, pale opal. The tension of the globe was not increased.

The patient was admitted to the Wills Hospital through the kindness of Dr. Schwenk, and was operated on early in the afternoon. The incision was begun in the usual manner, but when I was about to make the counter puncture, the lens interfered with the passage of the knife. Rather than cause a depression of the lens, I let the blade rest on the lens and

6. v. Reuss: *Ztschr. f. Augenh.*, xxi, 269.

7. Calderaro: *Clin. Oculistica*, March, 1909.

8. Fuchs: *Text-Book of Ophthalmology*, Ed. 3, p. 447 (Duane).

made a new deflected opening rather high on the cornea. The incision was very clean. The lens stood wedged between the upper and lower pillars of the iris. An iridectomy was attempted, but owing to the lack of support of the iris, a small, unsatisfactory coloboma resulted. A narrow loop was inserted and the lens was caught in its spread, and then cautiously removed, without rupture of the hyaloid or other accident. Here I was assisted by Dr. Schwenk.

The patient was of a most vigorous type with great masses of golden hair. She stated that the only discomfort she had during the operation was a sharp pain in the teeth of the left side. On the third day the wound had healed, though there was some chemosis. In the succeeding week the patient was a little light-headed and flighty. Striped keratitis developed, and the globe was so much congested that ice was used. The patient was discharged after eleven days in the hospital.

The next day it was possible to view the fundus. The eye was entirely aphakic. There were shreds in the vitreous, and the chorioid showed rather large areas of atrophy, especially, and fortunately, in the nasal region. Three weeks after the operation with a +8. D vision was 4/21. Three months later with a +10 +2.5 axis 135 vision was 5/9. The right eye was nearly E. and was perfectly healthy. When I last examined the patient there were but few vitreous shreds and all was satisfactory and comfortable. She had taken a long course of belladonna and mercury in minute doses. The nucleus was quite irregular in outline and showed evidences of active disintegration. It measured 4 by 5 mm. in the main diameters. The shriveled capsule was adherent to it. Much was lost by dissolution in the preserving fluid as the specimen was mislaid for several months. The particles of the capsule adherent show the presence of epithelial cells. The external surface of the nucleus is eroded and quite a broad zone is vacuolated. Some of the fibers are separated by coagulation spaces; others are swollen and present large cells, while still others are convoluted and opaque. Here and there are spherical spaces containing granules, and diagonally across the quite compact deepest layers are sharply angular slits or fissures which are highly refracting and empty. The specimens were preserved and cut for me by Dr. Nelson Brinkerhoff, pathologist of the Wills Hospital.

In the treatment of Morgagnian cataracts we must try to extract them within the capsule. Certainly, an iridectomy must be performed, and, in selected cases in which deliberation may be needful, a preliminary iridectomy will yield even better results. Lens spoons or wire loops of dimensions sufficient to engage the nucleus within their span should be used. These should be introduced well behind the lens, though held somewhat vertically, with the surgeon's mind, so to speak, occupied solely on the loop with the thought that it must be transported through an arc about the short axis of the instrument. With it the lens is pushed up against the cornea; then with a scoop pressed against the external surface the lens is made to glide well on to the loop, and it is then easily withdrawn, counter-pressure being made externally with the scoop until the lens is removed. A skilled assistant is required in this operation to manipulate the external instrument while the operator steadies the globe with the fixation forceps in one hand and the loop or spoon in the other.

It is important to observe the behavior of the escaping cortical fluid—a granular milky fluid, like fine starch grains—as it may swell through the action of the aqueous humor and if it should not all be dissipated by the time of the closure of the wound, it may excite ciliary inflammation and cause an increase of tension.

In the treatment of congenital fluid cataracts of the Morgagnian type, if there be a pouring out of the milky fluid into the anterior chamber, the aqueous should be completely evacuated at once to prevent the swelling and increase of tension, just as in senile cases.

From my own rather limited experience and a much wider observation, it would seem wise not to allow hypermaturity to extend as far as liquefaction. In the very commencement where a cataract becomes whitish or milky, we have ground to suspect that the exterior layers are fluid or semifluid. The weakness of the zonula favors rupture of the hyaloid with the consequent escape of vitreous. It is by no means easy to engage a floating nucleus, and traumatism occasioned by one's efforts to extract the nucleus may hinder the healing of the enfeebled globe. It is therefore best to encourage operation in the period of maturity and even earlier. The risks at this stage are less, all things being equal, than later. It is more than likely that the consistency of the vitreous may have become so disturbed when a cataract is overripe that the escape of it then will prove of greater moment than when even a large bead presents during the extraction of a hard cataract. Neither must the possibility of the rupture of the capsule with the dislocation of the nucleus into the anterior chamber or on to the ciliary body, as happened in the first of my cases, be overlooked. In my second case, the pressure of the hardened nucleus on this region excited such cyclitis that I am certain the chorioidoretinal inflammation had been greatly increased thereby. Sooner or later the fluid may become absorbed, or calcareous degenerative changes result; or the thickened impervious capsule may remain. Either condition would be difficult to deal with.

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ABSTRACT OF DISCUSSION

DR. E. B. HECKEL, Pittsburgh: I cannot but feel that the existence of this type of cataract is a reflection on modern ophthalmology. The question practically resolves itself into whether a unioocular, so-called senile cataract, with the other eye perfectly normal, should be operated on or not. Many advise against operation in this condition, and consequently, time has been given for a complete degeneration of the lens mass and the formation of a morgagnian cataract. A so-called senile cataract, as we well know, is not a necessary concomitant of old age or an evidence of senility, but the result of some distinct metabolic changes which, no doubt, are not limited to the changes in the lens itself but perhaps manifest themselves only in the loss of transparency of the lens mass, and which may be accelerated if the degenerated lens mass is permitted to remain in the eye. A unioocular, so-called senile cataract should then be removed as soon as complete, even if the other eye is perfectly negative and has normal vision. The opaque lens mass should be removed not only to prevent a complete degeneration and the formation of a morgagnian cataract but also to prevent possible destructive changes to the eye itself by its presence. The opaque lens should also be removed to give the patient better vision; its removal certainly does enlarge the visual field, and although a full correction of the resulting aphakic eye may give perfectly normal vision it is usually wise not to order it as it rarely results in a harmonious singular binocular vision, so that a partial correction usually results in perfect comfort to the patient.

I do not agree with Dr. Chance as to the choice of operation for the removal of a morgagnian cataract. Operation can be done either with or without an iridectomy but should be proceeded with calmly and deliberately. The excessive use of cocaine should be carefully avoided on account of its tendency to lower the tension of the eyeball and thus reduce the normal resistance or *vis a tergo* of the vitreous, and thereby render the delivery of the nucleus and the proper toilet of the eye more difficult. The use of an anterior-chamber syringe to free completely the anterior chamber of any debris is decidedly useful in this particular operation.

DR. LUCIEN HOWE, Buffalo, N. Y.: I had a case in which, by this method of Noyes, i. e., by having the patient lie on his

stomach causing the nucleus to fall forward so that it can be easily extracted. I succeeded in removing the foreign body which tended otherwise to fall back into the vitreous.

DR. C. A. CLAPP, Baltimore: What does Dr. Chance mean when he says that the metamorphosis to a liquid state is probably inflammatory in type? I can hardly imagine a tissue of the character of the lens as being inflamed with cardinal symptoms of heat, pain and redness. Is there any change in the percentage of insoluble albuminoid in these cases? I believe that this process is a true autolysis or self-digestion of the lens substance.

DR. G. C. SAVAGE, Nashville, Tenn.: The Smith capsulotomy can be properly applied in cases of morgagnian cataract or in cases supposed to be morgagnian. If the cataract is morgagnian, the milky liquid will fill the aqueous chamber the moment the capsulotomy is done. After removing the knife-needle, the head of the patient should be tilted forward so as to throw the nucleus into the aqueous chamber, where it would gravitate to the bottom. The patient now being allowed to assume a semi-erect position on the operating-chair, a small incision could be made at the lower margin of the cornea, through which at once would escape the now milky aqueous, and through which could be removed easily the nucleus of the lens by pressure or spoon. After the escape of the milky aqueous, should the nucleus not be in the anterior chamber, the head could be tilted forward sufficiently to displace it into the chamber, whence it could be removed after replacing the patient in the semireclining posture. Should the cataract prove not to be morgagnian, although appearing to be such, the extraction could be made later in the way advised by Homer Smith.

DR. BURTON CHANCE, Philadelphia: It is not at all desirable to allow cataracts to become hypermature; I offered my cases only because of the rarity of morgagnian cataracts in modern practice. I believe that it is good practice to operate on a cataract even when the fellow lens is not mature; in support of this dictum I can cite the case of a railroad engineer recently operated on with good results. I cannot give the chemical changes in the decomposed lens substance, though the débris usually excites marked reaction when left in the aqueous chamber. These cases are not ideal for a capsular extraction, although the effort should be made to remove the flaccid lenticular body at once and completely. The suggestion that the position of the patient should be changed during the progress of the operation is a valuable one, yet, in the cases here cited, the hyaloid membranes were so tender that, without doubt, rupture with serious escape would have followed had such a maneuver been attempted.

PEMPHIGUS OF THE CONJUNCTIVA

REPORT OF A CASE WITH MICROSCOPIC FINDINGS

WALTER BAER WEIDLER, M.D.

NEW YORK

Pemphigus of the conjunctiva is one of the grave diseases of the eye, and was recognized and diagnosed as such as early as 1800. Before this time it was classified with the urticarias and scabies, involving the face and eyes; many others considered it a xerosis of the conjunctiva. When this condition affects the eyes it is usually bilateral, although often unequal in the degree of severity.

There does not seem to be any constant relation between the duration of the skin affection and the development of the eye lesions. Pemphigus may affect the conjunctiva primarily, but this is rather rare, and in some of the cases so reported the lesions of the skin or mucous membranes may have been overlooked.

The course of the disease is usually very slow, extending over a period of years. Samelsohn¹ mentions a case

that lasted over seven years, with little or no atrophy of the conjunctiva following, while, on the contrary, in Silcock's² case the one eye was completely destroyed in six weeks and the other one seriously damaged. There is no definite course or duration in pemphigus of the conjunctiva.

Crocker,³ in speaking of pemphigus of the skin, mentions this disease as rare, occurring once in 500 cases in the skin dispensaries of England and America. It is more often seen in England and continental Europe. There are very many different forms of pemphigus, but perhaps pemphigus chronicus is most frequently seen. Typical cases of this peculiar form show oval bullæ, with tense walls and translucent contents usually bilateral, being most abundant on the face and trunk, often appearing in crops from 1/4 to 1 inch in diameter with a tendency to coalesce. The duration of each bulla is a few days, but the disease may last indefinitely. In rare instances the disease may be localized in the conjunctiva. Pemphigus of the mucous membranes may appear in all of its forms, affecting the pharynx, larynx, nose and stomach.

In regard to the etiology of the disease, sex and heredity seem to be of little importance. Crocker inclines to the nervous hypothesis as an explanation for the eruption. Just what this defect is due to we are not as yet certain, but the vasomotor centers may be the root of the trouble, or, as Schwimmers concludes, it may be a trophoneurosis. The latest theory that has been advanced is that the toxins affect the nerve-endings.

REPORT OF CASE

Patient.—Mr. L. L., aged 70, Russian, said that he had never had any trouble with his eyes until six months ago, and at that time he was able to read the newspaper with glasses. He was first seen by me at the Manhattan Eye and Ear Hospital, Oct. 3, 1910.

Examination.—Right eye. Vision: Patient counted fingers at 3 feet. The iris was brown and reacted very sluggishly to light; tension was normal. The edges of the lids were covered with a dried secretion, yellowish in color, which matted the lids together. The lids were thick and shrunken. There was total symblepharon (the lids united to the eyeball, to their edges). The opening between the lids was about 8 mm. The bulbar conjunctiva was thick and thrown in folds over the cornea. A small portion of the cornea was visible. The eye presented somewhat the appearance of an old trachoma, with atrophy of the conjunctiva.

Left eye: Vision 20/200. The pupil was 3 mm. in diameter; the iris was brown and reacted to light, accommodation and convergence; tension was normal. There was the same matting of the edges of the lids. The symblepharon was very slight and deeply placed in the culdesac. At the limbus of the cornea there were several small whitish areas which, when gently rubbed with an applicator, bled freely. The conjunctiva was red and swollen, with the appearance of edema at places. The corneoscleral margin showed a number of small bleb-like formations of a pearly white color. The rest of the cornea was clear.

Oct. 20, 1910: The condition of the right eye was unchanged, except that the symblepharon had contracted more and the opening between the lids was smaller. The culdesac of the left eye seemed to be more shallow, movement of the lids less free, and it was almost impossible to evert the upper lid. There was always free bleeding of the conjunctiva on the slightest attempt to open the eyelids wide.

The shrinking grew steadily worse in the right eye until it was impossible to separate the lids. The shape of the eyeball seemed to be preserved as far as could be determined by palpation. There was a curious swelling in the upper lid, directly under the skin, which may have been an enlargement of the

1. Samelsohn: Ber. d. ophth. Gesellsch., 1878.

2. Silcock: Tr. Ophth. Soc. U. Kingdom, 1897, p. 1.

3. Crocker: Text-Book on Dermatology.

lacrimal gland. There was also edema of the upper lid, which lasted for about two weeks.

The bulbar conjunctiva presented spots of necrosis in the left eye which were white and bled very easily on the slightest attempt to make any examination of the eye. After bleeding, there was immediate ulceration and formation of synechia between the conjunctiva of the eye and the lids. The bulbar conjunctiva was slowly extending over the cornea. The small areas of necrosis with the ulceration and free bleeding, followed by the formation of synechia, and later by cicatrization and contraction, and finally, by symblepharon, which gradually became more and more complete, indicated the steady progress of the disease. The secretion of tears had been absent for about a week. The cornea showed small ulcer formations in the upper half, and the patient had noticed rapid loss of vision during the last week. Two weeks later the ulceration of the cornea was complete in the upper half, and the upper lid was tightly attached to the surface of the cornea. The vision was fingers at 6 inches. The eye was kept closed nearly all of the time and the patient complained of great pain, which was worse at night.

Frequent examinations of the urine were always negative. A von Pirquet vaccination was made, using the crude tuberculin in solutions of 10 and 50 per cent., but this gave no evidence of tuberculous foci in the body. The Wassermann reaction was also negative.

The pain and general discomfort increased with the gradual destruction of the eyes. The condition of the nose and throat was much worse and breathing became difficult. There was free bleeding from the nose whenever the patient blew his nose or tried to remove the crusts and scales. He was unable to get about by himself, and his general health and strength had been rapidly failing, and on examination of the body, three well-formed bullæ were found over the abdominal wall. The progress of the disease in the left eye was very rapid, involving twelve weeks in all to complete the destruction.

The patient was examined by Dr. Jonathan Wright, who reported as follows: "In the nose the whole of the visible walls of the cavity is covered by what looks to be a dirty, brownish, moist, shining membrane, but which is an exudate evidently closely incorporated with the subjacent mucosa. It does not bleed and cannot be stripped off. There is evidently associated with the process a degree of fibrosis, which is manifested first, by the firmness with which the exudate or surface structure is bound to the subjacent parts; second, by the bloodlessness of the surface, and third, by the fact that at the back of the vestibule where the internal nasal chambers proper and their mucous surfaces begin, the introitus is much narrowed by a fibrous contraction. With this fibrosis there is no appreciable amount of deep infiltration, no true ulceration, no necrosis of soft tissue or of bone. There is a somewhat analogous lesion of the conjunctiva. There is no other lesion or history pointing to syphilis. It is not the clinical picture of membranous rhinitis, diphtheria, syphilis, or rhinoscleroma. The eye lesion resembles the blebs one sees in acute herpes or pemphigus of the throat. It resembles such a lesion as I have once seen accompanying a similar one of an acute nature in the nose and throat, which I believed was pemphigus."

The first case of pemphigus of the conjunctiva was reported by Wichman in 1800, and the next one to be reported was that of White-Cooper.⁴ London, in 1858. Later, Stellwag⁵ described a condition of the conjunctiva which he called "syndesmitis degenerativa." Kries⁶ and von Graefe, speaking of this same affection, called it "essential shrinking of the conjunctiva." They thought that this condition was analogous to pemphigus, and this opinion is accepted by many to-day.

Pemphigus of the conjunctiva has been classed under four separate headings:

1. Cases with blebs on the skin.
2. Those with blebs on the mucous membranes.

3. Those with blebs on the conjunctiva alone.

4. Essential shrinking only.

Von Graefe has pointed out that there is an essential shrinking or atrophy of the conjunctiva which has not been preceded by hypertrophy. Many writers assert that this shrinking is really due to the formation of vesicles and bullæ on the conjunctiva; this theory is supported by Pflüger, Sattler and Gelpe.⁷ The vesicles and bullæ were seen in the late stage of the case reported in this paper. The appearance of bullæ is rather the exception in the cases that have been reported, and this may be explained by the fact that the epithelium of the conjunctiva is so soft and delicate that it cannot, like the skin, be lifted up in broad layers by the serous exudation, but ruptures and is thrown off in the form of shreds with the areas of necrosis following.

In pemphigus affecting the eye we find that the conjunctiva is usually attacked first. It is swollen and red, and one sees spots of coagulation necrosis. The discharge is free and the edges of the lids are usually glued together, and this recurs in a very short time after they have been carefully cleansed. There is some slight degree of photophobia and lacrimation, the latter being more marked in the early stage of the disease, but after the shrinking has begun the flow of tears is very much reduced and in the very late stage they are entirely absent. The inflammatory reaction extends into the subconjunctival tissues and we have the formation of new blood-vessels which bleed at the slightest effort to examine the culdesac. These inflammatory changes are not limited to the subconjunctival tissue; at times the tarsal plate may also be thickened and misshapen. The cornea is never attacked primarily and is affected only in the later stages of the disease. In some cases that have been reported there has been ulceration of the cornea, with perforation and prolapse of the lens and vitreous. At the very last stage of this disease we may find buphthalmia, staphyloma, panophthalmitis and phthisis bulbi.

In Pergens's⁸ monograph on pemphigus of the conjunctiva he gives full records of 133 cases. The ages of the patients varied from infancy to 80 years. As a rule, there is no previous history that is of any assistance in making a diagnosis. The condition usually begins in one eye and involves the other later on. As regards the frequency of this disease, it is of interest to note that Steffen has seen 1 case in 84,000; Cohn, 1 in 50,000; Scholer, 1 in 50,000; Horner, 3 in 70,000; Baumler, 7 in 97,000; Pergens, 2 in 22,000; Franke, 5 in 45,000.

Since the publication of Pergens' report in 1901, I have found the records of the following additional cases:

SALVA'S⁹ CASE.—Woman, aged 63. The disease began in 1900. First appeared in the eyes, later in the mouth and throat and then on the skin. The conjunctiva showed small round ulcerations which stained with fluorescein and methylene-blue. The culdesac became smaller and smaller; there were cicatricial bands, symblepharon and trichiasis. The cornea was ulcerated; pannus crassus and blindness resulted in 1902.

JOHNSON'S¹⁰ CASE.—Woman, aged 53. The trouble followed nervous shock; eye began to give discomfort. She was first seen when there were adhesions between the lower lid and eyeball. The conjunctiva was dry and the cornea clear. The lens was cataractous. The soft palate, pharynx and epiglottis presented eruptions of pemphigus. Antisyphilitic treatment was of no avail. The eye was lost and the conjunctiva was replaced by a hard, dry, leathery tissue.

7. Gelpe: *Klin. Monatsbl. f. Augenh.*, xlii, 191.

8. Pergens: *Pemphigus des Auges*, Berlin, 1901.

9. Salva: *La Clinique Ophth.*, 1904, x, 235.

10. Johnson, R.: *Jour. Eye, Ear and Throat*, 1904, p. 60.

4. White-Cooper: *Roy. Lond. Ophth. Hosp. Rep.*, 1858, 1.

5. Stellwag: *Lehrb. f. Augenh.*, 1870, p. 413.

6. Kries: *Arch. f. Augenh.*, 1878.

COPPEZ'S¹¹ CASE.—Woman, aged 23, with pemphigus of the conjunctiva, gums, cheek and uvula. Symblepharon formed and the lower two-thirds of the cornea became opaque.

KOEBER'S¹² CASE.—Pemphigus of the palate and glans penis. The lower culdesac was narrowed and attached to the eye by bands. Both corneas were clear. Culture showed diplococcus.

BROWN'S¹³ CASE.—Woman, aged 48. Blebs were seen on the cornea. Patient died one year and a half after the first eye symptoms were noted.

ANDERSON'S¹⁴ CASE.—Woman, aged 29. There had been acute pemphigus foliaceus since August, 1903. Conjunctiva and facial manifestations were seen in November. The skin and mucous membranes showed remains of the vesicles. They were seen in the culdesac, but no mention is made of any symblepharon formation.

NETTLESHIP'S¹⁵ CASE.—Boy, aged 8, with symblepharon and scarring of four eyelids, six months in duration; no recurrence in four years.

OGILVY'S¹⁶ CASE.—The patient was a farmer. The first attack lasted six weeks. The eyes were then quiet for six weeks. A second attack followed at this time; the cornea became opaque and the conjunctiva became shrunken with ectropion. Lanolin was used locally.

BANE'S¹⁷ CASE.—The patient was under observation for two years. There was ectropion of the lower lid and cicatricial contraction of the conjunctiva, and in the middle third a symblepharon was forming. A conjunctival flap failed to check the progress of the disease. A portion of conjunctiva removed from the lower culdesac was examined by Todd, who reported that the specimen consisted of cicatricial granulation tissue.

SHERMAN'S¹⁸ CASE.—Man, aged 68. Patient had had eye trouble for ten weeks. There was some slight discharge; the conjunctiva was slightly thickened in the lower lid. There were several areas of denudations and the culdesac was shallow. The condition progressed. Treatment: weak solutions of silver nitrate to lids and arsenic internally.

ADAMS'S¹⁹ CASE.—Woman, aged 57. There was a free eruption and ulceration of the pharynx besides the conjunctival manifestation. Treatment consisted in the use of arsenic, atoxyl and fibrolysin. Transplantation in the culdesac was tried. The case ended fatally through rupture of pharyngeal eruptions.

QUINT'S²⁰ CASE.—Patient, aged 16, had typical eruptions of pemphigus on the conjunctiva. There was a complete symblepharon in the left eye and partial in the right. The mucous membrane of the nose and throat presented similar eruptions.

SHUMWAY'S²¹ CASE.—Man, aged 40 (?). Besides the conjunctival eruption there was a general involvement of the skin and mucous membranes; broad symblepharon involving the inner third of the lower lid and a gradual extension of opaque tissue over the cornea. Bullae were noted during the progress of the disease. No operation was attempted. The patient was under treatment for seven months.

WOLLNER'S²² CASE.—The eruption was localized to the conjunctiva. The patient was under observation for three years.

LANDOLT'S²³ CASE.—Man, aged 41. Previous history of trachoma (?). Left eye was completely involved and the right partially. Three years after onset there was total symblepharon in the right eye with xerosis, and only slight perception of light. Transplantation of skin from face and lids, with good results, lasting four years. Left eye was enucleated later because of discomfort.

PATHOLOGY

The pathology of this disease is still obscure. Sattler²⁴ reports the microscopic findings in one case. He observed

that the swelling of the conjunctiva bulbi was not due to the infiltration of the conjunctiva with lymphoid cells, but partly to a great swelling of the connective tissue bundles, and partly to the expansion of the fissure spaces which were filled with liquid. The subepithelial layer of the conjunctiva bulbi formed a special modified membrane about 40 microns broad, more turbid than the rest of the tissue, being almost opaque and running parallel with the surface of the conjunctiva and covering the greater part of the cornea. This subepithelial turbid layer might easily be mistaken at first sight for the epithelium itself. The entire stroma of this layer was pervaded by granular bodies, which did not stain with Bismarck brown or hematoxylin. The blood-vessels of the conjunctiva were numerous and much congested. They were not, however, apparent on superficial view of the conjunctiva, being concealed by the condition of the epithelium. This epithelium had lost totally its normal character. From the deepest layers to the most superficial it consisted of horny cells. It was 30 microns thick and separated easily from the underlying conjunctiva.

Baumler²⁵ reports a case and gives about the same findings except that he mentions a hypertrophy and a papillary formation of the epithelium.

Collins²⁶ has made a contribution to our knowledge of this disease by reporting the macroscopic and microscopic findings of two cases of pemphigus of the conjunctiva. In the first case he found from the macroscopic study that the cornea showed a great convexity and that on the anterior surface of the cornea there was a layer of tissue quite different from the normal epithelium. The iris was atrophied and attached to the posterior surface of the cornea. The lens was shrunken and adherent to the cornea. The vitreous fluid and retina were *in situ*. There was cupping of the optic nerve head. Microscopically viewed, he found the epithelial layer of the cornea thickened and a number of finger-like processes dipping down into the fibrous layer of the cornea, several areas of round-cell infiltration, and a number of new blood-vessels. Descemet's membrane was absent in places. In the second case the findings were very much the same.

Microscopic examination of a small portion of the conjunctiva excised from the lower culdesac of the right eye of my case revealed the following: The specimen was hardened in formaldehyd solution and the gradual increasing alcohols, and stained in hematoxylin and eosin. The outer portion of the specimen was made up of round cells in great abundance and blood-vessels, making a partial capsule around the central fibrinous material. In the outer edge of the specimen were seen necrotic changes in the cellular proliferation. This outer limiting edge showed some flat cells and some tendency to hornification. There was great invasion of leukocytes throughout, more or less centralized in spots. At places eosinophils were seen. There was a most remarkable increase of blood-vessels; these should more properly be called blood-paths, as they did not have well-formed vessel walls. Some of the larger ones had a well-formed wall of cells without the formation of the different coats. These blood-paths were well filled with red blood-corpuscles. The leukocytes, which made up the greater portion of the section, presented all the different stages of cell division. In the center of the section there was a mass which took the eosin stain only and consisted of red corpuscles and fibrin. This was the hemorrhagic portion of the specimen and was the result of the dissection of the tissue from the culdesac. A few leukocytes could also be seen in this hemorrhagic area. There was no attempt to form any connective tissue or any new form of specialized tissue growth. The polymorphonuclear leukocytes predominated.

11. Coppez: Bull. de la Soc. Belg. d'Ophth., 1905.

12. Koerber: Centralbl. f. Augenh., 1905.

13. Brown: Ann. Ophth., 1904, xiii, 535.

14. Anderson: Tr. Ophth. Soc., 1904, p. 19.

15. Nettleship: Tr. Ophth. Soc., 1904, p. 22.

16. Ogilvy: Arch. f. Ophth., 1905, p. 277.

17. Bane: Ann. Ophth., 1908, p. 405.

18. Sherman: Arch. f. Ophth., 1909, p. 140.

19. Adams: Berl. Ophth. Gesellsch., 1909.

20. Quint: Klin. Monatsbl. f. Augenh., 1909.

21. Shumway: Ann. Ophth., 1910.

22. Wollner: Klin. Monatsbl. f. Augenh., 1911.

23. Landolt: Arch. d'Ophth., 1910, xxx, 337.

24. Sattler: Quoted by Morris and Robert in Brit. Jour. Dermat., 1888, p. 180.

25. Baumler, Zeh: Klin. Monatsbl. f. Augenh., 1885, xxiii, 337.

26. Collins: Tr. Ophth. Soc. U. Kingdom, 1890, p. 62.

BACTERIOLOGY

Considerable work has been done along bacteriologic lines of study of pemphigus of the conjunctiva. Elaborate studies have been made of the secretions and discharges found in eyes so affected, but no real importance can be attached to the results.

Gelpe found in a case reported in 1885, the presence of micrococci, diplococci, and on making a culture of another case, he was able to show streptococci. Sachs-salber²⁷ later found the presence of the diplococcus, the streptococcus, tetragenus, and comma vibrians. Bellecontre²⁸ demonstrated streptococci and staphylococci, and Franke,²⁹ from a culture, found the pseudodiphtheritic bacillus and the staphylococcus.

Lipschutz,³⁰ from his microscopic studies, advances two theories in regard to the etiology of this disease, the neuropathic and the bacterial or parasitic. By some investigators the contents of the blisters or vesicles have been found sterile, but others have found that they contain strepto- and staphylococci. Lipschutz further claimed to have found something characteristic in the plasma which he called cytoplasma.

Bacteriologic study of the case reported in this paper showed the following: a smear made of the secretion from the right eye showed the presence of pus-producing organisms only; in a culture using agar as the medium for growth, the presence of streptococci and pseudo Klebs-Loeffler bacilli was demonstrated.

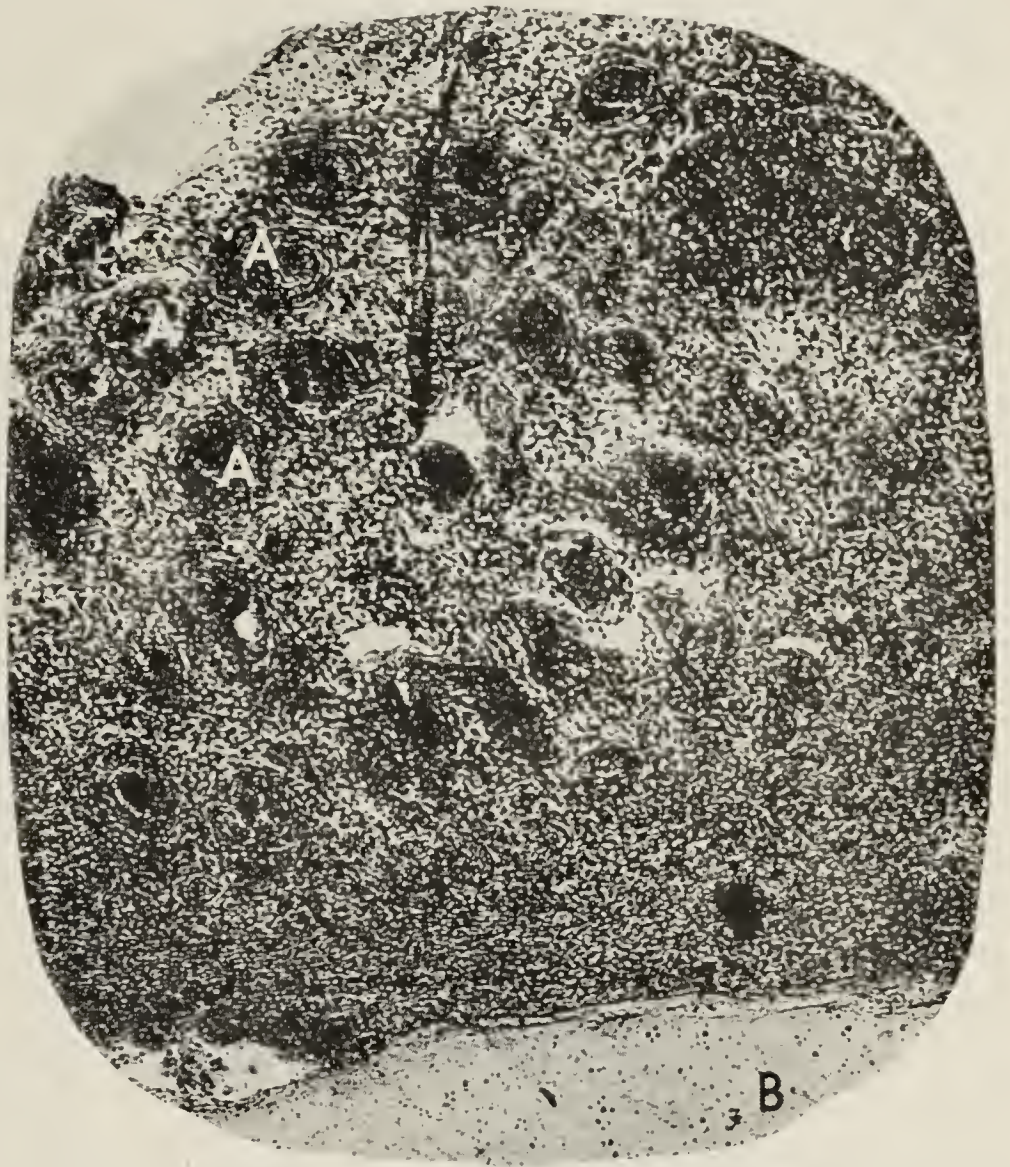
TREATMENT

As regards the treatment of pemphigus of the conjunctiva, there is not much that can be offered that is new or of any great value. Arsenic, in all of its forms, has been used most generally, and when used, it should be pushed to its physiologic limit. It is of interest to know the different forms of treatment used in such a disease from time to time. Cooper, in the treatment of his case in 1858, used cold compresses, opened the bullæ and applied silver nitrate. Hassen³¹ tried zinc sulphate in varying strengths, and Sattler and Pflugler used milk and oils. Barthelen and Sachs-salber recommended lanolin and glycerin. Bellecontre, after his microscopic studies, made experimental use of antidiphtheritic serum injection. There were no especial improvements noted, but he asserts that it helped to check the progress of the disease.

Transplantation of conjunctival tissue, mucous membranes and skin have been tried at different times, but the results have not been eminently successful. The difficulty seems to be in getting the grafts of tissue to grow, notwithstanding the great vascularity of the conjunctiva. Not being satisfied with the results of Sattler's experiments in the surgery of this condition, von Graefe tried the transplantation of mucous membrane from a dog and also from the mouth of a man with no better results. Sachs,³² in his cases, used the skin from the prepuce, but did not have great success as a reward for his

efforts. None of these men had what might be called even fair results, as none of them succeeded in stopping the progress of the atrophy and symblepharon formation. Marple reports a case in which he used the skin from the inner side of the arm near the axilla. The graft took well and he was able to stop the progress of the disease. Four years after the operation the condition had not advanced and the disease was quiescent. Operative measures have also been employed in the hope of checking the deformity of the lids, and these also have been most unsatisfactory.

The treatment employed in my own case was a boric acid wash four times a day to keep the lids clean, and gentle applications of silver nitrate and the copper stick. Olei ricini was used three times a day to relieve the dryness of the conjunctiva and at other times this was



A section of conjunctiva from the lower culdesac, showing round-cell and leukocytic infiltration, new "blood-paths" or channels (A) and hemorrhagic area (B) below. $\times 90$.

alternated with liquid petrolatum. Arsenious acid was given over a long period of time, in gradually increasing doses. It did not seem to improve the patient's general health or have any especial action in the eye condition. The patient was urged to come into the hospital, but this was refused on account of his religious scruples. Operative measures were suggested for relief of the disease and the rapidly increasing destruction, but this was also refused.

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ABSTRACT OF DISCUSSION

DR. CASEY WOOD, Chicago: During an experience of twenty-five years, I have seen three cases of ocular pemphigus. In two of these the eruption attacked the cornea of both eyes;

27. Sachs-salber: *Klin. Monatsbl. f. Augenh.*, 1894, p. 241.

28. Bellecontre: Quoted by Pergens, *Pemphigus des Auges*, Berlin, 1901.

29. Franke: *Der Pemphigus und die essentielle Schrumpfung der Bindehaut des Auges*, Wiesbaden, 1900.

30. Lipschutz: *Centralbl. f. Bakteriol.*, May, 1910.

31. Hassen: Quoted by Pergens, *Pemphigus des Auges*, Berlin, 1901.

32. Sachs: *Wien. klin. Wchnschr.*, 1899, p. 671.

in one case the patient became so blind that vision was reduced to perception of shadows. In neither of these cases did any therapeutic measure do more than relieve some of the symptoms.

In a more recent instance the disease was confined to lower culdesacs, but involved both the ocular and palpebral conjunctivæ, resembling Koerber's case briefly outlined by Dr. Weidler.

Looking back on my slight experience of ocular pemphigus, I have noticed that the disease is frequently mistaken for and treated as a manifestation of trachoma and this is an error that in some instances may easily be made.

DR. H. W. WOODRUFF, Joliet, Ill.: I operated for complete atrophy of the conjunctiva in a case which I attributed to pemphigus. There might be some doubt as to the diagnosis, but it had reached the stage of complete atrophy so that there was no longer any culdesac. It may be that trachoma may reach that stage after a long time, but I had never seen such a case and attributed it to pemphigus. I entirely relieved the contraction by skin-grafting after the method of using a plate of block tin with the skin graft placed over the tin, doing it in two operations; that is, restoring the lower culdesac first and afterward the upper one. This gave the patient some mobility of the eye, but the clearness of the cornea was not restored.

DR. E. L. JONES, Cumberland, Md.: I saw a very severe and typical case four or five years ago in which Dr. Price, of Frostburg, had made the diagnosis. It was in an elderly woman already affected for several years with pemphigus in the vagina. It had now affected the eye which looked as though it had been scalded, with white blisters. It gradually extended until the entire conjunctiva was destroyed, also the cornea, and everything was matted and massed together. In the course of time the other eye was affected similarly. The disease lasted ten years or more. The mouth was invaded by white blebs of gelatinous consistency, followed by atrophy and stricture of the esophagus with intense suffering, and for years the patient could only swallow milk in small sips. All sorts of treatment were tried but nothing availed. The woman has recently died.

DR. JOSEPH S. LICHTENBERG, Kansas City, Mo.: I had a case exactly parallel with Dr. Weidler's. The history was indefinite; it could not be determined whether it was trachoma or pemphigus but from the age of the patient and the history it was concluded that it was pemphigus. In this case I restored all four culdesacs with mucous membrane grafts taken from the mucous and submucous tissue of the lips on the Wolff principle and not on the Thiersch principle. This case is now of four or five years' duration and still holds good.

DR. WALTER E. LAMBERT, New York: I was called by a general practitioner to see a patient on account of the very serious involvement of both eyes in a case diagnosed as acute septic pemphigus, resulting from a streptococcus infection after a submucous operation in the nose. The patient had a most extensive eruption, vesicular and pustular, involving the mucous membrane of the mouth, throat and eyes, and the skin over the entire body. There was quite a high temperature and the suffering was intense. The attending physician was greatly perplexed, and at first, thinking it was a case of small-pox, had called in a health officer. Dr. George T. Elliot saw the case in consultation, and made a diagnosis of acute septic pemphigus. The patient died from general septic infection three or four days later.

DR. WALTER BAER WEIDLER, New York: When this patient was received in the clinic the diagnosis made was trachoma, but Dr. Thomson seeing the patient immediately suggested the diagnosis of pemphigus, and thorough study of the case proved the correctness of that diagnosis. The patient was presented at the Academy of Medicine and at the ophthalmologic and the dermatologic sections and there were some who doubted the correctness of the diagnosis, because there had been no general eruption whatsoever, but there were lesions which we were able to demonstrate in the nose. Both eyes were completely sealed together at the palpebral margins, and on the patient's last visit to the clinic there was a general eruption of pemphigus seen on the abdominal walls.

ORBITAL CELLULITIS FROM DISEASE OF THE SUPERIOR MAXILLA IN CHILDREN

WILLIAM CAMPBELL POSEY, M.D.
PHILADELPHIA

Orbital cellulitis in children is not very uncommon, and I should hesitate to ask the Section to devote any time to its consideration were it not for the fact that I believe the sublying cause in many of the cases which come under our observation is permitted to remain undetermined, and that we proceed with surgical and therapeutic measures without trying to analyze thoroughly the agency in each particular case which may have given rise to the cellulitis. It shall be my endeavor, therefore, to elucidate, as far as I am able, the various conditions which may operate as etiologic factors in this affection, and to illustrate one phase of the subject I shall, without further preamble, recite the histories of two cases which I have had under my care at the Children's Hospital during the past few years.

CASE 1.—*History*.—F. C., female, aged 1 year, came to the hospital Dec. 15, 1906, on account of a deformity of the left lower eyelid and a discharging fistula in the same location. The history as recorded by the resident physician, Dr. Vail, is as follows: The patient was the first child; no difficulty at birth; breast-fed; vaccinated when 3 months old by the family physician; parents living and well. When the child was 8 months old the left axilla swelled and was opened, pus escaping. Pertussis occurred one month later, followed by pneumonia; with convalescence after two months. A month later the left eye swelled and the lids shut tight, much pus running from the eye. About the same time an abscess in the cheek opened spontaneously by way of the mouth.

Examination.—At admission, the head was found well formed, the left lower lid ectropionized, with a discharging sinus at the lower outer angle of the orbit. Examination of the nose and throat was negative; vaginal smear negative.

Treatment and Course of Disease.—Under ether I passed a probe into the orbital sinus and dead bone was encountered on the floor of the orbit. This was removed by curet and dissection, an incision having first been made along the lower rim of the orbit. Part of a newly-formed but decayed tooth was removed from the upper left alveolar process. Although the left cheek was considerably swollen, no sinus could be detected in the mouth. The orbital wound was drained by a small tube. The wound was dressed daily, copious quantities of pus escaping through the drainage tube at each dressing. At the expiration of six days after the operation the wound failed to drain and orbital cellulitis supervened, the eye being proptosed and the bulbar conjunctiva ecchymotic. Dr. Packard saw case in consultation and concurred in the diagnosis of necrosis of the left superior maxillary bone. The patient was etherized a second time, the orbital wound thoroughly drained and a sinus discovered leading from the dead bone in the floor of the orbit into the cavity of the bone. The bone was incised through the cheek just above the alveolar process, and a drainage-tube passed from the orbit through the bone into the mouth, thereby establishing free drainage. Subsequent recovery was uneventful, the swelling in the orbit and over the superior maxillary gradually subsiding, and after some weeks the sinuses drying up. Tonics and mercurial inunctions were administered throughout the entire course of the disease.

CASE 2.—*History*.—M. Z., aged 2 years, was admitted to the wards Nov. 2, 1911, on account of a marked prominence of the left eye, with swelling of the lids and adjacent cheek, which had been present for some days before admission. The mother stated that the child had been in good health, following an operation for abscess on the chest (empyema) some four months previously, and denied the possibility of the condition being due to a traumatism.

Examination.—Marked proptosis of the left eye was evident with all the attendant signs of orbital cellulitis. The left cheek was also puffed and the palate and alveolar border were found to be indurated and swollen. The left pupil was slightly dilated and an ophthalmoscopic examination revealed some pallor of the optic nerve, with distinct engorgement of the retinal veins. The right eye and side of the face were unaffected. Dr. Packard examined the nose and throat and pronounced them to be normal.

Treatment and Course of Disease.—The case being regarded as one of osteomyelitis of the superior maxillary bone, the patient was etherized and the orbital tissues and the alveolar border were freely incised, giving exit to a large quantity of thick pus. A number of loose teeth were also removed from the affected alveolus. No dead bone was encountered. The orbital wound was drained from its most dependent portion and a dressing applied. At the end of three weeks all the sinuses had closed and the child was discharged from the house. Two weeks later, however, she was readmitted, on account of a painful swelling of the left leg. This was incised and found to be dependent on disease of the tibia. At the end of another week the swelling reappeared in the left upper jaw and there was some proptosis. The patient was again etherized and with the aid and counsel of Dr. Packard the orbital and alveolar tissues were again incised. Several more dead teeth with sequestra were removed from the upper jaw and free drainage established from the orbital and alveolar structures. The floor of the orbit seemed smooth anteriorly, but rough posteriorly, though it was impossible to assert positively that the bone was actually necrosed. Healing slowly followed, the sinuses gradually closing, and the child was discharged at the end of another month as cured.

In neither case was there a history of traumatism, and in neither had the attention of the mother been called to any nasal condition, and a careful examination of the nose by Dr. F. R. Packard, the rhinologist to the hospital, which was made while the inflammation was at its highest, failed to reveal any evidence of nasal or sinus disease. A history of inherited syphilis could not be obtained in either of the two cases and signs of tuberculosis were absent. In each of the cases, however, there was evidence of previous infection of the general system, i. e., axillary abscess and pertussis, followed by pneumonia, in the first case, and empyema in the second, while in the second, staphylococci were found in the discharges. Unfortunately, no culture was made in the first case.

I am led, therefore, to the supposition that the orbital cellulitis in these cases was due to disease of the superior maxillary bone, to an osteomyelitis, doubtless secondary to a general blood infection.

ANATOMIC CONSIDERATIONS

When one considers the structure of the superior maxillary in infancy and early childhood, the reason for its not infrequent involvement in infectious processes is not difficult to understand, for at that age the bone is quite a different structure from what it gradually evolves into later. For example, to quote Logan Turner:¹

"At birth the body of the superior maxillary is made up almost entirely of the alveolar process of the jaw, the sockets of the teeth being almost in contact with the orbital plate of the maxilla forming the floor of the orbital cavity. The antrum exists merely as a slit-like indentation on the outer wall of the nasal chamber, and there is, therefore, at birth no maxillary sinus beneath the orbit." According to Turner, "the growth of the body of the bone, and with it an increase in the size of the face, takes place by the formation of a mass of cancellous or spongy bone between the alveolar process

and the orbital plate of the maxilla. In this way the alveolar process, along with the teeth, becomes separated from the orbital plate. A little later, coincidentally with the increase in the cancellous tissue on the facial and dentary aspects of the bone, a process of absorption apparently takes place on its nasal and orbital surfaces, thus causing an increase in the size of the antrum. This simultaneous process of growth and absorption continues until the eruption of the



Fig. 1.—The left superior maxilla of a new-born child, viewed on its nasal aspect. This and the three following figures show the development of the superior maxillary bone from "The Accessory Sinuses of the Nose," by A. Logan Turner.

Fig. 2.—Vertical transverse section through the right superior maxilla of a new-born child, viewed from behind. The antrum is a mere recess on the nasal aspect of the bone, and the teeth sockets lie almost in contact with the floor of the orbit.

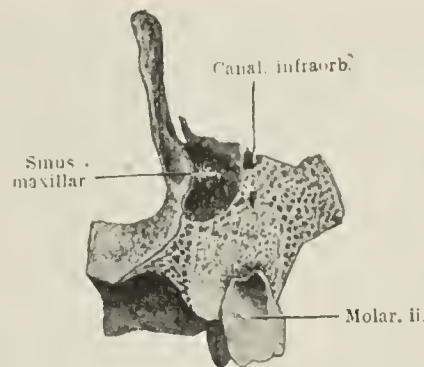


Fig. 3.—Vertical transverse section through the right superior maxilla during the first dentition, on the plane of the second molar tooth. The antrum, viewed from behind, is small, and the body of the maxilla consists mainly of cancellous bone.

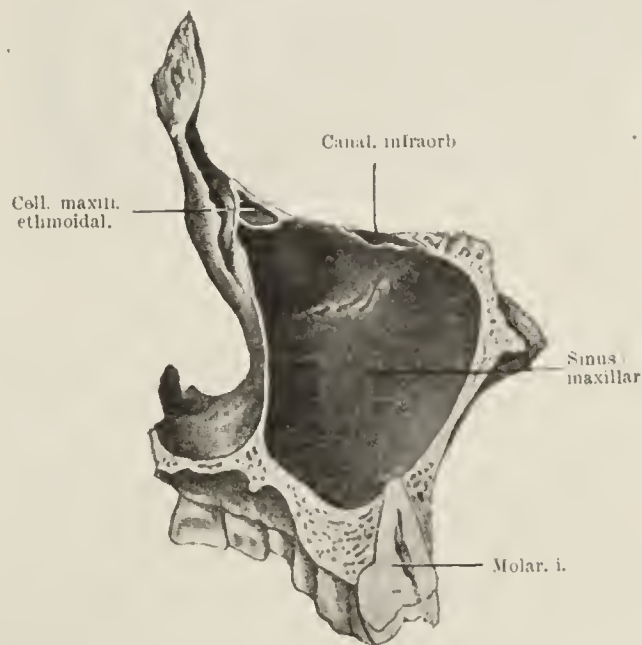


Fig. 4.—Vertical transverse section through the right superior maxilla of an adult, viewed from behind, on the plane of the first molar tooth. The section shows that the cancellous bone is almost entirely absorbed and that the maxillary sinus has reached its full dimensions. The fang of the tooth projects into the floor of the sinus.

third permanent molar or wisdom tooth at or about the twenty-fifth year of life, at which time the antrum reaches its complete or adult form."

In infancy, therefore, the cancellous structure of the bone largely predominates, rendering it especially liable to inflammatory processes.

1. Turner, Logan: Accessory Sinuses of the Nose, Edinburgh, 1901, p. 5.

Four illustrations (Figs. 1, 2, 3 and 4) have been reproduced from Turner's admirable book, which will illustrate the changes which have just been described, and demonstrate the manner in which the bone evolves from a mass of cancellous bone to a thin framework, offering attachment to the upper teeth, forming walls for the important spaces which surround it, as well as for the huge antral cavity within its structure.

When the complexity of the mechanism of dentition is considered, it becomes apparent, I think, how easily infection of the alveolar border may be followed by a general inflammatory process of the entire bone. A study of the literature has revealed a number of cases in which such was the case, the inflammation being apparently conveyed to the alveoli by an infected nipple during the act of suckling. The alveolar border once involved, suppurative periostitis soon extends rapidly under the periosteum along the anterior surface of the upper jaw or through the maxillary antrum to the orbit. As a rule, an acute osteomyelitis of the entire superior maxillary follows with all the signs of an active inflammatory process, such as is observed from whatsoever

and if the inflammation be continued, of atrophy. After a variable period of time, but generally rather rapidly, cure may follow by absorption and the affection may disappear without leaving a trace; more usually, however, spontaneous evacuation follows the suppurative process and fistulas persist in the orbit and in the mouth. In consequence of the former, cicatrices affect the lid and ectropion results. At times the entire lower rim of the orbit may slough away, leaving a most disfiguring, indrawn scar (Figs. 6 and 7). As is usually the rule in osteomyelitis, the sequestrum shows but little tendency to separate itself from the living bone for a long time, so that healing is frequently very protracted.

Orbital cellulitis may arise from disease of the superior maxillary in consequence of traumatism; indeed it not infrequently happens that a very slight blow will excite most active symptoms in children in whom the vitality has been lowered by some form of exhausting disease.

Morax⁵ has recently drawn attention to this class of cases and describes how staphylococci circulating in the blood may infect the site of a contusion endog-



Fig. 6.—Case 2, showing sequel of orbital cellulitis; fistula at lower outer rim of orbit, with swelling of the cheek.

cause. The cheek and lids become swollen, the globe is proptosed and its movements restricted. The hard palate is swollen and edematous and the alveolar process tumefied. There is a marked tenderness over the superior maxillary and pain may be complained of. This may be localized or may radiate into the temple, forehead, into the nose and teeth, or may be referred to the entire half of the corresponding side of the face. The pain may be most intense, especially at night, and may be accompanied by vomiting. The inflammation in the orbit may extend along the periosteum posteriorly, and, invading the sphenoidal fissure, may implicate all the nerves of the orbit, both motor and sensory. The Gasserian ganglion may become affected and keratitis neuroparalytica may supervene with or without concomitant symptoms. Phlegmon of the orbit may arise from inflammation of the fatty cellular tissue of the orbit and may be followed by thrombosis of the orbital veins or even of the cavernous sinus.

Not infrequently the optic nerve becomes implicated and the ophthalmoscope may reveal the signs of neuritis,



Fig. 7.—Tuberculosis of the superior maxillary bone with abscess of the orbit, showing ectropion of upper lid due to cicatricial connections with upper rim of orbit.

enously and may give rise to osteomyelitis in cases in which there had been no wound in the integument. Willard⁶ asserts that while the staphylococcus is the most common bacterium present, the pneumococcus and streptococcus, or other organisms are occasionally encountered.

While no history of trauma was obtainable in either of my cases, it is not unlikely that some slight injury may have occasioned and excited the inflammation in the superior maxillary, the bacteria in the blood acting endogenously in giving rise to the general osteomyelitis.

Contusion of the orbit is especially liable to be followed by caries of its walls when the subjects are tuberculous, such as is observed when other bones are injured in this class of cases. Tuberculosis may affect the orbit, however, without the necessity of an injury to excite it, the superior maxillary and the malar being in common with the inferior maxillary the most common seat of tuberculosis of the face.

5. Morax: *Ann. d'oculist.*, March, 1905, p. 208.

6. Willard: *Surgery of Childhood*, 1910.

We are now brought to a consideration of the possibility of orbital cellulitis in the class of cases under discussion being occasioned primarily by an inflammation of the maxillary sinus, and while there are those⁸ who assert that the antrum is too small at such an age to be the seat of an inflammatory process sufficient to excite an osteomyelitis in the body of the bone, it seems to me that the recent studies of Onodi and the large number of clinical observations which have been recorded by trustworthy observers attest that such may be the case, and that we must acknowledge that such an inflammation may not be an infrequent cause of disease of the orbit in children.

All of us will doubtless bear testimony to the debt ophthalmology owes to Onodi in his elucidation of the manner in which the optic nerve may be involved from sphenoiditis and ethmoiditis in adults, and it is my opinion that the observations of this distinguished Hungarian rhinologist in his most recent volume⁹ will prove of equal value to us. I have ventured to reproduce a number of the plates from this book, which show the development of the antrum and trace the growth of the cavity through its entire development.

The reproductions have been reduced in size, but show in coronal, horizontal and longitudinal sections the topographic relations and form of the maxillary antrum from birth to the eighth year.

These investigations prove apparently that the antrum is quite large enough to become the seat of inflammation even in the earliest months of life. To these favoring anatomic conditions the weight of actual clinical experience may now be added.

In an admirable dissertation, Guisez¹⁰ has given the clinical picture of maxillary sinusitis in the infant and attributes the common or acute form to grippal coryza, to involvement of the mucous membrane of the sinus during convalescence from infectious diseases, or, in fine, to any form of nasal infection. On account of the thinness of the anterior wall of the sinus at that age, he asserts that the sinusitis manifests itself principally by the external symptoms, which are, in consequence, much more accentuated in infants than in adults. The cheek swells and is edematous, the lids become involved and the tissues of the orbit are affected. Discharge from the nose is at all times incessant and abundant. Osteomyelitis of the body of the bone follows and caries sets in. In one case of an exceptionally severe nature, which nearly terminated fatally, Guisez was compelled to operate to relieve the symptoms occasioned by thrombosis of the ophthalmic vein.

Comparatively recently Beauvois¹¹ sums up the entire subject in a masterful manner and in addition to other cases cites that of an infant 15 days old, in which orbital inflammation was attended by a copious discharge of pus from the nose, the exophthalmos gradually disappearing as the nasal discharge subsided. Beauvois suggests that in very young infants the leukorrheal discharge of the mother may readily infect the nose of the infant, or the contagion may be conveyed through the medium of the bath or even of the air.

Fano,¹² Weissman and Fiocre¹³ and Dujardin¹⁴ have all reported cases of sinusitis in children, the latter in an infant 19 days old.

It has long been a matter of clinical experience that orbital cellulitis may follow scarlet fever, measles, typhoid fever, tonsillitis, erysipelas, small-pox and other infectious diseases, and there is strong evidence that in many of these cases, at least, the inflammation in the superior maxilla follows a primary involvement of the antrum.

Lange,¹⁵ for example, in a paper containing most of the literature on the subject, has reported six cases following scarlet fever, in which an acute empyema of the sinus gave rise to osteomyelitis of the superior maxilla and terminated in caries of the bone with the formation of sequestra, precisely as is so frequently observed in middle-ear disease after this form of fever.

Estor¹⁶ is authority for the statement that maxillary sinusitis may also originate in children from a carious tooth, just as it does in adults, the alveolar process becoming infected and the inflammation spreading by continuity of tissue under the periosteum to the antral cavity.

While American literature, which is so full of original treatises on all forms of sinus disease and its treatment, contains but scant reference to the subject, F. Krauss has recently reported a case of orbital involvement from disease of the superior maxilla in a 4-months-old child, in which the inflammation was apparently dependent primarily on antral disease.

As in the diagnosis of disease of the sinuses in adults, much information may be derived from an x-ray study of their condition in children, and those interested will do well to consult the splendid series of radiograms of infants' sinuses recently published by Haike,¹⁷ as well as those by Onodi. In all suspected cases of primary sinusitis, care should be exercised to exclude the presence of a foreign body in the nose and intranasal syphilis.

Syphilis, however, of the superior maxilla is rare in children. Neither Hutchinson nor Keyes refer in either of their text-books to the possibility of this bone being the seat of syphilis in young subjects, though both describe at some length the infiltration and softening between the tables of the skull and in the sutures, and the diffuse periostitis of the frontal and parietal bones, which occur at this age. Indeed, Hutchinson¹⁸ asserts that while children of the age of 6 to 10 to 14 years appear to be prone to suffer from bone disease of a syphilitic nature, and at this period of life multiple periostitis of a very extensive kind is not uncommon, the periostitis of inherited syphilis which leads to supuration is but seldom met with in infancy. When syphilitic periostitis does affect the orbit, both cavities are usually involved and the diagnosis is rendered easy by the evidence of periostitis elsewhere in the body.

Treatment consists in early evacuation of the pus from the orbit and of establishing proper drainage from that cavity and through the body of the superior maxilla if it, too, be the seat of disease.

Prompt healing may follow, and even when necrosis of the bone occurs, almost complete regeneration of the bone will take place provided the periosteum be saved.

8. Axenfeld (*Bacteriology of the Eye*, p. 387), with his vast experience, says that these rare cases of orbital cellulitis in infants cannot be associated with affections of the sinuses, as these latter are either absent or underdeveloped up to the eighth year, and asserts that it is only after the sixth year that a nasal etiology becomes important. The youngest subject he has seen with orbital abscess which certainly originated from a sinus (sphenoidal containing streptococci) was 9 years old.

9. Onodi: *The Accessory Sinuses of the Nose in Children*.

10. Guisez: *Le Pratique des maladies des enfants*, p. 346.

11. Beauvois: *Rec. d'ophth.*, 1908, p. 54.

12. Fano: *Jour. d'ocul. et chir.*, Paris, 1873-1874, i.

13. Weissman and Fiocre: *Ann. d. mal. de l'oreille et du larynx*, 1906.

14. Dujardin: *Jour. d. Se. méd. de Lille*, Feb. 24, 1888.

15. Lange: *Med. klin.*, Aug. 19, 1906.

16. Estor: *Guide pratique de chirurgie infantile*.

17. Haike: *Arch. f. Laryngol. u. Rhinol.*, 1910, xxiii, 217.

18. Hutchinson: *Text-Book on Syphilis*, p. 389.

Should deformities of the lids occur in consequence of contractions from fistulæ, they should be corrected by plastic operations some months after all acute symptoms have subsided.

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ABSTRACT OF DISCUSSION

DR. F. R. PACKARD, Philadelphia: Dr. Posey calls his case a case of orbital cellulitis due to disease of the superior maxillary bone—not due to disease of the maxillary sinus. I remember in the 1910 meeting of the American Otological Society, Dr. William C. Braislin, of Brooklyn, read a paper on the accessory sinuses of the nose in a 5-year-old child, with notes on cases of suppuration of the antrum of Highmore at and before that age. He described one or more cases practically identical with the two reported by Dr. Posey. In the discussion that followed, a great majority took the view that there was no such thing as suppuration of the antrum in a child 1 or 2 years of age; in other words, that the antrum was not sufficiently developed to permit of suppurative disease, in the true sense of that term. As Dr. Posey said, Onodi has pointed out recently, in agreement with other men who work on the accessory sinuses, that this sinus is appreciably well developed in the first year. Onodi has done more than anyone else to show that this sinus is the first one to be developed. It is present at birth and within a month is a fair-sized cavity. At that time also its opening is large and its floor is lower than the ostium. In other words, at a very early age the maxillary antrum possesses the same disagreeable characteristics as in adult life, namely, a large portal of entry for organisms and poor facilities for drainage. The cases, however, which are reported ordinarily as maxillary suppuration in young children have all of them, as far as I can learn, presented characteristic disease of the maxillary bone, and not the ordinary suppurative sinusitis.

I believe that the explanation of these cases is to be found, not only in the entrance of infection between the teeth, as Dr. Posey mentioned, but also in the fact that the child's nose is just as susceptible to inflammation or infection as the adult's and that the large size of the antral opening, which is very much larger in early childhood than in the adult, accounts for some of these infections, and therefore if micro-organisms once get in either through the tooth-channel or the ostium, the large mass of cancellous bone tissue which undergoes subsequent absorption to form the antral cavity is the kind of bone which is susceptible to osteomyelitis and other inflammatory bone troubles. In other words, I think Dr. Posey chose wisely when he termed his cases diseases of the maxillary bone and not of the sinus, although the infection of the bone occurred through the small chamber corresponding to the large antrum which we find in the adult skull.

MEASUREMENT OF FATIGUE OF THE OCULAR MUSCLES

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I. INTRODUCTION

1. *Object.*—The object of this study was to obtain a record written by the ocular muscles themselves of the fatigue which they develop under various circumstances. This was with the expectation—which has apparently been realized—that the data thus furnished would enable us to separate more clearly the factors which, when grouped together, have been called "eye-strain."

2. *Method.*—The autographic records here referred to have been made by a modification of the ergograph. This is a piece of apparatus well known to physiologists, and described now in all of the text-books on that subject. But as it is important for our purpose to under-

stand the principle on which it depends, its construction and action, it is desirable first to consider briefly the measurement of fatigue in other muscles, in animals and in man.

II. FATIGUE OF MUSCLES OF THE HAND OR LEG AS MEASURED BY THE ERGOGRAPH

More than twenty years ago an Italian, Mosso, measured the fatigue produced when a given group of muscles contracts repeatedly. To the last phalanx of one of the fingers he attached a sort of glove, from which a string extended horizontally over a pulley, and to the other end of which a weight was attached (Fig. 1). Each contraction of the finger required a given amount

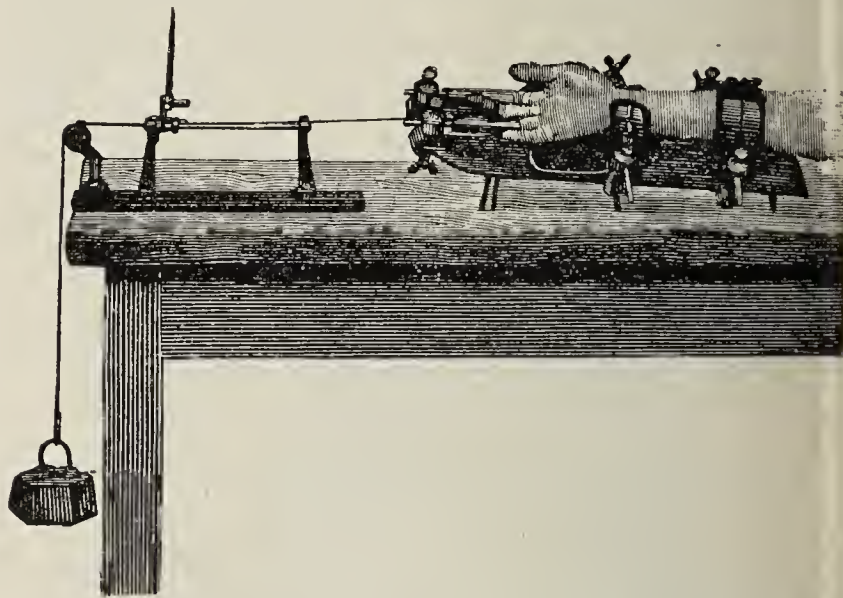


Fig. 1.—General view of the ergograph of Angelo Mosso (Arch. f. Physiol., 1890).



Fig. 2.—An ergographic record of fatigue of the muscles of a finger.

of work to lift the weight. The extent and character of these contractions were registered on a receiving drum.

Such tracings made by the leg muscles of the frog, or of some other cold-blooded animal, usually give the most typical pictures (Fig. 2).

Although these tracings are familiar to every student, there is one point about them, not always mentioned in the text-books, that is of clinical importance. It is known among physiologists as the "Treppe," or "staircase."

As long ago as 1865 Ranke said: "Everyone knows that the first twitch of a muscle is not its greatest. With stimuli uniform in strength, the later contractions are stronger than the earlier ones—a phenomenon the reason for which has heretofore been wholly obscure."

In other words, when we look at tracings of this kind, taken together, they form, as it were, a series of waves. This is not so usual in the frog and other cold-blooded animals used in the laboratory to show the ergographic curves to the best advantage. It is found, however, quite frequently in the warm-blooded animals, and the effects are seen in the tracings with which we are to become acquainted.

III. OPHTHALMIC ERGOGRAPHS

1. *Definition.*—This term, "ophthalmic ergograph," is apparently the best for an instrument which measures the fatigue of the ocular muscles. It is nothing more than a combination of some appliance for producing fatigue of those muscles, together with a revolving cylinder or drum on which the degree and frequency of the muscular contractions can be registered.

2. *Varieties.*—There are two quite distinct forms of the ophthalmic ergograph. The first is an arrangement by which prisms are adjusted to the revolving drum. Such prisms measure only the fatigue of the extra-ocular muscles when the point of fixation is a candle, point of light, or similar object situated at least 6 meters distant. In this way efforts of accommodation in emmetropic eyes are eliminated. When the prisms are turned with their bases out, and measurement therefore is made of the action of the adductor groups, the arrangement can with propriety be called an adductor, or "convergence ergograph." Or, if the prisms are turned with their bases in, up or down, the same instrument becomes an abductor or divergence ergograph, or a superductor or subductor ergograph, according to the direction of the prisms.

A second variety of the ophthalmic ergograph consists of an arrangement for measuring fatigue of the ciliary muscles. But that is not considered at present.¹



Fig. 3.—Front view of the revolving prisms as arranged by Crété.

IV. THE CONVERGENCE ERGOGRAPH

1. *Construction.*—A pair of Crété prisms (Fig. 3) (the original form of the Risley prism) is fastened by two clamps to the upright which supports the revolving drum. A delicate rod of brass is attached, near one end, to the pointer which slides over the drum. The other end of this rod, extending horizontally outward toward the drum, terminates in a point which records when there is blackened paper on the drum. Or, if a suitable pen is made fast at the end, this pen records when there is white paper on the drum.

For laboratory work, a chronograph, of course, makes the tracings more exact. One of these has therefore been used when accuracy was desired, and the notches

at regular intervals are shown on some of the tracings. We shall see, however, that a chronograph is not necessary for ordinary clinical work.

2. *Preparation of the Ergograph for Laboratory Study.*—The blackened paper having been attached to the drum, the tracing point is made to touch the paper, and the drum is revolved once to mark the zero line around the drum. The pointer on the handle which slides along the scale is then pushed up to the mark indicating a prism-strength of 10 degrees, and a second horizontal line is run around the drum. Other horizontal lines are made to indicate a prism-strength of 20 or 30 degrees. Or, if great exactness is desired, we run other horizontal lines also at 5, 15, 25 degrees, or even at shorter intervals.

3. *Adjustment of the Subject to the Instrument.*—The person under examination is placed opposite a distant candle-flame, or preferably a point of light in a Thorington chimney. The head is held steady, or if the subject is restless we may make use of the ophthalmic head-rest. It is better, however, to do away with this or any superfluous appliances whenever possible. The drum is then moved into place. Experience has shown that the most convenient position for the subject is with his right eye looking through the prism, which is then arranged to measure adduction. As he does so he should see the distant light distinctly, and there should, of course, be nothing to obstruct the view with his other (uncovered) eye.

4. *Manipulation of the Apparatus.*—All preparations having been thus completed, the lever of the drum is released and the reading begun. The individual under examination himself, or the one who is directing the experiment, then slowly pushes up the pointer which is on the handle of the prism-case, thus increasing their strength. At the same time the examiner asks the subject to note whether he sees one light or two. As long as only one light is seen, the index is pushed up slowly but regularly. The moment two lights appear, the subject says "two." The pointer is drawn down promptly, the strength of the prisms at once reduced to zero, and the subject sees only one light (Fig. 4).

Again, a second time the pointer is pushed up slowly and regularly, thus increasing the strength of the prism until the subject says "two." Immediately the pointer is drawn down, the strength of the prism reduced to zero, and the subject sees only one light. This is done a third, fourth, fifth time, and so on. Not infrequently we find that a group of muscles which appears to be practically exhausted, suddenly and for some unknown reason seems to regain strength and the power of overcoming stronger prisms returns in response to renewed effort. Usually, however, the fatigue returns sooner than before, and sooner with each succeeding return of strength. These variations in power are examples of a *Treppe*.



Fig. 4.—Prisms and revolving drum in position.

1. The description of that instrument with the curves obtained with it was at first incorporated in this paper, and submitted with it, but as that made the article too long the consideration of the accommodation ergograph has been omitted.

It should be understood that when the ergographic tracing is taken of convergence in a pair of normal eyes in a young healthy person, quite frequently it is not possible to notice for some little time that any fatigue occurs. If, for example, the person is able to overcome a prism of 12 degrees in the first effort at convergence, he can perhaps continue to overcome this prism not only at a second or third effort, but after a considerable number of efforts. Indeed, it may happen that after the revolving combination has been gradually increased to this extent several times, there may be developed an additional strength sufficient to overcome a prism of 16 or 18 degrees, or more. But if the prisms are used with the ergograph, as described, persistently and carefully, after a time, in every case, distinct fatigue begins to show itself. The power of overcoming prisms tends to grow less and less, until finally it is reduced to practically nothing.

5. *Clinical Use of the Convergence Ergograph.*—The foregoing has to do with the use of the ergograph as a laboratory instrument. It is desirable to consider first the method which gives the most constant results, when tests are made of normal eyes. But, when using the ergograph for clinical purposes, several details can be altered or omitted without practical loss in efficiency.

The first modification which suggested itself was to dispense with the chronometer. When making exact tracings for laboratory work it is very satisfactory to have, immediately in front, the record of a clock which ticks seconds or fifths of seconds. But if the mechanism of the drum is properly arranged, it has been found to revolve at practically a uniform rate of once in about 340 seconds.

A second modification of the ergograph for clinical purposes is the use of a pen on white paper instead of a style-point on blackened paper. Every one accustomed to laboratory work appreciates the inconveniences necessitated by the blackening of a cylinder. We know how easily the surface becomes marred, and how necessary it is to fix the record in a shellac solution as soon as the tracings have been made. This inconvenience is obviated largely by the use of a specially made pen which holds a drop or two of ink.

A third modification is the drawing of the base-line only. The fact is that the mechanism which revolves the prism is such that the scale which marks a prism of 10 degrees is about 7.5 mm. above the zero line; the point on the scale which marks a prism of 20 degrees is about 15 mm. above the line; the point which marks the prism of 25 degrees is about 23 mm. above, and so on. Although this is a small detail, it is one to which a very considerable amount of time must be given, and for the busy practitioner each minute that any measurement requires is a minute given under protest.

6. *Measurements with the Convergence Ergograph.*—A. *Tracings Made by Emmetropic Eyes in Healthy Subjects:* In using the term "emmetropia" it should be remembered that this condition exists only in a small percentage of persons. In this connection, therefore, eyes were considered emmetropic when the ametropia did not exceed 0.75, and when tests of muscle-balance showed orthophoria or an esophoria of not over 2 or 3 degrees. Moreover, the persons selected have been those who have not suffered from what we understand generally as asthenopic systems. They have been in at least fair physical condition.

A word of explanation concerning the records is necessary. Where horizontal lines are drawn on the

records, the first one represents the base-line, the second is drawn at the point where the index of the revolving prism marked a strength of 10 degrees, the next line at 20 degrees, and the upper one at 30 degrees. In a few of the tracings these horizontal lines are lacking. They could easily be supplied, if desired, by drawing them with the pen, but it seemed better to present the records just as they were. The fact is, also, that it requires only a little practice for one to judge by the eye with considerable exactness as to the strength of the prism which has been overcome, and the simple application of a millimeter measure shows practically the degree at any time. An average normal fatigue curve is shown in Figure 5.

B. *Diurnal Variations in the Same Individual:* Students of the ordinary ergograph learned long ago that the strength varied at different times and also under different conditions of health, as shown by the contraction of the finger. The renewed vigor which came after a meal or after sleep shows itself, not infrequently, in the ability of the muscles of the finger to contract longer than after the onset of general exhaustion. This is apparently the case, also, with the muscles of the eyes. For this reason the ergograph tracing or fatigue curve

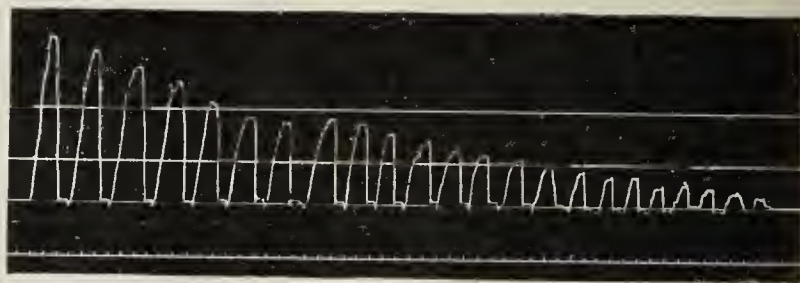


Fig. 5.—Fatigue of convergence in normal eyes.

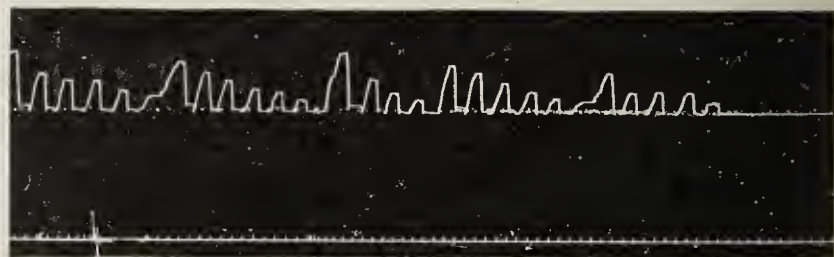


Fig. 6.—Fatigue of convergence with variations in the power of adduction. An example of the so-called *Treppe*.

may vary from the example given in Figure 5, not only for different individuals within normal limits, but even for the same individuals at different times.

C. *The Strong-Muscle Type:* This variation from the ideal fatigue-curve is much more frequent than the weak-muscle type. The best examples are found in vigorous subjects. It is true, these resemble, to a certain extent, the tracings made with subjects who present typical symptoms of esophoria.

D. *The Weak-Muscle Type:* This is often found in pathologic conditions, but occasionally also in persons whose eyes are otherwise normal, and who have never suffered from asthenopic symptoms. There are two varieties of this weak-muscle type. In one, the muscles themselves have little power to make even a single effort; in the other the muscles soon become fatigued, or, even if moderately strong at first, they soon become exhausted.

E. *Examples of the Treppe:* In the introductory statements concerning the use of the ergograph, mention was made of the fact that in some persons the tracings showed that after fatigue of the muscles of the finger had begun, for some unknown reason, they seemed to regain their strength temporarily. This occurs also with the muscles of the eyes, as just mentioned. An

example of it is seen in Figure 6. This condition occurring in otherwise normal eyes and in persons with good health is interesting and suggestive. Although we know little of the causes, it is apparently the analogue, on a small scale, of conditions which we find constantly in the muscular system of the body as a whole, and of the eyes especially.

V. FATIGUE OF ABDUCTION

Thus far we have dealt only with the application of the ergograph to the adductor muscles, and have called the instrument, when arranged in this way, a convergence ergograph. But it is evident that by simply turning the revolving prisms around, bringing the bases toward the nose, and changing the mechanism so that the pen rests properly on the revolving drum, it is possible to make the abductor muscles write their record as the adductors had done before. Such a tracing is shown in Figure 7.

VI. FATIGUE OF SUPERDUCTION AND SUBDUCTION

Every student will remember that in the physiologic laboratory the ergograph was used quite as frequently with the drum in a horizontal as in a vertical position. Indeed, such instruments have an offset or foot near the top of the vertical bar, in order that such a change of position can be readily made.



Fig. 7.—Fatigue of divergence.

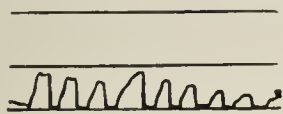


Fig. 8.—Fatigue of superduction with a tendency to the "Treppe."

In other words, it is necessary only to raise the level of the table, or lower the chair on which the subject sits, and then, tipping the ergograph horizontally, to have the person under examination look with his left eye through the revolving prisms. The instrument is then an ergograph for measuring fatigue of sursum- or of deorsumvergence.

It is necessary, however, to exercise more care with the vertical muscles than when dealing with the horizontal groups, for even under normal conditions vertical diplopia is produced by a very weak prism (Fig. 8).

VII. FATIGUE OF ABNORMAL EXTRA-OCULAR MUSCLES

Thus far we have considered only the fatigue of practically normal eyes, but the student of this subject very soon finds that the tracings made by abnormal muscles are not only most varied, but full of interest.

At present it is only possible to state that these tracings resolve themselves into two great groups, belonging to muscles which are abnormally strong or abnormally weak.

1. *Excessive Convergence With Delayed Fatigue.*—At first glance it may seem incongruous to associate an apparent excess of strength with a pathologic condition. But as spasm of accommodation can be distinctly diagnosed by appropriate tests, and as Schmidt-Rimpler and others consider that certain degrees of such spasm

are quite common, so do we meet occasional instances of spasm of accommodation with esophoria of quite high degree. And in these cases, when we take tracings with the convergence ergograph, we are apt to find a condition of "excessive convergence with the fatigue long delayed."

2. *Insufficient Convergence with Rapid Fatigue.*—We find here not only a low power of convergence, but that fatigue occurs promptly and soon passes into a condition of exhaustion. Another type is that in which the power of convergence is small at the beginning. The fatigue begins promptly, but, unlike the last, does not pass on to exhaustion. On the contrary, we have the same ability to continue short contractions for a long time as is found often in strong and healthy subjects.

Also, we have unusual variations in the same individual at different times, apparently as the results of treatment.

3. *Variable Pathologic Tracings.*—In some of these we find that the first few contractions point to the strong-muscle type. But as the contractions are repeated, the muscle soon begins to "run down." In other words, the condition is suggestive of that in which an apparently strong man succeeds in lifting a rather heavy dumb-bell, but after one or two efforts fatigue shows itself. Such muscles are weak rather than strong.

This condition is usually associated with one in which an apparent fatigue is followed almost immediately by the ability of the muscle to contract, at least for a few times, with considerable strength. Such muscles furnish examples of the *Treppe*. In this first communication it is possible only to describe the method of making ergographic measurements of the extra-ocular muscles, and to give a few of the average tracings obtained from normal eyes; also to indicate in the briefest manner possible what variations from that normal condition we may expect, when the extra-ocular muscles are in an abnormal condition.

It should be stated, however, that during the past few years many data have been collected to show more completely the tracings made by abnormal extra-ocular muscles, and also tracings made with the accommodation ergograph by normal and abnormal eyes. It is quite impossible, however, to present these data at present.

VIII. CONCLUSION

This ergographic method of measuring ocular fatigue gives us entirely new and apparently important data concerning the continued action of different groups of muscles. It shows us, for the first time, how fatigue occurs under normal conditions—what different types we may expect and what variations are not unusual.

We can now measure and record not only the initial strength of certain groups of muscles, but how long a given action can be continued without marked fatigue. In this way, by resolving the complicated problem which we call "eye-strain" into its different factors, there is more hope of solving it.

Thus a new field in the realm of ophthalmology opens before us. The probable value of the data which can be found there seems to warrant this preliminary communication concerning it.

NOTE.—Any who may be interested in the general subject of ergography will find the most complete list of references in the article by Zacharias Treves, "Ueber den gegenwartigen Stand unserer Kenntnis betreffend die Ergographie," Arch. f. d. ges. Physiol., 1901-1902, lxxxviii, 7. A careful examination of Nagel's Jahresbericht and of Ophthalmic Literature showed that no one had thus far described any form of ophthalmic ergograph, or made any tracings of fatigue of any of the ocular muscles.

522 Delaware Avenue.

ABSTRACT OF DISCUSSION

DR. CHARLES H. WILLIAMS, Boston: Dr. Howe's paper shows very well the effect of fatigue in reducing the energy of the contractions of certain sets of ocular muscles when responding to repeated efforts in the same direction.

The practical questions which concern us most is what is the resultant effect of fatigue on the six external muscles of each eye in altering the direction in which the axes of the eyes will stand, and how we can best measure the combined effect of those muscles on the position of the eyes. There are two conditions under which this muscular action must be studied, first, when the eyes are looking at an object at a distance of 5 meters or more, and the normal eyes should have their axes approximately parallel, and second, when the eyes are looking at an object at a reading distance of about 45 or 50 cm., and the axes of the eyes should be converged to that point. With the Maddox rods and candle there is an unconscious tendency for the muscles to turn the eyes so that the line of light seen by one eye will fall on a portion of the retina in the other eye on which the image of the candle is focused, and the line of light and the candle will, with small deviations, seem to coincide, and this defect is common to any form of test in which each eye sees only one object. Suppose, however, that one eye sees a row of figures and the other a single line; there is no tendency for the muscles to turn the eyes so that the line will stand over the number two, or the five or any figure in preference to the others, and the position which this line assumes on the row of figures may be used to determine whether the axes of the eyes are in their normal position or what the amount and direction of their deviation is.

At the meeting of this Section at St. Paul, I showed an instrument for measuring the position of the eyes at a distance of 5 meters which has worked so well and so quickly that it is used as a part of the routine examination of every case, and now I present a modification of this instrument adapted for a distance of 45 cm. or an average reading or writing position.

The smaller instrument, for the reading distance, can be used in an office while lighted with ordinary daylight, but for the larger one, where the light cannot be so intense, a darkened room is better.

DR. G. C. SAVAGE, Nashville, Tenn.: The study of the fatigue shown by the machine Dr. Howe exhibits develops three questions: 1. Is it mind fatigue? 2. Is it brain fatigue? 3. Is it muscle fatigue? It is one or another or all of these. The faculty of the mind controlling fusion is not volitional, and it is possible that this faculty grows tired of forcing the brain to accomplish the work of fusion. It is also possible that the brain center supplying the necessary neuricity becomes exhausted and is no longer able to supply the power. It is possible that the muscle grows weary in its work of turning the eye so as to keep the macula under the moving image. Leaving the mind and muscle out of the question, for the moment, I wish to discuss the brain center furnishing the neuricity for effecting the fusion. There are but three centers connected with the right internus (it is the right eye before which the rotary prism stands), namely: (a) the third center which is connected with both interni and is the convergence center, under the control of the will; (b) the fifth conjugate center, which is connected with the right internus and the left externus, and is the center which turns the two eyes to the left. This center is under the control of the will; (c) the right third basal center, which is connected alone with the right internus. If the fusion impulse is sent from the third conjugate center, the left eye would move in the convergence effort in harmony with the movement of the right eye. But does the left eye move? The image of the candle in the left eye is on the macula, and if the internus of that eye moves the eye, the macula must leave the image. The only reason why the right eye moves when the image is being displaced temporalward is that the macula may be made to follow the moving image. The left eye does not move; therefore the neuricity does not come from the convergence center. If the neuricity comes from the fifth conjugate center, the left externus will move the left eye in harmony with the action of the right internus, for the reason given above. The left eye does not move at all, and only

the right eye is set in motion as its image is moved by the rotary prism. Hence, the fusion impulse does not come from the fifth conjugate center. If the fusion impulse comes from the right third basal center, all the neuricity is sent to the right internus, for this center is connected only with the muscle, and under the influence of this center the right internus contracts to the extent of its ability in its effort to make the macula remain under the moving image. No other muscle belonging to either eye is stimulated into activity. This power manifested by the right internus should not be called convergence power, but duction power. Convergence is volitional, duction is fusional and wholly involuntary.

2. WENDELL REBER, Philadelphia: How long does it take to apply this instrument to the patient in the office?

DR. LUCIEN HOWE, Buffalo, N. Y.: About three minutes when the examination is long it requires five minutes.

I am afraid I have not made myself clear. I tried to say at the outset that these measurements had nothing to do with the question of the position of the visual axes. Dr. Williams I am afraid, has confused these measurements of fatigue with tests for orthophoria or heterophoria. It has nothing to do with them. The ergograph simply shows how soon a given group of muscles becomes fatigued.

As for the point raised by Dr. Savage concerning the condition of what he calls the neuritic battery, I must confess myself quite ignorant of all those hypothetical and theoretical questions. The ergograph writes its own story of definite data.

SUGGESTIONS REGARDING SOME POINTS IN THE TECHNIC OF CATARACT EXTRACTION

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BALTIMORE

Having, some years since, tried "simple extraction," and having, like most ophthalmic surgeons, abandoned it, I offer in this paper "suggestions" having to do with "combined extraction" only, for the uncouth procedure known as the Smith operation has never appealed to me. Indeed, though I may be wholly in error, I am more than half inclined to the belief that not a few of those who have adopted this procedure have been led to do so through dissatisfaction with their iridectomies, the lack of success in securing an approximately classical coloboma—perhaps the most difficult step in combined extraction.

THE INITIAL INCISION

Whatever differences of opinion there may be as to the location of the "corneal section" in simple extraction there is in my mind no room for doubt that in combined extraction it should be, throughout, in the sclerocorneal juncture, and, further, that it is advantageous to secure a not-too-broad conjunctival flap. These ends can be best attained by using a Graefe knife with broader blade than was for many years in vogue and by the help of the double fixation forceps.

Such a section heals more readily than one which encroaches on the clear cornea, because the tissues divided are vascular, and for this reason, and because too, of the conjunctival flap, it is capable of resisting more successfully possible bacterial invasion. Furthermore, it is not necessary with such a peripheral incision that it should include so considerable a part of the circumference of the cornea in order to secure easy expulsion of the lens; besides, with this section, it would

seem, there is less likelihood of permanent distortion of the corneal curvature.

THE IRIDECTOMY

The ideal iridectomy, as all will agree, is one which leaves a small, keyhole-shaped coloboma, with no entanglement of the iris in the ends of the corneal wound, and with the iris lying in its normal plane. That even the skillful operator not infrequently fails to secure this ideal result, all, again, perhaps, will admit.

At the meeting of the American Ophthalmological Society, in 1901, I exhibited what I have since called my reverse-curve iridectomy scissors. As then explained,¹ the purpose of this contrivance is to enable the operator to apply the concave surface of the blades—not their convexity, as is necessary with the ordinary curved iris scissors—to the convexity of the corneal limbus, whereby a better mechanical effect is obtained, and a cleaner, more perfect coloboma secured. It was further explained that the scissors were intended especially for the removal of a piece of iris by a single cut—as should always be done in cataract extraction—and are not well adapted to making a large coloboma by successive snips.

Extended experience with these scissors (Fig. 1) in the years which have since intervened, especially in extraction of cataract, has convinced me that they accomplish, most satisfactorily, just what was claimed for them. So I do not hesitate to commend their use to those who, like myself, attach importance to the securing of an ideal coloboma in combined extraction.²



Fig. 1.—Theobald's reverse-curve iridectomy scissors.

THE CAPSULOTOMY

The removal of a small portion of the anterior capsule has not seemed to me a matter of especial advantage, therefore I have never used the forceps contrived for this purpose. Instead, I have employed a Graefe cystotome, provided with a platinum shank, which permits of ready alteration of the angle of the shank, should this be found desirable.

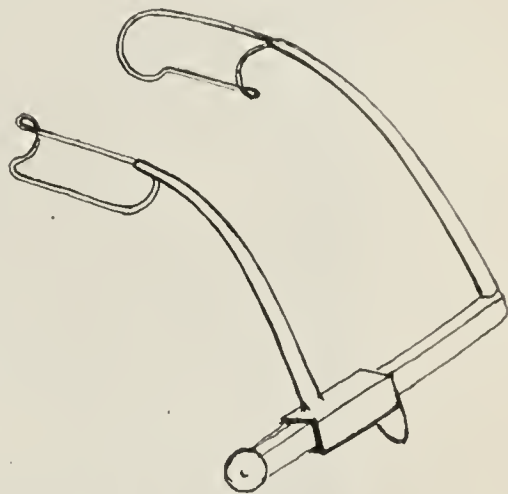
A large rent in the anterior capsule is, I am sure, of decided advantage, since it not only facilitates complete extrusion of the contents of the capsule, but renders less likely later interference with vision from capsular obstruction. To secure such a rent, I make a long vertical incision, carrying the cystotome well beyond the lower margin of the pupil, and cross this with a shorter horizontal one. That this method really has advantages considerable experience has shown.

THE DELIVERY OF THE LENS

On this step of the operation I have only to remark that too strenuous or too persistent efforts to remove small remnants of cortical matter, especially if the cataract is mature or the patient well advanced in years, are, in my opinion, reprehensible, not only because of the attendant risk of loss of vitreous humor, but because, under such circumstances, these remnants will soon

undergo absorption, and for this reason are not liable to give rise to unpleasant consequences.

That loss of "vitreous" has been a comparatively rare complication in my experience I attribute, in part, to my having acted in accordance with this suggestion: but, in still larger measure, to my having, for many years, always used the self-locking speculum devised by my late colleague, Dr. Russell Murdoch. That this instrument has not been more generally adopted by ophthalmic surgeons has long been inexplicable to me, for it certainly has many and great advantages. The chief of these are that it exerts a minimum amount of pressure on the eyeball; that—especially when the arms are somewhat more curved, as I have had them made (Fig. 2)—it interferes, practically, not at all with the operator in making the corneal section and in the subsequent steps of the operation, and that it can be quickly closed and removed, should any misadventure render this necessary. I may add that, as a rule, it is not removed until the operation is completed, that is to say, until the lens has been delivered, the iris dressed, and the conjunctival flap put in proper position.



POSTOPERATIVE
CARE

Fig. 2.—Murdoch's self-locking speculum

The most definite advance in recent years in the care of eyes after cataract extraction has been the employment of contrivances designed to prevent postoperative accidents.

There are a few patients possessed of such malicious and persistent ingenuity, whether awake or asleep, that "the best laid schemes o' mice and men" cannot prevent their bringing to naught—as every ophthalmic surgeon knows, to his sorrow—the efforts of the most skillful operator. Such malicious individuals have, in a few instances, succeeded in circumventing the immunity from accident commonly afforded by the protective shield contrived by Dr. Russell Murdoch, which I have used for many years; but, I doubt not the result would have been the same had the Ring mask, which is less acceptable to the patient, been used.

A slight modification in the shape of the shield which I have made recently (Fig. 3), seems to possess some advantages over the original pattern. The shield is very light, being made of aluminum, permits of free ventilation—a point of importance—and is easily applied, and kept securely in position, by means of three strips of adhesive plaster.³



Fig. 3.—Murdoch's protective shield (slightly modified), for left eye.

3. This shield and Dr. Murdoch's speculum are made by Charles Neubaus & Co., 510 North Eutaw Street, Baltimore.

970 North Howard Street.

1. Tr. Am. Ophth. Soc., ix, 398.

2. The scissors are made by Meyrowitz, New York.

A CASE OF UNIOCLAR POLYOPIA, EXISTING
IN BOTH EYES

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Visiting Ophthalmic Surgeon, Boston City Hospital

BOSTON

Patient.—Dec. 5, 1902. V. W., a girl aged 14, was referred from the nervous to the eye clinic, Boston City Hospital, with the statement that she suffered from hysteria and complained of seeing double with left eye. The vision of each eye was found to be 20/50, and diplopia was found in nasal field of left eye. No paresis or paralysis of external eye muscle or muscles was noted.

Treatment.—December 10, Iometropin was used for the purpose of testing refraction. With glass correction of -0.75 sph. = -0.50 cyl. axis 180° over each eye, she was reported to me as seeing 20/20—. The diplopia in left nasal field existed to same degree with and without such glass correction.

December 17: The diplopia had extended to nasal fields of both eyes. At that time the Maddox rod cut candle flame in vertical and horizontal meridians.

December 28: She alleged diplopia over the whole field of each eye.

Further Examination.—In the meantime, the usually named physical causes of such diplopia (incipient cataract, subluxation, iridodialysis, double pupillary opening, astigmatism, defective muscular balance) were sought, and no satisfactory reason for diplopia was thus secured.

Noting also Nettleship's statement that diplopia was met with in cases of brain tumor, she was examined with that in mind, the result being negative. Her fields of vision had been charted on December 12 and 19, and were found to be symmetrically contracted fully one-half.

Having failed to find physical cause for her complaint, I was reminded by Dr. Morton Prince that De la Tourette, in his "Traité clinique et thérapeutique de l'Hystérie," asserts that hysterical diplopia was caused by *spasm of the muscle of accommodation*, such partial ciliary contraction disturbing the refractive power of the lens.

I then had the patient use 1 per cent. atropin solution on December 29, 30 and 31, feeling that such mydriatic would relax any ciliary spasm. At the end of that time the diplopia was unchanged. The strength of the drug was verified, and its action tested on others.

At her first appearance at the eye clinic, I was informed that she had persistent muscular contraction of ankle and wrist muscles, and that a "magnet" would immediately restore wrist to its normal condition. The "magnet" was a harmless tuning-fork, but "suggestion" seemed to work perfectly.

Dr. Prince and I then thought hypnotic suggestion might dispel the diplopia. The patient was an easy subject, but the diplopia was unchanged after the trial. She was at this time seeing four objects, and was admitted to hospital and remained under observation on the medical service for some time. The polyopia remained unchanged to Jan. 8, 1903. She then complained of a severe head pain; after a few minutes there was what she called a "snap," and her vision was single.

It so remained until her discharge Jan. 17, 1903. Then her vision was noted as 20/100; with each eye -1.25 sph. = -0.50 cyl. axis 180° vision was 20/40, and Jaeger 2 at 17 to 45 cm. Exophoria of 2° —right cataphoria of 3° was noted.

Jan. 23, 1903: While awaiting her turn for treatment at Nervous Out-Patient Department, she complained of pain in head and at once said that she saw double. I took her to my office and secured these results: With left eye closed she had diplopia in nasal field and across to temporal field of right eye. A pencil was seen double at 20 inches, both images on a level, upright and 1 inch apart. A candle flame at 17 feet was doubled, the images being about 2 inches apart.

With both eyes open she saw double. An 8-inch prism, base down, over right eye, with a red glass over left eye, gave her two white candle flames above and one red one below. Then she complained of a pain and a "snap" and immediately said she saw four objects.

I put an 8-inch prism, base down, over one eye; she at once said she saw two T's of test-type above, and two below. With prism, base down, on right, and red glass on left eye, she saw two white T's or candle flames above, two red ones below. Putting Maddox rod over left eye she got two flames with two vertical streaks about 2 inches to left of flames. A 1-inch prism, base in, brought lines through flames.

Jan. 24, 1903: I received a telephone message that the girl while at breakfast on that day had a severe twitching of lids; that when this ceased, pain supervened and she became blind. She was brought to me about 11:30 that morning. She was blind, she so remained until 12:30 o'clock. Then, while I was testing her for perception of light (her pupils without any mydriatic being dilated and non-responsive), she suddenly said that she could see. Everything in the room was described as "mixed up," and in a few minutes she was again blind. After a time she had perception of light in right, but none in left eye. Finally, when sight returned to the left eye, I had her read test-types. She saw four T's. With a double prism over the right eye (left being covered) she got two T's above, two T's below. With double prism over right and a red glass over left eye, she said she saw six candles; two white above, two red in the middle, two white below.

After a few minutes she had a spasm of orbicularis muscles, and her winking became very rapid for several minutes; a pain came on and she said she was blind. The lid-twitching grew too rapid to count; her face twitched, fingers and right leg became involved, and after about 20 minutes a "snap" came on, and she saw double with right but did not see with left eye. She had been blind from 1 to 3:45 p. m. After 15 minutes she had the old pain and "snap," and saw nothing. In that condition I had her go to Dr. Prince's office.

January 28: The girl was seen at Boston City Hospital. She then saw four candle-flames at a distance of 14 feet, the flames being 2 inches apart, this with the left eye covered. With right eye covered she saw four flames, 2 inches apart, at 14 feet.

With both eyes open and with red glass over left eye she saw eight flames, four white to right, four red to left, upright, and 2 inches apart.

With 10-inch prism over right eye she got four flames above, four below. With red glass over left eye, the upper images were white, the lower were red. With double prism over right eye (left being covered) she described four lights above, four below.

With both eyes open and with double prism over right and red glass over left she said she saw three rows of lights. After having had some difficulty in counting them, she described four white above, four red in middle and four white below. All were in line vertically and horizontally, being 2 inches apart laterally.

February 8: She said that the numerous images lasted until late in the day of January 28. On that day she had spasm of lids, face and limbs; then eyes saw singly until February 8, when left vision was single, right vision double.

March 16: My notes read: "No change. Right is still double, left is single. Much intolerance of light is present."

May 25: "Came to office. Intolerance of light lasted some time. Diplopia in right lasted until two weeks ago; now none exists. There is severe headache of late. She has had paralysis of limbs at times, keeping her in bed for days. Then she would be unable to move legs. At times she would have risus sardonicus, a turning of head from side to side, a turning of body on its axis, as if facing backward." (This description, save for my using the words "risus sardonicus" to explain the description of a "grin," was contributed by her mother.)

I found her vision to be:

O. D. 20/200; -1.25 sph. = -0.50 cyl. axis 180° = 20/40

O. S. 20/100; -0.75 sph. = -0.50 cyl. axis 180° = 20/40

Such correction was given for constant use. To a rough test the fields were found symmetrically contracted, but no diplopia could be found in any part of either field. I examined each fundus, as I had done on former occasions, and

found nothing abnormal, though the retinal veins seemed relatively larger than normal.

July 30: The mother wrote me that the girl had worn glasses constantly, received benefit from them, and had diplopia but once and for only an hour since she began wearing them. She described at length various body contractions and spasms, which have increased in severity.

October 26: The girl reported to me. She had had no diplopia since the date of the mother's letter. She had ceased going to hospital; had gone to a physician who diagnosed ovarian trouble, and she was going to a hospital for operation the next day.

Jan. 22, 1904: The mother called at City Hospital, saying the girl had been under an operation, that the ovaries were found much diseased and uterus retroflexed. The girl had been confined to bed for weeks by spasm or paralysis of lower limbs, but had had no double images since she visited me in October.

The many cases of polyopia noted in ophthalmic literature are well summarized by Ord and Adams, Gunn and Anderson,¹ Thompson,² Tilley³ and DeSchweinitz.⁴

In several of these cases, paresis or paralysis of abducens was present. In three of the cases a post-mortem examination disclosed gross lesions in right cerebral hemisphere.

One of the cases, Adams',¹ was excluded, as spurious, and the author says:

Up to the present time I have never met with a case in which unioocular diplopia, in an eye that was physically perfect, was alleged to exist, except under circumstances where there was strong ground for doubting the validity of patient's statement.

Thompson says:²

The primary parietic squint and its necessary diplopia excited in a disturbed brain an impression which culminated in a true visual hallucination.

Abercrombie, in a case of monocular diplopia, in which a post-mortem showed a large abscess in region of lateral ventricle, says:

If each optic nerve is connected with cortex of both hemispheres of brain, then it is conceivable that in such a case as this the right hemisphere did not act in perfect unison with the left in interpreting impressions received on the right retina, whence her double vision; but on this hypothesis she ought to have double vision with left eye alone also, which she did not have.

In the present state of our knowledge we cannot say more than that she had an impaired power of visual discrimination.

Thompson² and Tilley³ incline to Fontan's views expressed at the Ophthalmological Congress in 1885:

The image formed on the macula is received by the nerve which divides at the chiasm, so that two similar impressions are conveyed to the corpora quadrigemina, or implanted on the visual center at the cortex. Ordinarily the two pictures are united by a cerebral act or sympathy, which exists between the functions of the two brains. If, however, the joining of the two pictures does not immediately take place, two images is the result.

De la Tourette and Parinaud, in cases of hysterical polyopia, unreservedly give irregular contraction or spasm of the ciliary muscle as the cause of polyopia. Were such the case a lessening or removal of the spasm of accommodation should cause a change in the degree of the polyopia or its absolute disappearance.

It will be noted, however, that a prolonged use of atropin did not modify in the least degree the position of the images in this case. In the cases cited the monocular or binocular polyopia was constant, betraying no such lightning-like changes from single to double, or from double to multiple images, as noted in our case.

The contraction of ciliary muscle could hardly explain these phenomena, and still less could it account for the amaurosis which existed for part of a day. We are justified in assuming that hysteria is at the bottom of the



Wrist and ankle contractions in a young woman suffering from unioocular polyopia existing in both eyes.

case — we do not exclude the possibility of cerebral disease — but no explanation heretofore given accounts for her polyopia.

LATER DEVELOPMENTS

The foregoing was written and read by me, in 1905, before the New England Ophthalmological Society, with Dr. Prince commenting on the case. Since then until March, 1912, my notes have reposed in an office drawer.

In 1906, the mother wrote me that the girl had been free from eye trouble (referring more particularly to double vision)

1. Ord and Adams: Tr. Ophth. Soc. U. Kingdom, ii, 199; also Gunn and Anderson: *ibid.* iv, 292.
2. Thompson: Tr. Ophth. Soc. A. M. A., 1891.
3. Tilley: In same publication, 1892.
4. DeSchweinitz: Tr. Am. Ophth. Soc., 1894.

for over a year, save for one attack of double vision lasting half an hour. She added, however, that the girl suffered greatly from temporary paralysis of right leg and immobility of wrist for a few weeks after a heavy thunder storm. I lost all trace of the girl until a month ago; then I found her address, and asked mother and daughter to call at my office. They did so late in February, and I promised to examine the eyes of both after a short time.

On March 13 I wrote them to call, on which date I found the following:

R. V. = 13/200; — 1.50 sph. = — .75 cyl. axis 180° = 20/30 +
L. V. = 20/200; — 1.25 sph. = — .75 cyl. axis 180° = 20/30 +

She read with such correction Jaeger 3 at 8 to 10 inches, representing her near and far points. Color vision was good. The fields of vision were the same as in 1903, extending upward 20 degrees in each eye, 40 degrees outward, 35 and 40, respectively, in right and left eye below, and 35 and 30 inward.

NOTE BY NEUROLOGIST (DR. MORTON PRINCE).

March 13, 1912: The case of the patient, V. W., first seen by me in the neurological clinic, Boston City Hospital, in 1902, was then diagnosed as a perfectly typical, in fact classical, example of hysteria. She exhibited a large number of the usual stigmata. Among these stigmata were retraction of the visual fields, polyopia, temporary attacks of blindness and certain "crises," the exact nature of which I have forgotten at this time. Many of the symptoms would come and go with great suddenness. The contractures were easily removed by suggestion in the form of a fictitious magnet and could be reproduced with equal facility. This was frequently done for purposes of demonstration. The patient was shown to Dr. Pierre Janet, who was on a visit to Boston about that time, and he concurred in the diagnosis, about which there had never been any doubt. She was then lost sight of for a number of years.

This date (March 13, 1912) she was again examined, at the request of Dr. Bossidy, with the following result: Impaired sensation (including touch, pain and temperature) over the lower right leg in the so-called "stocking" form. The upper limit of the anesthesia was a little below the knee, but this boundary was not a symmetrical line but irregular. The left knee-jerk was normal but the right was absent. This very curious fact had been found when the patient was first seen in 1902. No explanation has ever been offered. Both plantar reflexes and both ankle-jerks were absent. There was no paralysis or contracture; no other physical stigmata. The diagnosis remains unchanged. (I did not tire her by using anything more than Priestley-Smith's simple ophthalmometer.) Her eyes internally appeared normal, save for slight relative increase in diameter of veins. The vision with glass correction was no poorer than in 1904. Her muscular balance was practically perfect. She tried to do fine sewing for three or four hours a day and her complaint of eye fatigue was due to the continued convergence of the eyes at 9 inches.

The illustration is from a photograph taken early in 1903, showing the wrist and ankle contractions. Up to 1903, when her ovaries were removed the patient had never menstruated, which must account for the hysteria; just as the latter may be the cause of the eye phenomena.

Dr. Prince and I agree that no explanation ever given for polyopia fits this case, and Janet of Paris, after seeing the girl in 1904, acknowledged that he disproved by her the theory of ciliary contraction.

We expect later to experiment on her, through hypnosis, trying to find in some childhood dreams or scares, as she will then show them to us, something to aid us in our search for a "cause."

She is bright, good-natured and strong-minded, and aside from some indigestion, in good health. Though pale, she is muscular, and may marry soon a man who knows all about her case. Will marriage lessen the hysteria of many years' duration by a lessening of her

general nervous condition? We hope to be able to answer this question later.

419 Boylston Street.

ABSTRACT OF DISCUSSION

DR. A. E. DAVIS, New York: Monocular diplopia or polyopia, not due to some local condition of the eye, is of rather rare occurrence, and is a phenomenon thus far not satisfactorily explained. The local conditions giving rise to it are the following: (1) most commonly, incipient cataract; (2) irregular astigmatism of the lens, due to spasm of the ciliary muscle, or irregular astigmatism of the cornea, due to corneal opacities; (3) a new-formed or physiologic macula, in cases of squint of long standing following operation of straightening. This condition as a rule lasts but a few days or weeks at the most. The general conditions are (1) hysteria and (2) organic disease of the brain. The local conditions are easily understood, with the exception perhaps of the possibility of a new-formed macula in cases of squint of long standing. Dr. Verhoeff himself, in the endeavor to explain the occurrence of this monocular diplopia in such cases, assumed that "there are three centers in the brain almost entirely distinct from each other; one for the binocular perception of relief and two for monocular vision, one of the latter corresponding to the right, and the other to the left eye." Of course this explanation takes us from a consideration of the local to that of the general causes. I may say that Verhoeff's view in this respect corresponds in a measure with Fontain's as to the cause of monocular diplopia.

J. E. Adams pertinently asks: "Is it possible for a person with an eye in all respects normal as regards its physical condition to 'see double' with that eye, which means that a single retinal image is to give rise to a double mental impression?" Just how the double vision is caused, even where there is organic brain disease, is as yet a matter of theory and speculation.

After reading the present case, and reviewing others cited in literature we are forced to the view, excluding, of course, local eye conditions, that the vast majority of such cases are due to hysteria, and a few to organic disease of the brain. A striking coincidence in most of these cases has been a paresis or paralysis of the sixth nerve. Dr. Bossidy's case seems to be an exception as regards any weakness or paresis of the sixth nerve.

SOME EARLY DIAGNOSTIC RETINAL SIGNS
OF ARTERIOSCLEROSIS AND CHRONIC
BRIGHT'S DISEASE*

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The controversy that exists as to the identity of distinct types of chronic Bright's disease, such as chronic parenchymatous nephritis and chronic interstitial nephritis, continues, and by some it still is considered a debatable point whether the arteriovascular changes are primary or secondary to the renal changes.

McCrae¹ says that neither chronic parenchymatous nor chronic interstitial nephritis ever exists alone inasmuch as "interstitial change never exists without an accompanying parenchymatous change, and parenchymatous change cannot exist long without interstitial alteration following or accompanying it." He doubts the development of a primary contracted kidney.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

1. McCrae in Osier's Modern Medicine, 1909, vi.

Strumpell² considers chronic interstitial nephritis as atrophy of the renal parenchyma which begins in a previously healthy kidney and is not necessarily the ultimate termination of a chronic diffuse nephritis, though he describes a secondary contracted kidney which he considers simply a more advanced form of chronic diffuse nephritis. His distinction is further explained by the following taken from his description of the secondary contracted kidney:

Since the kidneys in spite of their granulation have on the whole a normal size, we can infer from this and from the clinical course that they were previously enlarged. Therefore the name of secondary contracted kidney is quite suitable in opposition to the genuine contracted kidney which presents a much more chronic form of renal atrophy. In the latter the contraction takes place in an extremely chronic manner in a kidney which was previously normal, while in the secondary contracted kidney the cicatricial process develops in a kidney which was previously the subject of diffuse disease.

A similar view is held by Anders,³ Edwards,⁴ Kelly⁵ and many others who might be quoted.

Dieulafoy⁶ substantiates the view concerning the coexistence of interstitial and parenchymatous changes by saying that we may find glandular lesions complicated by interstitial and vascular changes, or interstitial and vascular changes complicated by glandular lesions. He believes that the nephritis taken as a whole is diffuse and that every case of chronic nephritis should be called Bright's disease whether the glandular or vascular changes predominate.

Herrick⁷ says that morbid anatomists and pathologists are far from unanimous in their descriptions of the various types or groups of chronic nephritis, and that physicians are not always able to make a differentiation that is satisfactory from the clinical point of view, or that holds good in the light of post-mortem revelations. While admitting the coexistence of parenchymatous and interstitial changes in every case of chronic nephritis, he says that the process in every case is really a diffuse one, and says:

There are two groups of chronic inflammations of the kidney whose clinical features present such striking contrasts that one feels warranted in making separate classes of these groups, and the justification of this seems apparent when one sees that corresponding to these two types kidneys are found differing as markedly as do the clinical manifestations. To the one form, characterized by edema with abundant albuminuria and cylindruria, the name chronic parenchymatous nephritis has been most often applied; and to the other, with marked cardiovascular changes, its relatively slight albuminuria and cylindruria, with its abundant urine of low specific gravity, its frequent uremia, the term chronic interstitial nephritis is given. Often, however, the disease refuses to conform to the picture of a classical type, though there are enough of the fairly typical cases to justify the classification that has been made.

Between these two extreme types described by Herrick⁷ and many others, we have numerous varieties of intermediate types which Dieulafoy⁶ calls mixed nephritis, and these constitute the most frequent form of Bright's disease. Dieulafoy has also coined the word "Brightism," which he applies to the mild form of chronic Bright's disease in which the urinary depuration is sufficient, and mild symptoms only are present.

Concerning the relationship of general arteriosclerosis to Bright's disease, much has been written. Sutton and Gull⁸ advanced the theory that lesions of the small contracted kidney are due to a local form of general arteriosclerosis, and to this morbid state they gave the name of arteriocapillary fibrosis. Dieulafoy⁶ says that this theory of general arteriosclerosis, which has been confirmed by many post-mortem examinations, does not explain all the cases of nephritis in which the arteries are chiefly affected, and he quotes Brault to this effect:

Instead of subordinating the lesions of the kidneys to the general arteriosclerosis, it is more rational to subordinate the lesions both of the kidneys and all other organs to one prime cause (gout, lead, old age, heredity, etc.). Besides, the importance of the arterial lesions in their relation to the contracted kidney has been much exaggerated.

Herrick⁷ considers the cardiovascular changes of great importance from the standpoint of the diagnosis, and says that it is a rare thing to find a case of chronic interstitial nephritis permitting of diagnosis in which the cardiovascular changes are not more or less well pronounced. But he further says that "differentiation between the primary nephritis and the secondary arteriosclerotic vascular and cardiac changes may not be possible."

Edwards⁴ says that the etiology of chronic interstitial nephritis is essentially that of arteriosclerosis, with which contracted kidney has a threefold relation; (a) arteriosclerosis may cause the arteriosclerotic kidney; (b) contracted kidney may cause arteriosclerosis, or (c) both may result from a common cause. The noxa or toxin reaches the kidney through the blood-stream.

Anders³ says that arteriosclerosis and Bright's disease may develop independently of one another, and yet simultaneously in consequence of the action of a common cause. He considers chronic interstitial nephritis as but one lesion of a generalized process of fibrosis.

Kelly⁵ says that chronic interstitial nephritis should not be considered as a disease of the kidneys alone, not even primarily, but a disease of the cardiovascular system, and that there is always a more or less wide-spread arteriosclerosis, hypertrophy and later dilatation of the heart.

Strumpell² says that the theory advanced by Gull and Sutton⁸ and others that the vascular disease always represents the primary process to which the renal atrophy is only secondary, is untenable, and says that we often find a most pronounced contraction of the kidneys without any vascular changes sufficient to explain the atrophy.

Roderer⁹ says that chronic interstitial nephritis is an inflammatory disease of the arteries. He further says that when the inflammation of the blood-vessels in the kidneys extends to the parenchyma of the kidneys, then an examination of the urine will show casts and albumin. The fact that the examination of the urine shows disease, he believes to be the reason that chronic interstitial nephritis has been called a disease of the kidneys.

Ophüls,¹⁰ in discussing subacute and chronic nephritis, as found in 1,000 selected necropsies, says that Gull and Sutton⁸ deserve great credit for having first suggested that there is a disease in which the arterioles throughout the body are altered, which constitutes the general morbid change of which contraction and atrophy of the kidneys are part and parcel. He concludes with the statement that a careful study of his necropsies cannot leave room for doubt in regard to the fact that the ordinary

2. Strumpell: Text-Book of Medicine, 1912.

3. Anders: Text-Book of Medicine, 1909.

4. Edwards: Text-Book of Medicine, 1909.

5. Kelly: Practice of Medicine, 1910.

6. Dieulafoy: Text-Book of Medicine, 1911, II.

7. Herrick: Osler's Modern Medicine, 1909, VI.

8. Sutton and Gull: Medico-Chirurgical Transactions, 1872, IV.

9. Roderer: THE JOURNAL A. M. A., April 22, 1911, p. 1222.

10. Ophüls: Arch. Int. Med., February, 1912.

red granular, contracted kidney is the result of general arteriosclerosis, and that in many of these cases the general arteriosclerosis is much more important in regard to the condition of the patient than the renal lesion which he may have at the same time. He further says that general arteriosclerotic lesions develop coexistently with arteriosclerotic lesions of the kidneys, but that there is no strict interdependence between the two processes. His conclusions are as follows:

At the present time in many cases too much attention is paid to the kidneys clinically and anatomically. The so-called primary or genuine contracted kidney represents a disease of the kidney which is the result of arteriosclerosis in the terminal arterioles in this organ, is closely associated with general arteriosclerosis, and cannot be properly understood without due consideration of this fact.

The relation of hypertension of the arteries and enlargement of the heart to arteriosclerosis and chronic Bright's disease has also been the subject of extended study. Thus Dieulafoy⁶ says that cardiac lesions may exist in all forms of chronic nephritis, but that the lesions do not always show themselves by hypertrophy of the heart, and he lays great stress on this point because it is too often said that the heart is always enlarged. The heart may be smaller than normal and may at first sight appear to be healthy, yet histologic examination shows advanced arteriosclerotic changes. "Very marked hypertrophy may coexist with very moderate arteriosclerosis, and reciprocally the arteriosclerosis may be advanced while the heart is not hypertrophied." He concludes with the theory that the cardiac hypertrophy is not due to the sclerotic lesions but to the increased arterial tension caused by the more or less general arteriosclerosis and the contraction of the small vessels due to toxic influences, a view also entertained by Strumpell.²

Edwards⁴ says that high tension is one of the most constant and early symptoms of chronic interstitial nephritis (a view also entertained by deSchweinitz), and its early occurrence leads some writers incorrectly to regard contracted kidney as a disease of the arteries rather than of the kidneys.

Kelly⁵ says that increased blood-pressure is an early and valuable sign, and that arteriosclerosis, accentuation of the aortic second sound and hypertrophy of the heart, especially the left ventricle, may be found in all forms of Bright's disease, but in none of the forms do they so dominate the clinical picture as in primary chronic interstitial nephritis.

Jones¹¹ maintains that hypertension is the primary trouble that leads to both cardiac hypertrophy and general arteriosclerosis, and that hypertension of the arteries, such as sometimes exists in valvular disease, does not apparently lead to arteriosclerosis but to hypertrophy of the media of the small arteries. He also contends that general arteriosclerosis cannot be the direct cause of the hypertension which produces the cardiac hypertrophy. He believes that general arteriosclerosis is invariably of toxic origin, which explains the evidences of inflammation of the larger arteries and in the kidneys.

Taussig,¹² in discussing arterial blood-pressure, says that it is astonishing how often we find pressures normal or subnormal in patients with greatly thickened or even calcareous arteries. He gives as one of the conditions responsible for the occurrence of hypertension, toxins that directly raise blood-pressure and at the same

time have an injurious effect on the arterial wall. Where the action of these toxins is long-continued, the persistent hypertension caused by them will lead to general arteriocapillary sclerosis.

While opinions may differ as to the exact relationship existing between general arteriosclerosis and chronic Bright's disease, the fact remains that there are certain manifestations and signs more or less common to the two conditions, and evidence seems to be accumulating in favor of the theory advanced by Gull and Sutton³ that chronic Bright's disease, and in particular that type of the disease which has been termed chronic interstitial nephritis, is a manifestation of general arteriosclerosis in which the kidney symptoms are the predominating ones. Furthermore, as Dieulafoy⁶ and more recently Ophüls¹⁰ have pointed out, no advanced general arteriosclerotic changes exist without an inflammation of the kidney to a more or less extent. Whether the renal lesion will be a predominant factor depends entirely on the condition of the kidneys and their power to resist the effect of the toxin which is the causative factor in the production of the vascular alteration.

The hemorrhagic retinitis of a general arteriosclerosis and the typical albuminuric retinitis of chronic Bright's disease are familiar pictures described in text-books, but it is to the less-pronounced retinal lesions which may or may not attract the attention of the patient, and which appear early in the history of the disease, to which attention is especially directed. These lesions, frequently overlooked or misinterpreted, and often discovered by accident, are sufficiently suggestive to warrant a suspicion of general arteriosclerotic changes with accompanying kidney inflammation, and the propriety of more extended study of the case.

Some of these earlier retinal changes and especially those in a more advanced state have been described by numerous writers. Thus Alleman,¹³ in discussing the retinal symptoms of vascular degeneration, mentions spasm of the retinal vessels as shown by localized transient contractions, (also reported by Zentmayer¹⁴ and Greenwood¹⁵), tortuosity of the smaller retinal vessels and a multitude of minute glistening dots in the retina which occur during the period of high pressure and disappear with the return of the normal arterial pressure. Weeks,¹⁶ in describing arteriosclerosis of the retinal vessels, mentions the delicate white lines at the borders of the arteries in the greater number of cases, loss of transparency of the vessels, and the appearance of hemorrhage and exudation. In discussing albuminuric retinitis, he divides the condition into two classes: (1) those cases not preceded by thickening of vessel-walls, which will include cases occurring as a result of acute parenchymatous nephritis in which the changes in the kidneys precede those that occur in the retina; (2) those cases in which the hemorrhage and exudation are preceded by changes in the walls of the vessels (arteriosclerosis) and in this class are those cases accompanying chronic interstitial nephritis in which the changes in the retina may precede the appearance of albumin in the urine.

In discussing the retinitis of Bright's disease deSchweinitz says that small, discrete and sharply separated white spots, which appear most numerous in the region of the macula, are among the early signs. Again he says, in the consideration of high arterial tension,¹⁸ that if the cause of persistent high arterial tension

11. Jones: *Deutsch. Arch. f. klin. med.*, 1908, xciv.

12. Taussig: *Interstate Med. Jour.*, June, 1911.

13. Alleman: *Am. Med.*, February, 1904.

14. Zentmayer: *Tr. Sect. on Ophth. A. M. A.*, 1906.

15. Greenwood: *Tr. Sect. on Ophth. A. M. A.*, 1904.

16. Weeks: *Treatise on Diseases of the Eye*, 1910.

18. de Schweinitz: *Ophth. Rec.*, August, 1906.

is sufficiently prolonged, retinal alterations will occur at any age at which the pathologic condition necessary to excite them may arise. He describes three early indications, viz., (1) a markedly cork-screw appearance of certain arterial twigs; (2) a flattening of a vein where it is in contact with an artery; (3) an appearance of the nerve-head often loosely described as congested. Concerning the significance of the signs, he says that they have more than a local significance, and one of the most important indications is that which refers to arteriosclerosis. He calls especial attention to the increase of the blood-pressure as an early symptom, and says that hypertension is not infrequently the first sign of beginning renal or vascular degeneration.

While the more pronounced retinal lesions in general arteriosclerosis and chronic Bright's disease have been frequently described, but little reference, other than that here quoted, has been made to some of the very earliest manifestations, and in particular to the diagnostic importance of these early lesions when associated with hypertension of the arteries. While deSchweinitz¹⁸ apparently makes a distinction between the retinal lesions of general arteriosclerosis and chronic Bright's disease, he describes lesions that are common to both and which are accompanied by hypertension which seems to be an etiologic factor. In the conclusions on which this paper is based emphasis will be placed on the supposed fact that the very early retinal lesions are always due to toxic influences and attending, persistent, comparatively high blood-pressure, whether the process is eventually to show the nephritic symptoms to be predominant or not; and further, that the very earliest retinal manifestations do not give any decisive information as to what direction the disease will take later.

Particular attention is here directed to the almost indistinguishable small white dots, few or perhaps many in number, which appear in the neighborhood of the disk, and most frequently in the macular region; the haziness and often a delicate hyperemia of the disk; isolated, faintly milky colored areas in the retina; the beaded appearance of some of the larger vessels and alteration in the character of terminal vessels (the cork-screw appearance described by deSchweinitz), and, as important as any indication, the appearance of scotomas either with or without visible retinal alteration. Any two or all of these lesions may coexist, and any one or all may exist with but little or no alteration in the vision as detected by the patient. Usually, however, the patient detects a slight impairment of the vision which prompts him to seek relief, or, as is frequently the case, the condition of the retina and its effect on vision are discovered by accident, as in the routine examination for glasses.

As has been pointed out by Ophüls¹⁰ and others, it is difficult, if not impossible, to draw any distinct line of demarcation between general arteriosclerosis and chronic interstitial nephritis, for while clinically one or the other may seem to be of most importance, autopsy seems to show that the two conditions are present together, and that they both come under the heading of arteriovascular change, due to some toxin. It is equally difficult to say whether the eye lesions under consideration should be considered as a manifestation of general arteriosclerosis either in which the nephritic symptoms are to be more or less pronounced, or in which the nephritic lesion is secondary and of minor importance, inasmuch as the early retinal lesions are common to both types of cases. That these eye lesions, perhaps, are not always present is admitted, but from the facts that arteriosclerosis is gen-

erally found to involve the terminal arteries, and that the retinal tissue is particularly susceptible to toxemias, it is quite possible that the lesions may be found in a large percentage of cases of arteriosclerosis if they are looked for by a painstaking ophthalmoscopic examination by the direct method with the patient's pupils fully dilated. When found, as they often are accidentally, they are of much diagnostic and prognostic importance and should lead to such attention of the patient as will tend to retard the progress of the general process.

The coexistence of a relatively persistent high arterial tension is especially significant, as pointed out by deSchweinitz,¹⁷ for the retinal signs under consideration go hand in hand with the continuous high arterial tension of arteriosclerosis, and when coupled with such urinary findings as a low specific gravity and even the occasional appearance of casts, the diagnosis is more complete. Cardiac hypertrophy and accentuation of the aortic second sound are manifestations which occur late, as a rule, and only add to the significance attached to the earlier findings.

Stengle²² recognizes the importance of ophthalmoscopic examinations in high blood-pressure cases when he says that the ophthalmoscope may reveal positive evidence of vascular disease.

The accidental discovery of the lesions justifies the opinion of Marple,²³ who says:

It cannot be too strongly emphasized that examination of our middle-aged patients for glasses should not be done in a perfunctory manner, but that the condition of the retina should be carefully investigated. Such an examination cannot be made by the indirect method, and not seldom a mydriatic must be used.

The importance of noting the condition of the retinal vessels is also emphasized by Coates,²⁴ who says that retinal change remains the best indication of the state of the vessels generally which we possess.

We must not, however, forget that similar lesions arise from other causes. Thus Bichelonne²⁵ reports a case of neuro-retinitis (without hypertension) simulating albuminuric retinitis, occurring in a healthy man, aged 22, after almost continuous writing for two days and nights. The case ended in steady and complete recovery, but the suggestion is made that we should bear in mind that in renal retinitis eye-strain may be a very important causative factor. With due propriety it may be added that the eye lesion, even though significant, should not be considered alone in arriving at an opinion as to the etiology and pathology of the condition.

The part played by high blood-pressure in the production of these lesions is attested by deSchweinitz,¹⁸ who calls attention to the increase of blood-pressure which always accompanies the early stages of arteriosclerosis, and he emphasizes the utility of the sphygmomanometer. It is also discussed by Barker and Haines,²⁶ Black,²⁷ Jackson,²⁸ and Barrett.²⁹ The latter, in discussing the ophthalmoscopic appearances with high blood-pressure, relates the case of a woman of 23 years with a blood-pressure of 240 mm. of mercury, and entire absence of ophthalmoscopic changes, who many months later showed abundant evidences of albuminuric retinitis, which would

22. Stengle: *Am. Med.*, Jan. 2, 1904.

23. Marple: *Med. Rec.*, March 16, 1907.

24. Coates: *Ophthalmoscope*, 1906.

25. Bichelonne: *Ann. de Ocul.*, December, 1904.

26. Barker and Haines: *Am. Jour. Med. Sc.*, 1909.

27. Black: *Tr. Sect. on Ophth. A. M. A.*, 1908.

28. Jackson: *Colorado Med.*, February, 1910.

29. Barrett: *Australian Med. Jour.*, 1910, xv.

seem to indicate that the retinal lesions occur only after persistent high blood-pressure.

The theory that hypertension may precede the general arteriosclerotic changes seems borne out by the findings of Ophüls,¹⁰ who considers the increase in the blood-pressure as due to toxic influences, a view that is also entertained by Jones.¹¹ In support of this view, Widál³⁰ considers the retinitis as being ureic, and zur Nedden³¹ accounts for an involvement of the retina in nephritis through cytotoxins developed in the kidney. Schieck,³² in discussing renal retinitis, says that he has found marked changes in the nervous elements of the retina but no trace of alteration in the blood-vessels; and Shiba³³ contends that the condition is due to some alteration in the state of the blood.

Concerning the effect of the earlier retinal lesions of arteriosclerosis on vision it is readily understood that the size and the location of the lesions have much to do with the extent of visual disturbance. In those cases in which there are spots or milky patches in the region of the macula there is usually some failure of vision, whereas in those cases in which the lesions are small and away from the macular region there may be no disturbance of vision noticeable to the patient or determinable by chart tests, though the perimeter will disclose scotomata. In fact, relative scotomata, varying in shape and size, often may be discovered in those cases in which there are persistent high blood-pressure and but faint ophthalmoscopic signs in the retina to account for the lesion. It is assumed that the scotomata are produced by the same toxic influences, acting through the blood, and affecting the nervous elements of the retina, which are responsible for the hypertension and later the arteriosclerotic changes. It is also quite probable, as Garrod³⁴ says, that the toxin, in a sense, is of uremic origin, for there need be little hesitation in asserting that high arterial tension is a natural outcome of uremic poisoning.

While the retinal lesions, coupled with a persistent, relatively high blood-pressure, alone are significant of arteriosclerosis, the urinary findings add materially to the certainty of the diagnosis. The presence of albumin and casts in the urine has long been recognized as of great diagnostic importance when associated with other symptoms, though Dieulafoy⁶ thinks that their importance has been exaggerated. He further says that hyaline casts are unimportant, though granular casts always indicate a lesion of the kidneys. McCrae¹ says that a hyaline cast is an indicator of disease, and Garrod³⁴ contends that hyaline casts indicate the slightest degree of renal mischief. The retinal lesions under consideration frequently occur before there are urinary findings of significance, and it is only later that albuminuria and casts, especially granular, are found in the urine, and then the retinal lesion is also advanced so that the picture is quite characteristic and in keeping with classical text-book descriptions.

The value of the sphygmomanometer in determining the blood-pressure in eye cases has been emphasized by numerous writers including deSchweinitz,¹⁸ Dunn,³⁵ Black,²⁷ Barker and Haines,²⁶ Semple,³⁶ Veasey³⁷ and others. Jackson,²⁸ in discussing blood-pressure from the standpoint of the ophthalmologist, says that not only should ophthalmoscopic symptoms of increased blood-

pressure lead to the use of the sphygmomanometer, but an elevated reading with the sphygmomanometer should call for an ophthalmoscopic examination.

The fact that eye signs are often detected during the course of an examination for the correction of refractive errors, or may be discovered otherwise in an accidental manner, shows the importance of giving all cases coming into the hands of the ophthalmologist a careful ophthalmoscopic examination, and many general physicians may obtain corroborative evidence in their arteriosclerosis cases by obtaining a report as to ophthalmoscopic findings. The further fact that these ocular signs are among the very earliest symptoms, susceptible to detection by careful examination, is important from a prognostic standpoint, because the earlier the diagnosis can be made the more probable it is that good results will be secured from treatment.

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ABSTRACT OF DISCUSSION

DR. F. T. ROGERS, Providence, R. I.: The detection of slight ophthalmoscopic changes, such as have been described by the essayist, is largely influenced by the personal equation of the examiner, and too much stress must not be laid on changes in the color of the arteries, brilliancy of the light streak, tortuosity of the vessels or loss of translucency, as these details are always comparative, and what may be apparent to one is not always visible to equally competent observers, and if there is a loss of vision without apparent cause it is easy to imagine that any one of these conditions may be present, and to it may be ascribed the diminution of sight.

I would add to the danger signs enumerated by Dr. Bulson changes in acuity of vision, whether or not associated with a fundus lesion. I do not believe that the problem will be solved without the presentation of proof attained by a collective investigation and a study of carefully kept case records. You and I may believe that we can detect in the fundus signs of approaching arteriosclerosis, but the majority of the profession do not, and demand proof.

Last year at Los Angeles I reported on the subsequent histories of a large number of cases of retinal hemorrhage, and each case had been carefully traced over a period of from three to ten years, and if living the present condition of the patients' health was noted, and if dead, the cause of death. I found that 80 per cent. of these individuals died within a few years or suffered from ill health, and that nephritis or arteriosclerosis was the exciting cause in three-quarters of them. Yet, when I argued that these findings warranted the assumption that even slight retinal hemorrhages, whether due to diapedesis, rupture or inflammation, were worthy of our attention, exception was taken by several members who stated that they did not believe the condition was at all serious, because they had seen many cases, and so far as they knew, the patients were in good health. The trouble was, they did not know, and the two or three cases reported by Dr. Bulson are worth a thousand reported from memory as in good health, so far as they know.

Gentlemen, this is no dream; there is a period preceding the invasion of disease, a period of incubation as distinct as the aura of migraine, and nowhere is it more likely to be seen than in the delicate structure of the eye, and our success depends more on an ability to detect these premonitory signs and to prevent, than to diagnose the well-developed condition and to attempt to cure it.

If Dr. Bulson's essay will call attention to this it is well worth while. If it should result in a systematic effort on the part of this Section to collect and publish the results of a collective investigation, it would prove beyond contention the essayist's statement that the recognition of these early symptoms will result in the saving of life.

DR. S. D. RISLEY, Philadelphia: The association of certain ocular affections with kidney disease furnishes one of the most critical and important chapters in ophthalmology, since the question of a more or less serious prognosis is always presented.

30. Widál: *Ann. de Ocul.*, 1910, cxliii.

31. zur Nedden: *Arch. f. Augenh.*, 1909, lxxiii.

32. Schieck: *Wien. med. Wchnschr.*, March 14, 1908.

33. Shiba: *Klin. Monatsh. f. Augenh.*, April, 1908.

34. Garrod in *Osler's Modern Medicine*, vi.

35. Dunn: *Arch. Ophth.*, November, 1908.

36. Semple: *Am. Jour. Ophth.*, January, 1910.

37. Veasey: *Jour. Ophth. and Oto-Laryngol.*, May, 1911.

The almost constant association of cardiovascular disease adds not only to the complexity in such cases, but to their gravity. It is not always certain that the retinal disease is secondary to the affection of the kidney, since in the early stage the retinal edema, the full and tortuous veins and the beginning sclerosis of the retinal arteries, accompanied by high blood-pressure and other evidences of general cardiovascular disease, together with kidney derangement, are probably common phases of a general disorder, which finds its beginning in the general vascular tree. I have seen many examples of the very serious character of this symptom-complex from the standpoint of prognosis, in patients with failing vision, presenting the ophthalmoscopic picture I have described, but who considered themselves in good health. In one striking example, the man came for a change of glasses to aid his impaired vision, refused to seek the advice of his physician, claimed that he was in perfect health, but nevertheless suffered an attack of cerebral apoplexy ten days later. It is no uncommon experience to find ophthalmoscopic evidence of high arterial tension, in patients with headache, impaired vision, urine with high specific gravity, a trace of albumin, indican present, hyaline and granular casts. In these early stages of arteriosclerosis before atheroma of the arteries has advanced, there is danger of rupture of the blood-vessels. There are frequently hemorrhages in the retina and chorioid. It is important for us as ophthalmologists not only to recognize these cases, but to recognize them in their relationship to cardiovascular disease, of which both the kidney affections and the ocular symptoms are but a sign.

DR. OTTO LANDMAN, Toledo, Ohio: Barker of Johns Hopkins, in a paper published a few years ago, was one of the first writers to call the attention of the profession to the fact that we can have an exophthalmos with high arterial tension and fatal lesions of the kidney without any decided changes in the retina. A short time ago I saw a patient who was referred to the family physician, who published a report of the case. This woman had been a patient of mine for a number of years and had a refractive error. She was the mother of a child of about 1½ years of age. She came complaining of headaches and some dizziness, and thought perhaps that there was a necessity for changing the glasses. I examined her carefully, and concluded that it could not be the glasses that were producing the trouble. She was myopic, had a posterior staphyloma, but there were no retinal changes. Usually I make an examination of the kidneys and take the blood-pressure. The blood-tension at that time was 280. She was about 27 years of age. There was a marked exophthalmos, and examination of the urine showed that she had a marked nephritis. Had I not known that albumin was present and that there was associated with this a high arterial tension, I should have declared that the fundus was normal; but there was just a slight haziness of the disk, and I concluded that that was the result of high tension or changes in the vessels, but I could find no such changes whatever. She had a compensatory cardiac hypertrophy and in eight months she was dead. What I would like to know is how frequently we find exophthalmos associated with high tension and renal changes?

DR. ALLEN GREENWOOD, Boston: An important part of the work of the ophthalmologist is the examination with the ophthalmoscope of the fundi in every case that comes before him. We should bear in mind that we may frequently find in the examination of the fundi of our presbyopic patients early changes in the arteries when there is absolutely no evidence of any trouble, general, or in the kidneys; but it has been my experience if these early changes are found that the patient sooner or later will develop changes in the kidneys.

Nine years ago I published a paper on albuminuric retinitis, and a year later read before this Section a paper on obstructions of the retinal arteries, so that since then I have followed this subject of arteriosclerosis with interest. In my work at the Boston City Hospital, besides the ordinary eye clinic, I have to look out for all the consultation eye work for nearly a thousand ordinary bed patients, and so see a good many cases of arteriosclerosis in the early stages, accompanied by high arterial tension, and hardly a day passes in my private practice that I do not send a letter to the family physician of some patient stating that I find this condition. I

think physicians to-day are awakening to the importance of these suggestions from ophthalmologists, and this thorough examination under some mydriatic of every patient with presbyopia for lesions of the vessels of the fundus is one of the important services we can render to the community.

DR. WENDELL REBER, Philadelphia: The phase of the subject on which I wish to speak is the significance of the earliest symptoms. I was interested in what has been said about people who come in for correction of their refraction. The pressure in the retinal vessels in many cases is practically normal. When that has once been ascertained, the deviations can be easily determined. The ophthalmologist often sees the first changes before the internist expects them. On the other hand, we must not forget the dictum of Olivier, that arteriosclerosis is a general disease with a tendency at times to localize itself; so that we may not see retinal changes, and yet there may be marked retinal disease. This occurs oftener than we believe. I am inclined to believe that the general practitioner is growing wiser, and we do not see the changes first as often as we used to, in the pre-nephritic stage, when we can be of the greatest service to the patients; that in that which precedes, which Dr. Risley has called the physiologic vices of this day and generation, producing high blood-pressure, in a study of the arterial and venous crossings of the fundus we have failed to seek for the little localized areas of edema of which Dr. Bulson speaks. These are found before the stage of the cork-screw artery or the brick-red disk. Another class of cases which I have had the pleasure of studying is incipient locomotor ataxia, which shows elongation in the arteries and veins. It is one of the commonest observations in my office. Presbyopes who show unequal accommodation and sluggish pupils will almost invariably show pressure at the retinal vein crossings. I agree thoroughly with Dr. Rogers in the matter of individual interpretation in the early stages of this disorder. If the index of refraction is normal, we do not see the walls of the vessels in the retina, but the color of the blood column, and only when diseased do we see the vessel itself. The moral of the paper is that the early changes are the important ones, for once established these patients are doomed; not necessarily in two years, but they are doomed to a life of reduced efficiency and will frequently be compelled to retire from active life, and there is little we can do to restore them to their full efficiency.

DR. ALBERT E. BULSON, JR., Fort Wayne, Ind.: My principal object in presenting the paper was to call attention to the very early ocular manifestations of arteriosclerotic changes, whether such changes are known as general arteriosclerosis or chronic Bright's disease. We all have made diagnoses of well-marked albuminuric retinitis and hemorrhage retinitis from high arterial tension and arteriosclerosis, but it is the very early and less prominent retinal lesions and their significance which so often escape attention. The discovery of almost indistinguishable small white dots in the macular region or in the neighborhood of the disk, the hazy or faintly milky colored areas, the beaded and irregular contour of some of the vessels, and scotoma, either with or without visible retinal alteration, should lead to further investigation, and will often be found to be associated with high arterial tension and urinary findings which point conclusively to the possible early development of pathologic changes which will take the life of the patient. It is therefore important to take the blood tension, examine the heart, and have made a thorough chemical and microscopic examination of the urine in all cases in which these suspicious retinal lesions are discovered. It is the combination of manifestations which make the picture which sometimes tells the fate of our patient, and if we are going to do the most for our patients we must recognize the retinal lesions and the associated manifestations at the earliest possible moment so that appropriate care may be instituted. Unless due care is observed the retinal lesions may be overlooked, for frequently they are discovered during the progress of a routine ophthalmoscopic examination in connection with the adjustment of glasses, and at a time when the patient considers himself perfectly well. As competent and careful ophthalmologists we are not doing our patients justice if we do not make a critical ophthalmoscopic examination in every refractive case, for it will often be found that something more than glasses is

required. In my experience the sphygmomanometer is almost as important as the ophthalmoscope in the ophthalmologist's office, and the use of the instrument in connection with careful chemical and microscopic examinations of the urine will throw much light on some of the lesions of the retina which otherwise might be overlooked or considered trivial and insignificant.

NASAL HYDRORRHEA

ITS RELATIONS TO LESIONS OF THE BRAIN AND VISUAL APPARATUS *

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The peculiar condition known as nasal hydrorrhea although it generally falls, first of all at least, within the purview of the rhinologist and ophthalmic surgeon, properly belongs to neither of these specialists. The tissue alterations that result in the serous discharge from the nose are almost always cranial and cerebral and, of course, should be the special property, not of the rhinologist but of the neurologist. It so happens, again, that this peculiar symptom is not infrequently associated with brain changes that affect the visual centers and give rise to eye symptoms. It is mainly with the latter that I propose to deal, although I present them as signs of the underlying, intracranial disease.

The first examples of the disease were reported as long ago as 1890,¹ by Dr. T. Melville Hardie and myself. Of these I now give the following abstract (Cases 1 and 2).

CASE 1.—Mrs. Mary S., aged 43, German, has one child, aged 14, healthy. Until nine years ago, when she came to America, she had always enjoyed good health. After living for two weeks in a basement, in February, 1881, she developed a cough which became asthmatic some time between March and July. She has had occasional attacks of asthma ever since, particularly in cold, damp weather. In July she received what her medical attendant told her was a sunstroke, which confined her to bed for some time. Pills (of quinin?) prescribed at that time caused a buzzing in the ears with deafness for several days, and during the severe headaches, usually vertical, from which she has suffered at intervals since that time, the deafness occasionally recurs.

In August or September, 1881, a watery discharge from the nose set in. The conjunctiva was reddened and lacrimation was profuse at the same time. The discharge lasted for three or four days, stopped for a month, came on for a few days, and again intermitted. Similar periods of discharge and its absence alternated continuously until about two and a half years ago, since which time the nasal flow has occurred daily, but as a rule only for three or four hours in the morning.

The patient reports that it begins just as soon as she rises in the morning, whether that be at 4:30 or 6:30. Excepting on one or two occasions, no discharge has been noticed at night. She cannot remember whether the discharge occurred on days on which she was confined to bed. She has never attempted to stop the discharge by lying down in the morning after the commencement of the flow. As a usual thing the fluid comes from both nostrils (sometimes from only one), and drop by drop. Shortly before stopping for the day the clear water, whitish and opalescent when in quantity, becomes thicker and viscid, and then resembles ordinary mucus. Sneezing and formication are somewhat frequent accompaniments of the outflow, but they are by no means constant, nor does the formication always precede the discharge, as one might expect; it quite as frequently follows it. The patient

believes that the symptom has been aggravated by treatment. While the asthma is ordinarily troublesome only in cold and damp weather, she is not sure that the hydrorrhea is appreciably influenced by changes in the weather; nor has she noticed that it is worse on damp days. She thinks that it is as bad in July as it is in November, and varies in amount from time to time, without apparent reason.

In October, 1889, she found she "could not see to sew," and attended Dr. Franklin Coleman's eye clinic, where glasses were prescribed. She was then referred to me. Examination of her nose showed slight posterior hypertrophy of the right inferior turbinal and a dropsical condition of the middle turbinated bodies, right and left; ridge on the septum high up on the left side; no polypi; sense of smell unimpaired; no marked departure from normal sensibility of nasal mucous membrane as tested by the probe. Satisfactory posterior rhinoscopic view was not obtainable, tongue-depressor causing gagging.

The general health was not very good. A burning pain in the epigastrium after eating was not infrequent. There was a painful and hyperesthetic spot over the left eighth rib in front, which first became painful five years ago. There were no neuralgias. The patient was being treated in gynecologic clinic for laceration of the cervix. She had been treated during the past ten years by many regular practitioners and empirics, but without marked benefit. The removal by the snare of portions of the middle turbinated bodies, followed by the internal administration of zinc oxid ($\frac{1}{2}$ grain) and belladonna extract ($\frac{1}{4}$ grain) markedly diminished the flow for a time. Treatment was begun on April 10, with good results until May 6, when a day-and-night discharge commenced. This lasted until May 9, the patient getting but little sleep in the interval. The nasal discharge was at that time accompanied by a flow from the eyes and a severe headache. On May 10 and 11 she had asthma; there was no discharge or headache. She was then almost free from unpleasant symptoms until June 3, since when she had an almost daily recurrence of the discharge until June 7, 1890, with asthma and headache from time to time. Patient's attendance had been very irregular since the beginning of June.

The fluid had a specific gravity of 1.006, contained chlorids, traces of mucin, a few cells from the olfactory region, and an occasional flat epithelial cell. It was feebly alkaline in reaction.

Dr. Hardie kindly associated me with him in this case and, at his request, I examined the patient's eyes with the following result:

M. S. has complained of weakness of sight, chiefly during the past eight months. Last November glasses were prescribed for her, which, however, she did not think enabled her to see any better. She suffers from bilateral epiphora, which is usually, though not always, worse in the morning. It then amounts to a continual flow from both eyes of a fluid resembling tears, and, generally speaking, is worse when the discharge from the nose is worse. During the daytime, also, when the nasal flow is lessened or stops altogether, there is very little lacrimation. The flow of tears has never produced excoriation of the lids. In November last vision, right eye, equaled 15/200, left eye, 15/40. She was then wearing right + 3 D., and left + 1.75 D., which on trial were found not to improve the visual acuity. Both adduction and abduction were weak, the latter 8°; the interni muscles could, after exercise, overcome a prism of 19°-23° only. At that time she complained of photophobia, and of dark spots in front of her eyes—in front of the right eye especially—and she thinks that for a time at least she was so blind that she could barely discern large objects. Then, for a while, her vision improved, but it has never since been normal, nor is it possible by correcting her refractive error (compound hyperopic astigmatism) greatly to improve the visual acuity. The conjunctivæ, both ocular and palpebral, are injected, but there is no purulent or mucopurulent secretion from the lids, and they do not adhere in the mornings. The last examination shows a marked improvement (in the right eye particularly), as vision, right eye, equals 20/40 and left eye, 30/40, both with correction. The puncta lacrimalia are patent and in normal position. There is no affection of either

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

1. Hardie and Wood: Two Cases of Nasal Hydrorrhea, with a Report on the Eye Symptoms, New York Med. Jour., Sept. 6, 1890, p. 264.

lacrimal sac, and no indication of obstruction of the nasal duct. The ocular excursions are of normal extent on both sides and in all directions. Pupils are both active to light and accommodation. Tension is normal in both eyes. The patient does not now complain of scotomata, only of weakness of vision and of inability to read or to do near work with comfort. These and the other ocular symptoms have not to any appreciable degree been relieved by atropin or by a full correction of the refractive error. A further examination of the case reveals the fact that the patient is not color-blind, and that she has no color scotomata. The fields of vision for red and white, taken by means of a McHardy perimeter with a 5 mm. square object, show a marked regular and symmetrical contraction.

The right disk is deeply and centrally excavated, and the blood-vessels come forward in a normal manner, but the whole papilla is slightly paler than it should be. On the nasal border of the nerve there is a narrow, yellowish-white band, forming in that situation the rim of the physiologic cup, and occupying about one-third of its circumference. A somewhat similar appearance is to be seen in the left disk. Here there is no general pallor, and the normal cupping is shallow. At its bottom, however, the stippling of the cribriform fascia is to be seen. A band, yellowish-white in appearance, longer than but quite as narrow as that visible in the right disk, occupies the lower-outer aspect of the left papilla. It does not extend, as in the former case, to the edge of the excavation toward the nerve center, nor does it reach in part of its course the outer rim of the disk.

Notwithstanding all treatment, the ocular symptoms are to date as pronounced as ever.

CASE 2.—Mrs. K. K., German, aged 42, two children, gave a history of profuse watery discharge from the nose which has lasted for ten years. Six months before the discharge began the patient suffered from "malaria" when living in a basement tenement. The flow was at the beginning not very profuse, but in a short time was troublesome throughout the day, and frequently all night as well. She was often awakened by it, and it was occasionally so profuse as to prevent sleep altogether. The intermissions were rare and of short duration. Patient asserted that the dropping had never ceased for twenty-four hours during the ten years, the amount of the discharge being about the same, summer and winter. The upper lip was swollen and excoriated. There was a watery discharge from eyes with occasional conjunctival injection. The fundus was normal; there was no optic-nerve atrophy and no contraction of visual fields. A troublesome and prominent symptom was sneezing, "forty or fifty times a day" being the usual thing. Unfortunately, the nasal excretion was not examined, the discharge ceasing before the patient followed instructions in the matter of collecting it. She did not know the amount of the daily discharge, as it was never measured, but the constant dropping interfered very much with her work. Examination of the nose showed polypi right and left, and polypoid thickening of both middle turbinated bodies. Treatment was begun February 25, and a few polypi removed.

March 8: Marked lessening of discharge reported. Remaining polypi removed.

March 12: Discharge very slight. No sneezing.

May 6: The same. Hypertrophy of right middle turbinal snared.

May 17: No discharge. No sneezing. Snaring of left middle turbinated bone. Patient reported absence of nasal symptoms on May 22, June 5, 12 and 19.

CASE 3.—Quite recently I examined the ophthalmic condition of a third patient illustrating this pathologic condition. The history elicited by Dr. Albert Sterne, of Indianapolis, Ind., shows that Mrs. McC., aged 36, has always enjoyed excellent health. She has been married seventeen years, and has two children, aged 16 and 12 years. After the second birth she had septic pelvic cellulitis with amanrosis, almost complete, for about three months, followed by good recovery, so far as the pelvic organs and eyes were concerned. The vision was nearly normal with correction of refraction. At the time of sepsis, twelve years ago, patient had an abscess, which was evacuated per vaginam.

Patient first came under Dr. McC.'s care for nasal and ear trouble about eight years ago, five years before he was married to her. There was, Dr. McC. reports, a catarrhal condition of the entire nasal field, extending along the eustachian tubes, and causing an ear trouble, with some deafness, which still persists. She never had any discharge from either ear. Except the pain about to be referred to, the patient has not been subject to headache at any time and menses have been in proper order. There have been no pregnancies since her boy's birth, thirteen years ago.

The present illness began three years ago, suddenly, the patient avers, with a watery discharge from the left naris. There was more or less constant dripping; when the head was bent forward the flow was more profuse. Altogether, it was estimated that 1 to 4 ounces of fluid escaped *per diem*. This discharge was always watery, and two examinations showed it to be cerebrospinal fluid. The discharge from the left naris continued without interruption for fifteen months, when it abruptly ceased, without known cause, just as it had begun. There had never been any injury to the head or nose at any time, or any discharge of pus or blood.

Sometime after the escape of cerebrospinal fluid ceased, the patient had a scleritis of the right eye, which was relieved by treatment. Later, she developed pain in the right half of the head. This is described as passing from the right eye toward the occiput mainly, sometimes more downward, into the cheek. It was not constant.

During the early part of October, 1911, while at dinner, the patient suddenly lost consciousness for about three minutes. Her head fell over on her arm, but she had no spasm of any sort. Dr. McC. was with her, hastened to her side and examined her eyes. He reported the pupils dilated and fixed. The patient was somewhat dazed after this attack, then recovered and was placed in bed after a hot bath. The left leg and arm tingled after seizure. No other such epileptiform seizure has since been noted.

A Wassermann was made and proved negative.

Present Condition.—The patient is of a fine robust physique. Speech is nasal and catarrhal; hearing considerably impaired; organs all fair to good, save that the liver is swollen; lungs free; kidneys, right excursive, but not floating.

Pelvic viscera show evidence of former inflammation. There is a hard exudative mass to right. Uterus is free. Ovaries are painful to pressure and not well defined.

In the central nervous system no focal signs are to be noted, nor are the reflexes affected. Static equilibrium and coordination are good; no sign of motor or sensory palsy. Cranial nerves are free. Sinuses illuminate clearly.

Therapy: Tentative. Cranial exploration or special puncture to be borne in mind.

Since Nov. 5, 1911, patient has improved pretty steadily without treatment of any sort, doing household tasks and a little reading. She reports that symptoms of importance have receded, i. e., there has been less headache, both as to degree and frequency; the sharper occasional pain over the left hemi-cranium has been very infrequent; the eyes have troubled less; there has been no loss of consciousness, or other signs referable to intracranial pressure. In fact, the patient feels better in every way. Secretions and excretions have been adequate. Further examination also reveals no new symptoms whatever. The liver is not now palpable.

In addition to the above report, Dr. Sterne, writing me on Nov. 5, 1911, says:

"Certain very serious questions present themselves. I recognize fully the seriousness of the outlook in every case of this kind, not only as regards vision, but as to epilepsy. As regards the latter condition, thus far we have had only epileptiform seizure, without convulsions. I have seen several cases of escape of cerebrospinal fluid from the nose, but all of these have been the result of injury. In this case there has been no injury. The history shows that the flow from the left naris began suddenly, continued for fifteen months and stopped with equal suddenness. Subsequent to the cessation of the flow, there developed scleritis in the right eye, the pains in the right half of the head, and recently the epileptiform seizure with subsequent sensory symptoms of the left arm and leg. At the

present time all of the symptoms, none of them, by the way, objective, point to a gross lesion of the right half of the brain, in spite of the fact that the escape of fluid was from the left naris.

"My diagnosis at this time is hydrocephalus, a chronic ependymitis, probably with occlusion of the right foramen of Monroe, but I may be in error about this. I should like to have some pretty definite knowledge of the condition of the sphenoid sinuses before definitely determining the cerebral lesion."

After several additional observations of this case, Dr. Sterne again wrote me on Jan. 19, 1912, as follows:

"From the date of my first examination on Nov. 5, 1911, I have felt inclined to regard the case as a right-sided, internal hydrocephalus, either with or without a cyst. The few indications, all subjective, which the patient reports, point to an involvement of the right side in spite of the fact that the hydrorrhea was from the left naris. The indications referred to were pain, sometimes radiating and sharp in the right half of the head, scleritis of the right eye and, after the epileptiform seizure had passed, tingling and numbness in the left arm and leg. As I wrote you some weeks ago, I have been and still am uncertain as to the modus of escape of the cerebrospinal fluid through the left naris. This could of course occur *via* any of the sinuses directly connected with the nose or through some abnormal channel caused by basal bone defect with lesion of the nasal mucosa. It is even possible that it may have made its way to the left naris, but I regard all of this as conjecture in the absence of definite symptoms and an apparent bone or sinus involvement at the present time.

"I saw Mrs. McC. again Dec. 27, 1911. At that time she showed an excellent physical condition and reported that she was feeling very much better *quoad* the pain in the right side of the head and the eyes. There had been no further seizure of an epileptiform type. In other words, nothing had developed which served to modify my opinion of the case. Subsequently I wrote to Dr. McC. counseling careful observation of the fundi and repeated examinations thereof, so that we would not be unexpectedly confronted with any situation pointing to brain lesion. Later Dr. McC. wrote me saying that he had examined the fundi and that he found considerably more blurring of the disk of the right eye with some atrophy following the lower nasal vessels for some distance from the entrance. In the left eye the disk was not so blurred, but there was a more decided patch of atrophy in the lower temporal quadrant. The fields were contracted in both eyes."

The husband, who is an expert ophthalmologist, wrote me Jan. 1, 1912, enclosing perimeter charts that showed a general contraction of the fields in both eyes for white—a limitation of their periphery that closely corresponded to the measurements made by my own assistant in September, 1911, when we first examined the case. On the former date he reported:

"In the right eye, or worse one, there is considerably more blurring of the disk than in the left, with the white atrophic nerve fibers following the lower nasal vessels for some distance from the entrance. In the left eye the disk is not so blurred, but in the lower temporal quadrant there is a more decided patch of atrophy than there is in any one place in the right disk."

To the foregoing reports I have to add that my colleague, Dr. Frank Brawley, made a careful examination of the nose and accessory sinuses on several occasions, and found nothing of pathologic importance or aught that threw any light on a possible aqueduct for the cerebrospinal fluid. The patient continued to complain of asthenopia on using her eyes, there was still some photophobia and a slight patch of scleral injection in the right eye. The pupil reflexes and the muscular balance were normal. With correction of a slight refractive error vision was practically full in each eye. The fundus changes were mostly confined to the papillæ, which, in both eyes, showed on the several occasions when I examined the patient blurred outlines and some swelling of the nerve-head proper. The retinal vessels were of normal size and outline, although in the congested optic papillæ there seemed to be a few new vessels. The disks were generally redder than normal and yet

the physiologic cap was not filled up; indeed, as Dr. McC. remarked, the appearance was that of a mild postneuritic atrophy.

As shown by the accompanying charts of the fields of vision and by other signs, the patient's general condition, as well as the visual, cerebral and nasal symptoms, have on the whole slowly improved during the past six months. Whether this happy condition will continue or whether the surgical intervention spoken of will yet have to be undertaken remains to be seen.

The chief interest for us in the discussion of nasal hydrorrhea lies in its etiology and in the fact of the occasional presence of marked eye complications. The literature of the subject is by no means extensive, and the histories of cases in which a continuous discharge of water from the nose was a symptom will compel one to conclude that it may, like atrophy of the optic nerve, be produced by different conditions.

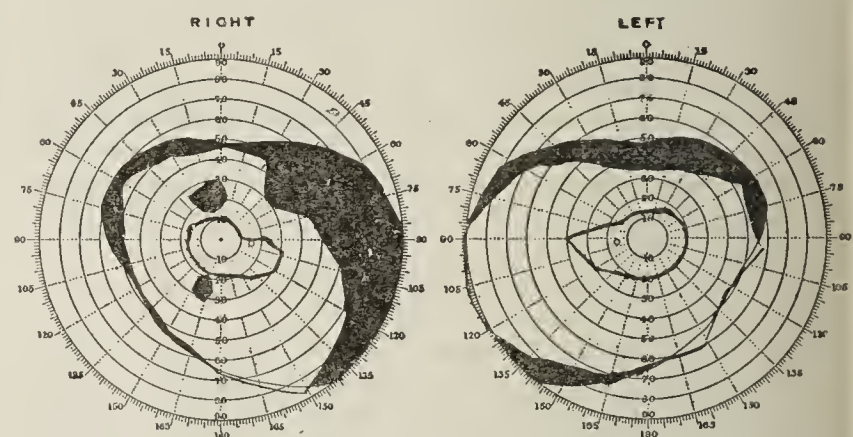


Fig. 1.—Case 3. Nasal hydrorrhea. Right, fields 5 mm., for red and white. Left, fields for white, red and green. Sept. 21, 1911.

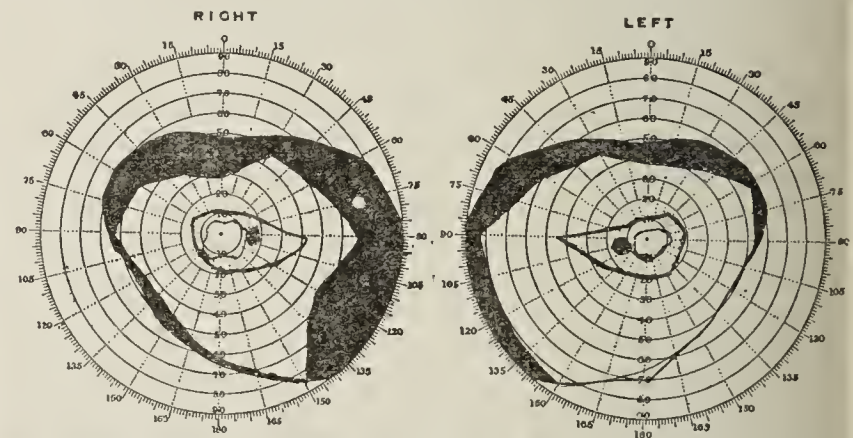


Fig. 2.—Case 3. Nasal hydrorrhea. Right, fields 5 mm. for white, red and green. Left, fields for white, red and green. Feb. 12, 1912.

Of the earlier cases one was evidently due to fracture of the base of the skull (Vieusse's² case); it is an occasional accompaniment of general anasarca (Rees³); of meningitis (Paget⁴); of trifacial paralysis (Althaus⁵); of hydrocephalus internus (Leber,⁶ who thought there had been bone absorption from pressure with escape of the cerebrospinal fluid from the opening thus formed); while in some cases (Priestley Smith's⁷ and Nettleship's⁸) the brain symptoms appear to have been very marked. On the other hand, in two cases reported by Bosworth,⁹ to whose valuable paper on the subject I would refer the reader, this author believes the discharge to have been the direct result of a paresis of the sympa-

2. Vieusse: *Gaz. hebdomadaire de médecine*, 1879, No. 19, p. 298.

3. Rees: *London Med. and Surg. Jour.*, 1834, iv, 823.

4. Paget: *Tr. Clin. Soc. London*, 1879, p. 43.

5. Althaus: *Brit. Med. Jour.*, 1878, ii, 831.

6. Leber: *Arch. Ophth. (Graefe's)*, xxix, 273.

7. Smith, Priestley: *Ophth. Rev.*, London, ii, 4.

8. Nettleship: *Ibid.*, p. 1.

9. Bosworth: *Treatise on Diseases of the Nose and Throat*, New York, 1889, i, 261.

thetic vasomotor nerves. Mules¹⁰ reports three cases in support of his theory that "the dropping is due to over-distended lymph-vessels of the pituitary membrane which by their bursting cause fistulous openings into the nasal meati." Mules concludes that the coexistence of optic-nerve atrophy with an abnormal watery secretion from eye and nose is to some extent a coincidence. He explains the occurrence of the atrophy by suggesting that it may sometimes be due to the wasting character of the general disease, of which it and hydrorrhea happen to be symptoms. In some cases of hydrorrhea there is no atrophy, just as in other cases of atrophy there is no hydrorrhea.

A review of the three cases above detailed, as well as of others elsewhere reported, brings us to the following conclusions:

1. The rather rare condition known as nasal hydrorrhea is not a definite disease, but is merely a symptom of one or more pathologic states.

2. In the majority of cases optic atrophy, more or less pronounced, accompanies or follows the discharge from the nose.

3. The visual involvement is, like the chief nasal symptom, generally a part of an intracranial disease that underlies the affections of both nose and eyes.

4. The discharge that flows so copiously from the nose is cerebrospinal fluid, and it is just possible that when epiphora accompanies the hydrorrhea the lacrimal discharge may, in part at least, be of the same character.

5. The nasal hydrorrhea usually comes on without apparent reason, is generally intermittent as to amount and time, may disappear for a considerable interval or may cease entirely as quickly and mysteriously as it came.

6. If there be any organic disease of the nose it is, as a rule, merely a coincidence. Perhaps, however, some of the nasal lesions may be connected with the bony defects or minute fistulas through which the intracranial fluid finds its way into the upper nasal passages.

7. The underlying cerebral disease is frequently some form of hydrocephalus. The intracranial tension due to this disease finds relief by seepage of fluids through one or more basal openings (pressure-passages, congenital, natural or acquired) into the nasal meati or neighboring sinuses.

8. The course of the optic atrophy depends on the character of the brain lesion, and especially on the extent to which the visual centers are involved by the cerebral disease.

9. In every case of nasal hydrorrhea treatment of the brain alterations should first of all be considered; and, in this connection, lumbar puncture, or some decompression operation ought to be borne in mind.

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ABSTRACT OF DISCUSSION

Dr. OSCAR WILKINSON, Washington, D. C.: As one who does nose work as well as eye work I have seen a good many cases of hydrorrhea, but I regret not to agree with Dr. Wood in some of his conclusions. In his second conclusion he says, "In the majority of cases optic atrophy, more or less pronounced, accompanies or follows the discharge from the nose." This is in hydrorrhea cases. Out of at least twenty hydrorrhea cases which I have seen only one or two developed atrophy. I have known at least two or three persons who were treated for hydrorrhea, and as far as I can determine, the symptoms were very much as in Dr. Wood's cases. In his fourth conclusion Dr. Wood says,

"The discharge that flows so copiously from the nose is cerebrospinal fluid, and it is just possible that when epiphora accompanies the hydrorrhea the lacrimal discharge may in part, at least, be of the same character." From an anatomical standpoint we can hardly conceive how the lacrimal fluid can be cerebrospinal fluid or a mixture with cerebrospinal fluid. The very nature of the cellular tissue of the orbit would give us an edematous condition if we had a leakage into the orbital tissue. Instead of having hypersecretion from the eye or a lacrimose condition, we would get an edematous condition if we had cerebrospinal fluid. It is my opinion of these cases that there are three elements necessary: (1) a neurotic subject; (2) an auto-intoxication of some kind that has aggravated these nervous filaments, and (3) a latent sinusitis which has very likely destroyed the cerebral plate of the sinus sufficiently to allow the gradual leaking into the sinus cavity. This cerebrospinal fluid is not thrown out all at once from the cerebral cavity, but is an overflow from the sinus cavity which has accumulated during the night.

Dr. CASEY A. WOOD, Chicago: I agree with Dr. Wilkinson in a measure and I think his objection is well taken. What ought to have been more definitely stated is that when the lesion involves both the nose and the eyes and the discharge contains cerebrospinal fluid, the underlying disease is a hydrocephalus, which in its turn is, of course, only one form of a pathologic process of variable character going on within the cranium. In such cases it will be found that the optic nerve is more or less involved sooner or later, and restrictions of the field, generally positive scotomas, will be found in the great majority of cases.

A CLINICAL COMMUNICATION ON CERTAIN VISUAL-FIELD DEFECTS IN HYPOPHYSIS DISEASE, WITH SPECIAL REFERENCE TO SCOTOMAS *

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AND

T. B. HOLLOWAY, M.D.

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For many years the symptoms of affections of the hypophysis have attracted conspicuous attention, and naturally the visual-field defects of disease of this gland have been carefully studied.

No one more thoroughly than Harvey Cushing has studied all phases of pituitary body disease from the physiologic, experimental and practical surgical aspects, and during these studies he has accumulated and charted a series of visual fields which are of the highest importance and greatest interest.

We desire in this brief communication to make special reference to certain localized visual defects, to wit, scotomas, central, paracentral and peripheral, which have been noted under these circumstances, and to which, it would seem from an examination of the literature, an insufficient amount of attention has been paid, although they have by no means been neglected and have often been charted. They are the subject of special reference in Bartels' paper.

The close anatomic relationship of the optic chiasm to the hypophysis naturally brings about as a frequent symptom of tumor or disease of the latter body the various visual defects which disease of the former structure can produce, and one not infrequently sees statements, such, for example, as Hochwart has made, that in the present state of our knowledge the diagnosis of tumors of the hypophysis is not very difficult. Cer-

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the authors' reprints.

tainly when the symptoms of pituitary body disease, both general and trophic, are well developed, and when the visual field defects are pronounced, especially the so-called typical bitemporal hemianopsia, accurate diagnosis is not difficult and is frequently often promptly confirmed by *x*-ray findings. It is a mistake, however, to fix our attention too definitely on hemianopsia of the bitemporal variety as a typical hypophysis disease field,⁶ especially as lateral homonymous and nasal hemianopsia may occur. Moreover, the visual disturbances in pituitary body tumors are for the most part dependent on compression of the optic chiasm, optic tracts, or the optic nerves by the growth, and as these neoplasms may be vascular or cystic, variations in the visual field defects are constantly found, particularly if, as A. de Kleijn⁴ maintains, perimetric examination is a daily routine. Thus he insists that in one patient a classical hemianopsia may be present at one time, but if daily

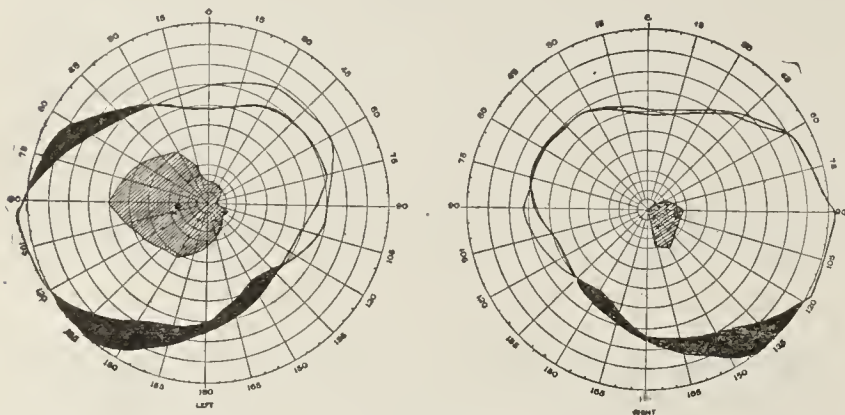


Fig. 1.—Marlow's case of acromegaly with large temporal scotomas, somewhat resembling bitemporal defects described by Uhthoff as suggestive of pituitary bone tumors.

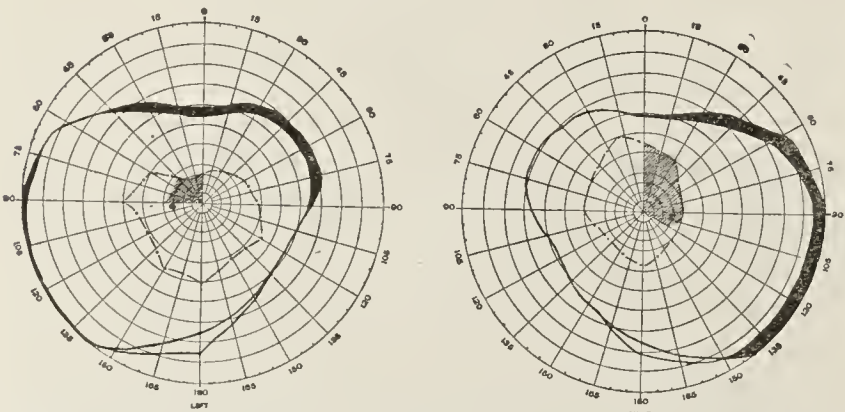


Fig. 2.—Doyne's case of acromegaly; scotoma up and out from fixing point; later bitemporal hemianopsia.

examinations are made, it will often be found that it has given place to an ordinary concentric contraction. Again, as in certain other diseases, the visual-field defect of tumor of the hypophysis may assume an insular shape, as it did in one of de Kleijn's patients; and this insular shape is subject to variations. The islands vary, not only in their number, but in their relation to the part of the visual field which they occupy.

It is not the purpose of the present brief communication to refer to the variations of the visual field in hypophysis disease, but only to say a few words in regard to some of the scotomas which may be found under these circumstances.

That central scotomas (paracentral in the sense that they proceed to the outer side of the fixing point and close to it) may antedate the development of bitemporal hemianopsia from chiasm disease, has long been known.

Just because the alterations in the visual field under these conditions are subject, as already pointed out, to marked variations, it is difficult to arrange a classification of these scotomas. The following list would seem to be a permissible attempt in this respect:

1. These scotomas may be, like those already referred to when discussing chiasmal amblyopia (and in many of the instances of this affection doubtless they were due to hypophysis growth), small and paracentral. Subsequently, with increase in the size of the growth and of the pressure symptoms, they may expand into complete hemianopsia. There may be, as, for example, was the case in Marlow's¹¹ patient with hypophysis disease, in one eye a scotoma just outside of the fixing point and a larger one, more produced to the temporal side but including the fixing point, in the opposite field (Fig. 1), the peripheral fields at the same time being comparatively full. Or there may be, as in one of our own cases, a small paracentral scotoma of one field, with a contraction of the color field of the opposite eye, the contraction being relatively greater on the temporal side (compare Figs. 6 and 7).

2. An absolute or relative defect may be detected up and out, forming a quadrant in the manner shown in the accompanying diagram, one of the best examples being the field charted by Mr. R. W. Doyne¹² of a patient suffering from optic-nerve atrophy with acromegaly.

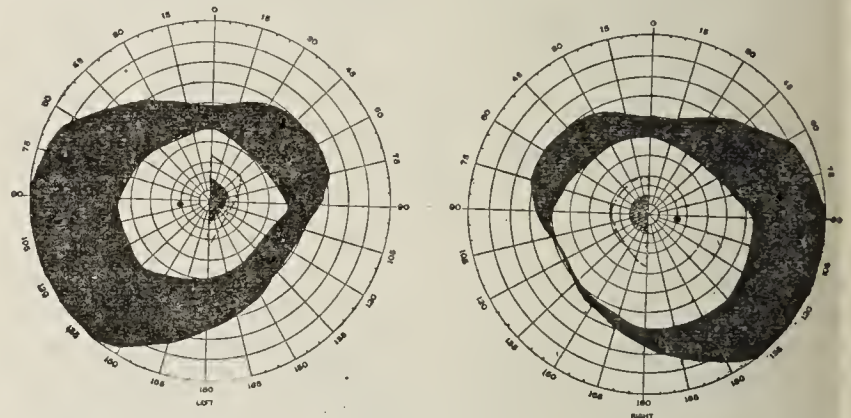


Fig. 3.—Binasal scotomas lasting two weeks; bitemporal color defects. Zentmayer's case of acromegaly.

Such scotomas may be bilateral or symmetrical, or nearly so, the larger scotoma, however, as in Doyne's case, usually being seen in the field of the eye with the poorer vision, or the scotoma may be unilateral (Fig. 2). A somewhat similar instance, the left scotoma being directly above the fixing point and the right one up and out in the usual position, has occurred in our own experience (Compare Fig. 5). Again, the scotoma may exist in one field in the position previously named and be associated with a small central scotoma in the opposite field, as in one of our own patients during the period of convalescence of pituitary body disease (compare Fig. 10).

3. Just as the visual fields in vascular basal disease, particularly if the hypophysis is involved, may vary from day to day, certainly from week to week, owing to the varying degrees of pressure which the neoplasm or struma produces, so it is possible that these scotomas vary in size and in position, and that they may be present for a period of time and then disappear. For example, in Zentmayer's¹³ well-reported case hemianopic scotomas persisted for two weeks, and, moreover, on the nasal side, and were associated with contracted form fields and with bitemporal hemianopic color defects (Fig. 3). Curiously enough, it may happen that after more or less

6. Bartels (see Note 1) points out that so-called typical hemianopsia occurs in only about one-third of the cases of tumors of the hypophyseal region where diagnosis has been confirmed by autopsy.

11. New York Med. Jour., 1910, xci, 794.

12. Tr. Ophth. Soc. U. Kingdom, 1895, p. 133.

13. Ann. Ophth., 1910, xix, 719.

typical visual-field defects have disappeared as the result of treatment, a recrudescence of visual disturbances may arise, dependent on the presence of large central scotomas. This was the case in a patient examined by Lauber.¹⁴ At first the left eye was blind and the right eye had temporal hemianopsia. After mercurialization, the diagnosis having been syphilis of the hypophysis, the right field was entirely restored, as was the nasal half of the left field. With the ophthalmoscope atrophy of the optic nerve was evident. Some months later vision again fell, then on account of the presence of the scotoma before referred to. Another variation is contracted from field, color hemianopsia and central scotoma, as, for example, in Kocher's¹⁵ patient, diagnosis having been settled by operation. Again, as in Bartels'¹⁶ case there may be contraction of the form and color fields and central relative scotomas.

4. Kund Pontoppidan¹⁷ has observed with normal form-fields large bitemporal hemianopic scotomas, absolute in the right field and relative in the left, due to a tumor situated within the circle of Willis, extending from the anterior border of the pons to the chiasm. The infundibulum emerged from the most prominent portion of the growth (Fig. 4). Uhthoff¹⁸ has recently demonstrated and insisted that such large paracentral absolute scotomas in the outer halves of the visual field are a conspicuous and, according to his observations, a fre-

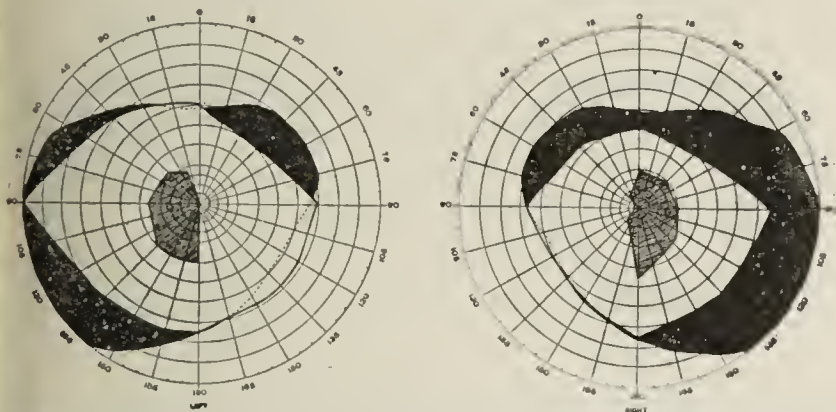


Fig. 4.—Visual fields of Pontoppidan's patient with large bitemporal hemianopic scotomas.

quently observed phenomenon in connection with hypophysis tumors. These scotomas are similar to the one depicted in the left field of Figure 1.

5. Occasionally a scotoma has been noted in the temporal field at some distance from the fixation point which is manifest before, and, in point of fact, at some considerable time before, the entire field is obliterated. This we have observed in one undoubted case of pituitary body disease and in another case supposed at the time to be of like nature, but in which subsequently an autopsy demonstrated that the pituitary body itself was uninvolved in a neoplasm, but probably that the pressure was on the tract posterior to the chiasm. In the field of the first of these patients the scotoma existed as an oblong area lying below the horizontal meridian which it touched at its upper end, and therefore it was in the lower and outer quadrant of the field. In the same field there was a paracentral scotoma of the type already described (Compare Fig. 8). A very similar visual-field defect which occurred in the second case (the pressure in this instance having been on the tract, so that ultimately a homonymous hemianopsia developed), occupied an exactly similar place, although it was not so great in

extent, and, moreover, was in a field which was not subsequently obliterated. Nothing in the eye-ground accounted for the presence of these scotomas, and their explanation is not very clear. They are mentioned here not because they seem to have any very great significance—at least the observations are too limited in number to place any satisfactory interpretation on this visual-field defect—but rather because they belong to what may be described as some of the curiosities of the visual-field phenomena in basal disease of the brain. It is not uncommon to find islands of preserved vision in the dark fields of pituitary body affections which have a similar appearance. These islands have somewhat the same situation and extent which these scotomas present. In other words, in the one instance an area is preserved which in the other is obliterated.

6. We would like to call attention to the fact that in some of these cases for a considerable period of time prior to the development of a central scotoma, even when

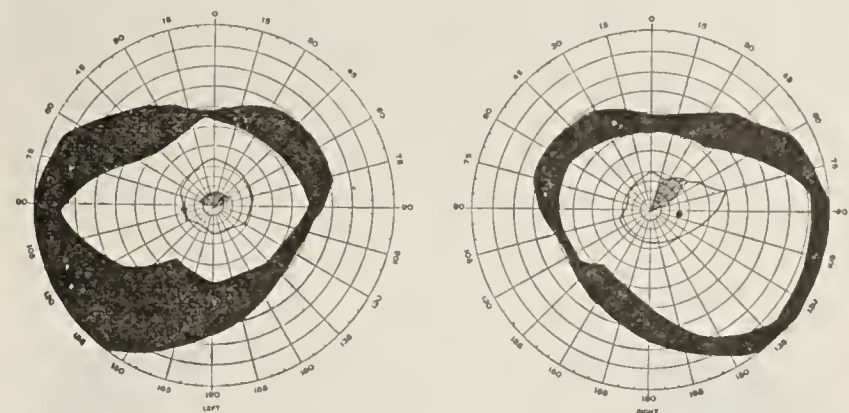


Fig. 5.—Authors' Case 1; pituitary body tumor. Concentric contraction; scotoma up and out from fixing point in right field and above fixing point in left.

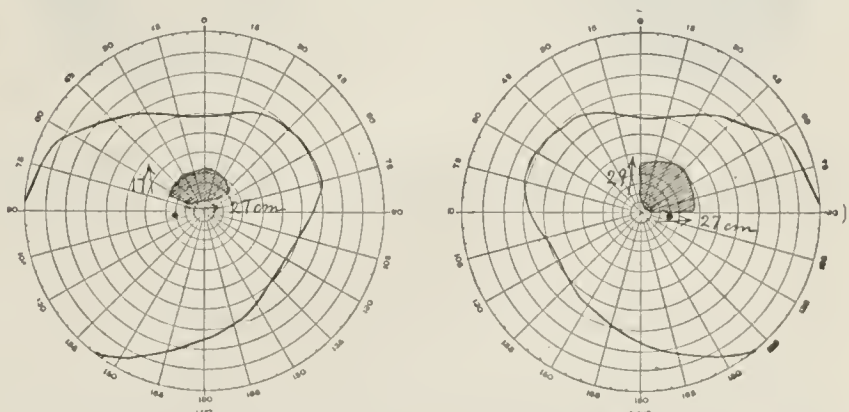


Fig. 6.—Case 1; same scotomas as in Figure 5, charted on a black screen at one meter's distance from patient's eye with a 3 mm. white object.

most searching examination fails to reveal it, the patient is conscious of blurred vision; indeed, the blurred vision itself may be the symptom which causes the patient to seek advice. This symptom was so conspicuous in one of our patients and so notable in another that perhaps it may be described as an antecedent amblyopia. The patient is conscious of a blur which is unexplained by any ophthalmoscopic lesions and which cannot be demonstrated in the sense that a test-object on the perimeter can outline an area of defective vision. To this point we shall return later.

CASE REPORTS

The following case histories illustrate some of the scotomas to which we have made reference:

CASE 1.—*History*.—A man, aged 32, came under observation Oct. 26, 1911. The patient's father and mother are living and well. The father is deaf as the result of a chronic catarrhal otitis media. The oldest sister in the family is slightly deaf and the youngest sister quite deaf from some

14. Klin. Monatsbl. f. Augenh., 1910, xlviii, 205.

15. Deutsch. Ztschr. f. Chir., 1909, c, 13.

16. Ztschr. f. Augenh., 1906, xvi, 407.

17. Hospitalstid., December, 1897, xl, 1137.

18. Klin. Monatsbl. f. Augenh., 1911, xlix, 393.

trouble believed to be situated in the auditory nerve. One other sister is perfectly healthy. A brother, when 16 years of age, developed optic nerve atrophy with scotomas, but under proper treatment these have largely disappeared, and although there are still scotomas in the periphery of the visual fields, fixation is perfectly clear in both eyes and vision good. The patient's mother had one brother who is said to see badly, "due to amaurosis," probably therefore an optic nerve atrophy. There is no history of tuberculosis, syphilis, neoplasm, cardiac or renal disease in the family. One maternal uncle is a man of great size and weighs upward of 300 pounds. The patient weighed 15 pounds at birth. He was, until his eyesight became defective, in active business. He has been extremely irregular in regard to his meals, has always indulged in much pastry and sweetmeats, and exhibits an astonishing tolerance to carbohydrates. Very little tobacco, tea or alcohol has been used. Specific infection is denied, and the Wassermann test is negative. At 17 years of age he had inflammatory rheumatism, and since then has suffered from several mild attacks. About two years prior to this report the patient's average weight was 265 pounds, and for the past half year about 290 pounds.

Examination.—The general examination failed to discover any cardiac or vascular disease, urine examination was negative, and careful exploration of the sinuses by Dr. Charles P. Grayson, including transillumination and catheterization of the sphenoid, failed to reveal any disease in these regions. X-ray investigation failed to show any sinus involvement, but the sella turcica was enlarged, badly defined and filled in.

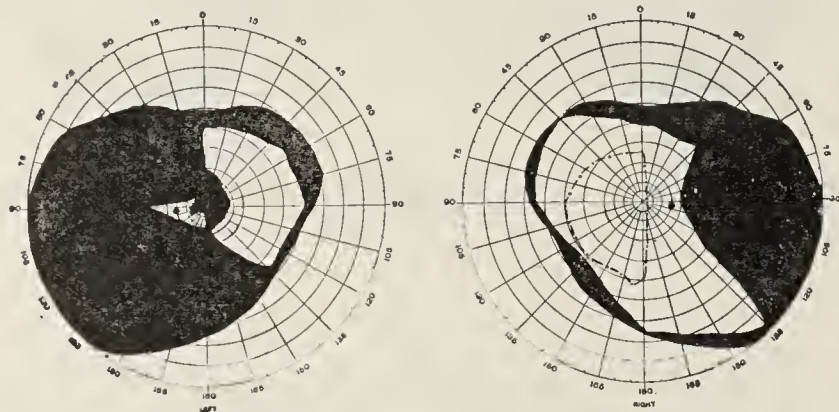


Fig. 9.—Later stage of Case 2. Scotoma in left field enlarging and encroaching on nasal side; almost complete loss of temporal field; complete temporal loss of colors in right field and partial temporal loss of form field.

There is no excessive hairiness and also no notable loss of hair, although there is no beard. The sexual powers are normal, and there are no disturbances of taste or smell. Intellection is good. The tendon reflexes appear to be normal. The patient is a man of large frame, fat, but with firm flesh and with rather coarse skin. His hands and feet are large, but a spade-like character of the hands can hardly be said to be present.

Ocular Examination: When first examined the vision of the right eye was 4/15, of the left eye 4/45. This vision, in spite of all treatment, has steadily declined until at the present time it is 4/100 in each eye. There is no swelling of either disk, but some deep pallor, more marked in the right eye, on the outer side of the disk. The veins are tortuous, the arteries about normal in size. On one occasion a small hemorrhage just below the margin of the disk was observed.

The visual fields, taken on numerous occasions, are illustrated in the accompanying diagrams, namely, a moderate concentric contraction of the right field, with a somewhat wedge-shaped scotoma for red and white up and out; left eye, a greater concentric contraction, more pronounced down and out and up and out than elsewhere, with an oval scotoma capping the fixing point. There is moderate contraction of the red field; green not recognized (Figs. 5 and 6).

CASE 2.¹⁹—History.—An unmarried woman, aged 39, consulted one of us (Dr. de Schweinitz) on April 9, 1910, for the

relief of blurred vision, particularly of the left eye, which had existed since the previous November, and which continued in spite of various changes in glasses. There was no family history of neoplasm, rheumatism, syphilis, or of ocular disease. The patient was born in this country, was a good student at school, and after graduation worked hard as a teacher. Menstruation was established before the twelfth year of life, and continued with fair regularity until the patient's twenty-first year, at which time the periods ceased and were not again reestablished. The patient has had measles, pertussis and chicken-pox twice, has often suffered from laryngitis, which has always responded to antirheumatic treatment.

Examination.—There is not the faintest evidence that the patient was ever affected by any form of venereal disease. She is well formed but not excessively fat, nor are there any signs of dystrophy.

Ocular Examination: At the first ocular examination, with proper correcting glasses, the vision of the right eye was 6/7.5 and of the left eye 6/9; no diplopia. The blur in vision, however, which the patient had reported at her visit and for which she sought relief, continued. Ophthalmoscopic examination failed to reveal the slightest change in the fundus. Three weeks after this date the vision of the right eye was reduced to 6/15, and of the left eye to 30 cm./60. The right pupil was 4.5 mm. and the left 5 mm. in width, and the left eye slightly divergent. The reflexes of the right pupil were preserved, but neither direct nor indirect light reflex of the left pupil was present. During this period of three weeks the patient suffered with intense headache and nausea.

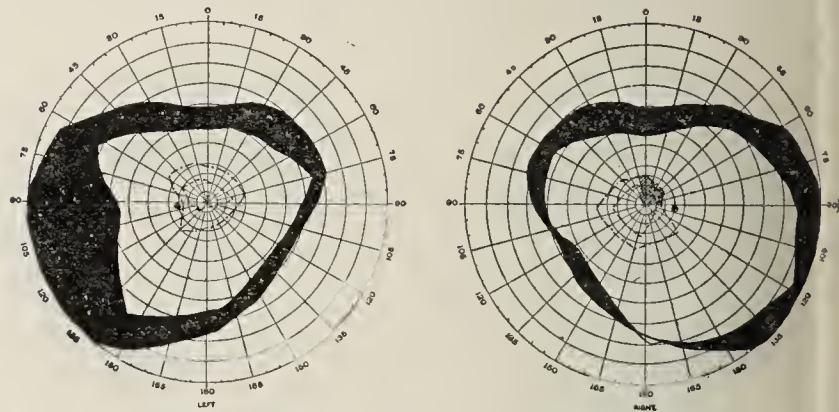


Fig. 10.—Case 2 in stage of convalescence. Hemianopsia has disappeared; concentric contraction remains; scotoma up and out for colors in right field and central in left field.

There were now moderate contraction of the right visual field, marked concentric contraction of the color field, with greater loss on the temporal side, concentric contraction of the left field, a central or hemianopic scotoma, and a large oval scotoma in the peripheral field (See Fig. 8). After admission to the University Hospital, thorough studies were made from all standpoints. These failed to reveal any disease of the general system except that the x-ray examination showed great enlargement of the sella turcica on account of a growth within it. The important symptoms, in addition to those exhibited by the eye, were complete cessation of menstruation at the age of 21 until the present time, exaggeration of the tendon-reflexes of the upper limbs and of the patellar tendon, and diminution in the sense of smell. Vision rapidly failed, left oculomotor palsy developed, and the changes in the field of vision shown in the diagrams occurred, only those being reproduced which indicate the presence of scotoma (Figs. 8 and 9.)

Bitemporal hemianopsia, first for colors and later for form, developed, followed by a gradual disappearance of the entire visual field, with total blindness of the right eye lasting twelve days, and of the left eye lasting six weeks. After months of treatment there was complete restoration of vision as the result of the administration of large doses of thyroid extract, associated with inunctions of unguentum hydrargyrum. During the period of convalescence, for a time there was a scotoma up and out in the right eye and central in the left. Ultimately these scotomas disappeared, except a small oval scotoma in the far peripheral field, the remnant of the original large scotoma in the same area which had been

19. This case is also included in a series reported to the Pa. State Med. Soc., September, 1911.

found at the first examination and to which special reference has been made (Figs. 10 and 11).

REMARKS

We have already made reference to what Patrick calls the relative frequency of scotomas in pituitary body disease. In Uhthoff's⁵ list of the ocular symptoms of 148 cases of hypophysis and infundibular tumors without aeromegaly, scotomas are reported only three times, although in the text there are at least four references to them. Bartels¹ among a total of twenty-two cases of hypophysis tumor, the diagnosis having been confirmed by autopsy, records 13 per cent. of central scotomas, or practically three cases. Concerning central scotomas in 180 cases of acromegaly, Uhthoff simply remarks that they have been observed by Bartels, Gubler and others, but that these occurrences are uncommon phenomena. Now it goes without saying that although only three scotomas are mentioned in the long list of non-acromegalic cases which Uhthoff records, and that he describes them as relatively infrequent in the aeromegalic cases, this gives no idea of their actual frequency. The search for them may have been insufficient, or the fields may have been charted at a time when they were not present. We know that they may antedate the gross visual-field defects by a considerable period of time. It is not a little remarkable that de Kleijn, who has so

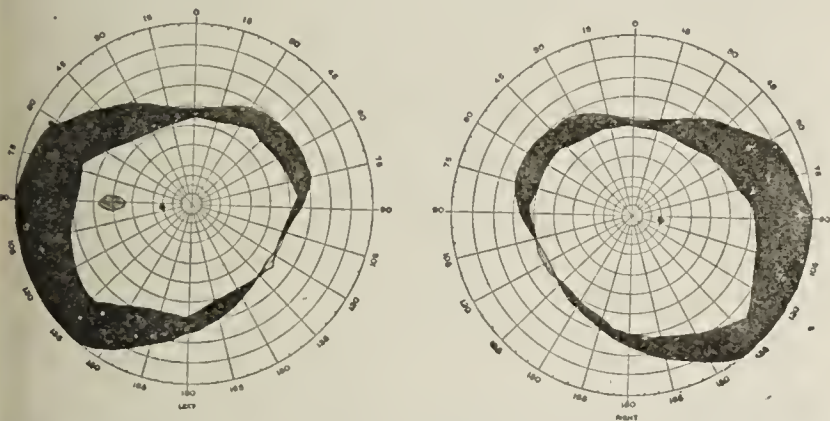


Fig. 11.—Case 2 in stage approaching recovery; all trace of former scotomas gone except remnant of scotoma in left temporal field. Good color fields (not charted). Vision: right, 6/6; left, 6/9.

carefully investigated the variations of the visual fields in pituitary body disease, has failed to note scotomas, nor do they appear in the large series of charts in the Cushing collection. This Dr. Cushing explains exactly as we have explained their absence of record in much of the literature on the subject, by assuming that the visual fields were taken either at a time when the scotoma was not present, because it had expanded into a grosser visual-field defect, or because an exact search on account of patient's condition could not be made for it.

While it is not likely that the presence of scotomas of this character would in many instances be mistaken for those caused by toxic agents, the ordinary so-called intoxication-amblyopia scotomas, this is not beyond the range of possibility. For example, Jonathan Hutchinson²⁰ records the case history of a patient who smoked one-half ounce of shag daily, and who had central scotomas for red and green. Death occurred, and at the autopsy a soft glioma, involving the apex of the right temporosphenoidal lobe and reaching across the middle line in the interpeduncular space, was found. This case is mentioned although it is not descriptive of hypophysis disease, because it illustrates the fact that an intracranial lesion interpreting itself at first in central scotomas occurring in a man addicted to excessive

smoking received a wrong interpretation. This, therefore, might also occur in hypophysis disease. Indeed, Pontoppidan¹⁷ at first believed that his patient was suffering from retrobulbar neuritis due to excessive use of tobacco.

It would be interesting, taking Wilbrand and Saenger's²¹ plan of the distribution of the fibers in the optic chiasm as a guide, to attempt to place the probable situation of the lesions which these scotomas interpret, but in large measure such an attempt would be a piece of guess-work, except in a few instances. As Bartels points out, it may happen that although the visual disturbances may depend on the presence of a central scotoma, no clear explanation for its presence is demonstrable at autopsy.

There seems very little doubt that some of the visual-field defects caused by basal disease depend on vascular constriction. Thus, as early as 1852, Türk²² reported a case of carcinoma situated posterior to the chiasm which pushed this structure upward and anteriorly, and both optic nerves were found to be transversely notched by the pressure of anterior cerebral arteries close to their exit from the chiasm. The left nerve was so badly constricted that only a thin strand remained, while the inner third of the right nerve was uninjured.

In 1893 Sachs²³ analyzed forty-eight autopsies on patients with hypophyseal tumor, and twice found constriction of the optic nerves. In his case the tumor grew in front of the chiasm, and both optic nerves were deeply grooved by the anterior cerebral arteries. Since then a number of analogous instances have been placed on record by Erdheim,²⁴ Uhthoff,¹⁸ Bartels¹ and Strada.²⁵ the first named author referring to seven cases. In Uhthoff's and Bartels' patients and in two of Erdheim's the tract was constricted. The autopsy on Bartels' patient revealed that the growth had developed behind the chiasm, pushing this structure forward so that the optic tract was deeply constricted by the anterior cerebral artery. Bartels in his excellent contribution to this subject states that this vascular constriction, owing to its position, is readily overlooked. Cushing in his fine studies of this region has prepared a number of specimens which exactly demonstrate these conditions.

We believe that this condition must have an important bearing on the visual disturbances and visual-field defects in cases of hypophyseal tumor, and is undoubtedly an important factor in many cases associated with marked impairment of visual acuity, and may be a determining factor in the blindness which sometimes almost abruptly affects these patients.

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DISEASE OF THE OPTIC NERVE IN
MYXEDEMA

ITS RELATIONSHIP TO THE THYROID GLAND
AND TO THE HYPOPHYSIS *

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The title of this paper suggests a very limited field in ophthalmology, and probably one that is of immediate

21. Die Neurologie des Auges, 1904, iii, 110.

22. Ztschr. d. k. k. Gesellsch. der Aerzte zu Wien, 1852, viii, 299.

23. Ztschr. f. Augenh., 1905, xiii, 378.

24. Cited by Bartels (see Note 1).

25. Strada: Arch. f. Path. Anat. (Virchow's), 1911, cciii, 1.

* Owing to lack of space this article has been abbreviated by condensation of the abstracts of cases. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

interest to only a few in our Section. Unless some particular clinical experience, or one of the infrequent references in the literature has directed our attention to an undoubted connection between the thyroid gland and the hypophysis cerebri, their relationship may never have come to our notice. On this ground, and also in the hope of making some small contribution to the knowledge of the subject, the following two rare cases are reported:

CASE 1.—Myxedema with optic atrophy and bitemporal hemianopsia dependent on a probable enlargement of the hypophysis.

Patient.—Mrs. A. B., 56 years old, was referred to me Oct. 13, 1910, by Dr. W. L. Richardson and Dr. W. H. Smith. Dr. Smith, from whom I obtained her history, saw her first Aug. 29, 1910. Family history and previous history were negative, except that some years before she had suffered from arsenical poisoning. She complained of nothing except stiffness in her right knee and trifling swelling of her feet. She sought medical advice because her family had noticed a considerable degree of stillness in her mental actions and in her general condition. The members of her family said that she forgot easily, had a tendency to marked drowsiness, and had changed much in her general appearance. Patient's appearance and actions myxedematous. Lungs negative. Heart-sounds faint; soft systolic murmur at apex; no cardiac enlargement. Very slight amount of hair in the axilla; the hair on the scalp thin. Very little perspiration. Abdomen negative. Knee-jerks not obtained; some stiffness of the right knee with limitations of motion. Trifling edema of the feet. Moderate psoriasis. Nails brittle. Urine: twenty-four hour amount 54 ounces; normal acid; specific gravity 1.012; slightest possible trace of albumin; urea 13.7 gm., no bile and no sugar; sediment negative.

Ophthalmic Examination.—Mrs. B. complained of difficulty especially in reading. Her sight had always been good until recently, when she had noticed a general haziness. Through the kindness of Dr. O. F. Wadsworth and Dr. C. H. Williams, I am enabled to record her ocular condition on two previous occasions.

In 1902, Dr. Wadsworth found:

V. R. — .75 sph. = 6/4.
V. L. — 1.0 sph. = 6/4.

Muscles were normal; fundi normal.

In August, 1909, Dr. C. H. Williams made the following

V. R. — 1.0 sph. — .50 cyl. axis 180 = 6/10.
V. L. — 1.0 sph. = 6/12.

The ophthalmoscopic examination showed "retinal arteries rather small, especially in the right eye; disks slightly grayer than normal." "Pupils reacted feebly to light."

At the time of her visit to me, vision was as follows:

V. R. = 6/60 not improved.
V. L. — 1.0 sph. = 6/15.

The pupils were equal and reacted sluggishly to light. The tension was normal to the finger. The ophthalmoscope showed marked atrophy of the right nerve-head, moderate pallor of the left nerve-head, with possible slight diminution in the size of the vessels.

The lower temporal quadrant of the right field was markedly contracted, while the left field showed a slight contraction on the temporal side. A satisfactory color field could not be taken on account of the mental condition of the patient. In fact, it was difficult to take the field for form, as she tired so easily.

Jan. 17, 1912, she presented herself again for examination.

V. R. = 2/60, not improved.
V. L. — 2.0 sph. = 6/15 —.

The field showed a well-defined bitemporal hemianopsia extending beyond the fixation point in the right eye, and reaching that point in the left.

The ophthalmoscopic examination showed a marked atrophy of the right nerve-head with vessels apparently of normal size, and little, if any, sign of a previous inflammation. The

left nerve-head was somewhat atrophic, but of much better color than the right. It was somewhat pale on the temporal side. The outlines were clear, and the vessels seemed to be nearly of normal size. A few small rounded flecks of hemorrhage were seen in the surrounding retina.

Mrs. B. was put on thyroid extract with very marked improvement. She grew a complete set of perfect nails, and her mental condition improved considerably.

CASE 2.—Myxedema with concentric contraction of the fields, low-grade optic neuritis, chorioretinitis.

Patient.—F. M. S., a man, aged 49, married, hotel-keeper, living in Maine, was referred by Dr. F. T. Lord, to whom I am indebted for the history and general examination. Family history is negative; no consanguineous marriages. Father and mother, nine brothers and sisters are living and well. Patient had children's diseases; was twice injured by being kicked in the face by a horse, fifteen and thirteen years ago. He had lumbago twelve years ago; no rheumatism. He denies venereal disease and any opportunity for infection. He has one daughter, aged 24, healthy. His wife had one still-born child, but no miscarriages. He uses no alcohol or tobacco; has been a hard worker.

Present Illness.—Ten years ago he began gradually to lose his hair, that of the scalp, beard and mustache becoming very thin, while the axillary and pubic hair, the eyebrows and eyelashes entirely disappeared. For three or four years the ankles and hands had been slightly swollen. For the last three years, the patient has suffered a progressive loss of sight which affected both eyes, the left, however, more than the right. At times, he has a feeling of pressure in his eyes, occasional slight headache and dizziness. He has no cough, but some dyspnea and palpitation. The appetite is good, and there is no nausea or vomiting. The bowels are regular. Patient is never uncomfortable from the heat in summer, but feels the winter cold severely. He is mentally active; memory is unimpaired. There is no change in his disposition, which is exceptionally even. He is vigorous physically, but much troubled by his impaired sight. There is no loss of sexual power. Weight was about 180 three years ago; 160 now.

General Examination.—The hair of scalp, beard and mustache very thin and soft, fine rather than coarse. Axillae, pubes, eyebrows and eyelids devoid of hair. Upper lids abnormally thick with obliteration of normal folds and depressions, but no obvious edema. Hands large, and the skin over the dorsal surface slightly thickened, rough and dry, but without edema. Tips of the fingers slightly clubbed. Anteroposterior and lateral convexity of the nails. Nails somewhat ridged and brittle. Feet of normal size. Marked edema of the legs, pitting regularly on pressure. No varicose veins. (It may be remarked that the patient has always had rather large hands.) Blood-pressure 150. Urine normal color; specific gravity, 1.012; albumin and sugar present; sediment negative. Blood: hemoglobin 100 per cent.; no leukocytosis; differential count negative.

Stereoscopic radiographs of skull show nothing abnormal. Mr. S.'s vision began to fail three years ago, beginning in the right eye.

Ophthalmic Examination.—On May 10, 1910, the patient was examined by Dr. C. H. Williams, to whom I am greatly indebted for his record at that time.

V. R. — .50 cyl. axis 90 = 6/30.
V. L. — .50 cyl. axis 90 = 6/12.

"The ophthalmoscopic examination showed smoky-looking disks, and small retinal arteries. There were no fundus lesions." The field was not taken.

At the time of the patient's visit to me, he complained of failing sight, which had been continuous. He said that he saw as well at dusk as in daylight.

V. R. — 1.0 sph. = 6/60.
V. L. = 2/60 excentric not improved.

Pupils equal, but react sluggishly to light.

Ophthalmoscopic examination showed: Right: Optic disk is pale, and of a grayish color on the borders. Slightly hyperemic in the center. Outlines are blurred; the vessels

decidedly small. The arteries are slightly small, and show white lines along them. The veins apparently slightly narrow also. In the macula region is a moderate-sized whitish area of atrophy liberally sprinkled with dark pigment. In the periphery of the fundus are numerous small masses of pigment of bone-corpusele shape. The retina throughout is of a granular appearance.

Left: The optic nerve-head is paler than in the right eye. Its outlines are slightly indistinct; no swelling; the vessels are decidedly smaller than normal. The arteries show white lines. A short distance downward and out from the disk are three small rounded areas of chorioidal atrophy sprinkled with pigment. Below these is a similar area, but of larger size. In the periphery of the retina are many small masses of pigment of bone-corpusele shape. In this eye, also, the retina is sprinkled with minute dark spots, and presents a decidedly granular appearance.

The field of vision in the right eye, taken with a 10 mm. object, shows a concentric contraction, so that only an irregular area of about 22 degrees in its greatest diameter remains centrally. This area approaches the fixation point below. In this area, the patient distinguishes colors.

In the left eye, the field shows a small remaining area, not much over 5 degrees in diameter, of uncertain outline and situated, as far as can be determined, slightly to the nasal side of the center. In this area, white and red can be distinguished.

Before discussing these two cases, it may be well to consider others of a similar nature which have been reported. There are few of them, and unfortunately several are incompletely described.

A search through the literature has disclosed cases of a somewhat similar nature reported by Schmidt-Rimpler, Sanesi, Wagner, Burchard, Bolte, Pollack, Meyer, Gourfein-Welt, Moore, Berliner, Souroff and Hennicke. For convenience they are abstracted at the end of this article.

If the condition of the optic nerve, as evidenced by the ophthalmoscopic examination, be analyzed in these fourteen cases, the most marked change is found to be a low-grade optic neuritis.

In Bolte's case, for instance, the outlines of the nerve-head were irregular and blurred; the veins were rather swollen and tortuous; the vessels projected forward on the disk. Wagner, in his case, reported an outspoken neuroretinitis with a slightly swollen and indistinctly outlined disk. In several cases, blurring or pallor of the temporal half of the nerve-head was observed. Post-neuritic atrophy was seen in some. Optic atrophy without further details was reported by Pollack and by Meyer. In my own first case, the right eye showed only very indefinite signs of a previous inflammation. In no case was there a papillitis of great intensity. The changes, therefore, may be said to range from a low-grade optic neuritis to an atrophy without definite signs of a previous inflammation. All these appearances can be explained by a low-grade inflammation taking place in some part of the nerve-trunk between the chiasm and the disk, and varying in clinical signs according to the location of the process.

The fields of vision present points of striking interest. Unfortunately, in Pollack's case there is no mention of a perimetrie examination. In Moore's, the field of vision could not be mapped out on account of the mental condition of the patient; while in Bolte's case it was normal.

In seven cases, those of Sanesi, Wagner, Meyer, Gourfein-Welt, Berliner, Hennicke and in my own first case, one or both eyes presented evidence of a temporal hemianopsia.

In two cases, Souroff's and my own (Case 2), the changes show a striking similarity. There was a concentric narrowing of the fields, so that in one eye of each

patient a paracentral area remained with vision of 2/60 or lower and perception of white and red. In the other eye, there was apparently a central area of vision preserved of 6/21 in Souroff's and 6/60 in my own case, and good perception of colors.

Two cases, those of Schmidt-Rimpler and Burchard, presenting a central scotoma will not be included here, but will be spoken of later.

The condition of the fields in the first seven cases points almost inevitably to pressure on the optic chiasm by an hypertrophy or new growth of the hypophysis — and this finding is in accord with numerous observations made on the relationship between the thyroid gland and the pituitary body.¹

For a number of years, evidence has been accumulating which points to a close relationship between those glands of the body which possess an internal secretion, and especially between the hypophysis and the thyroid. A study of this evidence shows the following facts: The thyroid gland and the anterior lobe of the hypophysis develop from the same embryonic structures, and show a close histological similarity. Furthermore, in all but exceptional cases of acromegaly the colloid degeneration, with or without cyst formation, which is found in the hypophysis, is also present in the thyroid.

Conversely, Boyce and Beadles, de Coulon, Bourneville and Brisson, Langhans, Ponfick and others have found in myxedema, cretinism and similar conditions, enlargement of the sella turcica and disease of the hypophysis.

Rogowitsch, Stieda, Gley and Hofmeister observed enlargement of the hypophysis after extirpation of the thyroid gland.

Schönemann examined a number of cadavers from a region where goiter was common, and although there was no hypertrophy of the pituitary body, he found similar degenerative changes in both organs. Certain chemical studies also support the view of a close relationship between the two.

Clinically, the signs of acromegaly may be combined so closely with those of myxedema that it is hard to decide which set of symptoms is preponderant.

Cases are occasionally found which present a combined picture of exophthalmic goiter and acromegaly (I have had the opportunity of following one of these during the past four years), and signs of exophthalmic goiter, myxedema and hypophyseal enlargement may be present in the same patient at different times, as is evidenced by Bolte's case.

Other glands possessing an internal secretion show a similar relationship. Polyuria, glycosuria and diabetes with changes in the pancreas, have been reported in acromegaly; while one of the commonest accompaniments of pituitary enlargement is the change in the generative organs, as shown by amenorrhea in the female and impotence in the male.

Other recorded facts which are also of interest tend to show that the amount of pathologic change found in these various conditions bears apparently no true relationship to the clinical condition. Hence, we may have greatly enlarged thyroids without the symptoms of exophthalmic goiter; marked atrophy of the thyroid without signs of myxedema; while enlargement of the hypophysis may produce several pictures clinically. It is Uthoff's² view that in youth it produces general disturbances of growth (giantism and dwarfism) not infre-

1. Plneles, in an excellent article (Die Beziehungen der Akromegalie zum Myxoedem . . . Samml. klin. Vortr., No. 242; Inn. Med., No. 73) gives a very full consideration of this subject.

2. Uthoff: Beitrag z. d. Wachstums-Anomalien b. d. temporalen Hemianopsie, etc., Berl. d. ophth. Gesellsch., 1907, p. 140.

quently accompanied by a general adiposity, but without true acromegaly. Brissaud and Meige hold the view that increase in the function of the hypophysis leads, in childhood particularly, to giantism, in adults to acromegaly, and in later life to thickening of the soft parts.

The question as to how often an enlargement of the hypophysis is sufficient to produce disease of the optic nerve has been investigated, notably by Ottolenghi and by Hitschmann. Ottolenghi³ examined the fields of vision of thirty cretins, and found no definite change which could be laid to an enlargement of the hypophysis. In no case could he demonstrate a temporal hemianopsia. In three cases, however, he found changes in the fundus; in Case 17, a beginning optic atrophy in each eye; in Case 25 papillitis in each eye; in Case 27 optic neuritis in each eye.

Hitschmann,⁴ in an exhaustive research, examined fifty-eight cretins, and came to similar conclusions. He found, however, one case of optic atrophy, which possibly was due to an intercurrent tabes. Hitschmann's fundus observations will be referred to later.

We see, therefore, only in the rarest cases of myxedema, cretinism and similar diseases, an enlargement of the hypophysis sufficient to cause involvement of the optic nerve. It has occurred, undoubtedly, in only seven of the cases, and in some of these, striking symptoms of acromegaly were present.

In Sanesi's case, there were characteristic symptoms of both diseases. Preference was given to myxedema on account of the order in which the symptoms developed and from the success of the treatment with a thyroid preparation.

Wagner's case presented as many signs of acromegaly as myxedema. In it, also, a thyroid preparation was of benefit.

Burchard made the diagnosis of acromegaly combined with partial myxedema, and the case presented by Gourfein-Welt also showed many characteristic features of acromegaly, but was much helped by a thyroid preparation.

Formerly, the enlargement of the hypophysis, which is found in myxedema and allied conditions, was thought to be a compensatory hypertrophy. The enlargement found in these cases, however, is not parallel with that found experimentally in animals after the operative removal of the thyroid gland. It seems more likely here that we have some primary condition which affects both glands, and according to how each gland reacts to the primary disease we get a varying clinical picture ranging from myxedema with pathologic changes in the pituitary body but no clinical symptoms, to acromegaly with degeneration of the thyroid gland, but without symptoms of myxedema. The cases cited here would seem to be representative of this symptom-complex. What makes them so unusual is the fact that the myxedematous symptoms are in the foreground.

There is no reason to doubt, then, that disease of the optic nerve presenting a picture of a temporal hemianopsia occurring in the course of a myxedema is due to an enlargement of the pituitary body.

A further question remains: Will pressure on the chiasm always account for the diseased optic nerve in myxedema?

Berliner ends his study of the subject with the following conclusion: "In pure myxedema, naturally if we exclude accidental complications, an optic atrophy does

not occur. It is always the result of a concurrent tumor of the hypophysis. . . ."

If this is so, how can I explain the two cases of concentric narrowing of the field? In one eye of each patient the field was reduced to a small central area around the fixation point, which did not suggest an hemianopic defect. The second eye of my case showed a small rounded paracentral area remaining, also not suggesting hemianopsia. Nor did the field of the second eye in Souroff's case suggest it from the description given. Such fields could hardly be produced by hypophyseal enlargement. And furthermore, if we except the amenorrhea in Souroff's case, neither patient presented signs in accordance with such a process.

The radiographic examination made in my case by a roentgenologist of great experience and skill was negative. In this connection, however, it must be said, that the x-ray examination was negative in Hennicke's case also, in spite of the clinical evidence of pituitary enlargement.

In theory, the disease of the optic nerve in these cases might be caused by some toxic or infectious substances, possibly some toxic product of metabolism allowed to work through the diminished antitoxic power of the thyroid secretion. In support of this view, we have the very striking nervous symptoms of myxedema, the loss of memory, slow mental process, listlessness, hallucinations of speech and hearing, even insanity; also weak reflexes, cramps, spasms, frequent headache and reduced temperature.⁶

On the other hand, as Berliner well remarks, why, if this is so, do we not see optic neuritis more frequently in myxedema and in its allied diseases? Also why has there never been found in myxedema a pathologic condition of the central nervous system which can be considered as parallel with an atrophy of the optic nerve?

Another possibility should be mentioned. A general increase of intracranial pressure could cause an optic neuritis and a concentric contraction of the field. If it existed, one would expect, however, a choked disk and other clinical signs which were not present in these cases. It is likewise hard to see how a hypophyseal growth could expand sufficiently to cause increased intracranial pressure without first producing a direct pressure on the chiasm.

The chorioretinitis seen in my second case presents another element of a most unusual character. In appearance, it strongly suggested a syphilitic process from the marked vascular involvement and the striking migration of pigment from the periphery. Syphilis would also explain the disease of the optic nerve. No other evidence could be obtained, however, except that the patient's wife had had one still-born child. There was no scar on the genital organs, no history of miscarriage by his wife, and their only child is 24 years of age and perfectly healthy. On carefully questioning, the patient denied gonorrhea or syphilis, as well as any opportunity for infection. Two separate Wassermann tests carried out by different observers were negative. In spite of this negative evidence, syphilis could not be ruled out, and the patient was put on large doses of mercury and iodid, in the hope of influencing the ocular condition. It cannot be denied, however, that these pathologic changes could be produced by the same hypothetical toxic or

3. Ottolenghi: Cited by Hitschmann (Note 4).

4. Hitschmann: Augenuntersuchungen bei Kretinismus, Zwergwuchs u. verwandten Zuständen, Wien. klin. Wchnschr., 1908, No. 27, p. 655.

6. It may be noted in regard to optic-nerve disease occurring in other diseases of the blood glands that in tetany Marshner has observed a case of neuroretinitis, while Cassel has seen atrophy of the optic nerves (Possek: Schilddrüse und Auge, Klin. Monatsbl. f. Augenh., 1907, Beilageheft, p. 1), as has Hanke (Cataract, Neuritis Optica, Degeneration des Pigmentepithels des Irishinterfläche bei Tetanie, Ber. d. ophth. Gesellsch., 1907, p. 329), also.

infectious agent which may have been responsible for the change in the optic nerve.

Turning to similar changes in other cases of myxedema or allied conditions with optic-nerve disease, Hirschmann in his studies on cretinism noted in Case 4 of his series slight pigment changes in the macula of the right eye; chorioiditis in the macula of the left eye; in Case 6, circumpapillary chorioidal atrophy with pigment deposit. Bolte noted on the edge of the disk of his case, irregular gatherings of pigment. These lesions probably bear little relationship to the changes in my case. Hirschmann, however, presents an observation of greater similarity.

CASE 56.—Patient 19 years old. Right eye floating vitreous opacities, diffuse chorioiditis. Left eye, posterior cortical cataract, floating vitreous opacities, and separation of almost the whole lower half of the retina. About one disk diameter up and out from the nerve-head, there is a large area of chorioiditis with marked pigment deposits; several smaller areas in the neighborhood.

V. R. = 2/60, not improved.

V. L. = distinguishes light at 1.5 meters.

Projection faulty. Field of vision in right eye, concentric contraction. White is seen nasally 45 degrees, on the temporal side over 50 degrees, upward and downward 30 degrees.

Hanke,⁶ in a case of parathyroid disease (chronic tetany), examined pathologically, found, besides lenticular changes, the extraordinarily rare complication of a postneuritic optic atrophy, and also a very marked degeneration of the pigment layer of the iris which suggested the changes found in diabetes. He attributed these changes to toxic substances circulating in the blood.

Taking it all in all, I can come to no definite conclusion in regard to the changes in my case. I cannot rule out an intercurrent disease; I cannot prove a toxic cause allied or similar to that of myxedema. One thing seems probable, however, and that is that the process in all probability was not due to hypophyseal enlargement, and I do not believe that the present evidence is sufficient to allow me to agree with Berliner's conclusion in the affirmative.

ABSTRACT OF CASES

CASE 1.—Schmidt-Rimpler⁹ reports a case referred to him by Dr. Betke in which later myxedema developed. In each eye there existed a central scotoma for colors, without any discoverable change in the optic nerves, suggesting a retrobulbar neuritis in its early stages. Improvement took place under treatment with a thyroid preparation.¹⁰

CASE 2.—Sanesi¹¹ reports the case of a man in whom a myxedematous state developed. There was a characteristic infiltration of the skin and lowering of the intellectual faculties, with atrophy of the thyroid gland. Later bitemporal hemianopsia was found, and persistent headaches developed. Sanesi hesitated between a diagnosis of myxedema and acromegaly. Basing the diagnosis on the group of symptoms that appeared first, he declared in favor of myxedema. Some improvement took place, also, on the use of a thyroid preparation.

CASE 3.—Wagner¹² reports the case of a woman, 26 years old, with bloating of features and hands. Intelligence was reduced. Speech was difficult. Amenorrhea was present. There was neuroretinitis of the right eye, vision equaled 1/10. Field of vision was apparently free. The nerve-head of the left eye was white, vision equaled 1/10. There was marked temporal

hemianopsia. Diagnosis: myxedema; acromegaly, however, was not absolutely excluded. There was considerable improvement under thyroid treatment.

CASE 4.—Burchard¹³ reports the case of a woman aged 23. There was swelling of features and hands. Intelligence was reduced. Amenorrhea was present. There were paresis of the right inferior rectus, temporal pallor of the right optic nerve-head and a central color scotoma. Diagnosis: acromegaly combined with partial myxedema.

CASE 5.—Bolte¹⁴ reports a case of myxedema with marked nervous symptoms. There were dizziness and twitching of limbs. At first, there were signs of exophthalmic goiter, followed by those of myxedema. There was slight optic neuritis of both eyes with fields unchanged. The patient improved under thyroid preparation.

CASE 6.—Pollack.¹⁵ Girl, aged 9. There was optic atrophy of both eyes and vision was markedly reduced. The condition improved much under thyroid treatment.

CASE 7.—W. Meyer¹⁶ reported in discussion a case observed by him in Breslau. In a small boy with optic atrophy and a bitemporal hemianopsia myxedema developed. Von Mikulicz found a complete absence of the thyroid gland. Vicarious enlargement of the hypophysis was believed to have taken place. A considerable improvement followed the use of a thyroid preparation.

CASE 8.—Gourfein-Welt.¹⁷ Woman, aged 47. There were loss of sight, psychic changes, marked signs of myxedema, reduction of vision in both eyes, an apparent slight optic neuritis in the left eye, temporal hemianopsia and enlargement of the sella turcica. Marked improvement resulted under thyroid treatment.

CASE 9.—Moore.¹⁸ Man, aged 44. There were very marked loss of sight, general signs of myxedema, tremor of the hands and atrophy of the optic nerve of both eyes. There was improvement under thyroid treatment.

CASE 10.—Berliner.¹⁹ Female, aged 26. There were loss of vision, general signs of myxedema, amenorrhea and atrophy of the temporal half of the right optic disk and of the left optic disk. Vision was much diminished. Probable hemianopic defects were present. Improvement resulted under thyroid treatment.

CASE 11.—Souroff.²⁰ Woman, aged 43. There were general signs of myxedema. V.R.=1/∞; V.L.=20/70. There was eccentric contraction of the visual fields and pallor of the right optic disk. Improvement resulted under thyroid treatment.

CASE 12.—Hennicke.²¹ Woman, aged 53. There were general signs of myxedema, diminution of vision and slight optic neuritis. The general condition improved under thyroid treatment, but the eyes seemed to grow worse.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. DE SCHWEINITZ AND HOLLOWAY AND DERBY

DR. T. B. HOLLOWAY, Philadelphia: Concerning the visual field phenomena in pituitary lesions, it is difficult to state the exact cause that may be operating to produce various changes. The factor that is most frequently regarded as responsible is direct pressure on the chiasm or on some portion of the visual tract, and in this connection the possibility of cysts must not be overlooked. Localized meningitis, toxemia, hemorrhage in or about the growth, and areas of softening due, possibly, to

13. Burchard: Ein Fall von Akromegalie kombiniert mit Myxoedem. Petersb. med. Wchnschr., 1901, p. 481. Cited by Berliner.¹⁹

14. Bolte: Beitrag zur Kausistik des Myxoedems. Char. Ann., 1903, xxviii.

15. Pollack: Fall von Myxoedem mit Sehnerven-atrophie. Verhandl. d. Berl. Ophth. Gesellsch., Centralbl. f. prakt. Augenh., 1905, p. 359.

16. Meyer, W.: Verhandl. d. Gesellsch. deutsch. Naturforscher u. Aerzte zu Stuttgart, 1906, II, 234. Cited by Berliner (Note 19).

17. Gourfein-Welt: Lésions oculaires dans le myxoedème spontané des adultes. Arch. d'Ophth., 1907, p. 561.

18. Moore: Myxedema with Optic Atrophy. Proc. Roy. Soc. Med., May, 1908, p. 194.

19. Berliner: Opticusatrophie bei Myxoedem. Inaug. Dissert., Freiburg i. Br., 1909.

20. Souroff: A Case of Simple Myxedema Complicated by Atrophy of the Optic Nerve. Westnik. Ophthal., xxvi, 637. I am indebted to Dr. M. J. Konikow of Boston for a literal translation of this article.

21. Hennicke: Augenerkrankung bei Myxoedem, Klin. Monatsbl. f. Augenh., November, 1911, p. 589.

9. Schmidt-Rimpler: Die Erkrankungen des Auges im Zusammenhang mit anderen Krankheiten, Wien, 1898, p. 382.

10. As this thyroid preparation used is a proprietary which has not been passed on by the Council on Pharmacy and Chemistry, the name by which it is known commercially is here omitted.—Ed.

11. Sanesi: Missoedema spontaneo degli adulti, Clin. med. Ital., 1899. Cited by Gourfein-Welt.¹⁷

12. Wagner: Augenerkrankungen bei Myxoedem, Klin. Monatsbl. f. Augenh., 1900, p. 473.

thrombotic processes may also be considered, and the last two conditions especially in the presence of probable disease of the basal vessels. Finally, there is another factor which we believe an important one in determining some of these changes; I refer to constriction of a part of the visual tract by some portion of the circle of Willis.

Concerning Zander's observations on the normal position of the chiasm, it will be recalled that this structure was found on one side or the other of the median line in about 60 per cent. of the cases, and it was also usually situated so that the hypophysis came to lie anteriorly. Despite these findings Bartels states that in an analysis of thirty-nine autopsies, but three growths, those of Sachs, Uthoff and Erdheim—to which may be added a later case observed by Moskalew—were found anterior to the chiasm. He explains that growths situated beneath or anterior to the chiasm cause a constriction of the optic nerves by pressing these structures against the overlying anterior cerebral arteries, whereas those situated posteriorly to the chiasm would compress this structure between the growth and the structure situated anteriorly, and cause the optic tract to be compressed by the carotid artery.

Inasmuch as deep lesions may produce constriction of the visual tracts, it seems possible that higher basal lesions might also produce constriction of these tracts by pressing some portion of the vascular circle downward, especially if we recall that this pressure may be sufficient to cause an enlargement of the sella turcica, as has been observed by Oppenheim in a case of hydrocephalus. In fact, Türk has observed an indentation of the optic tract by the posterior communicating artery as the result of acute hydrocephalus. This naturally brings us to the most interesting observation by Foster Kennedy, concerning the existence of retrobulbar neuritis as a diagnostic sign in certain tumors and abscesses of the frontal lobe. He points out that in the presence of a growth in the frontal lobe there may exist a central scotoma and optic atrophy on the side of the lesion, associated with a contralateral choked disk, these changes being brought about by pressure of the growth on the optic nerve.

DR. F. H. VERHOEFF, Boston: Drs. de Schweinitz and Holloway have pointed out that a central scotoma occurs in hypophysis enlargements more often than is generally supposed, but they are unable to offer a satisfactory explanation of the fact. A case in which I performed a necropsy five years ago seems to throw considerable light on the question although it was not one of hypophysis disease. In this case there was sclerosis and thinning of the wall of the internal carotid artery leading to compression of the optic nerve at its exit from the optic canal. On examining the nerve microscopically by suitable methods, I was surprised to find that the papillomacular bundle was completely degenerated whereas the remainder of the nerve was little affected. This shows quite conclusively, it seems to me, that pressure on the nerve anywhere may affect the papillomacular bundle first, which affords a probable explanation of the central scotoma in hypophysis disease. It accords with the fact that this bundle is specially sensitive to deleterious influences. Possibly if the pressure was pulsating, owing to a vessel being pressed against the nerve by the growth, as in cases cited by Drs. de Schweinitz and Holloway, the effect on the papillomacular bundle would be especially pronounced.

DR. F. PARK LEWIS, Buffalo: I think it important to report seemingly unusual cases, as such cases when brought to our notice not infrequently are duplicated in the practice of others oftener than we realize. The remark made by Dr. de Schweinitz and emphasized by Dr. Holloway, that the selective affinity of toxins for various groups may be found otherwise than in the macular bundle, seems to me will bear still further emphasis. A case in point was an eclampsia the results of which came to my notice which on recovery left permanently a field limited by an exactly horizontal line just escaping the macula. That occurred three years ago and from that time to the present the entire lower half field has been lost. Another case which leads me to believe that possibly involvement of the optic nerve in cases of myxedema is not so uncommon as we may

think is one which came under my observation a dozen years ago, which is worth reporting for two reasons: first, because of an involvement of the optic nerve with loss of vision to about one-fourth which largely improved under the use of pituitary extract. The theory on which it was given was that there was a hypertrophy of the pituitary with limited secretion and by giving the extract this would be replaced. Whatever may have been the truth of the theory, the fact was that under the administration of the pituitary extract, continued throughout a period of two years, the vision was improved to about one-half, at which it remained. While the patient not gaining further, was lost sight of, I have every reason to believe the vision has remained at about one-half.

DR. T. B. HOLLOWAY, Philadelphia: Dr. Verhoeff's observation on the optic nerve confirms Kennedy's interesting observation that pressure of the brain on the nerve was responsible for the central scotoma, inasmuch as he regarded the papillomacular bundle as being the most sensitive of the various tracts.

VISUAL DISTURBANCES FROM DISTANT HEMORRHAGE

WILLIAM ZENTMAYER, M.D.

PHILADELPHIA

Disturbance of vision from loss of blood is of comparatively rare occurrence. Dufur found it but once in 30,000 eye cases. But the fact that hemorrhage from almost any part of the body and arising from almost any cause may have this grave sequel makes the condition one of considerable importance to the surgeon, internist and ophthalmic surgeon.

The exhaustive analysis made by Singer of the 198 cases of disturbances of vision following loss of blood, appearing in literature up to 1901, together with a study of those since reported, demonstrate the great diversity of the ocular phenomena, and indicates that the pathogenesis is not the same in all cases.

FACTORS IN THIS CONDITION

Sex.—It occurs with greater frequency in females than in males, principally for physiologic reasons, but the more frequent occurrence in males of intestinal hemorrhage from ulcer of the duodenum tends somewhat to equalize the relative frequency of its occurrence in the sexes.

Age.—The decades between 20 and 50 years furnish most of the cases and in the earlier of these the women are in the majority for the same reason of its more frequent occurrence in this sex.

Occupation and Station in Life.—Perhaps neither of these is a consequential factor. The latter may be of some importance as in the poorly nourished a hemorrhage might have more effect on the delicate structures of the retina than in the robust.

Time of Occurrence.—In many cases the visual disturbance comes on immediately or within the first few hours following the hemorrhage, but in some cases the vision fails gradually, reaching its lowest after many weeks.

Effects on Visual Acuity.—In 88 per cent. both eyes were affected, in 12 per cent. one eye. In the bilateral cases 59 per cent. of patients were totally blind. In 32 per cent. there was amblyopia in each eye and in 9 per cent. there was amaurosis in one eye and amblyopia in a differing degree in the other.

Field of Vision.—Of the cases in which the histories recount the changes in the visual fields, in 21 per cent. there was peripheral contraction. In 3.7 per cent. there was marked nasal contraction. In 7.4 per cent. the

upper field was lost, in 23 per cent. the lower field was lost. In 10 per cent. there was hemianopsia. In a certain percentage of these it is a question whether it was not a simulated hemianopsia in optic nerve atrophy. In 13 per cent. there was a central scotoma.

Ophthalmoscopy.—In a few cases the ophthalmoscopic changes were either negative or slight. In the remaining cases there was either beginning neuritis, decided neuritis, papilledema or optic atrophy, either primary or consecutive. Other changes noted were edema of the retina and hemorrhages.

Prognosis.—A. Relative to time of hemorrhage. Of the cases in which the visual disturbance was coincident with the hemorrhage, improvement occurred in 22 per cent.; of those in which it occurred within the first twelve hours improvement in 71 per cent.; between 12 hours and ten days 41.5 per cent., and after the ten days 50 per cent.

B. Relative to the nature of the hemorrhage. No improvement or a deterioration took place in 51 per cent. of the cases of intestinal hemorrhage; in 42 per cent. of uterine hemorrhage, in 62 per cent. of nasal hemorrhage, in 48 per cent. of hemorrhages from wounds.

C. Relative to the nature of the visual defect. Apparently those cases with central scotoma gave the best prognosis.

Condition of the Patient at Time of Hemorrhage.—One of the most interesting questions in connection with this subject is the condition of the patient previous to and at the time of the hemorrhage. In many of the reported cases the patient was said to be strong and in good health. But naturally, in very many the underlying cause of the hemorrhage or the repeated hemorrhages culminating in the visual disturbance had greatly lowered the power of resistance.

Nature of the Hemorrhage.—There may have been but a single hemorrhage or there may have been several hemorrhages. The quantity of blood lost has varied from a slight amount to a profuse exsanguinating loss.

Source of the Hemorrhage.—As has been stated above, hemorrhage from any source may cause defects in the vision, but in fully 70 per cent. the bleeding was from the gastro-intestinal tract and uterus. Other causes are hemoptysis, venesection, cupping, epistaxis, wounds, hemorrhage from the gums following extraction of teeth, and from the urethra.

Considering the frequency of the occurrence of severe hemorrhage on battlefields, after lacerated wounds incurred in occupations, and formerly during extensive surgical operations, and the rarity with which any of these enter into the etiology of visual disturbance following loss of blood (DeWecker and Knies did not observe a case in the Franco-Prussian War), one is forced to the conclusion that there is some other factor in its production than the resulting anemia. Certainly it does not seem reasonable to consider a man to have been in good health, as has been done in some of the case histories, who suffers a severe gastric or enteric hemorrhage. Usually such hemorrhages result from an ulceration consequent on a chronic inflammation of the stomach or duodenum which had in its train, malnutrition, anemia, nervousness and insomnia from indigestion and auto-intoxication. Nor can those cases occurring after venesection be looked on as the result of simple anemia, as no perfectly healthy individual requires blood-letting. Many of the cases of uterine hemorrhage occurred in pregnant women and followed abortion, premature birth, placenta prævia, extraction of the placenta or retained membranes or were associated with uterine

growths—all conditions likely to be associated with the generation and absorption of toxins. There remains a large group of cases in which no thorough physical examination was made, the dependence of the ocular symptoms on the hemorrhage seeming so conclusive that a search for the predisposing cause was neglected. I am quite certain that in one of my own cases only the careful study of the patient by a competent neurologist would have resulted in the discovery of the cerebrospinal symptoms and only by our modern clinical methods could the syphilitic nature of the condition have been determined, as the patient had denied infection.

In the other case the history, supplied by Dr. Tyson, gave the clue to the contributing factor, but direct dependence of the amblyopia on the uterine hemorrhage and the absence of renal symptoms at the time of the visual disturbance, might have caused the previous existence of a nephritis to have been overlooked.

PATHOLOGY AND PATHOGENESIS

In the case examined by E. Ziegler there was a decided fatty degeneration of the connective elements of the retina and optic nerve, especially in the scleral portion. No inflammatory products were found, so that he concludes that the changes are those of ischemic degeneration.

Weeks says that "it is to-day fully recognized that the blindness is due to degeneration of the ganglion cells, primarily because of interference with their nutrition;" but, as Holden has said, there are cases in which the clinical findings cannot be thus explained, and Gowers and De Lapersonne admit that the pathogenesis is not the same in all cases. Wildbrand and Sängner say that we know nothing definitely concerning the pathogenesis. As but three cases have been studied microscopically, in two of which considerable time had elapsed since the hemorrhage, and none of these since the employment of modern staining methods, we are therefore largely dependent on animal experimentation for our knowledge of the changes induced in the eye by the loss of blood. These experiments first made by Holden demonstrated degeneration of a number of retinal ganglion cells together with their long processes which make up the centripetal fibers of the optic nerve.

Von Graefe supposed that a hemorrhage occurred into the optic nerve-sheath or into the interstitial tissue of the nerve. As pointed out by Carlini, this would not explain those cases in which the amaurosis occurred late. Lober modified this theory by adding the possibility of an acute inflammation or extravasation affecting also the base of the brain. Horstmann considered those cases following epistaxis to be due to meningitis followed by a descending optic neuritis. Samelsohn's explanation is that the cerebral anemia leads to an increase in the ventricular and subarachnoid fluid. With a refilling of the cerebral vessels the fluid is forced into the lymph-spaces of the optic nerve causing an optic neuritis with increase in the interstitial tissue and pressure on the central vessels and finally optic atrophy. Litten's case of amblyopia with optic neuritis following the removal of an ascites lends support to the theory of Samelsohn; and this is a tenable theory for cases accompanied by papilledema.

Knies believes that a retrobulbar neuritis develops as the result of extravasation from vessels with diseased walls—an explanation that might be accepted for cases in which there are primarily no visible ophthalmoscopic changes but later atrophy of the optic nerve.

Ziegler explains those cases occurring after slight hemorrhages as due to contraction of the vessels from

excitation of an impressionable vasomotor system. Theobald gives as a possible cause, in some cases, thrombosis of the central artery of the retina and of the cavernous sinus.

Undoubtedly the theory of retinal ischemia with degeneration of the ganglion cells, supported as it is by animal experimentation, best explains the majority of cases, but does not apply to cases in which the amblyopia does not come on until after the time when the normal circulation has been restored. Neither does it explain cases of true hemianopsia, or true papilledema, or rare cases of which Carlini's is an example in which no fundus changes were noticed as late as two months after the hemorrhage, but nevertheless a quadrantanopsia had resulted.

Cortical changes are the probable cause of homonymous hemianopsia. A study of the visual fields shows that there are groups of cases in which the fields are representative of the fields seen in the different forms of toxemia and that there is an exceptionally large group (the superior and inferior pseudohemianopsias) in which the fields differ greatly from any of the types significant of toxemia.

It seems impossible to reconcile these widely differing findings with a theory which would attribute all to one pathogenesis. In this connection it is interesting to recall that a similar pathogenesis has been advanced and largely accepted for the amblyopia produced by quinin and some other toxic agents, but that the question of the primary lesion in tobacco-alcohol amblyopia may still be considered *sub judice* is shown by the consideration of the subject in the 1912 edition of Fuchs' text-book. The similarity of the fields in some of the cases of amblyopia from loss of blood with those found by Rönne in various forms of optic nerve atrophy and in glaucoma and which he attributes to the anatomic arrangement of the optic nerve fibers in the retina and therefore indicative of the lesion being in the optic nerve rather than in the ganglion cells of the retina is of further interest in relation to this question.

From a purely theoretical consideration of the question it would seem plausible to assign retinal ischemia with degeneration of the ganglion cells of the retina as an explanation of those cases showing peripheral contraction and in some cases central scotoma; retrobulbar neuritis for those with central scotoma with little impairment of the extent of the field, and cortical lesions for those with true lateral hemianopsia, and those showing no changes in the papilla after the lapse of sufficient time for atrophy to have set in from either retinal or retrobulbar involvement, and simple atrophy or postneuritic atrophy for those with marked superior or inferior contraction of the fields.

There are several known facts in connection with ischemia of retina which invalidate in a measure the application of this theory even to all of the cases with contracted fields. They are: that several cases are known in which blindness from this cause has been fully recovered from, after persisting for many hours; that the blindness in spasm of the central artery of the retina is coincident with the spasm; and that in quinin amaurosis, in which ophthalmoscopically the ischemia is evident, vision usually improves after a time, whereas in amblyopia from hemorrhage the impairment of vision is often late in appearing and rarely improves.

As Knies has said concerning a predisposing cause leading to the amblyopia, the affected individuals are either not in vigorous health or are positively ill; and often, as Haab intimates, there is present an abnormal condition of the blood. These are not only undoubted factors in the production of the amblyopia but also in the modification of the phenomena usually associated with retinal ischemia.

TREATMENT

As failure of vision is often delayed for some days it is important that prophylactic measures be taken in all cases of severe hemorrhage. In the few instances in which hypodermoclysis, or the injection of blood-serum, has been employed on the first sign of visual disturbance the results have been such as to encourage the belief that, except in those cases in which the blindness and the hemorrhage occur simultaneously, the immediate employment of such measures as the above may prove of value. The after-treatment should consist in the use of chalybeates, and vascular and nerve-stimulants.

REPORTS OF CASES

My own cases are the following:

CASE A.—*Patient.*—Mrs. S. K., aged 24, was sent to me by Dr. James Tyson, Feb. 26, 1896. One year previously she

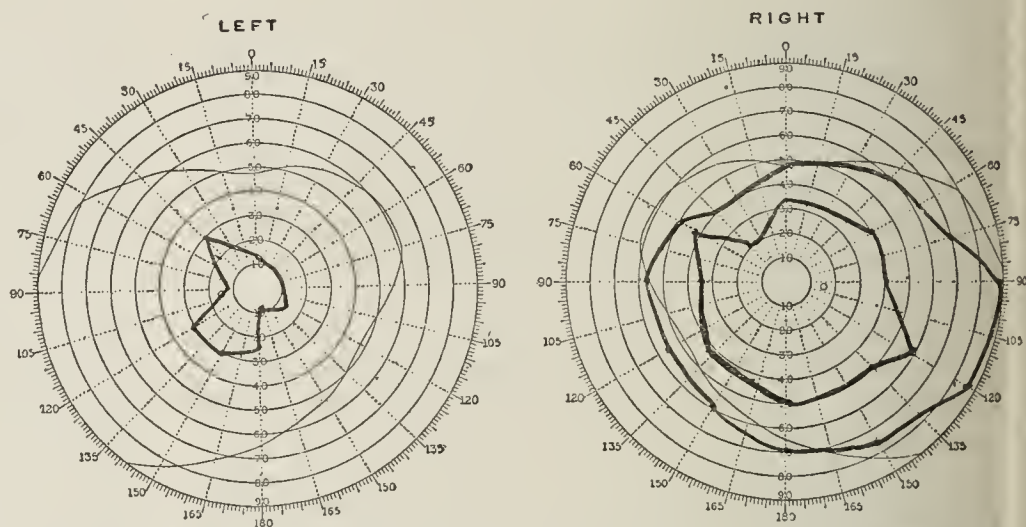


Fig. 1.—Form and red field, right, and form field, left, Case A, Mrs. K., Feb. 26, 1896.

had had puerperal nephritis but had recovered from this. A few weeks before consultation, during a rather severe metrorrhagia, the eyesight became suddenly affected. She thought that there had been some slight impairment after the confinement the previous May but that distinct failure of vision dated from four attacks of bleeding, each lasting three or four days, occurring within the past six weeks.

Examination.—The refraction and vision acuity were as follows:

O. D. — 0.50 \ominus + 4.25 c. ax. 110° 5/9
O. S. + 0.75 \ominus + 0.75 c. ax. 90° 5/12

Pupils were equal. Irises responded sluggishly to light and accommodation. In both eyes the papillae were very pale; arteries and veins about normal. Scattered throughout the retina were a very few minute, discrete yellowish points. In the right eye there were but three or four while in the left eye there were several between the papilla and macula. There were neither splotches nor hemorrhages present. The field of vision in the right eye showed some contraction up and in (Fig. 1, right); that of the left eye was very small and of irregular shape, being contracted to within 10° of fixation both to the temporal and nasal sides (Fig. 1, left).

Course.—She was under observation four months. At the end of that time the left optic papilla was distinctly atrophic. Vision was, in the right eye 5/6; left eye 5/7.5. The field of the left eye had gradually widened, finally assuming an almost typical hemianopic form (Fig. 2). Dr. Tyson's notes

show that Mrs. K. came under his care in April, 1895. There was a history of hematuria three years previously. She had been married three years. The first child went to term thirteen months after marriage. She had been pregnant since October, 1894. In April, 1895, the urine was 8/10 bulk albumin, with numerous casts; specific gravity 1.025. She miscarried at the eighth month. The amount of albumin gradually diminished and in September, 1895, there was a bare trace; "would pass as normal." The urine remained free from albumin and casts up to the time she passed from under observation, June 18, 1896. Dr. Barton Cook Hirst's examination showed a subinvolved uterus, pulled to the left side and backward by adhesions, but not turned over backward.

CASE B.—Patient.—C. H., male, aged 36, ice-cream maker, came to Wills Hospital Jan. 2, 1912, because of failing sight. For the previous six years he had been treated from time to time for the relief of symptoms of chronic gastric catarrh. Shortly after midnight of Nov. 5, 1911, he had a severe hemorrhage from the mouth, apparently coming from the stomach. He was seen at 2 a. m. by Dr. A. B. Reader of Camden, N. J., to whom I am indebted, in part, for the following notes of that illness. The hemorrhage had been very large, according to the patient's statement, at least a pint. One week later he had a second hemorrhage when about half as much blood was lost. Repeated examination of the stomach contents showed the presence of large quantities of hydrochloric acid, as much as 0.21 per cent. Occult blood showed in the stools one week after the hemorrhage and persisted for four weeks. The anemia following the bleeding was very marked until quite recently. During the second week, that is after the second hemorrhage, he complained of difficulty in keeping his eyes open and of failing vision. By the sixth week he was

the finger to the nose-test in the left upper limb, and station is somewhat impaired but the gait is normal. There is a history of girdle pains and occasional pain of a shooting character in the thighs and upper limbs. Wassermann reaction positive. Blood examination normal. Considering the multiplicity of the lesions it is possible that the patient has cerebrospinal lues." Dr. Weisenburg has called my attention to the fact that gastric hemorrhage has been reported as a crisis in tabes dorsalis.

Course.—Dr. Reader was informed of the results of the examination and was advised to use antisyphilitic remedies. I subsequently learned that the patient had been given salvarsan intravenously as a part of this treatment. The patient was last seen Feb. 19, 1912, about two weeks after the use of the salvarsan. Vision was unchanged. The visual fields showed further contraction. The fundus showed no alteration.

CASES IN LITERATURE

Following is an abstract of the cases of disturbance of vision following distant hemorrhage which I have been able to find in literature of the past ten years. This, in connection with the paper of Singer gives a fairly complete bibliography of the subject to date:

CASE 1.—Frankel,¹ 1901. Male, aged 46. Gastric hemorrhage; visual disturbance fourteen days afterward. Right eye papilla blurred, arteries irregular in caliber. Left eye, margins of papilla better defined. Right eye remained blind; left eye concentrically contracted field. Some improvement. Author believes that in unilateral atrophy local arteriosclerosis plays a part.

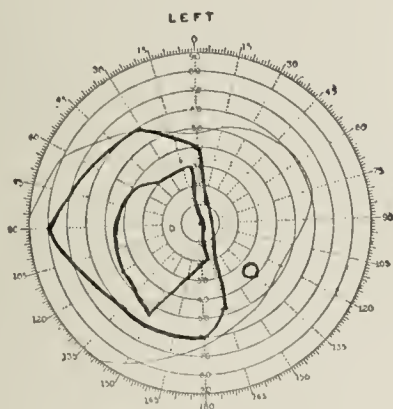


Fig. 2.—Form and color fields, left eye, Case A, Mrs. K., June 18, 1896.

able to be up and dressed. After the hemorrhage he had considerable pain over the bridge of the nose and in the frontal region. It was, however, not until the fourth week that he noticed the decided impairment of the vision of the right eye, and one week later that of the left eye. According to the patient's statements, there is nothing in the previous personal or in the family history relevant to the present trouble.

Examination.—Vision was, in the right eye, 6/150; in the left 6/6. The right pupil was oval 4 by 5 mm., long axis 30°, eccentric down and in. The left pupil was round, 5 mm. in diameter. Both irises reacted to light and convergence. Both optic papillae showed extreme atrophic pallor, the arteries were somewhat reduced in diameter, especially the superior branch in the right eye. The veins were about normal in appearance. The edges of the disks and the laminae cribrosae were well defined. At the upper margin of the right disk there was an area of superficial disturbance of the chorioid. Both visual fields were greatly contracted, the lower half of the right field including fixation, and almost the entire lower half of the left field being completely gone (Fig 3).

The patient was sent to Dr. T. H. Weisenburg for examination, who reported as follows: "There is a weakness of the lower part of the left face with protrusion of the tongue to the left and lessened action of the palate. Power in all of the limbs is less than it should be and the reflexes are very prompt but there is no Babinski. There is some ataxia in

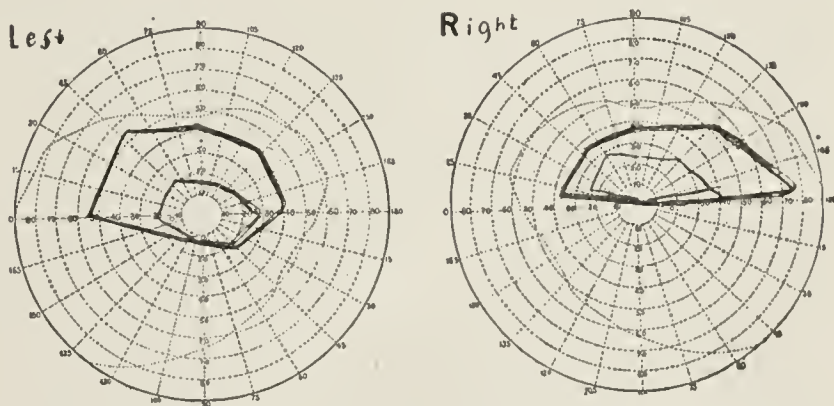


Fig. 3.—Form and red fields, Case B, Mr. H., Jan. 16, 1912.

CASE 2.—Spiller,² 1901. Male, aged 51, apparently healthy and strong. Severe repeated gastro-intestinal hemorrhage. On regaining full consciousness, fourteen days later, left eye blind, right eye impaired. Ophthalmic examination two months later showed middle-grade gray atrophy of papilla. Left eye blind; right eye 6/6. No further change occurred. Marked general arteriosclerosis.

CASE 3.—Laqueur,³ 1903. Female, aged 39. Hemorrhage from stomach. Right eye blind six days after hemorrhage. Atrophy of the papilla. Later, fingers counted in temporal field.

CASE 4.—Gallemaerts,⁴ 1904. Female. Metrorrhagia. Visual disturbance began four days later. Complete optic atrophy on one side, incomplete on the other.

CASE 5.—Snell,⁵ 1904. Female, aged 28. Hemorrhage from retained placenta. No albumin. Atrophy of the optic nerve.

CASE 6.—Stirling,⁶ 1904. Male, aged 6. Hemorrhage after extraction of tooth lasting three or four days. Previous attack of excessive bleeding. Visual disturbance immediately on regaining consciousness. Vision in right eye, fingers at 6 inches. Field concentrically contracted to within 15°-20° of fixation. Right eye, postneuritic atrophy. Papillae chalky-white. Arteries diminished in size.

1. Frankel: Med. Woche, No. 17, 1904.
2. Spiller: Thèse de Kiel, 1901.
3. Laqueur: Klin. therap. Wehnschr., 1903, No. 23.
4. Gallemaerts: Policlinique, October, 1904.
5. Snell: Tr. Ophth. Soc. U. Kingdom, xxiv, 186.
6. Stirling: Ophth. Rev., 1904.

CASE 7.—Felix,⁷ 1905. Female. Uterine hemorrhage from abortion. Right eye remained blind; left eye recovered central vision. In the field there were scotomatous areas.

CASE 8.—Carlini,⁸ 1906. Male, aged 23. Traumatic hemorrhage from radial. Unconscious with convulsions. Next day complete blindness, pupils react. Two months later left homonymous inferior quadrant hemianopsia. Right eye, 5/50; left eye, 5/50. Fundus was and remained absolutely normal in appearance. Author assumes an edema affecting both cortical centers.

CASE 9.—Porell,⁹ 1908. Female, aged 16. Metrorrhagia. Complete and permanent blindness. Papillæ chalky-white.

CASE 10.—Marquez,¹⁰ 1908. Female, aged 25. Hemorrhage following extraction of a tooth, lasting six days. Both eyes blind. Optic atrophy. Author attributes it to lowered blood-pressure, intra-ocular tension assisting in the impairment of the retinal circulation.

CASE 11.—Marek,¹¹ 1909. Female, aged 46. Intractable uterine hemorrhage for eighteen months. Failure began one year after onset of illness. Right eye, 5/20; left eye, 5/15. Fields concentrically contracted. Low-grade optic neuritis. Rapid improvement in all conditions after removal of uterus. Fields remained contracted.

CASE 12.—Bistis,¹² 1909. Male. Severe epistaxis. Right eye, 1/6; left, 1/2. Visual fields contracted. Postneuritic atrophy.

CASE 13.—Bistis,¹² 1909. Female. Severe uterine hemorrhage following attempt at abortion. O. D. 1/10. Absolute central scotoma without peripheral impairment. Postneuritic atrophy.

CASE 14.—Moore,¹³ 1911. Female, aged 56. Repeated hemorrhages from the stomach. Visual disturbance five days later. Both eyes blind. No subsequent improvement. Papillæ very white. Vessels small. "Railway-truck" appearance of vessels on pressure.

CASE 15.—Moore,¹³ 1911. Male, 43 years. Recurring hemorrhages from stomach. Few hours after second hemorrhage left eye blind; four days later right eye blind. Later, hand movements. Papillæ pale and blood-currents very pale.

CASE 16.—Moore,¹³ 1911. Male, aged 41. Hemorrhoids for ten years. Right eye counts fingers at 1 foot; left eye 3/60. Both eyes, visual fields full. Complete central scotoma averaging 10° in right eye; partial central scotoma in left eye.

CASE 17.—Moore,¹³ 1911. Female, aged 34. Hemorrhage following miscarriage. Visual disturbance day after hemorrhage. In ten days right and left eye blind; eight weeks later, right eye, hand movements; left eye, 6/18; field irregularly contracted to 20°. Small upper-temporal field four months later, no change. Both papillæ pale and edematous. In right eye, +2.50 D.; in left eye, 5+1.50 D. Later, little change in vision but less swelling of papillæ.

CASE 18.—Zentmayer, 1912. Male, aged 36. (Case B. reported above). Two severe hemorrhages from stomach. One week from first, or immediately after second, vision began to fail. Seen nine weeks from this time. Right eye, 6/150; left eye, 6/6. Inferior hemianopsia with preservation of fixation in O. S. Papillæ atrophic. Arteries somewhat contracted. Some nervous symptoms suggestive of cerebrospinal lues. Wassermann positive.

CASE 19.—Zentmayer, 1912. Female, aged 24 (Case A. reported above). Metrorrhagia following puerperal nephritis. Vision began to fail during the course of several hemorrhages. Right eye, 6/10; left eye, 6/18. Papillæ pale, arteries and veins about normal. Right eye, slight contraction of field up and in, left eye, small irregular central field. Four months later vision improved. Field of left eye almost typically hemianopsia.

CASE 20.—Weeks,¹⁴ 1911. Male. Hemorrhage from stomach, single severe. One eye blind, other 20/50. Concentric contraction.

CASE 21.—Weeks,¹⁴ 1911. Female. Uterine hemorrhage more or less constant for fourteen days. Counts fingers at 2 feet.

CASE 22.—Hegner,¹⁵ 1912. Hemorrhage from stomach. Total blindness. Postneuritic atrophy.

CASE 23.—Hegner,¹⁵ 1912. Hemorrhage from stomach. Total blindness. Postneuritic atrophy.

CASE 24.—Hegner,¹⁵ 1912. Hemorrhage from the stomach. Left eye blind; right eye marked defect in visual field. Author attributes visual trouble to ischemia of optic nerve, and retina the result of the anemia.

ABSTRACT OF DISCUSSION

DR. E. C. ELLETT, Memphis, Tenn.: Two years ago I published a report of a case similar to this, but probably on account of the title Dr. Zentmayer has overlooked it. It is interesting not only on account of the changes in the optic nerve, such as Dr. Zentmayer has cited as being present in the twenty-four cases from the literature, but there was also pigmentary degeneration of the retina, associated with retinitis proliferans. The patient, who was observed in 1903, drank a good deal of whisky, and ultimately died of uremia, so that I presume at that time he had a nephritis. There was a history of hemorrhage, but the patient said it was from the bowel, and his physician said it was from the genito-urinary tract. The patient was in bed about three weeks, and it was therefore three weeks after the hemorrhage before I saw him, at which time he complained of blurring of the vision in one eye. I examined the eye-ground but could find nothing to explain the blurring. Unfortunately, I did not take the field of vision. He was going south for his health and I referred him to Dr. Bruns, who found a few retinal hemorrhages, about two weeks after my visit. In the paper I summarized what I understood to have happened as follows:

"We had a general hemorrhage or hemorrhages, followed by edema, and then hemorrhages of the retina, not coming on for some weeks. As a result of this hemorrhage a degeneration of the retinal ganglion-cells followed, that in time leading to atrophy of the retina and optic nerve. As features of the atrophy of the retina, we note liberation of retinal pigment with massing of it in the intercellular spaces and vessel walls in the degenerated area. The irritation of the retinal hemorrhages produced a proliferation of the retinal connective tissue elements. In the eye-ground the pallor of the nerve and wasting of the vessels can be seen, while the accumulation of retinal pigment in a ring shape around the disk marks the extent to which the retinal degeneration had approached the nerve, near which, of course, nutrition was best preserved. Within the pigmented ring the retinal epithelium is preserved. Outside of this ring the chorioidal circulation is made visible by the removal of the pigment layer of the retina."

DR. HIRAM WOODS, Baltimore: To note all conditions present by modern laboratory methods of diagnosis is necessary, because blindness from distant hemorrhage is very rare, and profuse hemorrhage very frequent; consequently there must be something beside the hemorrhage. Toxemia is to be considered, because (1) toxic symptoms are noted in all the troubles producing the hemorrhage—duodenal ulcer, uterine disease, etc.; (2) toxemia is common in the disorders for which venesection is done and venesection has been followed by blindness; (3) the variety of blindness observed is such as we see in toxic conditions—central scotoma, field scotoma, hemianopsia, etc. It is not claimed that this is entirely satisfactory, but it is suggestive. Even in cases of blindness following hemorrhage from tooth extraction, when the individual was thought to be in normal condition, the reason for the hemorrhage is still missing. We know very little about the causes of profuse bleeding after such slight injuries, but its occurrence indicates something wrong with the health. Fuchs gives as causes of blindness in such cases protracted inflammation, embolism and thrombosis. In such cases, the nerve-head itself shows secondary atrophy. Fuchs does not mention profuse, distant hemorrhage as the cause of retinal anemia or atrophy. He does, however, give as a cause of optic

7. Felix: Arch. d'ophth., xxv, 73.

8. Carlini: Clinica Oculistica, February, 1906; Ann. Ophth., April, 1906.

9. Porell: Medicin. Klin., Nov. 13, 1908.

10. Marquez: Siglo Med., Jan. 4, 1908.

11. Marek: Wien. klin. Wchnschr., June 10, 1909.

12. Bistis: Arch. d'ophth., January, 1908.

13. Moore: St. Barth. Hosp. Rep., xlv, 179.

14. Weeks: Text-Book, 1911.

15. Hegner: Klin. Monatsbl. f. Augenh., January, 1912, p. 119.

neuritis "acute anemia after great loss of blood, the most frequent variety being that due to hemorrhage of the stomach and to metrorrhagia." In other words, Fuchs puts the primary ocular manifestation of the distant hemorrhage in the nerve. The fact that, in twenty out of twenty-four cases quoted from literature, there were definite nerve lesions, papillitis, postneuritic atrophy and simple atrophy, to my mind, strengthens Dr. Zentmayer's hypothesis that retinal ischemia, with degeneration of the retinal cells, may account for cases showing peripheral contraction, and possibly some of the cases of central scotoma, but that retrobulbar neuritis, or neuritis with secondary atrophy, due to a variety of intracranial lesions, more thoroughly explains clinical findings.

Another hypothesis is tenable, and it corresponds somewhat closely with the theory of cell degeneration from ischemia. Case histories indicate that in a certain number nerve lesion is observed late. The order of pathologic changes given by Samelsohn and quoted by Dr. Zentmayer might explain the hemiopic cases on the theory of ischemia. Some vision was spared because the secondary atrophy was slight, while the cortical cells were killed by lack of nutrition. Again, degeneration of retinal cells would be explained by cutting off nutrition through pressure on the vessels during the atrophic process in the nerve.

DR. SAMUEL THEOBALD, Baltimore: Dr. Zentmayer referred to the suggestion which I made several years since as to the etiology of blindness following the acute anemia of hemorrhage. It is known that after great loss of blood there is a tendency to the development of thrombi, and that the thrombus is apt to occur wherever there happens to be some pressure, some point of resistance to the flow of blood, the disposition to such thrombotic formation being due to diminished pressure of the blood, to alteration in its character, and, probably, also to consequent changes in the vessel-walls. The theory suggested as to the result of my study of a case of blindness following severe hemorrhage from the stomach—in which the ophthalmoscope showed atrophy of the optic nerves and retina, secondary to neuroretinitis—was that the resistance opposed to the enfeebled blood-current by the intra-ocular tension caused the formation of a thrombus in the central artery of the retina, just back of the lamina cribrosa. I am still of the opinion that this theory affords a more satisfactory examination of the intra-ocular changes observed in posthemorrhagic blindness than any other that has been advanced.

DR. WILLIAM M. SWEET, Philadelphia: About ten years ago I reported before the American Ophthalmological Society a case of optic atrophy following intestinal hemorrhage. The man was a healthy driver of a dray, aged 57, who was attacked by vertigo on his way to work. The dizziness and muscular weakness compelled him to return home and go to bed. The same evening he took a large dose of calcined magnesia, and during the night had a large movement of the bowels, which almost filled the two-quart receptacle, and was found the next morning to consist almost entirely of clotted blood. Later in the day there was another bowel movement, almost equal in quantity to the first, but the blood was brighter in color. On the morning of the sixth day, the vision became blurred, and by evening there was loss of perception of light in the left eye, and only light perception in the right eye in a small area to the right of the fixing point. Ophthalmoscopic examination showed the optic disk pale, the nerve margins slightly hazy, the retinal arteries moderately contracted, the retinal veins full but not tortuous, and the retina edematous. From the lower portion of the disk of the right eye a cilioretinal artery passed toward the fovea. Examination of the abdomen failed to show any area of dulness or tenderness to account for the hemorrhages. The blood examination showed hemoglobin, 38 per cent.; red corpuscles, 2,088,000, and white, 20,900. The case was under observation for four years. During this time there was no return of vision in the left eye, and only a slight increase in the size of the preserved field in the right eye, which was about 15 degrees wide and extended temporarily from the fixing point to the 40-degree line on the chart.

Although the result of experimental studies points to degeneration of the retinal ganglion cells, secondary to abnormal changes in the blood acting on the vasomotor system, as the cause of blindness, there would appear to be some other factor in many of the cases. The preservation of a small area in the field in the right eye of the case mentioned may have been due to an anastomosis of the cilioretinal blood-vessel, although the factors which caused the constriction of the central retinal vessel and its branches would apparently have exerted a similar influence on this artery.

DR. ADOLF ALT, St. Louis: The case referred to by Dr. Zentmayer of blindness after hemorrhage is similar to a case now under my care. The patient is a strongly built man, the driver of a brewery wagon. What other diseases he may have had I do not know. He came to the hospital on account of an ulcer of the stomach. While there, lying in bed, he had a severe hemorrhage from the stomach, so severe that he became unconscious for some time. When he awoke he was blind and I was called to examine his eyes. There was an absolute ischemia of both eyes. It was a day or two after the occurrence that I saw him, and with one eye he counted my fingers perhaps at six feet. With the other he saw nothing at all. I have had the man under my observation since. The stomach has been treated by the general practitioner. I have given the patient iron, strychnin, etc. In this case quite an appreciable amount of sight has returned. The eye which was wholly blind counts fingers now at eight feet in a very small central field. The other eye has now 20/20 vision, with correction of the myopia and astigmatism, and without correction has 20/40 in a small field; originally was 10° or 15°, now is between 15° and 20°. He could barely move his legs at first; now he walks about better, but like a man with telescopic vision. I believe the whole thing is simply due to lack of nutrition of the smaller arteries for so many hours and with beginning disintegration of the nerve elements which in this case improved when the blood-pressure became high enough.

I have had another case of atrophy in one eye due to an intranasal operation, the nature of which I have forgotten. The patient bled all through the night and came to me the next day because he was blind on that side. If I remember aright he got better again, but I do not remember exactly what the condition was later on. I saw him only a few times.

DR. WILLIAM ZENTMAYER, Philadelphia: Dr. Theobald, your case occurred in the earlier series so I do not recall its details. Can you tell me whether one or both eyes were affected?

DR. SAMUEL THEOBALD, Baltimore: The matter is nebulous in my mind but my recollection is that only one eye was involved.

DR. WILLIAM ZENTMAYER, Philadelphia: In only about 12 per cent. was there monocular blindness. These are the only cases that can be explained by thrombosis. I think Dr. Alt's case was caused by an embolus carried into the circulation. The same thing occurred in the practice of one of our Philadelphia rhinologists. In this case there was unilateral sudden blindness following an intranasal operation. Dr. Alt's first case was probably one of ischemia of the retina and as in quinin blindness improvement in vision occurred. As we know, quinin blindness is due to ischemia, with resulting degeneration of the retinal ganglion cells. The explanation of the pathogenesis is evident in Dr. Alt's case.

THE PROPER PROVISION FOR TEACHING OPHTHALMOLOGY IN THE MEDICAL SCHOOLS

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Ophthalmology, always a distinct department of medicine, embraced a great mass of clinical facts, as shown in the books of Mackenzie and Desmarres, before the

work of Helmholtz, Graefe and Donders caused its rapid extension in the middle of the nineteenth century. Walton, Lawrence, Bowman, Sichel, Stellwag and other able men had found it an ample field for a life time of study.

The routine use of the ophthalmoscope and the test lenses enormously increased the extent and practical importance of this branch of medicine. It inspired able men of the younger generation with an interest that made it their life work. Jaeger, Arlt, Schweigger, Argyll Robertson are only specimen names from those of the host who, fifty years ago, saw in ophthalmic science the highest development of medical science, and in ophthalmic practice the highest, most exact application of medical art. Williams, Agnew, Noyes and Norris brought the inspiration of the new ophthalmology to America. Hughlings Jackson and Clifford Allbutt took the eye-mirror to throw light on obscure realms of internal medicine. Still active are Hirschberg, Fuchs, Haab, Landolt, Motais, Nettleship, Swanzy, John Green and hundreds of others who have devoted long and busy lives to a science and art that gave ample scope to all their powers. They and their students after them have continued to extend the boundaries of ophthalmic science and art in every direction.

By the labor of these leaders has been developed modern ophthalmology, the proper teaching of which we are to discuss. The catalogue of Hirschberg's collection of its literature occupies 336 octavo pages. The list of books, transactions, monographs and journal articles appearing in the year 1911 takes 151 pages and includes 3,506 titles. They constitute in the aggregate between 20,000 and 30,000 pages. To engage successfully in ophthalmic practice one does not need to read all that has been written about ophthalmology. But the amount of this literature gives some indication, probably the best statistical indication, of the extent to which the problems of ophthalmology have claimed attention and study from those who have gone before us, and are claiming attention and study from those to-day engaged in ophthalmic practice.

Another estimate of what is to be taught in this branch of medicine might be reached by comparing such treatises as those of Weeks, de Schweinitz or Ball with textbooks on medicine or surgery, like those of Osler or Tyson, Da Costa or Park, or by comparing the four-volume system of Norris and Oliver or the Graefe-Saemisch "Handbuch" with Allbutt's "Medicine" or Keen's "Surgery." The monographs of ophthalmology still more strikingly illustrate the greatness of this branch of knowledge. From Donders' book on "Accommodation and Refraction of the Eye" to Wood's two-volume "System of Ophthalmic Operations" or Parsons' four-volume "Pathology of the Eye" there is a long line of monographs, the more important of which must be read by any one who would be counted well informed on the literature of ophthalmology.

Consider it from another point of view. The anatomic relations of the ciliary body, lens, iris root and canal of Schlemm are as important to the ophthalmic surgeon as are those of cranial sutures and eminences, and of the cerebral convolutions to him who would do brain surgery. The exact understanding of the relations of the contents of the orbit and the optic nerve to the neighboring sinuses is as important as that of the relations of the fetal head to the pelvic diameters, which claim so much attention from the student of obstetrics. The functions of the visual apparatus are more complex and occupy more space in the text-books of physiology than those of any other special apparatus, except the brain.

In diagnosis the ophthalmologist must master special instruments and methods, the trial set, the ophthalmoscope, the perimeter, the transilluminator, the tonometer, the varied muscle tests. These diagnostic attainments cannot be surpassed for refinement and importance in any other branch of medicine. What procedures in surgery require such delicate exactness, more intelligent planning or more carefully elaborated technic than the extraction of cataract, iridectomy or the plastic operations on the lids?

The ophthalmologist, as a rule, knows more of the requirements and attainments of general medicine and surgery than any one outside of ophthalmic practice knows of the attainments and requirements of ophthalmology. In so far as any one class of men are capable of comparing different branches of medical and surgical practice, the members of this Section, by training and experience, are better fitted to compare the requirements for the proper teaching of ophthalmology with those for other departments of medicine and surgery than are any other group of men in the American medical profession. Do any of you believe that there is any line of work carried on in the medical profession which demands more training, or better training, for its proper performance than that encountered in ophthalmic practice? Occasionally there have been surgeons and physicians who have attained proficiency both in general surgery and general medical practice, and in some departments of ophthalmology—such men as Jonathan Hutchinson, Hughlings Jackson, Clifford Allbutt and Sir William Gowers. And these men without exception have given a relatively high place to the diagnostic and operative methods that belong to ophthalmology. That the knowledge and technic of ophthalmic medicine and surgery should be underrated by those who are ignorant of them is not surprising and has no bearing on a just estimate of their relative importance.

Aside from preparation for devotion to ophthalmology as a special line of practice, consider how much there is in it for study that may be of important service to other branches of medicine. The department of ocular hygiene should dominate the lighting of buildings, the conditions for study in schools and for work in factories and offices, and the prevention of blindness by industrial injuries, ophthalmia neonatorum or trachoma. Not less important are the diagnostic services ophthalmology can render in general medicine and surgery, the light it may throw on general diseases, on such processes as arteriosclerosis and lesions within the cranium. These are but scattering suggestions of the extent of the field of ophthalmology, the breadth of the science to be taught, the refinement of the art into which men and women are to be trained.

In our present educational scheme what is the provision made for teaching ophthalmology and its practical application? The best recognition we have been able to secure in the medical curriculum recommended is fifty hours in the scheme of the Council on Medical Education of the American Medical Association, or sixty hours in that of the Association of American Medical Colleges—less than one-third of the two hundred hours that Jaeger is said to have spent in producing a picture of one eye-ground. This period of sixty hours, or less, is intended to cover the only systematic instruction on ophthalmology given in the best American medical colleges.

The text-books of de Schweinitz or Weeks are practically as large as those of Osler or Da Costa. But ophthalmology is to have fifty or sixty hours, and med-

icine or surgery 600 or 800 hours. Are the text-books on medicine or surgery so wonderfully condensed, or those on ophthalmology so padded and stuffed with meaningless sentences, or irrelevant statements, that the subject of the latter can be mastered in one-tenth of the time given to the former? Even obstetrics, which has less literature than ophthalmology, gets three or four times as many hours in the medical curriculum.

It would be interesting to trace how such an anomalous distribution of time in the course ostensibly intended to prepare for every branch of medical practice had come about. But that is another story. The point here is that everybody recognizes that the course on ophthalmology in our best medical schools does not prepare any one for ophthalmic practice. This is recognized by the professor of ophthalmology who says, "I do not undertake to make ophthalmologists of the students." It is recognized by the honest "general" practitioner, who frankly tells his patients, "I do not undertake to treat diseases of the eye."

What is possible in the brief time allotted to ophthalmology? With bright students who have some preliminary training in physics and a good command of the fundamentals of medicine, it is possible to show what a trial case is and the general outlines of its use, so that the man who is interested and earnest will be able to work out presently the cases which the late Dr. Connor has referred to as "simple errors of refraction." It gives opportunity to show the student how he can see into the eye with the ophthalmoscope and to recognize the more striking features of the normal eye-ground and a few of their common variations. He can be given a theoretic knowledge of the taking of the visual fields, can be made acquainted with the more constant symptoms of conjunctivitis and iritis. He can learn that ophthalmia neonatorum and trachoma are dangerous to sight, and for each a routine treatment. He can be told that glaucoma and detachment of the retina, as well as cataract and intra-ocular tumors, cause blindness. But with regard to the mass of diseases of the eye, as noted in the twenty-page classification, published two years ago by Duane, in the *Transactions of the American Ophthalmological Society*, he can know nothing. We may teach him to turn the lid and drop a collyrium into the eye, to remove a displaced lash or a superficial foreign body; but the best that we can hope to do with regard to the removal of cataract, the doing of an iridectomy, the operations for a squint or deformity of the lids is to impress him with their difficulties sufficiently to induce him to study farther before he undertakes them.

The fact is that the medical graduate may go out from the only responsible medical schools, the only schools recognized by our medical licensing boards, with but little more knowledge of optics than the best of the self-trained opticians and with little more skill in ophthalmic operations than the foreman of a machine shop who takes the foreign bodies out of the eyes of his workmen.

How then has ophthalmology been learned by those who wish to prepare themselves for ophthalmic practice? It is learned quite outside of our teaching institutions by those sufficiently interested and fond of study, through the systematic reading of text-books, monographs and ophthalmic journals; through the conscientious observation and consideration of such patients as come under their care; through service in private office or public clinic as assistant of some one more advanced in the line; through residence and service in one of our few ophthalmic hospitals, or through visiting and following, more or less closely, similar work in the med-

ical centers of this country or abroad. In a very large degree the American ophthalmologist of to-day is self-educated. This has its advantages that are appreciable in the individual case; and its fatal disadvantages, as a general method of instruction for a profession on which the community has to depend for important special service.

On the side of advantages we may count the enormous pedagogic gain achieved by letting the student pursue exclusively the line of work in which he is interested. If his time and interest are all absorbed in dealing with errors of refraction, he will reach an expertness in their diagnosis that the well-rounded practitioner might not attain. The same is true with reference to operative ophthalmic surgery or to the refinements of ophthalmoscopic diagnosis. By such a method are developed the extreme refinements of skill in particular branches that mark the work of the best ophthalmologists of our time. But for the purposes of serving the needs of the community this is largely specialism run to the extreme. As a means of securing a general standard of competence it is preposterous.

There is a dark side to the working of this system, or lack of system. With the absence of any authority to lay out and enforce a systematic course in ophthalmology, or to determine when such course has been successfully pursued, the community is at the mercy of the "get-rich-quick" scheme that leads the man, who is making a failure in some other line of practice, to go to a six weeks' proprietary post-graduate institution and then to return to the scene of his former failure, or more often, to make his appearance in some other part of the country as a full-fledged specialist in diseases of the eye, and probably also of the ear, nose and throat. The six weeks, if at all devoted to the effort, furnishes two or three times as many hours as the undergraduate medical school gives to ophthalmology, and will give the would-be-specialist a start which places him at an advantage over the general practitioner of the community in which he settles. Only a few shrewd judges of men will be able to pierce the thin cloak of special knowledge that veils the underlying ignorance. The six weeks' graduate will get patients suffering from diseases of the eye, and will come to be known as an authority in that branch by a good many people in the region. And, although he never opens a new book or learns the name of an ophthalmic journal, his place among ophthalmologists, as well as that of the more conscientious student, is thenceforth established; and the courage that enabled him to strike out into this new unguarded field is abundantly rewarded. Elsewhere I have pointed out some shining examples of this kind of self-made specialist: the professor of ophthalmology in a western medical school, who had seen three cases of "glioma of the retina beginning after 50 years of age"; the ex-president of his state medical society who knew there could be no such thing as mixed astigmatism, because an eye could not be both hyperopic and myopic at the same time; the eminent oculist of a great eastern city who argued that astigmatism might depend on displacement of the retina. Such failures of the old plan for ophthalmic education are striking, but not unique.

Go up higher. Take those who exemplify the best results of this system of ophthalmic education. Is not their preparation for the whole of ophthalmic practice likely to be faulty in some direction? Who is there here that, looking over his qualifications for his work, is not (as I am) conscious that in some direction he might have been, and should have been, better trained? One.

for instance, does not feel sure of the results he gets in measuring refraction; another feels himself at a serious disadvantage when he attempts to work out the significance of some paralysis of the ocular muscles; a third would rather avoid a plastic operation on the lids or orbit, and so through the list. We can each find a good excuse for our deficiencies—no one told us at the important time the need of special study of this or that particular point. Systematic instruction, in pathology or bacteriology, for instance, was not to be had at the time that we could have taken it to the best advantage. Later we have been hindered by this or that important matter from making good the deficiency, although fully conscious of it.

These defects in training, as well as the imposition of the six weeks' specialist on the innocent public and the guileless general practitioner, are all chargeable to the lack of a recognized systematic course of preparation for entrance on ophthalmic practice. One hundred years ago, comparatively few took any course of systematic study before entering the practice of medicine or of law, and schools of dentistry and engineering were quite unknown. Time has demonstrated that the well-conducted school, offering systematic courses and enforcing a rounded curriculum, is by far the best means of preparation for entering the practice of a profession. Only the indisposition to change, the stolid, unthinking position that what has been is right and must continue, stands in the way of the recognition of this truth with reference to the training for ophthalmology. I am convinced from the evidence of the past year that even this attitude no longer offers an insurmountable or very serious obstacle to the proper teaching of ophthalmology.

The absence of any curriculum recognized as properly preparing for the practice of ophthalmology leaves both the medical profession and the public unable to decide what should be expected of a candidate for ophthalmic practice, or as to who has conformed to reasonable requirements of preparation for such work. This is not only a hardship to those who need the services of an ophthalmologist and an opportunity for the impostor; it also greatly limits the use that would be made of such services, lessens the value of our science and art to the community and prevents us from receiving the proper respect and consideration from the public. Our western fruit-growers discovered some years ago that carefully sorting and standardizing the products of their orchards not only paid for the labor expended and gave an increased profit, but also greatly extended the market for that product. If people knew what they could get and from whom they could get it, the number ready to act on such exact information would be greater.

There can be no doubt that much of the growth of the dental service of the community that has occurred in the last fifty-years has been due to the perfectly definite professional status of dentists. The optometrists are so conscious of the value of a definite standard of attainment in professional skill that they are spending thousands of dollars in literature, legislative campaigns and newspaper advertising in order to set up the pretense of such a standard regarding one part of ophthalmology, their claim being supported chiefly by ambitious hopes and the fact that thirty-three students are taking the course on optics at Columbia University.

It may be asked, "Is the need of men trained for ophthalmic practice sufficiently great to justify teaching institutions providing the required training?" It will appear on examination that the demand for trained ophthalmologists is greater than has yet been recognized

in any formal estimate of the situation. From month to month I receive letters from people in towns of considerable size inquiring where they can get the services of a reliable ophthalmic specialist. Some of these letters are from patients, or members of their families; some are from well-known ophthalmologists with patients still in need of attention going to the places indicated. I probably have as good opportunity for knowing the ophthalmologists of a large part of this country as any one. Yet there are regions of hundreds of miles of fairly populated states in which no such services are to be obtained.

If trained ophthalmologists were sufficiently numerous and properly distributed to be available for all the services they could render to the community, I believe that one to every 10,000 inhabitants would find plenty of work and fair remuneration. Some of you have seen as many as 10,000 patients in private practice, but not all of you, not the majority; that would be a new patient—not the return of an old one—every day for thirty years. Practically all members of the community could be mutually benefited at some time by the services of an expert ophthalmologist, and many require a great deal of such service. Suppose that such 10,000 patients average 25 cents a year, \$5.00 in twenty years, as their contribution to the ophthalmologist, the sum would be much above the average income of members of the medical profession. One ophthalmologist to 10,000 inhabitants would mean about 10,000 physicians trained in ophthalmology needed in the United States, and when we remember that of the men having such training we cannot expect an average of over twenty-five years of professional service, it means that there is a need of 400 men trained for ophthalmic practice each year. That the present opportunities for residence in ophthalmic hospitals and as assistants in eye-clinics are inadequate to furnish any such number of trained ophthalmologists is evident.

For the medical schools favorably situated with adequate facilities, there is no line of work that they can take up of more service to the community or of more advantage to themselves than this of systematizing and standardizing the training of ophthalmic practice.

What ground should this training cover? What facilities for study should it offer and utilize? How should the curriculum be arranged?

The course of training for a profession is not to be elaborated in a few hours of thought and compressed into a rounded paragraph, or thrown together in the course of a single discussion. But, above all things, it is desirable that we should arrive at some definite practical suggestions; and, in order to give definiteness to this discussion, this scheme is outlined.

The work done before obtaining the degree of doctor of medicine should include the acquirement of a definite knowledge of the special anatomy and physiology of the eye, and of the general anatomy and physiology of all tissues entering into the composition of the eyeball or accessory parts. Only certain special problems in anatomy and physiology, like those regarding the filtration-space and the maintenance of intra-ocular tension, should be left for study in this special course. General pathology should be mastered in the undergraduate medical course; the processes of inflammation and degeneration, the characteristics and tendencies of tumors should all be familiar to every medical graduate. Moreover such an acquaintance with the ophthalmoscope, the trial lenses and other standard methods of ophthalmic diagnosis, as has been mentioned above, should be possessed by all

graduates in medicine; and graduation in medicine after a standard four years' course should be made a preliminary to the work to be outlined. Furthermore, the special student of ophthalmology should have certain preliminary studies not required of all graduates of medicine. Both in justice to himself and to the community he should have some acquaintance with physical optics, algebra and plane trigonometry.

With such a foundation the special curriculum in ophthalmology may be undertaken with profit. The back-bone of the course should be one year of clinical work in an eye-clinic. This must be chiefly an out-patient service, but will be better to include a certain number of hospital patients. Perhaps an equivalent may be found in serving as an assistant to an ophthalmologist in full practice, the longer hours devoted to the work tending to make up for deficiencies in other directions. With the clinical work should go the careful study of every portion of one of the larger complete treatises on ophthalmology and the reading up of particular subjects in other text-books, monographs or journals in connection with cases encountered in clinical work. In addition, there should be work on pathologic specimens, both gross and microscopic, including the examination of smears and cultures, drill in the more common important operations on the eyes of the lower animals, special instruction regarding the eye symptoms of diseases of the central nervous system and important general diseases. During the whole course the student should be assisted by demonstrations, and his work supervised by means of quizzes and clinical conferences. Finally there should be one or more thorough examinations, written, oral and practical, to test the knowledge the student has acquired and his ability to focus it on the question or case under consideration. To those successfully completing such a course a special degree should be given.

Such a scheme or schedule raises many important questions. First, the time to be devoted to it. A great deal could be said in favor of two or three years devoted to ophthalmology before recognizing the candidate as competent. But there is danger of making the requirements so rigid that not enough will meet them to supply the needs of the community and to establish such a course of study as the only proper entrance to ophthalmic practice. To establish a supervised course of one year is a radical departure from the practice of the past. When it has been thoroughly developed what this will do for the student, improvement in the curriculum may properly be considered. With reference to the preliminary requirements; it would be easy to argue for one year's work as intern in a general hospital. But the process of prolonging student life before entering on actual professional work has been carried about as far as can wisely be done, in view of the limitations imposed by human nature and the need of turning the youthful energy into channels into which it is to flow throughout active life, at the earliest date compatible with fair preparation of the average individual. The need is not now to lengthen the period of study, but to use it to better advantage, more economically, more efficiently; to bring into play more immediately and effectively the life motive, a realization that the individual has actually entered on the labor that is to determine his permanent place in society, and to bring this motive into play at the earliest possible moment.

The requirements regarding mathematics and physical optics might be a subject for discussion. But it would seem that, when so large a part of the work of the ophthalmologist consists of the measurement of the opti-

cal conditions of the eye and the correction of refractive errors, this kind of preparation ought to be insisted on, although many who graduate from standard medical schools may not be ready to meet the requirement. To make up such a deficiency will usually not take many weeks, and it furnishes an excellent exercise for one who is entering on the practical study of physiologic optics.

Nothing has been said about the part of the course devoted to the refraction of the eye. In clinical work, in reading, in demonstrations and in quizzing, this should receive the full share of attention. It is so different from most of the undergraduate medical course that the preparation for ophthalmic practice may well include special emphasis on it, without conceding that it constitutes the whole, or almost the whole, of the practice of ophthalmology.

Briefly to recapitulate: Ophthalmology is a field broad enough to claim all the time and energy that can be given to it by any trained mind. Proper preparation for ophthalmic practice requires as long, systematic and thorough training as preparation for any other profession. Such professional training should be systematic and carried on by responsible institutions, working up to a recognized standard.

The supervising and standardizing of the course on ophthalmology will result in the more complete and rounded training of competent ophthalmologists and in the elimination of the incompetents who seek a short cut to professional standing and financial success. It will greatly improve and extend the ophthalmic service of the community.

The systematic supervised course that it is now practicable to establish should be based on completion of the ordinary medical curriculum and acquaintance with the necessary mathematics and physical optics, and should include one year of clinical work in ophthalmology, a careful systematic course of reading, with systematic instruction in special diagnostic methods, ocular pathology and therapeutics, and the measurement and correction of errors of ocular refraction.

Metropolitan Building.

ABSTRACT OF DISCUSSION

DR. SAMUEL D. RISLEY, Philadelphia: I agree with Dr. Jackson; at present undergraduate teaching is inadequate as an equipment for the practice of ophthalmology as a specialty. The same may be said, with less emphasis, it is true, for any branch of medical science. The young graduate physician who has failed to secure an internship in some general hospital for at least one year, or work under the tutelage of a large clinic is not a safe practitioner of any branch of medicine or surgery. Without such opportunity his experience is gained at the expense of the community in which he settles. This is especially true of ophthalmology and otology for which the requirements of the curriculum are relatively meager. In ophthalmology, moreover, a preliminary training in mathematics, more thorough than is usually acquired in the average B.A. degree, is necessary for a definite comprehension of many of the optical problems which present themselves in the dioptric system of the eye.

I have passed most of my professional life in the study and practice of ocular affections which found no mention in my university course of instruction. One of two courses must be adopted, if the evils pointed out by Dr. Jackson are to be remedied, that is to say, if the members of the community are to be spared the danger of submitting themselves to the care of incompetent ophthalmic surgeons: (1) the hours devoted to ophthalmic study in the medical college must be largely extended and supplemented by largely increased facilities for clinical opportunity; or (2) the lead-

ing medical schools and universities must provide postgraduate opportunity for the study of ophthalmology.

To provide adequate equipment for the undergraduate would require an extension of the time now allotted to the medical course. Indeed, the extension of the course in our leading medical schools to five years is now under serious consideration, though it is urged that the young physician will be too far advanced in years before entering on the practice of his profession. If a postgraduate course in ophthalmology is to be required before the student is allowed to employ his ophthalmoscope in practice, at least one additional year must be added to his life as a student.

The leading university medical schools should provide a complete course of didactic study with ample clinical facilities as a postgraduate department for which a degree either of Doctor of Philosophy or of Doctor of Ophthalmology should be awarded. Such provision would in a single generation remove the unfortunate conditions described by Dr. Jackson and lead to a rapid advance in the science of ophthalmology and great benefit to the people.

DR. F. C. TODD, Minneapolis: In the matter of teaching undergraduates we have to bear in mind that we are undertaking the preparation of general practitioners in which we are expected to teach the student, first, those things in ophthalmology which have a relation to, or a bearing on the diseases of a more general character. Thus, for example, he should be taught ophthalmoscopy that he may be able better to make diagnoses. I dare say that to-day in many schools things are being taught in such departments as medicine and neurology that will prove of less value to the practitioner when dealing with his patients and endeavoring to make a diagnosis than would be a sufficient knowledge of ophthalmology which the time now allotted the subject does not permit. Second, if the general practitioner is to serve his community properly, he must learn to treat the common and simple eye diseases which he may safely treat. Third, he must have sufficient knowledge to diagnose properly those diseases which might produce blindness that he may send them to an expert or treat them himself in such a manner as to prevent blindness or, at least, not to cause it by improper treatment. And he must be prepared to do the emergency work that will come his way. He must, for instance, if no expert is at hand, know how to do promptly an iridectomy when a prolapse of the iris has occurred as the result of a penetrating wound of the cornea.

I believe that there are more eyes becoming blind to-day because of the lack of knowledge and training of our general practitioners in ophthalmology than result from opththalmia neonatorum, since that disease has so decreased in our country.

All this we cannot do in fifty hours and hence we must select the most important part and leave out the rest until such time as the medical course shall have added the fifth clinical year. We cannot, therefore, teach refraction to undergraduates excepting as an optional or elective course. At the University of Minnesota we have adopted a fifth, or clinical year, beginning with the class entered in 1911. This will consist of a year of clinical work in a hospital of recognized standing, during which the work of the student will be under the supervision of the faculty and he will be given out-patient service. During this year we hope to have the opportunity to pick up the loose ends and better finish the incomplete product. This year should serve for the fuller teaching of the things the general practitioner should know concerning ophthalmology and the other specialties.

DR. T. CHALMERS FULTON, Philadelphia: Every man who essays to be an ophthalmologist should first have a reasonable knowledge of general medicine and surgery. I am in favor of having a man practice general medicine and surgery and become an all-around medical man first, but I would advise that man to commence early with the use of the ophthalmoscope because after a certain period of time we cannot educate the muscle of accommodation in the use of the ophthalmoscope. We all know, if we are absent for any length of time from our work, and from the ophthalmoscope, how hard it is to get our ophthalmoscopic legs on

again, so to speak. I favor adding a year to the course of training in ophthalmology. During my pupilage at Jefferson, thirty years ago, when the eye clinic was on the boys would disappear. It was entirely too dry. In my judgment the study of ophthalmology is so important that we cannot allow specialists to be created in large numbers unless they are properly qualified. I would be in favor of making a special course as has been outlined by Dr. Jackson, and at the end of that time having the men who aspire to practice ophthalmology pass a special examination by a special board, and after the successful passage of that examination to have a certain degree, say for instance, "O.S.," "Ophthalmic Surgeon," or "Oph.," "Ophthalmologist," or something of that kind. Every pedler around the corner is selling "specks." We must fight the optometrists and the optometry courses in the schools. Thirty-three in the class at Columbia University! Think of it!

DR. EDWARD JACKSON, Denver: The question of lengthening the period of student life is a very serious one. In the National Educational Association a committee has been for some years working on the problem of the reorganization of secondary education with the idea of getting students into college earlier, and condensing the ordinary college course. The plan has been adopted, first in the University of Michigan and afterward in some of the other universities, of requiring a six years' course to cover the work both for the A.B. and for the M.D. degrees, principally by recognizing that a large part of the medical course may have a cultural value that should entitle the student to recognition as a scholar for the bachelor's degree.

If the student enters college at 17 and pursues there a six years' course, he will take his degree at 23; and then adding a year of work in ophthalmology he will be ready for active work at the age of 24, and that probably is pretty nearly the average age at which a student should enter into practice. Much could be said for thorough training in other branches of medicine to fit us for the practice of ophthalmology. But the public deserves the benefit of the special knowledge which the oculist is supposed to possess, which is his particular *raison d'être*. The thing that has been greatly neglected up to the present time, the training in ophthalmology itself, needs to be greatly emphasized now.

I think the situation is far from being as hopeless as Dr. Risley seems to believe. The course in ophthalmology in Oxford University has in a way been successful, although conditions there are not favorable to success, on account of the situation and traditions of Oxford: The University of Liverpool, a younger but important technical institution, is giving a similar course.

In this country the University of Colorado has undertaken to give such a course, based on a year of clinical work and the necessary teaching, to give the degree of doctor of ophthalmology. This is the degree that is given at Oxford. Probably within three years two or three other of our best universities and medical schools will have established similar courses. From the very wide-spread interest that has been expressed I am certain that the time has come for such a move, and it will be supported. We can all have some influence by expressing our approval in the medical profession and in medical meetings. In the House of Delegates a member who did not know what action was taken last year introduced resolutions demanding a two years' course in ophthalmology.

CATARACT EXTRACTION WITH CORNEAL SUTURE

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MEMPHIS, TENN.

From time to time ophthalmic surgeons have tried to find some satisfactory means of closing the corneal wound after cataract extraction by mechanical means. Briefly, the means used have been some sort of sliding conjunc-

tival flap, or direct suture of the wound, and it is with the latter alone that this paper will deal. The sutures have been applied either to the conjunctiva or the cornea.

The first published description of such attempts is that of H. W. Williams¹ of Boston, who placed sutures through and through the lips of the corneal wound after extraction of cataract, and reported favorable results. He later modified this to the extent of placing the suture in the conjunctiva only. We occasionally hear yet of similar efforts, but as this method is resorted to after the completion of the operation, it has seemed objectionable, in that if a cataract extraction has been completed successfully most surgeons are willing to omit any finishing touches, especially as a well-made conjunctival flap quickly smooths itself out and adheres to the sclera without other assistance than the pressure of the lid. If the operation has not been satisfactorily accomplished, and especially if there has been loss of vitreous, the surgeon is even more anxious to close the eye without the addition of any manipulation that can be omitted. For this, or other reasons, suture of the conjunctival flap has never been popular. The first attempts at corneal suture, also accomplished after completion of the extraction, were open to the same objections.

Probably with the idea of avoiding these objections, Suarez de Mendoza² devised a plan of introducing a suture into the cornea before making the corneal suture, and in 1889 and 1891 published reports of thirty-eight operations performed in this manner. He made a shallow incision into the surface of the cornea about where the incision for the extraction of the cataract would fall, and then passed the suture through the lips of this groove, the loop of the suture being drawn well out to escape being cut. The incision was then made to face in this shallow groove. After the extraction the suture was tied. It will be seen that this suture did not penetrate the cornea, but was passed into it only, and was not open to the objections that would apply to a through and through suture.

The most noteworthy work by far with the corneal suture as a step in cataract extraction is that of Professor Kalt³ of Paris. His publications on the subject consist of two papers, dated 1894 and 1910. In the first one the results in fifty cases are given, while the second paper gives 2,000. It is with this method that this paper has to do.

In common with others I knew vaguely of the Kalt operation, but I was, also in common with others, not especially impressed with its advantages, while I was very much impressed with the desire to make the operation as simple as possible, and to omit all apparently unnecessary detail. In the summer of 1910 it was my privilege to see Professor Kalt's work, and the skill of this operator made the procedure seem so easy that I was tempted to try it, with the results that will be related. While the experience about to be related is very limited, still one learns something from even a limited experience, and this experience may be of interest inasmuch as not very many have apparently given the method a trial.

A good idea of the procedure itself and its philosophy is to be gained from Kalt's last paper, from which the following extract is taken:

PLACING THE SUTURE

The suture consists of a vertical corneal portion and a transverse episcleral portion. The whole forms a T, with a gap between the junction of the horizontal portion with the vertical portion. The length of each of these portions does not exceed 1 mm. The vertical intracorneal branch follows the vertical corneal meridian and stops exactly at the juncture of the transparent portion with the sclera. The horizontal portion traverses the opaque part of the limbus as near the cornea as possible. An interval of 0.5 mm., corresponding to the limbus, is ample to permit the passage of the knife.

Not to quote verbatim the rest of the paper, it is stated that in passing the suture the corneal portion (vertical) is passed first. The loop of the suture is left long and laid to one side, and if wet will adhere to the skin, or to the gauze with which the skin is covered, and not get tangled. In passing the knife, the incision may be completed in an oblique meridian of the cornea instead of the vertical, thus rendering the cutting of the thread less likely. The corneal incision, capsulotomy and delivery of the lens being completed, the thread is drawn by pulling on its upper (scleral) branch, and a square knot is tied. If this suture is well placed, and the points are close to each other, tying does not cause much folding of the cornea, but it is of no matter if it does, as the postoperative astigmatism is not affected thereby. Prolapse of iris and vitreous, if they occur, are reduced by tying the suture and thus approximating the corneal wound. "The knot once tied, one is master of the situation." Cortical masses are removed with a suction aspirator, and the iris smoothed into place without fear of provoking loss of vitreous. Physostigmin (eserin) may be used when the iris tends to prolapse, but is not as a rule. The dressing is monocular, and patients get up on the second day. The stitch is removed on the second or third day, usually the latter.

To consider the proposition in some detail, a discussion of the following points will cover the ground.

- I. The introduction and removal of the stitch.
- II. Accidents.
- III. The control of iris and vitreous prolapse by the stitch.
- IV. The toilet of the wound.
- V. Secondary iris prolapse after corneal suture.
- VI. The course of healing.
- VII. Results.

1. THE INTRODUCTION AND REMOVAL OF THE STITCH

Nearly every one who has written concerning the corneal suture speaks of the difficulty of introducing it, that it adds a step to the operation, and that its removal is a second operation. Thus Van Lint⁴ says that it is "an operation which is difficult of execution," and others say the same thing. Fully conscious of my own limitations as regards operative skill, I can state that any one who is qualified to do ophthalmic surgery at all need not be deterred from trying this procedure on account of the difficulties of carrying it out. The proper materials must be used, but with them the corneal suture is surprisingly easy. The proper needle and thread must be employed, however, and here it might be said that the suggestion to employ an absorbable suture is based on theoretical reasons only, as the finest catgut obtainable will not pass through the eye of the right sort of needle. While Kalt advises cotton, the suture material which may be obtained from Luer is silk, and is perfectly satisfactory.

4. Van Lint: Clin. Ophth., iii, No. 7.

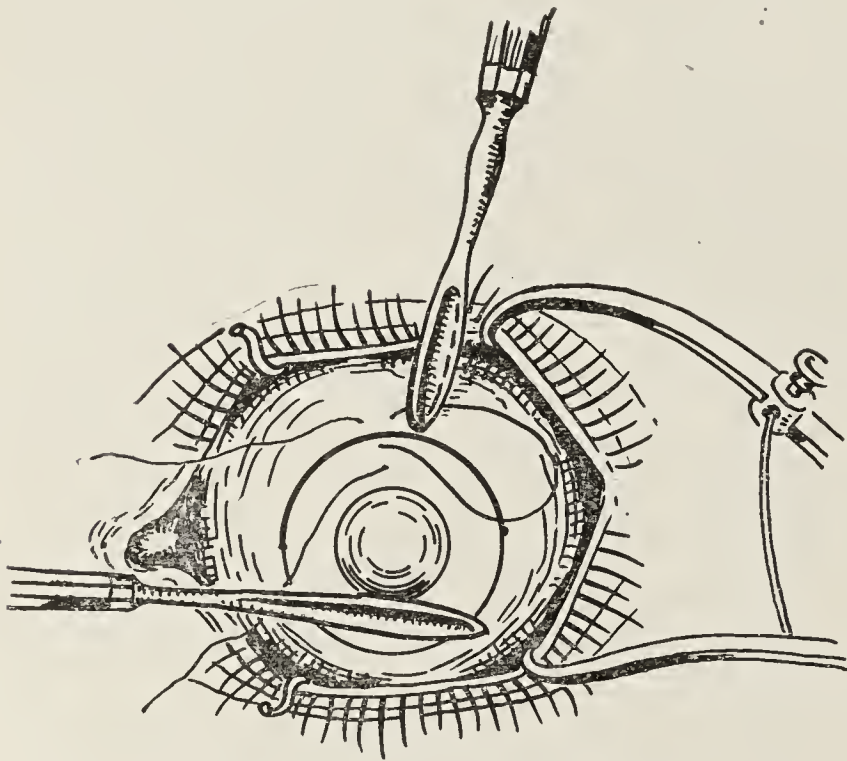
1. Williams, H. W.: Roy. Lond. Ophth. Hosp. Rep. 1867, vi, Part 1; Cataract Extraction Operations, Arch. of Ophthalmology and Otology, 1869, i, 102.

2. Ferdinand Suarez de Mendoza: Bull. et mém. Soc. d'ophtal., Dec. 4, 1888; Rec. de ophtal., 1889, pp. 47, 523, 544; Rec. d'ophtal., 1891, p. 597.

3. Kalt, E.: Arch. Ophth., 1894, xxiii, 421; Ann. d'ocul., June, 1910.

It is not necessary to tell the patient that his eye is being sewed up. While it may be the operator's five hundredth extraction, the patient has had no such extensive experience, and does not readily detect slight variations from the usual technic. So when the time comes for its removal, the eye can be cocaineized and the patient then told that there is a thread to come out, the lid raised and the suture cut and removed in less time than it takes to tell of it. Accustomed as he is to hear of wounds being sewed, it will seem most natural to the patient that this wound has been treated in that manner. Many people dread the removal of stitches more than they do an operation, and it is well not to alarm them by telling them that there is a stitch in the eye that must come out on such and such a day. All this seems a trivial matter to discuss before a scientific body, but it is the answer to the objection that removal of the stitch is a second operation. At least it is not so unless the operator chooses to make it so.

In tying the stitch there is an advantage in producing a slight wrinkling of the cornea, as by this means one can be sure that good apposition is secured. Not only is



Corneal suture introduced but not tied.

this wrinkling temporary, but it even passes off under the pressure of the aqueous when the anterior chamber reforms. A loosely tied stitch, such as some have practiced, is of no advantage at all, as without some tension on the edges of the wound, they only lie in apposition just as they would do without any stitch.

The stitch should be removed as soon as the corneal wound is well adhered, which can safely be considered as about twenty-four hours after the anterior chamber is reformed. This gives a good margin, and will be as a rule on the third day. Stitches are foreign bodies and should be removed from every tissue at the earliest possible moment, not only in eye surgery, but elsewhere. To permit them to remain is to invite irritation and infection, neither of which seem to occur when the stitch is removed as soon as Kalt advises.

II. ACCIDENTS

The only accidents likely to happen, besides the ones common to all cataract extractions, are cutting the stitch in making the corneal incision and tearing out the stitch in removing the speculum. Kalt cuts the stitch in 1 per cent. of cases, and in the series of cases herewith pre-

sented it was cut twice. It can be replaced by passing the needle through the same hole, which is easier to do than it sounds, and is what Kalt advises.

If the thread is not kept carefully laid out the loop may catch in the speculum and be torn out in removing that instrument, as occurred in one of my cases. It must be understood that this can occur only when the speculum is removed before the suture is tied. If the patient does not tend to squeeze and there is no threatening vitreous prolapse, the speculum is left in until the lens is removed and the thread tied and cut off. In the event of this accident it is best to pull out the other branch of the stitch and complete the operation without it. Both of these accidents can be avoided if the whole procedure is carefully conducted.

III. CONTROL OF IRIS AND VITREOUS PROLAPSE

A signal advantage of the stitch is in cases of prolapse of iris and vitreous, especially the latter, at the time of operation. The usual precautions of removal of the speculum and control of the lids by other methods are to be followed, but nevertheless sometimes a large vitreous bead will protrude from the wound. No one who has ever seen this gently retire into the ball as the stitch is tightened will need any other argument to convince him of the value of the stitch, at least under these circumstances. As it cannot be foretold when this accident will happen it is well to be prepared for it in every case.

The control of primary iris prolapse is not so satisfactory, but certainly the replaced iris is more apt to stay replaced when the corneal wound is closed by mechanical means. In this operation the fact that the incision is in corneal tissue and well in front of the plane of the iris makes prolapse of the iris less likely to occur than when the incision is further back, as in the ordinary section with the conjunctival flap.

IV. THE TOILET OF THE WOUND

A great advantage of the corneal stitch is in the facility it affords to the making of a deliberate, careful and thorough toilet of the wound. After the delivery of the lens and tying of the stitch, we can, by irrigation, suction and manipulation, get a perfectly clear pupil—clearer than by any other means. Without the stitch one hesitates to do much in this direction if there has been vitreous prolapse, and if there has not been, the manipulations of the toilet often provoke a tendency to "squeeze" which results in prolapse. Certainly nothing contributes so much to a speedy and uneventful healing as removal of cortical flakes and tags of capsule, and their retention within the eye leads to prolonged convalescence and irritation, if not destructive plastic inflammation.

As was mentioned, the suction apparatus is the means usually employed by Kalt, but irrigation is also very safe and satisfactory. The tip of the irrigator is introduced into the anterior chamber at one side of the stitch, while a spatula depresses the scleral lip of the wound on the other side of the stitch, to afford a free outflow of the irrigating fluid and the cortical matter and blood which it expels. It might be noted incidentally that the possibility of this thorough toilet makes the removal of immature cataract a much more satisfactory procedure than when it is extracted in the ordinary way.

V. SECONDARY IRIS PROLAPSE

The stitch is not a sure protection against secondary prolapse. Kalt has observed it in 3 per cent. of the last 1,100 cases which he reports, while the percentage in this series of cases is much higher, namely, $9\frac{1}{3}$ per cent., owing, presumably, in part at least, to lack of skill.

After an ordinary simple extraction prolapse of iris is the most frequent complication, and occurs in about 10 per cent. to 12 per cent. of cases. When it does occur it tends to rapidly assume large proportions, and its removal is a more formidable procedure in many cases than the extraction of the cataract. The iris quickly adheres to the lips of the wound, and iridectomy under these circumstances is far from easy, and the result is not satisfactory to our esthetic sense. Rarely does one see under these circumstances a clear coloboma, with pillars straight and not entangled in the corneal wound. Without offering an explanation of the difference, it can only be said that the prolapse after suture of the cornea is not only small—limited to one side of the stitch—but does not tend to inflame and quickly adhere to the wound. Its removal, therefore, is easy, and the pillars dress back nicely into the eye, leaving the wound free. One may not understand the reason of this difference, but from my experience such is the case. One of the patients referred to in this paper struck his eye a week after extraction, separated the wound slightly and had an adhesion of the iris to the wound. This was not a prolapse into the wound, and at any rate was not attributable to the method of operation.

The number of cases of iris prolapse in this series is large, namely, $9\frac{1}{3}$ per cent., and greater familiarity with the operation would probably reduce that. To offset this, Cases 2 and 7 should be noted. In Case 2, the conduct of the patient was such as to justify the removal of the speculum after completion of the corneal incision. She promptly squeezed the lids together catching the corneal flap with the upper lid and turning it down. After securing the lid with an elevator the lens was delivered and the stitch tied. Deliberate toilet of the wound was then made without fear of accident, and the final result was perfect. In Case 7, the patient had violent uremic convulsions the night of the operation. Next morning the nurse had prepared, without instruction, the instruments for excision of an iris prolapse, it being inconceivable how prolapse could fail to be present. To the surprise of all the wound was closed and the iris in place and a round central pupil resulted. Certainly without mechanical closure of the wound one would read the result in the case of such an accident as happened to this patient.

VI. COURSE OF HEALING

The course of healing after operation with corneal suture does not differ materially from that after other methods of extraction. Infection, iridocyclitis and other complications are possible, but it can only be said that in this series they did not occur. The stitch does not seem to cause any irritation; that is, there is no complaint as of a foreign body, such as one might expect. There is certainly no more redness or secretion than after the operation without corneal suture.

It has been said that the stitch would be apt to become infected, but in this series of cases it did not occur. Cleanliness in every detail in the operation and early removal of the stitch are the best safeguards against infection or post-operative reaction. The freedom from cortical debris, more easily secured by this method than by others, in my experience, favors a quick and uneventful convalescence. In cases in which this is true, secondary cataract is of course not frequent, and equally as a matter of course, this follows, no matter what method of extraction is employed.

VII. RESULTS

In speaking of results, the visual result need not be considered, since no one would expect that better visual results will follow a successful extraction by one method than those obtained by another. Nor does it seem to be the rule that better visual results follow the simple extraction than those obtained by the combined method. The surgical results are very good in operations in which the corneal suture is used; better, I think, in a large number of cases than by other methods. There is a speedier convalescence, the pupil is clearer, and there is therefore less tendency to secondary cataract; the early closing of the wound permits the patient to get out of bed sooner and have the eye not operated on left uncovered, and the early closure of the wound is also a safeguard, although but relative, against infection.

Every workman has pride in the results of his work, and from the cosmetic point of view the simple extraction is a more satisfactory thing to him than the combined. The patient, however, is seeking vision, not cosmetic results, and any method to stand the test must be the one to give the largest percentage of functioning eyes in a large number of cases. Unless it fulfils this requirement, it is of no moment to exhibit a few *de luxe* results.

REPORT OF CASES

CASES 1 and 2.—F. M. (colored), aged 65. Cataract in both eyes. March 15, 1911: Right eye: Simple extraction. Corneal stitch. March 16, 1911: Wound closed. March 18, 1911: Stitch removed. Left eye: March 30, 1911: Simple extraction. Corneal stitch. Incision. On removal of speculum patient squeezed lids, closed the eye and flap was turned over. Lid elevator, lens removed and stitch tied. Toilet of wound was then performed getting the iris back and a clear black round pupil. April 1, 1911: Stitch removed. Both eyes show round clear pupils. Atropin.

CASE 3.—Mrs. M. F. H., aged 66. March 13, 1911: Right eye: Simple extraction. Corneal stitch. Irrigated. March 14, 1911: Wound closed. March 15, 1911: Stitch removed. Atropin. March 28, 1911: Vision 20/70 with correction. April 13, 1911: Needled. July 5, 1911: Vision 20/40.

CASE 4.—W. M. W., aged 57. April 25, 1911: Simple extraction. Corneal stitch. April 27, 1911: Wound closed. Atropin. April 28, 1911: Stitch removed. April 29, 1911: Wound reopened; anterior chamber empty. April 30, 1911: Same. May 7, 1911: Wound closed, very little redness. Pupil central and slightly irregular. Atropin. Left hospital. Left eye: May 24, 1911: Vision 20/30. Nov. 5, 1911: Vision 20/20. Central movable pupil.

CASE 5.—B. B., aged 51. Left eye: Always squinted and the vision was very poor. Mature black cataract. Convergent squint. Right eye: Immature cataract. Vision 2/200. Good reflex around a central opacity. General condition not very good. Urine contains pus and staphylococci. Blood-pressure 155. Dec. 8, 1911: Simple extraction with corneal stitch. Irrigated. Dec. 9, 1911: Wound closed. Atropin. Dec. 10, 1911: Stitch removed. No cortical matter in pupil. Jan. 16, 1912: Vision 20/40 and J III with glasses.

CASE 6.—Mrs. J. R. W., aged 53. Right eye: Dec. 9, 1911: Corneal stitch. Simple extraction. Dec. 10, 1911: Wound closed. Dec. 11, 1911: Stitch removed. Pupil round, clear and central.

CASE 7.—Mrs. W. S. N., aged 60. June 3, 1911, 8:30 a. m.: Urine contains albumin. Right eye: Simple extraction. Corneal stitch. Suction. 4:30 p. m.: Wound closed. Epigastric pain. 8:30 p. m.: Patient got out of bed, had a convulsion, lost consciousness, and was not conscious for rest of the night. June 4, 1911: Wound closed. Eye normal. Atropin. June 5, 1911: Stitch removed. July 5, 1911: Vision 20/30 with glasses. Central movable pupil.

CASES 8 and 9.—J. J. (colored), aged 60. Left eye: Simple extraction. Corneal stitch. Suction. June 30, 1911: Wound closed. Atropin. July 2, 1911: Stitch removed. Right eye:

July 3, 1911: Simple extraction. Corneal stitch. July 5, 1911: Stitch removed. Both eyes show round, clear, central pupils.

CASE 10.—J. R. (colored), aged 26. Right eye: Trauma twelve days old. Considerable inflammation. Lens dislocated, $1/5$ width of pupil, internally shows fundus reflex. Operation under ether on June 27, 1911. Corneal stitch. Incision, loss of vitreous and in removing speculum stitch torn out of cornea. Lens extraction with loop. Iridectomy. June 29, 1911: Wound closed.

CASE 11.—B. R. (colored), aged 70. Left eye: June 9, 1911: Corneal stitch. Simple extraction. Hypermature cataract. Suction. June 11, 1911: Stitch removed. Pupil round. Atropin. July 7, 1911: Vision 20/70 with correction.

CASE 12.—L. Y. (colored), aged 50. Oct. 27, 1911: Iris tremulous. Cataract. Corneal stitch. Squeezed lids, removed speculum and used lid elevator. Incision. Simple extraction. Lens in capsule, bead of vitreous presented and was pushed back by tying stitch. Toilet. Oct. 28, 1911: Wound closed. Oct. 29, 1911: Stitch removed. Pupil somewhat displaced upward.

CASES 13 and 14.—A. M. (colored). Right eye: October, 1910: Simple extraction. Corneal stitch. Slight adhesion of iris to capsule up. Good result. Left eye: Oct. 23, 1911: Corneal stitch. Simple extraction. Squeezed but stitch tied immediately. Toilet. Oct. 26, 1911: Stitch removed. Pupil round and black.

CASE 15.—J. C., aged 32. Right eye: Nov. 22, 1911: Tremulous iris. Corneal stitch was attempted, but needle broke in passing through cornea. Incision. Capsulotomy. Lens fluid and milky. Suction. Nov. 23, 1911: Wound not closed. With closed lids the right eye looks like an empty socket. Much smaller than the left eye. Nov. 25, 1911: Wound closed. Ball full. External appearances normal.

CASE 16.—J. H. (colored), aged 66. Left eye: Jan. 25, 1912: Corneal stitch. Suction after simple extraction. Jan. 26, 1912: Anterior chamber reformed. Atropin. Jan. 27, 1912: Stitch removed. Jan. 30, 1912: Small prolapse of iris into wound at site of corneal stitch. Whole coloboma and pupil occluded by mass of cortical. Patient says he struck his eye night before. Feb. 12, 1912: Vision 20/40.

CASE 17.—S. R., aged 22. Right eye: Dec. 31, 1910: Corneal stitch. Simple extraction. Lens soft. Suction. Jan. 1, 1911: Wound closed. Jan. 2, 1911: Stitch removed. Sept. 16, 1911: Vitreous opacities. Pupil round and central. Vision 5/200.

CASE 18.—B. W., aged 76. Right eye: Feb. 10, 1911: Corneal stitch. Simple extraction. Irrigation. Feb. 11, 1911: Prolapse of iris to temporal side of stitch. Patient had been very restless. Excised prolapse. That afternoon wound closed. Feb. 12, 1911: Stitch removed. Wound clear of iris. Narrow coloboma up and out. Pillars free.

CASE 19.—J. W. B., aged 73. Left eye: Jan. 3, 1911: Corneal stitch. Simple extraction. Irrigation. No trouble. Jan. 4, 1911: Iris prolapse in. Replaced but came out, so excised. Patient is restless, sneezes frequently and sits up. Jan. 5, 1911: Stitch removed. March 11, 1911: Vision 20/25 with glasses. Narrow oblique coloboma. Pillars free.

CASE 20.—L. H. (colored), aged 46. Right eye: Feb. 1, 1911: Corneal stitch. Simple extraction. Feb. 3, 1911: Stitch removed. Good result.

CASE 21.—J. W. P., aged 69. Right eye: May 31, 1911: Corneal stitch. Simple extraction. Suction. June 1, 1911: Prolapse iris up and in. Excised. Smoothed pillars back. June 2, 1911: Stitch removed. June 23, 1911: Vision 20/30 with glasses. Narrow oblique coloboma. Pillars free.

CASE 22.—N. G. (colored), aged 70. Right eye: Jan. 29, 1912: Corneal stitch. Eyes deep set. Unruly patient and moved at time of finishing incision. Stitch cut at emergence from cornea. Iridectomy. Capsule forceps and delivery of lens. Jan. 30, 1912: Wound closed.

CASE 23.—J. H. (colored), aged 70. Right eye: Feb. 10, 1912: Corneal stitch. Simple extraction. Suction. Feb. 11, 1912: Wound closed. Feb. 12, 1912: Stitch removed. March 1, 1912: Good surgical result.

CASE 24.—P. P. (colored), aged 65. Left eye: Feb. 13, 1912: Corneal stitch. Simple extraction. Feb. 14, 1912: Wound closed. Feb. 15, 1912: Stitch out. A perfect result. March 13, 1912: Capsulotomy. March 15, 1912: Vision 20/60.

CASE 25.—Miss S. Right eye: Immature cataract. Extraction with corneal stitch. Feb. 29, 1912: Irrigation. March 1, 1912: Wound closed. March 2, 1912: Stitch removed. No cortical in pupil. Minimum reaction. March 10, 1912: Perfect result.

CASE 26.—J. B., aged 70. Jan. 13, 1912: Simple extraction with corneal stitch. Irrigated. Jan. 15, 1912: Stitch removed. Feb. 6, 1912: Round central pupil. Vision 20/20 with glasses.

CASE 27.—W. H. L., aged 62. March 11, 1912: Simple extraction with corneal stitch. Rupture of suspensory ligament and escape of vitreous before delivery of lens. Lens removed with loop. Stitch tied, controlling vitreous. March 13, 1912: Stitch removed. March 14, 1912: A small vitreous bead in wound. March 15, 1912: The vitreous bead has receded. Wound smooth.

CASE 28.—J. H., aged 50. Traumatic luxation of lens into anterior chamber of eighteen months' duration. Painful one month. Oct. 16, 1911: Extraction under ether, with corneal stitch. Vitreous prolapse on completion of incision. Stitch cut by knife, but reinserted. Lens removed with loop. Tying stitch reduced vitreous prolapse. Iris folded upward and could not be smoothed out. Oct. 17, 1911: Wound closed. Oct. 18, 1911: Stitch removed. Good result, pupil displaced upward, as if an iridectomy had been done.

CASES 29, 30, 31 and 32.—Hospital patients whose records were lost. They were all successful simple extractions from a surgical point of view.

Exchange Building.

ABSTRACT OF DISCUSSION

DR. MARK D. STEVENSON, Akron, Ohio: I have had experience with this method of suturing in only five cases. Large sections of the cornea at the corneoscleral margin, if possible, are desirable in order to have easy delivery of the lens or of large cortical masses with the slightest possible amount of pressure, manipulation or bruising of the tissues. The earliest possible closure is always to be desired. A free, unhealed cut may give opportunity for infection, prolapse of vitreous or iris, slow filling of the anterior chamber with sunken cornea and delayed healing with possible chance for the lid to catch into the wound.

I have not employed the suture in the exact fashion described by Kalt, with a vertical corneal and horizontal scleral anchorage, but have made both suture canals horizontal, parallel and about 2 mm. apart. This gives plenty of leeway for the section, which I try to make nearest the corneal suture, so that a slight lip of conjunctiva, especially to the side if the section is completed to one side in an oblique meridian, may lie over the section. With the T-shaped suture canals of Kalt the threads will form a roughly triangular shape when tied, two separate threads a little apart crossing the corneal section. When the suture canals are parallel these threads will form a quadrangle, the vertical parts crossing the section parallel and the same distance apart as the suture canals are in length. A suture canal will hold much more when the thread pulls sidewise than when it pulls on its necessarily most superficial ends, as it does in the Kalt vertical section. I do not see the need of very tight suturing. The thread is delicate and might break; of course a loose suture would be of little or no benefit but a snug suture, even with my canals 2 mm. apart, pulls the episcleral tissue down toward the cornea and makes the opening of the cornea practically impossible while the suture holds. The cut edges of the wound are pulled against each other with no tendency to overlapping. I have not found it difficult to insert or to remove the suture and have carried out Dr. Ellett's advice about not acquainting the patient with its presence until at the time of or after its removal. Especially in old patients, it is often important to have them sitting up as early as possible. They secure better and more comfortable evacuations of the bladder and bowels,

are less nervous and not so depressed and apprehensive as when kept quiet in bed for some time after the operation, which latter I think every cataract patient without a suture or a good conjunctival flap should be.

DR. C. H. WILLIAMS, Boston: It was my good fortune in years gone by to assist my father, H. W. Williams, in a number of cataract operations in which he used the suture in the cornea. He preferred the corneal section known as the Le Brun section, which was made entirely in the cornea, upward, the apex of the cut being just above the edge of the moderately dilated pupil, giving a large corneal wound. The suture was placed at the apex of the cut. The success of the operation depended very largely on the needle used. The needle was flat with an extremely sharp point and a cutting edge one-fourth of the length of the needle, as sharp as a cataract knife. The needle was $\frac{1}{4}$ inch long and an ordinary forceps with straight points about $\frac{1}{8}$ inch wide, strong and roughened on the surface, was used for the needle holder. There was no catch and no jump when the forceps released the needle. The suture was a single strand of the finest sewing silk. The ideal position of the suture was to pass the needle through the apex of the lower corneal flap, going in through the corneal epithelium a little more than 1 mm. from the edge of the cut surface and bringing it out on the cut surface before reaching the membrane of Descemet. The needle was again entered in the upper flap just outside the membrane of Descemet and brought out on the corneal surface, and the ends tied. The suture caused very little irritation. It was removed generally on the third day and kept the edges of the corneal wound in apposition until the process of healing had glued them together. The wound being entirely in the cornea, and not near the plane of the iris, there was very little trouble from iris prolapse. He generally avoided attempts to remove the last particles of cortical substance. The results he got were generally very satisfactory. We have with us to-day Dr. Post whose father had an extraction of this sort done on both eyes years ago and he can tell you something of the operation, the healing and the question of irritation from the stitch. The first cases reported were in 1867 when there was no cocaine anesthesia. A number of operations were done under ether, but a number were also done without any anesthetic. The insertion of this suture was not easy. It required very delicate handling, and for that reason was never generally adopted. I do not remember my father's using the conjunctival suture. I do not think he used the corneal suture in the later years of his life, but he did use it during most of his active practice. When the operation of extraction with iridectomy was the generally adopted method he preferred to keep on with the simple extraction, which, under his hands, had given such good results. I afterward used the conjunctival suture.

DR. M. H. POST, St. Louis: Historically I think the operation referred to on my father occurred in 1864. The operation was done without an anesthetic and with no iridectomy, and was done at different times on both eyes. The result was ideal, with perfectly mobile pupils and with vision normal. The operation was done when he was about 55 years old. He lived to be 76 years old. After the operations which had to be done in connection with the first operation, a needling, the eyes were never subjected to anything but the fitting of glasses, and up to the time of his death he read with perfect ease, comfort, and with very great accuracy. At the time of the operation he was confined to bed and as I recollect, his hands were confined. He said the pain of the operation was nothing compared with the pain of confinement to his back with his hands tied down.

DR. WILLIAM H. BATES, New York: I read of this suture in the publications of Dr. Williams and Dr. Kalt and it looked very promising to me. So I went to Dr. Prudden of the College of Physicians and Surgeons, and in his pathologic laboratory did some experimental work for five years on the rabbit. It is very difficult to remove the lens from a rabbit. In the first place the cornea is about one-eighth of the thickness of the human cornea. The lens of the rabbit is very much larger than that of the human eye, the anterior

chamber is deep and the operation is altogether very difficult, and during the healing afterward ordinarily one obtains a tremendous amount of reaction and a very dense secondary cataract.

I found very soon that I would need more than one suture, generally five or six, or sometimes more, but I was able to produce a water-tight closure of the wound and then by restoring the anterior chamber with normal salt solution in favorable cases I was able to obtain at the time of operation a clear, round, dilated pupil, and the healing followed without the formation of much if any secondary cataract. In some of my rabbits examined under the microscope there was no secondary cataract. After this work it seemed to me that if this suture was so necessary and yielded such wonderful results in the rabbit, in the human eye it would be equally advantageous, and I read a paper before the Ophthalmologic Section of the Academy of Medicine, recommending that this suture be used as was advised by Kalt and Dr. Williams before him. I had a talk with Dr. Herman Knapp and he told me that Schweiger had tried it in some thirty cases, a report of which was published in the *Archives of Ophthalmology*, but he had abandoned it. He said, "Why would you use it in the human eye when we get such good results with the old-fashioned operation, and the suture does not offer any advantages? It complicates the operation."

I tried it on the human eye and I must confess that I have abandoned its use, and believe that it is generally unnecessary.

DR. E. C. ELLETT, Memphis, Tenn.: I purposely omitted any reference to the conjunctival suture as I did not think that exactly bore on this matter. In one of the two papers of Dr. Williams' father I am positive he says, "I have lately been in the habit of extending this incision to include a conjunctival flap, and place the suture in its apex." But, of course, how much that was his practice or for how long he employed it I have no way of knowing. I would like to acknowledge my indebtedness to Dr. Bates' paper, to which he has referred, for a good deal of the information as to what had been done on this subject. If I remember rightly, Dr. Bates was under the impression that this in and out suture would not answer, because instead of producing apposition of the edges of the wound it would turn them in, and he advocated a through and through suture; but that probably was due to the difference in the thickness of the rabbit's and the human cornea, and the thinner cornea might readily be turned in that way, but I do not think that is apt to occur with the human cornea.

PREPARATORY CAPSULOTOMY IN EXTRACTION OF IMMATURE SENILE CATARACT

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Except to those who are prepared to extract any and every cataractous lens in its capsule, the retention of gelatinous cortex and the presence of portions of the anterior capsule blocking the pupillary area are matters of serious concern, and any procedure which will cause that loosening or complete separation of the capsule from the underlying capsule which accompanies clinical maturity must be greeted as a marked benefit and advance in method. The ripening operations which were in vogue some years ago do not seem to have remained in favor. Massage of the lens is carried out, it is true, by some operators where preliminary iridectomy is performed, but the results do not indicate any very decided, uniform or reliable effect. The only mechanically effectual procedure, that of MacKeown,

consisted in injecting fluid directly under the lens capsule and was, obviously, too dangerous to gain popularity. None of the other methods was reliable and all were slow, if effectual at all. In June, 1911, my attention was attracted by Dr. Homer Smith's essay, to which the Lucien Howe prize had been awarded, in which capsulotomy was advocated as a means of rapidly maturing senile cataract and facilitating its immediate extraction. I was not able to test this procedure for some time, but my first experience was so favorable that I determined to apply it more frequently.

It has seemed to me worth while to give a brief survey of earlier publications on this and similar procedures and to have an exchange of views on the merits of this method and on the results obtained by various operators. I am convinced that it is of the greatest value and, although my experience is very limited, the procedure seems to me to solve an operative problem which is not without its social and economic bearings.

Von Graefe and Mannhardt¹ advised puncture of the anterior capsule three to ten days before extraction in immature cataracts, for the purpose of causing complete opacification of the still transparent clear cortical masses in unripe cataract. This operation was reintroduced by Correnti,² in 1872, in a paper which speaks of the procedure as "opening of the anterior capsule preparatory to the extraction of cataract."

"Primary capsule rupture" is the name by which Drake-Brockman³ designated this method of operation in a series of case reports.

The initial step of the operation is a division of the lens capsule by a stop-needle, the pupil having been previously fully dilated by atropin. This plan he adopted at first in the case of Morgagnian cataracts in order to gain a more exact knowledge of the size of the nucleus, and accordingly to limit the section through the cornea. The risks attending the removal of cataract are hereby greatly lessened and the escape of the cataract is facilitated. Drake-Brockman subsequently applied this method of operative procedure to all kinds of cataract and found that the results justified a continuance in the operation. He says: "In no other kind of operation can either so large a surface of the lens capsule be exposed for division by the cystotome, or the iris be kept away from the lens and be rendered less liable to an injury in the division of the capsule." As soon as the nucleus in a Morgagnian cataract has escaped into the anterior chamber, it can be more readily examined as to its size, and the corneal incision can more accurately be made to permit of the escape of that body. The advantages of this plan are:

1. It allows a more extensive laceration of the capsule at the same time that the anterior chamber remains replete with its fluid.

2. It permits of a more complete exposure, and a more thorough knowledge is gained of the size and character of the cataract.

3. It diminishes the tendency on the part of the iris to contract, even after the corneal section has been completed and by this means facilitates the escape of the lens.

4. By it, the possibility is gained of more accurately judging of the extent to which the cornea must be divided to permit of the escape of the lens.

5. The less necessity there is for the introduction of a traction instrument to effect the removal of the lens, the less interference there is with the natural position of the structures of the eyeball.

Of 674 operations, seventy-nine, or 11.72 per cent., were unsuccessful. Of this number, 101 were for Morgagnian cataracts. The iris was excised in only seventy-five total cases. Chloroform was administered in 654 cases, and the iris prolapsed in sixty-four, or 9.46 per cent., the latter accident being due, in several cases, to vomiting caused by the anesthetic. Glaucomatous change occurred on six occasions, but this could not be attributed directly to the operation. In further endeavoring to render the operation still more simple, Drake-Brockman laid aside the needle and in thirty-four cases effected the capsule division by means of the cataract knife "before completing the transfixion of the corneal tissue," i.e., while making the section. Of this number, six proved unsuccessful. In the endeavor to divide the capsule of the lens fully, the iris is more liable to be injured and the lens structure cut into and broken up, so that iritis occurred in greater frequency. As no corresponding advantages were to be gained by this treatment of the lens capsule, it was abandoned in favor of the original procedure of division by the needle, prior to making the corneal section.

In a second communication,⁴ four years later, the same author reports 1,433 additional cases operated on during the previous three or four years. Of these, but 5.58 per cent. were failures, a very great improvement over the first series. These results (7.54 per cent. failures), Drake-Brockman claims, contrast favorably with any other method of operation. The procedure was applied to all forms of senile cataract, and in some cases of cortical cataracts, with entirely satisfactory results. The original crucial incision of the capsule was abandoned in the second series, Drake-Brockman having adopted, instead, a linear division along the upper papillary margin. This more simple procedure was found equally effectual. Rohmer⁵ practiced extensive discission of the anterior capsule and paracentesis of the anterior chamber, followed by massage, through the upper lid, for several seconds. The opacity was almost complete in from twenty-four to thirty-six hours, and entirely so within three or four days. Extraction was then performed "in a day or two."

Elschnig⁶ gave up the discission needle, as it made an easily infected wound and was not well adapted to incising the lens masses, and used a Graefe knife, which was carried in laterally in the horizontal meridian from 1 mm. outside the limbus. Elschnig disapproves of discission for ripening senile cataracts, as all cataracts in individuals above 50, whether mature or not, can be extracted easily, no matter what the condition and proportions of nucleus and cortex. In old patients, Elschnig extracts as soon as the vision has diminished so that the day's work cannot be done.

Mooren⁷ used a narrow Graefe knife to split the capsule in immature cataracts, especially in zonular forms.

Jackson,⁸ in discussing the technic of discission for maturation, lays stress on the importance of making a small central opening and allowing the aqueous to drain

1. Von Graefe and Mannhardt: *Klin. Monatsbl. f. Augenh.*, 1864, p. 408.

2. Correnti: *Imparziale. Fasc.*, 11, 12.

3. Drake-Brockman: *Ophth. Rev.*, 1884, iii, 243.

4. Drake-Brockman: *Ophth. Rev.*, 1888, vii, 333.

5. Rohmer: *Cong. d'ophth. de Paris*, 1887; *Ann. d'Ocul.*, xcvi, p. 241.

6. Elschnig: *Wien. klin. Wchnschr.*, 1896, No. 53.

7. Mooren: *Operative Behandlung d. natürlich u. künstlich gereiften. Staar Formen*. Wiesbaden, 1894.

8. Jackson, Edward: *Am. Jour. Ophth.*, 1898, xv, 9.

off, allowing the lens to be ploughed up with a comparatively small incision, as the consequent reaction is proportional to the amount of soft lens-matter which exudes through the cut capsule into the anterior chamber.

Alessandro⁹ advises multiple punctures of the anterior capsule. The discission needle is carried in at the outer quadrant of the cornea and five to ten punctures made. Maturation takes place "in a week or two."

Fage¹⁰ makes a small incision into the anterior capsule in the pupillary area, allows the aqueous to drain off, and then massages through the cornea. Maturation is complete, on an average, in three weeks. Iridectomy is not necessary. Tynen of Austin, Tex., in 1900, reported under the title of "preliminary capsulotomy," a procedure of primary opening of the capsule at the time of operation, using Bowman's stop-needle prior to the corneal section. Tynen believed this to be original with himself, it having been suggested by a case in which there had been prolapse of fluid vitreous and the lens had sunk into the posterior chamber (sic), requiring extraction with iris forceps. When it came to operating on the other eye, Tynen, fearing a similar complication, performed "preliminary" capsulotomy just before making the corneal section and was gratified by rapid and easy, almost spontaneous delivery of the lens, although here, too, a small amount of fluid vitreous escaped. The procedure was then applied methodically, and Tynen refers to thirteen cases. In all but two the healing was uncomplicated, and the final results excellent. The two exceptions were cases in which marked iritis developed, due, as Tynen thinks, to the use of too strong solution of atropin, "crowding the iris up into the neighborhood of the corneal wound." The leading point in the operation, according to this writer, is in making the capsulotomy the primary step, thereby enabling the operator to deliver the lens the very moment the corneal section is completed. When this section is finished, pressure with the flat of the blade causes the corneal opening to gape, when at the same moment counter-pressure with the fixing forceps below aids the expulsion, and the lens slides out through the still open pupil with surprising ease. "The lens, having no other avenue of escape, almost always indicates a tendency to follow the knife as the corneal incision is progressing, and when it is finished the lens is partly in the anterior chamber." Tynen adds that in cases in which the lens is to be dislocated this can be done most easily in performing his "preliminary" capsulotomy, and that the operation then resembles Delgado's. The incision is made in the upper quadrant of the dilated pupil following the curved pupillary margin of the iris. Both the point of the instrument and the field of operation are in full view.¹¹

At the 1906 meeting of the American Academy of Ophthalmology, Homer E. Smith, of Norwich, N. Y., reported a method which had as its object "to know in advance the size of the section required, and to make certain an efficient capsulotomy with a maximum of precision and a minimum of risk." The method, he says, is applicable only to such cases as one would select for the simple extraction, and is not the operation of choice when the iris lacks the lustrous appearance of health, when the lens is amber-colored or dark-gray, and when the iris is rigid, with little dilating ability to the pupil. The chief objections to the simple operation,

which, according to Smith, is indicated in 95 per cent. of the cases, namely, the difficulties of an efficient capsulotomy, of effective removal of fragments of cortex, and of easy delivery of the lens through the pupil, are met by the method proposed. As to the better visual and cosmetic results, he adds, there can be little question. He then describes a primary capsulotomy with a small Knapp's knife-needle making a crucial incision, "not only through the lens capsule, but partly into the lens-substance itself. If the cut in the capsule is practically invisible, a large nucleus is present, and the usual section of the upper two-fifths of the cornea will be required for the easy exit of the lens. If semi-gelatinous lens-matter escapes, a section of one-third will suffice, while if a milky liquid issues, the cataract is hypermature and the section may be made with the angular keratome. A period of waiting between the capsulotomy and extraction is required for the anterior chamber to reform completely, as there is usually sufficient loss of aqueous to render the eye soft and unsuitable for good section. This loss of time is really a gain in results, for even in four hours there is sufficient imbibition of aqueous to facilitate the separation between cortex and capsule and to make easier the delivery of the lens.

It will be noted that this is the first reference to an artificial maturation of the cataract by means of preliminary or rather primary capsulotomy; the other writers, as, in fact, Smith himself, having laid stress only on the more perfect capsulotomy thus made possible and on the information gained as to the consistency and, indirectly, the proportions of the lens as to the relative amount of nucleus and cortex. The advantages of this form of capsulotomy are presented by a better cutting instrument than the cystotome, the freedom of the section into the capsule from danger of entangling or wounding the iris, and the avoidance of dislocating the lens, as may easily be done when the cystotome is carried far toward the equator. These benefits are inherent in a method which finishes the opening of the capsule without emptying the anterior chamber or allowing the pupil to contract, rupturing the zonule or causing loss of vitreous. It will be noted that stress is laid on the superiority of this procedure as a means of opening the capsule and indirectly of removing cortical debris after extraction.

Recent advances in methods of dealing with the capsule, notably the procedure of tearing out a portion of the central area of the capsule with forceps, such as those devised by Fuchs and by Schweigger, and improved by Knapp, have made this less important if not entirely unnecessary. Short of an extraction in the intact capsule, there is no method which leaves so clear a pupil as that of capsulectomy. The crucial incision with the knife, or stop-needle, interferes with this procedure or renders it impracticable, as the tension of the capsule is reduced so that the forceps will not grasp or, at all events, if it does so, no central portion can be excised or torn off, the ends curling up at the crossing of vertical and horizontal incisions. The benefits of the complete removal of the capsule may, however, be gained without forfeiting preliminary capsulotomy if we make a peripheral semicircular incision as practiced by Drake-Brockman and originally advocated by Tynen, or make a number of straight, fairly peripheral cuts either horizontal at upper and lower pupillary margin, or vertical at the temporal and nasal edge of the pupil.

9. Alessandro: Arch. d. Ottalmol., 1901, vii, p. 201.

10. Fage: Ann. d'Ocul., 1903, cxxix, 426.

11. New York Med. Jour., Sept. 20, 1900.

In a recent publication¹² Smith reviews this procedure, and now for the first time calls attention to its value as a rapid and safe method of causing operative maturity of senile cataract, by causing separation of the cortex from the posterior as well as anterior capsule, by entrance of aqueous under the capsule through the knife-needle incisions, this process being completed over night. Smith first made this observation by accident; the anterior chamber having been abolished while he was performing discission of the capsule in a case of immature cataract, and being obliged to defer extraction till the following day, he was agreeably surprised to find that the previously clear cortex had become opaque over night, and was able to deliver an operatively mature lens with little or no cortex, leaving a clear, black pupil, and gaining, eventually, 20/30 vision. The original idea of a more effective, complete, and safe capsulotomy, avoiding the dangers of the usual cystotome opening, was now replaced by the hope of causing a rapid maturation of cataract allowing extraction with a minimum of remnant cortex, with the incidental advantage of a more easily delivered lens, little or no necessity for prolonged anterior-chamber irrigation or mechanical expression for removal of retained cortical debris, and a posterior capsule left free from adherent lens-matter. Smith's first experience showed him that the knife-needle could be improved on. The blade was too long and not cutting sharp up to the point. He had constructed a "miniature scalpel" with a cutting-blade 2 mm. long and a slender shank just thick enough to stop the corneal puncture. Smith has not departed from his original crucial incision which is not allowed to penetrate deeply into the lens-substance. For this reason the shank is gradually withdrawn as the knife is carried along in making the incisions. "Were it not for this maneuver the blade would sink dangerously deep into the lens or possibly dislocate it." The only disadvantage of this preliminary capsulotomy, according to Smith, is that it requires more time and trouble as the technic of asepsis must twice be gone over.

We cannot, however, dismiss all objections in a single sentence unless we close our eyes to the fact that it is the danger of infection, even more than the time and trouble of disinfection in a second operation, to which we hesitate to expose our patient and which we would not risk unless there is something definite to be gained. The disadvantages of the ordinary capsulotomy are many, but the main point to be considered in weighing the pros and cons of the new procedure is the question whether we can expect decidedly better visual results and comparatively early operation in immature cataracts with little or no additional risk. The disadvantages of capsulotomy with mature lenses have become negligible quantities since the perfection of the capsulectomy method. The crucial incision rather complicates this and may have to be superseded by the peripheral curved or straight incisions in the capsule which still allow a central portion to be torn out with the forceps. The main advantage of preliminary capsulotomy is the rapid maturation, operatively speaking, of an immature but partly opaque lens by changing of sticky cortex into a homogeneous substance which no longer adheres to the capsule and either comes away with the nucleus or can easily be flushed out of the anterior chamber. As Smith well says: "It makes an immature cataract operable at once and saves the patient much weary waiting and loss

of usefulness." The procedure is safe, efficient, and easy of execution. It is adapted to all types of cortical cataracts, but it is particularly of value in the immature variety. It makes the capsulotomy the easiest step in the extraction operation and greatly facilitates the delivery of the lens. Finally, delivery is accomplished with little or no pressure, so that there is less danger of complicating prolapse or loss of vitreous, and a secondary operation is rarely necessary. This last point alone, if borne out by observations and experience of other surgeons, would be sufficient, in my opinion, to constitute this procedure a valuable and important innovation. For the danger of the preliminary capsulotomy would be balanced and wiped out by the fact that the extraction is the last operation. Comparing the two, one would infer, theoretically, that there was less risk in needling the capsule of an immature cataract than in performing discission of a secondary membrane, and this appears to be borne out by statistics and the consensus of opinion among eye surgeons.

Does the adoption of this procedure mean the passing of the immature cataract? If so, it is indeed a boon for patient and surgeon. The operations heretofore performed for maturing a partially opaque lens have been dangerous, ineffectual or unreliable, and all have required, at the shortest, three or four weeks to produce the required effect. Iridectomy, either simple or combined with massage of the lens, through the cornea or directly with the spatula introduced at the time of the iridectomy into the anterior chamber, have been tried and found of doubtful advantage.¹³ The dangers have been emphasized, particularly by Major Smith,¹⁴ who says:

Puncturing the lens capsule with a needle is liable to be a complete failure or to establish a traumatic cataract, which, thus established, may constitute a serious ophthalmic emergency. The formation may be so rapid and the lens may swell up to such a degree as to cause acute glaucoma and the lens-matter may escape into the aqueous chamber and cause acute iritis or iridocyclitis. The extraction of such a cataract admits of no delay. The conditions under which it has to be extracted are highly unfavorable and difficult, and the results are far from being as satisfactory as in the extraction of a cataract matured by Nature's process. It will thus be seen that when this procedure is efficient in maturing a cataractous lens, that is, when it causes a traumatic cataract, it is fraught with serious trouble and serious danger and is now, I think, relegated to the operations of the past.

Far from being relegated to the operations of the past, opening the lens capsule for the purpose of maturing cataract bids fair to be one of the type procedures of the future. The objections raised by Major Smith apply to the needling as formerly practiced, and involve the instrument and the lapse of time between the discission and the intended extraction. In the preliminary capsulotomy of Homer Smith of Norwich, a suitable cutting instrument is used and so little time elapses between its introduction into the eye and the extraction of the cataract that no danger need be feared. High tension might, it is true, develop over night, but the extraction would nip this process in the bud. Iritis could hardly develop if the pupil had been kept dilated, or at least would be in the stage of incipency and hence easily con-

12. Smith: New York State Jour. Med., May, 1911; Arch. Ophth., January, 1912.

13. Widmark, J.: Review of Methods, Centralbl. f. Prakt. Augenheilk., March, 1897. The authors agree that massage methods (Foerster, Bettmann) are generally effective only when there is a fairly large resistant opaque nucleus to serve as a base (Unterlage). In other cases capsulotomy is the better procedure. The latter procedure was reserved for patients under 40 and never used for the mature senile cataract proper.

14. Tr. Am. Ophth. Soc., 1908, xi, 605.

trolled. The escape of lens-matter into the anterior chamber could hardly cause much trouble in the short time elapsing before the lens is completely removed.

My personal experience with Smith's method of preliminary, or, as I should prefer to style it, preparatory capsulotomy, is very limited, but so far at least, the results in my own cases as well as in those of my colleagues at the New York Eye and Ear Infirmary, who have given this procedure a trial, have been uniformly excellent. Some loss of aqueous or even complete draining off of this fluid sufficient to abolish the anterior chamber for a time does not seem to have any deleterious effect, and reminds us that the procedure of repeated paracentesis of the cornea and evacuation of the anterior chamber after dissection was recommended as long ago as 1845, by Werneck,¹⁵ in cases of soft cataract in which maturation was unduly slow. Aside from the ease and accuracy with which the corneal section and the cystotomy can be performed with and after the preliminary capsulotomy, respectively, stress should be laid on economic advantage to the patient of shortening the period of partial blindness and of incapacitation. This applies particularly to comparatively young cataract patients with lenticular opacities of sufficient density to materially interfere with their occupation, a condition found rather frequently in men of from 45 to 50 who work in front of fires, such as glass-blowers, foundrymen, engine drivers and stokers, workers in potteries, brick kilns, and so on. It seems to me that the advantages of the preparatory capsulotomy might be combined with those of excision of the capsule by a slight modification of the knife-needle incisions. If these are made at the periphery, above and below, or at the temporal and nasal margin of the dilated pupil, respectively, we produce the same ripening effect as with a crucial incision through the capsule, with the further advantage of not making it difficult or impossible to tear out a piece from the center of the anterior capsule. The latter maneuver undoubtedly facilitates irrigation of the anterior chamber and intracapsular washing as well and makes it possible to remove mechanically a maximum of cortex with a minimum of traumatism and consequent irritation. The purely optical effect of complete removal of capsule from the pupillary area must be considered as of decidedly beneficial influence on ultimate visual results.

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ABSTRACT OF DISCUSSION

DR. HOMER E. SMITH, Norwich, N. Y.: Dr. Fridenberg makes two parallel incisions in the capsule and afterward uses the capsulotomy forceps, and the capsule will retract along the line of the incisions and prevent the entrance of the aqueous between the capsule and the cortex which hastens the maturation of the lens. Therefore he will have a sticky cortex.

Every step in the extraction of cataract has undergone an evolutionary process, but while the section is practically agreed on, the capsulotomy is not, and this is, perhaps, the most important step in the operation. If the capsulotome was an efficient instrument its shape would have been agreed on long ago; that it is not is proved by the many forms now

in use. If the elastic lens capsule be incised it will simply gape; if cross-incised it will open, the size of this opening depending on the length of the cross-cuts. A capsulectomy therefore insures no larger opening for the exit of the lens and the subsequent clarity of the mediums than does a crucial capsulotomy of equal size in the midpupillary space and, moreover, it is the less scientific surgical procedure as it means tearing and not cutting. That it is more difficult and dangerous only emphasizes this. A preparatory capsulotomy is certain, easy of execution, efficient, ample, of clean-cut margins, leaves no capsule in the pupillary space, minimizes the risk of loss of vitreous and, other things being equal, is superior to a capsulectomy. In addition to this a capsulectomy can be made only after the section and the advantage which one gains by a knowledge of the size of the nucleus and therefore of the proper size of the section is thereby lost. The point to the effect that high tension might develop overnight is well taken. Loss of aqueous during the capsulotomy is an embarrassment as it makes difficult what remains to be done of the crucial incision; following the withdrawal of the knife it is of no moment. The cut is so small that the anterior chamber reforms in a few minutes and with the new knife it rarely happens at all. I must differ from Major Smith of Amritsar in the matter of the operative maturation of the partially opaque lens. That these operations have been failures is due to the essential structure of the capsule and the mode of operating. Small punctures either close or at most produce small islands of opacity just beneath them. Small incisions allow none or but little lens matter to escape and if the lens swells it is most probably equatorially and we get occlusion of the filtration angle. If the incision is large and there is any swelling it is in the polar diameter.

DR. HOWARD F. HANSELL, Philadelphia: I feel that I am not entitled to speak very authoritatively on this operation because I have performed it only five times, but in those five operations I have been gratified beyond expectation in four, and I have come to consider that for the immature nuclear cataract, the kind that requires so many months and years of delay for its maturation, this operation can be done within twenty-four hours after the capsulotomy with perfect safety and assurance that the cortex of the lens will not be left behind. Since reading Dr. Smith's paper in the *Archives of Ophthalmology* for January I have thought rather deeply over the operation, and a week ago I had the opportunity of doing four of these operations together, and the week before one.

I was impressed with the fact that in none of these cases did the capsulotomy increase the opacity of the lens in the twenty-four hours, but only its maturation. In other words the clear cortex adheres to the nuclear as the lens is removed.

DR. G. C. SAVAGE, Nashville, Tenn.: Soon after I received the reprint sent me by Dr. Smith, feeling impressed by the work he had outlined, I proceeded to do it on the left eye of patients, and, by the way, I always leave the capsule in when I operate on the left eye. The ideal capsulotomy has been given us by Homer Smith. It is easy to do and he does it right. The crucial incision, the two lines crossing in the center, cannot be improved on by parallel lines running in any sort of direction. The points at the angle of the crucial incision, as has already been demonstrated, roll outward, but the thing that is accomplished by this device of my friend Smith is the ease with which the lens is expelled. During many years I have been transfixing the lens as it presents itself whether the capsule is left or taken out, so as to do away with continued external pressure on the eye, thus lessening the risk of escape of vitreous; but the lens is so loosened in its capsule when it has had a few hours to be loosened by the aqueous that it comes out before we have time to transfix it, like a bean out of its hull. It is a delight to see how easy it is by this procedure. I do not believe we ought to leave these patients over night. Do the capsulotomy at 8 a. m. and then about 2 p. m. you have all the loosening of the lens that is desirable, and it will come out at the end of six hours with such ease that you will be astonished, and

15. This procedure of Werneck is recommended by Arlt (*Graefe-Saemisch Handbook*, 1874, lii), who attributes its efficacy to mechanical stretching of the already torn or punctured capsule, widening and bursting the tears and deepening the fissures in the lens substance, due to the lens being forced forward. Resorption takes place more rapidly, then, possibly, he adds, because the aqueous, which had become saturated with lens-fiber matter, is emptied out and replaced by fresh fluid of greater absorptive capacity. Arlt considers this procedure less dangerous and accordingly more suitable for repeated application than a "formal" dissection.

then you can go to bed and sleep, because the pressure has not ruptured the hyaloid membrane and you have had no escape of vitreous. I honor my friend Smith for the gift which he has given us, but I am sorry his name is Smith, because it is going to lead to a little confusion. Hereafter we shall have to distinguish the two Smiths of cataract fame by calling the one "Indian Smith" and the other "American Smith." Of the two operations given us by these men, grant me the "American Smith's" operation.

DR. S. LEWIS ZIEGLER, Philadelphia: My attention was first called to this method of incising the capsule preliminary to cataract extraction soon after I presented my paper on V-shaped iridotomy and capsulotomy, at the Chicago meeting, in 1908. I received letters from several operators saying that they had used my knife-needle to make a preliminary cystotomy, at some period preceding the operation of cataract extraction. I tried a few of these operations with the V-shaped incision but was not favorably impressed with it and discarded it. I think, however, that we should give this procedure a thorough trial, because there are so very many cases in which we must have some method of maturing the lens, and the Foerster operation does not accomplish this satisfactorily.

In regard to the term to be applied to this procedure, we are apt to become a little confused because we are using the term "capsulotomy" in several different ways. The operation on secondary membranous cataract is properly called a capsulotomy, and it would seem more appropriate to call this procedure cystotomy, or preliminary cystotomy, because the capsule is still intact and is, therefore, a cyst holding the lens. In that way we would be able to make a slight differentiation between these operations. I think the procedure is worthy of our careful study and practice to see just how much we may develop from it.

DR. HENRY DEWITT WATSON, Binghamton, N. Y.: In one case in which I have operated with a capsulotomy preliminary to the extraction performed according to Dr. Homer E. Smith's method, the patient was a woman, 47 years old, who had been in ill health for six or seven years with a diagnosis by several internists of pernicious anemia. When she was referred to me last November, she gave a clinical picture of marked anemia with great emaciation. Her vision in the right eye was counting fingers readily at about 2 meters, and in the left eye the vision was 20/197. Her vision was sufficiently obscured to annoy her, and therefore to have a depressing influence on her mind. The eyes presented nothing out of the ordinary but because of the pronounced immaturity of the lenses and fear of an undesirable reaction I decided to do a preparatory iridectomy, with preliminary opening of the capsule. The right eye was chosen because of the slightly lesser vision. Six weeks after the iridectomy the lens was extracted. The capsule was opened as described by Smith at about 3 p. m., the eye bandaged and the patient placed in bed. She had no discomfort, and at 9 o'clock the following morning when the bandage was removed the eye showed very little reaction. The two incisions in the capsule were noticeably spread and presented an appearance as if the lens substance were slightly protruding. A section was made in the limbus about 2 mm. above the horizontal meridian of the cornea and the lens delivered in the ordinary way, but this required only very slight pressure. The pupil was clear and black, the toilet was made and the eye bandaged. The subsequent course was ordinary. In three weeks with an approximate correction the vision was 20/39. Three weeks later, because of some wrinkling and slight opacity of the capsule, I opened according to the method of Ziegler. With her correction she now has 20/16 vision.

Clean Milk.—The only reason why we do not have clean milk is that it costs more than dirty milk, though in the long run the cost of clean milk is less. If we could only impress the latter fact on the public the sanitation of our milk-supply would go forward rapidly.—*Dietetic and Hygienic Gazette*.

VISUAL RESULTS AFTER THE SMITH OPERATION FOR CATARACT

D. W. GREENE, M.D. AND J. W. MILLETTE, M.D.

DAYTON, OHIO

So much has been said and written concerning the merits and demerits of this operation in the last few years that it may be assumed that the profession is generally well informed as to the indications for the operation, the operative technic, the accidents and complications which may follow it, so that little remains to be said along these lines. The phase of the operation to which we wish to call attention, aided by statistics, is the excellence of the visual results which can be secured by it in all stages of cataract, as this is not so generally appreciated as it deserves to be.

In order to present a summary of our visual results, we shall be obliged to depend on a comparison of statistics; the subject will not admit of treatment in any other way. We think it will be fair to the operation, and aid to a better understanding of our purpose, if we exclude from these visual tables cases complicated by unrecognized fundal disease, lacrimal disease and central opacities of the cornea and retention of ruptured capsule, unless it has been extracted, wholly or in part, as a step of the operation.

These statistics of unselected cases will show that taking large numbers of operations, all other things being equal, vision will average very much better one to two months after the intracapsular, than after the regular operation, and if the visual results are measured by the same standard; surely we are subjecting it to as severe a test as can be required of any cataract operation.

As the profession has a right to ask for the facts and figures on which the above claim of superior vision is based, the following recent visual statistics of the regular operation are offered for comparison.

Knapp, whose unequaled experience as a cataract operator has made him an authority, has given us the following standard for estimating vision, which by common consent is generally accepted. He said:

We should consider vision of 20/200 to 20/20 as constituting a first-class result, vision from 18/200 to 1/200 a moderate result and mere perception of light and blindness as failures.

In the same connection, he has said:

The average result of primary vision after extraction, simple as well as combined, computed from many hundreds of cases is 20/70, that of ultimate and permanent vision after discission 20/30.

No one will question the reliability of the statistics just given of ultimate vision in the skilful hands of Knapp, or operators of his class, but we believe, from a large experience, that this is too high a standard for the average operator. The statistics to follow will show that 20/40 is nearer the vision secured.

Under the standard just given the following statistics have been compiled by Theobald of Baltimore.¹

RESULTS OF TWO HUNDRED AND FIFTEEN CONSECUTIVE EXTRACTIONS OF CATARACTS

"Combined extraction was done in ninety-four cases, extraction after preliminary iridectomy in seventeen cases, simple extraction (unintentional) in one case, extraction in capsule without iridectomy (unintentional) in two cases, and suction extraction in one case of traumatic cataract."

1. Theobald: Summary of Results Obtained and Features of Interest in 215 Consecutive Cataract Extractions, *Tr. Am. Ophth. Soc.*, xii, 84.

Successes (vision 20/200 to 20/20).....	178
Successes (vision not recorded).....	15
Total successes	193
Partial successes (vision 6/200 to 18/200).....	10
Partial successes (vision not recorded).....	3
Vision not improved, though operation was smooth..	2
Failures from suppuration.....	4
Failures from other causes.....	3
Total operations	215

Vitreous was lost in 15 operations, or 7 per cent.

The seven failures recorded represent a loss of slightly more than 3.24 per cent.

The visual acuity obtained in the successful cases, omitting the fifteen in which it was not recorded, was as follows:

20/13.....	1	20/50.....	19	20/120.....	7
20/15.....	1	20/60.....	10	20/125.....	2
20/20.....	4	20/70.....	16	20/150.....	1
20/25.....	3	20/75.....	6	20/?.....	14
20/30.....	31	20/80.....	7		
20/40.....	25	20/90.....	6	Total.....	178
20/45.....	3	20/100.....	22		

Duncan² has reported the following summary of visual results in 100 extractions of cataracts: "eighty-six senile, seven soft, and six congenital."

While it is not stated, we think it is fair to assume that a large percentage of Duncan's statistics apply to mature cataract, and that the usual percentage of discissions were performed to secure the vision reported.

After 100 regular operations, he gives the following figures:

No. Cases.	Vision Equaled.	No. Cases.	Vision Equaled.	No. Cases.	Vision Equaled.
32	20/20	14	20/50	1	10/200
25	20/30	4	20/80	4, no report.	
12	20/40	5	20/200	3, failure.	
Vision in 96 cases approximately.....			20/31		
Vision in 93 cases approximately.....			20/30		

It will be observed that practically one-third of 100 cases are credited with 20/20 vision. This is not in harmony with Knapp's, Theobald's or our own statistics of vision after the regular operation.

At the meeting of the Section in Atlantic City in 1909, Greene³ submitted the visual statistics of seventy-five cases of cataract operated by regular methods, with thirty-five discissions and nine refused discission, with the following showing:

No. Cases.	Vision Equaled.	No. Cases.	Vision Equaled.	No. Cases.	Vision Equaled.
10	20/20	5	20/60	1, fingers at 6 ft.	
16	20/30	2	20/70	1, percep. of light.	
17	20/40	7	20/100	1	0
10	20/50	5	20/200		
				75	

Average vision equaled 20/40.

Those who are favorably disposed to the intracapsular operation are willing, as a test of its merits, that its visual results shall be measured by the Knapp standard for the regular operation, as given above, and will not ask that its statistics of vision be restricted to mature cataracts, as those of the regular operations are as a rule, but that they shall apply to all stages of cataract.

Extracting unripe cataracts by regular methods (except when the lens is uniformly sclerosed) is a very unsatisfactory method of dealing with them, and, in our experience at least, cannot furnish such visual statistics as have just been given. We do not think that there is a confrère present who would care to present a paper to the Section on the visual results he had obtained in 100 consecutive operations by capsulotomy methods, even though he had recourse to the latest ripening method (Smith, of Norwich, N. Y.). It is in the treatment of unripe cataracts, whatever their nature, that intracapsular extraction is especially indicated and

achieves its highest successes. This is not an *ipse dixit* statement, but is corroborated by the experience of many operators.

No large numbers of statistics have yet been compiled, from which those who believe that a higher average of vision can be secured by the intracapsular than by the regular operation can prove their contention, or by which those who wish to compare the visual results of the operation with those of the regular operation can find statistics for the purpose. Yet, those to whom experience has shown the higher grade of vision must believe what they have seen.

Unfortunately conditions in northwestern India, in which large numbers of visual statistics for the intracapsular operation should be compiled, are not favorable for the collection of these statistics; and the unusual presence of trachoma, opacities of the cornea, and the frequent presence of disease of the fundus affect the average of vision.

The small number of operations performed outside of India increases the regret that the wealth of material there has not, and we think cannot, be made available to any considerable extent for compiling statistics to show the visual superiority of the intracapsular operation.

We aim to gather the small numbers of Indian and American statistics for the purpose of comparing these operations in visual results. Operations for cataract have but one purpose, namely, the restoration of vision, and if it can be shown that the intracapsular yields a high percentage of successes, and higher average of vision, in all stages of cataract, than the regular operation, it will grow in professional favor against all opposition.

The complications which follow are comparatively mild and, as a rule, respond more readily to treatment, so that fewer total losses from painful inflammatory conditions follow it than follow the regular operation. These reasons and the increased visual acuity, in our judgment, more than offset the complications.

In our experience, if the capsule does not rupture, about 90 per cent. of the cases complicated by loss of vitreous will have about the average and, in many cases, high-grade vision, and the remaining 10 per cent. will show as good average vision and no more total losses than after the same accident in the regular operation. In some complicated cases, good or useful vision may be secured by proper medical treatment, which might be lost without it, or the result be indifferent.

These remarks are offered in an explanatory, not in an apologetic spirit, because in the end the operation must stand on its own merits and be judged by some criterion. The best criteria are comparative freedom from inflammatory complications and higher average vision; if it cannot furnish these, it will fail to win professional favor.

Greene, during his stay of six weeks in Smith's clinic in India, became satisfied that the want of definite knowledge of the amount of vision secured by the operation was the weakest act in the great "Jullundur show." Any one at all familiar with the appearance of cataract eyes would have to concede that a very high percentage should have high-grade vision; but any one familiar with the situation there knows that carefully worked out statistics of visual results, to confirm this statement, cannot be secured unless more assistants are provided, or unless some way is found to have patients return later for examination and glasses.

2. Duncan: One Hundred Consecutive Cases of Cataract Extraction. Arch. Oph., xxxvii, 300.

3. Greene: THE JOURNAL A. M. A., Sept. 4, 1909, p. 777.

Smith's⁴ statistics of 99.27 per cent. of first-class results, Gidney's⁵ 91 per cent. and Vail's⁶ better than 97 per cent. should be considered surgical successes, not the showing of carefully tested vision; while the results would undoubtedly average high, yet as a rule, they are only estimates made from the appearance of the eye when discharged from the hospital. Greene's 356 Indian operations are of the same class, and Smith⁷ has said that "all the statistics of the government hospitals in northern India are based on the same plan."

Fortunately, a few Indian operators have furnished statistics of the amount of vision they have secured by actual tests with lenses. These are of value because they throw light on what many consider the greatest weakness of the operation, namely, that no large numbers of statistics of vision have been furnished up to this time.

Lister⁸ says:
It is quite impossible to give a statement of the exact vision obtained by every patient operated on in Indian hospitals in the provinces. At Jullundur, owing to the deficient accommodations, the patients are allowed ordinarily to leave the hospital on the sixth day.

The eye is still weak and cannot tolerate light well enough to allow the vision to be tested at a distance. In Meerut, my patients are discharged on the tenth day, but that also is too early to allow their vision to be tested other than roughly. I show the patients groups of small dots varying in size from one readily seen to one as big as the ordinary full stop in print. They are asked to count these with a + 10 D. lens. If they can count down to the last size but one, I am sure, from experience, their vision will be about 6/6 when the cornea has settled down. This may not appear very scientific, but it is all one can do, and it is for all practical purposes sufficient. I have had the opportunity of seeing and testing many patients of my own and of Major Smith's who came back for various reasons, and from an experience which is based on certainly not less than 250 of these cases I should say that the average vision obtained after this operation, provided the eye was healthy before operation, is 6/6.

Lister⁹ has also reported and commented at length on ninety-eight cases operated by Smith, complicated by loss of vitreous, the average time after operations being 3.706 years, varying from six months to nine years. After excluding cases complicated by opacity of the cornea, capsule left behind and disease of the fundus, he had sixty-one cases which he tested with spherical lenses and reported vision as follows (no attention was given to the correction of astigmatism):

No. Cases	Vision Equalled	No. Cases	Vision Equalled	No. Cases	Vision Equalled
4	6/3	5	6/4.5	2	6/8
6	6/3.5	4	6/5	3	6/9
4	6/4	33	6/6		

Approximately 6/5 vision for all.
Oxley,¹⁰ in 100 unselected cases, reported visual results as follows:

No. Cases	Vision Equalled	No. Cases	Vision Equalled
52	6/6 to 6/8	6	6/20 to 6/30
26	6/10 to 6/15	13	below 6/30

Vision in both reports is probably too low because astigmatism was not corrected.

Gidney¹¹ refers to 100 cases of double cataracts (200 extractions) made by him, in which one eye was operated on by the intracapsular method and the other by capsulotomy. He did not pick or choose the cases as to their suitability to one or the other operation, except that all immature cataracts were extracted in the capsule, and the capsule was lacerated when there was evidence of increased tension (this was present in six eyes). The following tables speak for themselves; they prove most conclusively that vision is more acute. His results were worked out in Jessop's classification; that is, a "success" when with glasses vision is at least 6/36; "partial success" when vision is less than 6/40, and at least large objects are distinguished; "failure" when there is "perception of light only."

TABLE 1.—RESULTS OBTAINED FROM OPERATION BY THE INTRACAPSULAR METHOD IN 100 CASES OF DOUBLE CATARACTS

Variety of Operation	Nos. Operated On	Visual Results							Below 6/60 and Counting Fingers	Vision Lost
		6/6	6/8	6/12	6/18	6/24	6/36	6/60		
Intracapsular.	100	27	13	13	16	15	6	4	5	1
Capsule laceration.....	100	4	3	11	20	18	19	13	10	*2

* Includes one panophthalmitis due to lacrimal disease.

In America the situation is very different from that in India; here, we think statistics of the quality of vision secured by the operation must be largely compiled. Our patients are more intelligent, they need their eyes for close work, and private patients clamor for the best possible vision, and as a rule have means to remain long enough in the hospital to be treated for complications which may interfere with the attainment of the best possible vision, or they can come back later for examination and glasses.

Tivnen,¹² in the discussion, "Delivery of the Lens," in the symposium on senile cataract before the Chicago Ophthalmologic Society, Nov. 20, 1911, said that he had received 160 replies to the series of questions he sent to a large number of oculists, asking for their experience with, and attitude toward, the Smith operation; 111 (69.3 per cent.) had not performed the operation. In answer to his third question, "Has the Smith operation in your experience secured either an increase or a more satisfactory visual acuity than the capsulotomy method?" forty-nine replied that they had performed the operation; fifteen (30.6 per cent.) reported an increase and more satisfactory vision by the Smith method; eleven (22.4 per cent.) reported inferior by the Smith method: four (8.1 per cent.) reported vision equal by either method, and nineteen (38.7 per cent.) expressed no opinion.

Wurde mann¹³ had reported the visual acuity of forty patients after intracapsular operation as follows:

Good results equal to 6/6 to 6/9 in 34.
Poor results equal objects in 2.
Failures in 4.

Greene¹⁴ reported visual results in twenty-two intracapsular extractions which he performed after reading Smith's paper,¹⁵ and with no other instructions, with the following showing:

4. Smith: Arch. Ophth., xxxiv, 602.
5. Gidney: Tr. Bombay Med. Cong., 1909, p. 502.
6. Vail: Arch. Ophth., January, 1912.
7. Smith: Ophthalmoscope, 1912, xii, 179.
8. Lister: Tr. Bombay Med. Cong., 1909, p. 521.
9. Lister: Tr. Bombay Med. Cong., 1909, p. 523.
10. Oxley: The Complete Removal of Cataract, Tr. Bombay Med. Cong., 1909, p. 512, and Indian Med. Gaz., March, 1908, p. 512.
11. Gidney: Tr. Bombay Med. Cong., 1909, p. 496.
12. Senile Cataract, The Cleveland Press, Chicago, p. 94.
13. Wurde mann: The Expressions of Cataract in the Capsule, with Report of Forty Operations, THE JOURNAL A. M. A., Sept. 4, 1909, p. 782.
14. Smith: Arch. Ophth., 1906, xxxiv, 601.
15. Greene: Am. Acad. Ophth. and Oto-Laryng., 1906, p. 70.

63.3 per cent. were mature.
18.2 per cent. were immature.
4.5 per cent. were traumatic.
9.0 per cent. were hypermature.
Vitreous loss, 41 per cent.

Capsule ruptured in 50 per cent. of cases, average of vision of fifteen given glasses practically 20/40. This would probably have been higher had the patients been more carefully tested, but the high average vision after the operation was not appreciated at the time.

In 1909, Greene¹⁶ presented a report to this Section on the visual results of seventy-five operations made by the Smith method, as its technique was then understood, which averaged 20/27, as follows:

TABLE 2.—SUMMARY OF VISUAL RESULTS; TOTAL NUMBER SEVENTY-FIVE

No. of Cases	Vision	No. of Cases	Vision	No. of Cases	Vision
3	20/15	4	20/40	2	P. L.
30	20/20	9	20/50	1	0
18	20/50	5	20/70	3	No record.
				75	

This was the work of an amateur, before Greene had had the advantages of instruction at Smith's clinic.

Ray¹⁷ has reported the average visual results of eight of thirteen Smith operations performed by himself as 20/30. Seven were immature, four were mature and two were hypermature; one had slight loss of vitreous.

In May, 1908, Wood of Chicago and Jackson of Denver spent two days in Dayton; they witnessed nine operations, and examined with all the instruments of precision forty-seven other patients who had been operated on, from a few days to three or more years previously.

Wood¹⁸ read a report at Atlantic City in June of the same year, in the discussion of Greene's paper, "Experience in the Expression of Cataract in the Capsule by the Smith Method," and said later, in 1910, that he still contended for the truth of the remarks he made in the discussion at Atlantic City. In speaking of the vision of these patients, he made the following statement:

Of the forty-seven examined by the ophthalmoscope, etc., I never saw a single case of glaucoma or detachment of the retina. . . . The proportion of unusually good vision (20/15 to 20/20) was, I believe, greater than results from ordinary methods of extraction. I have not only found central vision in those cases already reported by Dr. Greene to have been correctly reported, but, in some six instances, to have been better than that set forth in the report.

This is a circumstance that lends plausibility to the assertion that, while sight tends to deteriorate, chiefly as the result of opacification of the capsule during the first six months following the older methods, it improves in the Smith operation, owing to the absorption of intraocular bleeding and the reestablishment of normal vascular conditions.

If from this slight experience I might be allowed to venture an opinion as to the place of the Smith operation in ophthalmic surgery, I would say that, given an experienced, intelligent and skilful operator, working in conjunction with the tried and equally experienced assistant, and counting successes in cataract extraction entirely from the amount, quality and persistence of central sight, six months after the operation, the Major Smith procedure is the best method for extracting all forms of senile cataract with which I am acquainted.

16. Greene: Experience in the Expression of Cataract in the Capsule by the Smith Method, THE JOURNAL A. M. A., Sept. 4, 1909, p. 777.
17. Ray: Lancet-Clinic, July 22, 1911, p. 54.
18. Wood, Casey A.: THE JOURNAL A. M. A., Sept. 4, 1909, p. 707; see also Practical Medicine Series, 1910, III, 62.

In patients under 70 years, in good physical condition, who have good perception and projection of light and with uncomplicated operating and healing, we are disappointed if we do not secure vision of 20/20, in many cases 20/15, and in a few cases even 20/10; this high grade vision is seldom secured by the regular operation, and if secured, tends to deteriorate from opacity and wrinkling of the capsule.

In the following tables, we show the vision obtained after rejecting the classes of cases already referred to. We have included all the cases in which we have operated by the Smith method, the patients having been cared for by ourselves, of which we have a complete record while in the hospitals and of such as have returned for examination and glasses. They do not include any of Greene's 356 operations made in India. These statistics only include the visual records of a few of the large numbers of exhibition operations which have been performed away from home, in strange hospitals, often without a trained assistant, and in the presence of a crowd of spectators. An operator is not generally at his best under these conditions, and visual results are not likely to be up to the standard of his own hospitals.

In a few cases these visual results have been secured only by a secondary operation. In several other cases, already referred to, constitutional and local treatment have been of great service in securing these visual results. A condensed summary of the results of the 203 operations will be given together with a few explanatory remarks.

ST. ELIZABETH'S HOSPITAL.—TOTAL NUMBER OF OPERATIONS, 93; AVERAGE AGE OF PATIENTS, 63.64

Immature cataracts 55					
Mature cataracts 36					
Hypermature cataracts 2					
Total 93					
No. of Cases	Vision	No. of Cases	Vision	No. of Cases	Vision
3	20/10	3	20/40	1	20/200
22	20/15	4	20/50	2	P. L.
29	20/20	5	20/70	1	0
17	20/30	2	20/100	4	No record.
				93	

In the eighty-nine cases of which we have records there was an average vision of 20/22. In the eighty-six cases, which do not include the three failures, there was an average of approximately 20/21.5.

Vision after four discussions for thickened hyaloids was 20/15, 20/20, 20/20 and 20/20 respectively.

First-class results, 96.6 per cent.

SOLDIERS' HOME HOSPITAL.—TOTAL NUMBER OF OPERATIONS, 110; AVERAGE AGE OF PATIENTS, 67.95

Immature cataracts 44					
Mature cataracts 59					
Hypermature cataracts 7					
Total 110					
No. of Cases	Vision	No. of Cases	Vision	No. of Cases	Vision
1	20/10	9	20/40	5	P. L.
14	20/15	10	20/50	3	0
32	20/20	8	20/70	6	No record.
18	20/30	2	20/200	110	

In the 104 cases of which we have records there was an average vision approximately 20/27. In the ninety-six cases (which do not include failures) there was an average vision approximately 20/25.

Vision after iridotomy for six high pupils averaged 20/70.

First-class results, 92.3 per cent.

TOTAL LIST.—AVERAGE AGE, 66 YEARS					
No. of Cases	Vision	No. of Cases	Vision	No. of Cases	Vision
4	20/10	12	20/40	3	20/200
36	20/15	14	20/50	7	P. L.
61	20/20	13	20/80	4	0
35	20/30	4	20/100	10	No record.
				203	

Of the four total failures, three were lost by purulent infection; one was lost by non-purulent infection (iridocyclitis).

Of the seven patients who had only perception of light, two had kerato-iritis (delayed healing); two had vitreous loss (excessive); one had macular chorioiditis; one had myopia 20 D. (severe reaction, probably detachment of retina); and one had iridocyclitis (from exposure).

Of the ten without visual records, two were absent without leave from the "Home;" three died while in the hospital; two left the "Home" before vision was tested, and three have not returned for examination.

The 193 patients of whom we have records of vision had approximately 20/25, and 182, not including the failures, had vision approximately 20/23. Total first-class results, 94.6 per cent.

VITREOUS LOSS, ST. ELIZABETH'S HOSPITAL

No. of Cases	Vision	No. of Cases	Vision	No. of Cases	Vision
2	20/15	1	20/40	1	P. L.
2	20/20	1	20/50	1	No record.
3	20/30	1	20/70		
				12	

One patient expelled lens and a large quantity of vitreous on completion of the section. This would have happened in any operation, but it is counted.

Eleven with records had approximately 20/28, after deducting 1 P. L., and ten had approximately 20/25.

VITREOUS LOSS, SOLDIERS' HOME HOSPITAL

No. of Cases	Vision	No. of Cases	Vision	No. of Cases	Vision
1	20/15	1	20/40	2	P. L.
4	20/20	4	20/50		
4	20/30	1	20/70	17	

In seventeen cases there was approximately 20/33 vision; after deducting two failures the remaining fifteen cases had approximately 20/29.

These tables seem to show that vision is not so good after vitreous loss in patients who average 67.95 as in those who average 63.64 years.

TOTAL NUMBER OF VITREOUS LOSSES IN 203 OPERATIONS

No. of Cases	Vision	No. of Cases	Vision	No. of Cases	Vision
3	20/15	2	20/40	1	No record.
6	20/20	5	20/50	3	P. L.
7	20/30	2	20/70		
				29	

Percentage 14.2.

Twenty-eight patients had vision of approximately 20/31; twenty-five, approximately 20/29.

The average strength of cylindric lenses in 117 cases was 2.37 D.

The average amount of astigmatism in 182 cases (the total number refracted) was 1.52 D.

19 North Perry Street—210 Reibold Building.

ABSTRACT OF DISCUSSION

DR. J. W. MILLETTE, Dayton, O.: In our report we have excluded the ruptured capsule cases. We thought at the time the paper was written that the rupture of the capsule robbed the operation of its most distinctive feature, and it was no longer an intracapsular operation. Since the paper was placed in the hands of the Association I am convinced that this is not the fairest way to look at the question. This is one of the complications of the operation, and will come to all men who operate by this method. In the 219 operations here considered there were sixteen ruptured capsules, or 7.3 per cent. As the retention of cortical matter and prolapse of the iris are very undesirable complications in the capsulotomy method, so is ruptured capsule in the intracapsular method a much-to-be-regretted complication. It would not be considered wise to exclude the former from statistics of the capsulotomy method nor should the latter be excluded from our statistics. I desire, therefore, to give the following brief statement of some of the findings includ-

ing the ruptured capsule cases: There were sixteen cases not included on account of ruptured capsule. In one vision was nil, in one other it was perception of light. In fourteen others the vision ranged from 20/200 to 20/15. The average of the sixteen, including the two failures, is 20/37. Of the fourteen, excluding the two failures, it is 20/32. Adding these sixteen to the 193 cases of which we have record, considered in the paper, we have a total of 209, the average vision of which is 20/25.25. Adding the fourteen with ruptured capsule to the 182 of the paper all of whom had vision 20/200 and better, we have a total of 196 with an average vision of 20/23.5. We also excluded from our report eight cases with corneal opacities, in which operation was performed with the hope only of slight improvement of vision; two amblyopic eyes operated on and not recognized, a condition of which we were informed after the operation. Two cases of undiscovered optic atrophy, and one of central chorioiditis were also excluded from the statistics.

DR. D. W. GREENE, Dayton, O.: Perhaps an explanation of the method of testing the vision of these patients will not be amiss. This seems desirable as we have not found among those who have visited our clinics and examined large numbers of cases, entire unanimity of opinion as to the best methods of securing and recording the vision of cataract patients. The difference of opinion relates to the illumination of the card, the color of the card and letters, whether the patient should read every letter of a line to be credited with it, or whether 4/5 or 7/8 should entitle a patient to credit for the line, and on different cards and on different days. Our method has been as follows:

Distance, 20 feet, Snellen's cards, white background and black letters, or black background and white letters in an illuminated cabinet; the test for astigmatism has been carefully made, and we have used the best record obtained after an average of three tests. In a majority of cases, during the first month or six weeks after operation patients will read one and sometimes two more lines of the black card with white letters than on the other card. Many of the cases of this series have been refracted by outside men and the vision in the tables is their finding, not ours alone.

DR. WALTER R. PARKER, Detroit: The only common ground we have with those who have been in India is "visual results obtained." Drs. Greene and Millette say that Major Smith himself counts his success or failure entirely by actual appearance of the eye from one week to ten days after operation, and not by the test with lenses.

It seems to me that Drs. Greene and Millette by their exclusion of retained ruptured capsule cases have given us the results that will be obtained by the Smith operation when perfectly performed on an otherwise normal eye, rather than the result of a clinical procedure for the removing of the crystalline lens, which will give a better average than is now obtained by the older methods. I can understand why a case in which an accident occurs during the operation up to the time when the lens is to be delivered might be excluded from their table, but any result that might arise in consequence of an accident in the attempt to deliver the lens in its capsule should militate against the operation as a clinical procedure. For instance, if on completing the corneal incision, the patient becomes unruly, and the lens is forcibly expelled with loss of vitreous, or if an accident occurs during the iridectomy, it seems to me these cases should not be included in compilation of visual statistics for the Smith operation; but if the capsule is ruptured and left behind during the delivery of the lens in this operation, I think such cases should be included. In the same way, cases with any disturbance of the anterior vitreous which might arise as a consequence of the operation, should be included. It would be just as fair to exclude from our statistics of the older method all cases in which some cortical matter is left, on the ground that if the operation be perfectly performed, no cortical debris will remain. No definite scientific conclusion as to the relative efficiency of different methods of procedure can be reached until we have more uniform standards of comparison.

I have no doubt whatever that the combined operation with capsulectomy is a better procedure in the majority of cases than either the simple method, or the extraction in the capsule. On the other hand, I believe the operation of extracting the lens in the capsule is well adapted to certain cases and that the characteristics of the cases to which it is applicable, while not yet completely known, will ultimately be determined.

The most successful cataract operator will be the surgeon who selects the method of procedure best suited to the individual case rather than he who adopts any one method of procedure to the exclusion of all others.

DR. HIRAM WOODS, Baltimore: I saw Dr. Greene operate, at his invitation, and he gave me opportunity to examine a number of patients whom he sent at random. I believe that the visual results by a careful examination would have been better than in the hurried examination I was able to make. Two or three things struck me. One was the greater visual acuity when examined with black background and white letters. I recall one man who read with a plain spherical of 11 D. 20/15 with the black card and white letters and fell down to 20/30 with the black letters on the white background. Dr. Greene told me that that was a pretty constant observation.

Another thing that struck me was that with several patients I obtained greater visual acuity with the spherical, without attempting to correct the traumatic astigmatism, than in my own cases; in other words, contrary to what I expected, there seemed to be less postoperative astigmatism than I usually observed. A third point is that in spite of the acuteness of vision a number of patients had definite small punctate deposits on the hyaloid membrane. What they were from I do not know. Dr. Greene said they were quite common. There was no question that in the patients Dr. Greene allowed me to examine the visual acuity was greater than we are accustomed to get in our primary tests after capsulotomy.

EYE COMPLICATIONS CAUSED BY HOOKWORM DISEASE

WITH SPECIAL REFERENCE TO THE FORMATION
OF CATARACTS

F. PHINIZY CALHOUN, A.B., M.D.

ATLANTA, GA.

Eye complications caused from or associated with hookworm disease have been known for many years. Rampoldi,¹ in 1880, first mentioned these changes, and he described a patient "who passed a great number of eggs in the stools and who only complained of slight asthenopia. The retina was discolored, characteristic of edema of this membrane." Another case in a woman "who died of hydremia caused from this disease, in which there was a true exudative retinitis in each eye." Later, in 1892, the same author describes a case of retinal hemorrhage, and also a case, in a girl of 19, in which he had observed a strabismus which rapidly disappeared when the patient was cured of the hookworm disease.

In my search through the literature of the older writers on the subject of *Ankylostoma duodenale* or hookworm disease of the Old World, I could find but few references relating to eye-changes, and our present-day writers and clinicians have added little to what has been recorded.

In addition to the eye-changes above mentioned by Rampoldi, Niden,² a later writer, much quoted,

describes fully his experience in 180 cases observed, estimating that fully 7 to 8 per cent. had some retinal changes, viz., an anemia, arterial pulsation, serpentine veins, great pallor of the disks and hemorrhages. While he admits that any or all of these might occur in chlorosis or other anemia, there is in his mind a characteristic picture of retinal hemorrhage due to hookworm disease. These hemorrhages occur in the peripheral portion of the retina, more numerous and earlier than near the papilla or macula and are frequently herded together in groups of punctate form, close to each other without melting into one another. He also describes another form of hemorrhages which occur in stripes and follow the course of the vessel. These lie near the papilla.

A third form is mentioned as occurring in advanced cases in which there is marked extravasation of blood into the retinal tissue. The two latter types are not wholly characteristic of hookworm disease.

Fischer³ also mentions retinal hemorrhages and Hansell's⁴ case was most interesting. Both papillæ were swollen and their outlines lost. There were linear extravasations of blood in one eye and subretinal hemorrhage in the region of the fovea in the other. The retinal arteries were distinguished as transparent lines and appeared to be filled with water rather than blood.

Hisaki,⁵ a Japanese observer, E. Fischer,⁶ Fuchs,⁷ Lippitt⁸ in Porto Rico, and others, corroborate what has been previously mentioned relative to retinal changes, which makes it the most common of ocular complications.

Other changes of a general character, beside the retinal alterations and Rampoldi's case of strabismus, are recorded in the vast supply of literature on hookworm disease, written by clinicians of general medicine. They are particularly mentioned by Ashford,⁹ in his exhaustive report of the Hookworm Commission in Porto Rico, and are as follows: blurred vision, dilated pupils, diplopia, unilateral and bilateral nystagmus, amaurosis, restriction in visual field, night blindness and other asthenopic symptoms which might occur in any protracted illness in which there is an anemia.

Ashford lays particular stress on night blindness; he says that it is not a symptom to be ignored. It is variously estimated by different observers as occurring in from 3 to 24 per cent. Corneal ulcers have been reported by Ashford in one of his series, also by Mauldin,¹⁰ while Calmette and Breton also mention a discoloration of the chorioid. Lutz¹¹ mentions a very rare symptom, that is, chemosis of the bulbopalpebral fold, which occurred three times in twenty-five cases.

Of diagnostic importance, says Stiles, our foremost worker in hookworm disease in this country, is the condition of the pupil. This phenomenon is as follows:

"If the patient is directed to stare intently into the observer's eyes there will be noticed a symptom which is difficult to describe, but which I have found more constant than all others noticed, namely, after a moment the length of time apparently varying slightly, according to the degree of the disease, the pupils dilate, then the patient's eyes assume a dull, blank.

3. Fischer: Ber. ii. d. Versamml. d. ophth. Gesellsch., Stuttgart, 1892, xxii, 26.

4. Hansell: Tr. Am. Ophth. Sec., Hartford, 1901, p. 377.

5. Hisaki: Chiba Igahuhwai-Zasshi., Tokyo, 1900, No. 47, pp. 1-7.

6. Fischer: Centralbl. f. prakt. Augenhe., Leipzig, 1896, xx, 81.

7. Fuchs: L'Ankylostomiasse, maladie sociale. Calmette and Breton, Paris, 1905, p. 55.

8. Lippitt: See Ashford's report, Note 9.

9. Ashford: Uncinariasis in Porto Rico, Cong. Third Sess., Dec. 308, 1911.

10. Mauldin: Jour. South Carolina Med. Assn., 1910, vi, 521.

11. Lutz: Samml. klin. Vortr., Leipzig, 1886, No. 88.

1. Rampoldi: Cong. period. internat. d'ophthal. 1880, Milan, 1881, p. 283; Ann. di ottal., Pavla, 1892, xxi, 357.
2. Niden: Compt. rend. Cong. Internat. de méd. 1897, Moscow, 1898, vi, Sec. 2, p. 60; Centralbl. f. prakt. Augenheilk., Leipzig, 1903, xxvii, 207.

almost fish-like or cadaveric stare, very similar to that noticed in extreme alcoholic intoxication."

I have never looked for this symptom, therefore I cannot speak from experience.

Dinsmore of Alabama, in a personal letter, expressed great faith in it, while Ashford of Porto Rico and Dock¹² of St. Louis do not believe it diagnostic.

In presenting this subject I wish to call attention to other eye disorders associated with, if not caused by hookworm infection. They are cataracts in the young and spontaneous hemorrhage from the conjunctiva.

Soon after hookworm disease was discovered in Georgia and the South, about 1904, when there was so much talk, in earnest and jest, that the germ of laziness had been found, my father, Dr. A. W. Calhoun, had two young people from Florida, affected terribly with anemia, dropsy, more or less stunted in mind and body, who had cortical cataracts. In one case he performed a discission, and in the other an extraction after iridectomy, with good results. I suggested that we make an examination of the stools for the detection of larvæ of hookworms as the patients looked to be fit subjects, and, to our astonishment, their stools were found to be loaded with the eggs. He reported these, and made mention of others under the title of "Association of Hookworm Disease with Cataract," before the Georgia State Medical Society.¹³

Since that time I have been watching for these cases, and not until last year did I find them. Two other cases of cataracts in young patients associated with hookworm disease, were reported at the 1910 meeting of the Georgia State Medical Association and later published,¹⁴ and to make this article more complete, I herewith attach the cases from that report.

CASE 1.—History.—L. M. R., aged 20, an ignorant country lad from the back woods near Ellijay, Ga., was referred to me by Dr. J. E. Tankersly. The boy was so ignorant or frightened at the time of my office examination that I could obtain very little history from him, except that the right eye had gradually gone blind in the past three months; formerly, the patient thought, he had as good vision as any one. Dr. Tankersly confirmed his statements, having known the boy and his family, who belonged to that class known to us as "poor white trash." Heredity played no part in this case; his family was in fairly good health, yet probably the home was a hot-bed for hookworm. This patient's health had never been good; he evidently had suffered from the infection of hookworm since he had the "ground-itch," years ago. He had gone to school occasionally until his sight began to fail and he spent that year "around the house" because "shortness of breath" kept him from working. His appearance was so typical of hookworm disease that it was of no credit to the microscope to find the eggs later. He was small in stature, about 4 feet 6 inches, very pale, having a bloated face, an anxious expression, and the tissues relaxed, and he gave the appearance of not being more than 12 or 15 years old, and the mind of one not that age.

Examination.—The conjunctiva was bloodless, the pupils reacted to light, and the projection was good. After dilating the pupils, I found a fully developed cataract in the left eye, the right not quite as mature. I sent the patient to the hospital to be operated on the next day. Except for a hemie murmur he was found to be normal by a physical examination. The urinalysis was normal. Blood showed hemoglobin 20 per cent.; red cells 2,000,000. The feces were loaded with eggs of uncinaria.

Operation and Other Treatment.—Under cocain anesthesia a light discission of the left cataract was performed and in two days I found absolutely no reaction either of the globe or lens. Four days later I attempted another discission, lacerating the capsule well and stirring up some of the cortical substance of the lens. Much to my surprise, I still found no reaction to the eye or swelling of the lens. Then I deemed it best to give the patient the usual preparation and treatment of calomel and thymol for such parasites, and saving all stools after the administration of thymol, 750 worms were found. Within a few days after the treatment the lens commenced to swell, although it took six discissions in each eye to establish an opening through the dense capsule which remained clear and through which the fundus could be seen. After four months of careful nursing and treatment at the Wesley Memorial Hospital, glasses were adjusted and with his left eye he could see 20/70 with a +11.50 S. The result in his right eye was not so good at that time, as there was an unabsorbed capsule. A very good view of the left fundus was obtained and I found marked circulatory disturbances in the retina. The nerve head was swollen two or three diopters, the veins markedly dilated and throughout the retina there were a few small flame-like hemorrhages. These retinal disturbances were undoubtedly the cause of the poor sight after the operation, as the pupil was large and black and the media clear.

Course.—In a letter six months later the patient tells me that his sight is still improving, meaning that, as his anemia vanishes, the retinal congestion diminishes and sight is restored. Unfortunately no accurate records of weight or height were taken but he must have grown 2 inches, and gained 30 pounds from July 4 to November 26. The hemie murmur disappeared, his mind grew brighter and he was full of energy when leaving, although the thought of home and the approaching of Christmas time acted somewhat as a stimulus.

September, 1911, the patient returned for examination. He had gained in weight, and his color was very much improved. With the proper glass, vision was improved to 20/20 in the left eye. The engorged and tortuous veins had been reduced to normal. There was no swelling of the nerve or retina, and there existed the merest trace of any retinal hemorrhage. There was still some capsule in the right eye and after a capsulotomy, he had 20/70 vision. No fundus-changes were observed in this eye.

CASE 2.—This case is not so interesting, but I am convinced that the anemia and toxemia produced by the hookworm caused the cataracts.

History.—L. B. C., aged 26, of Newnan, had been blind in the right eye for two years; in the left for ten years, whereas up to that time when out hunting, as he expressed it, "he could kill a rabbit as far off as any one." His father, an old man, had cataracts removed some years ago, a record of which I have. He gives a history of having had the "ground-itch," for which he was given some sort of treatment years ago, and of having been thin and puny when a boy. This treatment possibly was the thymol treatment for hookworm, although I have been unable to learn anything definite from his family on this subject. This patient was well-developed (another fact which makes me believe that thymol has at some time been administered), but he had the appearance of a boy 17 to 20 years old, and the intellect of one much younger, although he was thoroughly ignorant and had never been to school.

Examination.—The right eye showed an immature cataract of the cortical variety; as to vision, patient could count fingers at a distance of 4 feet. Left mature cataract. Projection good in each eye. Blood normal. Urine normal. Feces: many eggs of uncinaria.

First Operation.—On account of no existing anemia, I decided to operate before giving him the thymol, in order to save time, and on September 11 the lens was extracted *in toto* from the left eye, after the Graefe method. Healing was uneventful and on the 27th the treatment for the hookworm was given and about 200 parasites were found. Later a glass was prescribed for his left eye and only fair vision was obtained, viz., 20/100, explained only by the fact that the

12. Dock and Bass: Hookworm Disease, St. Louis, 1910.

13. Calhoun, A. W.: Ophth. Rec., 1904, xii, No. 7.

14. Calhoun, F. P.: Ophthalmology, September, 1911, xxviii, No. 9. Tr. Oph., xxviii, No. 11.

eye was amblyopic ex anopsia for ten years. Only a preliminary iridectomy was performed in the right eye and I anticipate a much better result after extraction.

Second Operation.—April 15, 1911, the patient returned by request for the second operation. The right cataract was extracted after a preliminary iridectomy, and the result was fair, namely 20/200 vision. The fundus appeared normal. The fact that the vision after the operation was approximately the same in each eye makes me now doubt my former opinion, that the left eye was amblyopic ex anopsia. The vision in the left eye, nine months after the operation, was 20/50, and as the fundus still shows no alteration, I am rather inclined to believe that a toxic neuritis existed then, which passed away after instituting treatment.

CASE 3.—History.—P. B., aged 22, from southern Georgia, was referred to me by Dr. A. G. Fort, field agent of the Hookworm Commission in Georgia. I am indebted to him for the case, and the family history of the patient. The family consists of a poorly nourished, hump-back father, a mother and nine children, who up to a short time ago lived in the backwoods of southern Georgia, running a small farm. All the children when old enough worked in the field or helped around the house. They went barefooted most of the year. There were no out-houses or privies on the place. Seven members of the family, including the father, were examined by Dr. Fort, or his assistants, and found to be infected with hookworm. This patient had been sickly all his life and, to use his expressions, he had "heart dropsy" up to three years ago, when he had taken some medicine and since that time he had "picked up right sharp." He had gone to school to some extent, until his sight began to fail ten years ago. Questioned as to his sight before that time, he said that he knew it was good. Sight first failed in the left eye, which rapidly went blind, and five months later the right began to be slightly affected. Since March, 1911, the boy has been a pauper on his county, although he is very energetic and exceptionally bright for a hookworm subject or a backwoodsman. He is quite thin with drawn features.

Examination.—This was negative. Blood showed hemoglobin 75 per cent.; white and red cells normal; urine normal; feces contained no hookworm eggs (the patient had received treatment). Eye examination: With the right eye the patient could count fingers at a distance of 3 feet; the pupil was dilated, and sector-shaped opacities were seen at periphery of lens, with dense changes in the posterior cortex. Left eye had light perception only, which was good. Lens examination was made after a mydriatic, and there was a chalky white cataract with evidences of some cortical absorption. The capsule was thickened near the anterior pole.

Operations.—A very light dissection of the right lens was done at the same time and a thorough stirring up of the small amount of the soft cortex in the left eye. A week later a second dissection was made in the right lens, as little reaction had developed. The left eye was doing nicely.

Course.—In all six dissections have been performed on the right eye and three on the left, and the patient is still confined to the hospital at the time of this writing, eight weeks after the first operation. The right cataract is absorbing slowly, while the left has almost entirely cleared, and with the correct glass his vision is 20/70. The fundus appears normal.

My fourth case, a most unusual one, was that of spontaneous hemorrhage from the conjunctiva of one eye.

CASE 4.—History.—In the spring of 1911 a well-developed girl, aged 11, was brought to me from Florida on account of bad sight in the right eye, but principally because there were periodic attacks of spontaneous hemorrhages from that eye. I had some correspondence some weeks previously with the child's mother, who wrote that frequently since December, 1910, she had observed blood on the right side of the girl's pillow-slip in the morning and occasionally some dried blood on the eye lashes. I advised her to bring her daughter to Atlanta for examination.

Examination.—March 13, 1911, I found vision, right-hand movement only. There were old nebulous corneal scars from attacks of "sore eyes" two years previously. Vision left 20/20. The mother stated that the child's health was not good, and she "bloated" and her feet swelled. The menstrual flow was not yet established; the child was quite stupid. The pupils were dilated for retinoscopy. The right was unimproved, retinoscopy +4 S; left 20/20 with +1 S. Fundus, right, papilla very much swollen, outline very indistinct, vein tortuous and dilated, no hemorrhages. Left negative.

Treatment.—As soon as I saw the right fundus I recalled the picture of hookworm cataract (Case 1), and suggested a laboratory examination of stools. This was made with a report of "many eggs." Appropriate treatment was suggested and carried out by the family physician at home; +75 S were prescribed for constant wear, and the patient immediately returned to Florida. I observed no hemorrhages from the eye at this visit.

Course.—Within a few days after leaving, the mother wrote that the patient had had a severe hemorrhage from the right eye. I suggested that she make another visit to Atlanta as soon as possible, and come with the understanding of remaining as long as necessary. On April 24 she returned with a letter from her physician, who wrote that calomel, salts and thymol had been given, and a quantity of worms had been expelled. A second stool examination was made in Atlanta. Very few eggs were found and the thymol treatment was repeated. The eyes were again examined under a mydriatic. The vision of the right eye was the same, namely, hand movement only. The vessel was not so large and the papilla not so swollen; vision on the left with glasses, 20/20.

The mother stated that no hemorrhage had been observed in four days. I gave her instructions to call me, day or night, when hemorrhages occurred. Three days later I received a telephone message early one morning before office hours that there was some slight hemorrhage. The patient was brought to my office without having her face washed and I found dried blood on the lashes. The conjunctiva of the globe and of lower lid was normal, but on inverting the upper lid, in the retrotarsal fold, I observed some dilated veins. This evidently was the one point from which all hemorrhages came and the tears forming washed the blood from the lashes. The patient was given an iron tonic, a weak epinephrin eye-wash and observed for several days afterward. A letter from the mother, October, 1911, informed me that there has been no subsequent hemorrhage. The sight in the right eye has been much improved, and she thinks that her general condition is better.

Lutz's cases of chemosis of the bulbopalpebral fold are the nearest approach to this phenomenon that I can find.

Having the facts before us, that eye-changes do occur in individuals who are infected with hookworm disease, and these changes have been accurately and minutely described by men of prominence, it might be of interest to those who are not familiar with the clinical picture of this disease, for me to mention briefly what hookworm is, the pathology, the mode of infection, the symptoms, the treatment, etc., and then draw the conclusions.

Hookworm disease is due to certain species of hookworm which live as parasites in the small intestine. It occurs especially in warm countries or in temperate latitudes where the climate in summer, or other conditions (as warm mines), offer favorable conditions (Doek).

For many centuries this disease has been known to occur in the Old World, and Stiles quotes Joseph Pitt (1808) as the earliest American author to mention it. Of the many later workers in this disease, Smith and Schaeffer of Texas, Smith and Harris of Georgia, and Stiles, of the government service, stand prominent as pioneers in the discovery of hookworm disease in the South.

Hookworm affects those who have intimate relations to the soil and the poor country people of the South without the proper knowledge of cleanliness or hygienic surroundings are the ones most commonly and seriously affected.

The mode of infection may be by any one of many ways, that is, by food, water, or through the skin. Dock mentions that skin infection is practically the only source of the disease.

The worms reaching the adult life, or the stage of reproduction in the small intestine of man, lay eggs which pass out with the feces. The eggs do not hatch in the intestines on account of lack of oxygen and other reasons. For that reason one cannot infect oneself. These larvæ are not infectious until they are 4 or 5 days old, then they may penetrate the skin, reaching the venous circulation, going to the heart, thence to the lungs and bronchi, and are carried to the mouth by the normal outward current of the bronchial mucous membrane and by coughing, and are finally swallowed.

When the larvæ penetrate the skin a dermatitis is produced, and in bare-footed children this dermatitis produces a common early symptom known as "ground-itch."

The symptomatology of hookworm disease is most variable, in fact, there are a great many cases which present no symptoms that can be recognized as variations beyond normal. Anemia, of a most pernicious type, with variations in hemoglobin estimate, as low as 8 per cent., is the predominating symptom; along with this severe anemia, albuminuria, dropsy, weakness, pallor, incapacity for any work, shortness of breath, etc. Death may intervene, as the patient's resistance is so lowered that he quickly succumbs to any intercurrent disease. In another type, not so severe, the hemoglobin is 50 to 70 per cent., lowered vitality and energy, dizziness, symptoms of dyspepsia, etc. Children with this type do not develop in mind and body. The individual may be 20 to 25 years of age, whereas he is no larger than a child 10 to 12 years of age.

"The diagnosis is to suspect its presence" (Manson). The microscope will find the eggs in the stools if they are present. The treatment consists of the administration of calomel or oil as a purge, followed later by a saline, and then the anthelmintic (thymol) in doses to 60 grains; finally another saline to cleanse the bowels of the dead worms.

Toxic amblyopia from thymol has been observed by Farrel, of the North Carolina Hookworm Commission. He could not tell me whether it was temporary or permanent. It had occurred twice in 28,000 cases and Nieten mentions amblyopia, temporary or permanent, from $1\frac{1}{2}$ to $2\frac{1}{2}$ drams of extract of filicis maris (male-fern).

That there is a toxin produced by hookworm disease, most students of the disease agree. What part is played in the causation of the symptoms, that is, the destruction of the blood or the eosinophilia, I dare not venture an opinion. I might say, however, that there are cases of hookworm infection with a severe anemia in which few worms are found. This alone would strongly point to a toxic action in the blood. It is Ashford's belief that a "toxin" exists.

Does hookworm disease cause eye-changes or are they merely associations? I firmly believe in the affirmative and it is my purpose to prove the assertion.

Retinal hemorrhages, enlarged veins and a neuritis strongly point to a toxemia, producing a degeneration in

the fundus. Neiden thinks that the great loss of blood through the blood-sucking worms is a doubtful cause; in cancerous cachexia, there is often produced a fatty degeneration of the retinal fibers as well as circulatory disturbances of the same. These he described to be the toxins, produced by the tumor.

Fischer³ is of the opinion that the eye-changes are due to toxins.

As to certain circulatory disturbances of the retina, and even the case which I report of spontaneous conjunctival hemorrhage, I do not believe that anyone would doubt that hookworm infection produces them through the medium of a toxemia; but whether the disease would produce cataracts, there has been extreme doubt, regardless of my decided views.

In the consideration of the etiology of hookworm cataracts, I would call attention to certain well-known anatomic and pathologic facts.

1. The lens receives its nourishment from its surrounding liquids—the vitreous and mainly the aqueous—by diffusion through the lens capsule. That metabolism in the lens is slow is proved by the fact that lens opacities often remain stationary for a long time.

2. The lens proper is protected from the aqueous by its capsular epithelium. Hence any disturbances to this capsule will cause cloudiness in the lens sooner or later.

3. An alteration in the composition of the aqueous, e. g., poisonous substances or toxins, exerts changes on the epithelium which in turn cause a cloudiness in the lens; or more directly, as a result of diosmosis, through the intact lens capsule these poisons produce opacities.

Such an alteration has long been considered as a possible cause for senile cataract, due to some senile change in the ciliary processes which secrete the aqueous (Peters), or to certain disturbances in the general metabolism, as occurring in chronic nephritis.

Additional evidence that toxins do produce changes in the capsular epithelium is that rare form of anterior polar cataract due to deep non-perforating ulcers of the cornea.

4. The foregoing changes are presented to us in the form of complicated cataracts, occurring secondary to changes of the inner coats, or even a more beautiful example is the naphthalinic cataract. The experiment was first performed on rabbits by Bouchard; when naphthalin was administered there developed a retinitis with vitreous opacities, and a cataract subsequently formed. In man this phenomenon has been seen to occur when a naphthol ointment was used for skin diseases.

5. Other systemic diseases as cholera and pellagra, similar to uncinariasis in that they produce toxins and to an extent an anemia, cause cataracts.

In many respects hookworm disease is similar to pellagra. It is a systemic disease, the cause of which is still obscure; this disease produces toxins; and that there are eye complications, notably cataracts, caused from these circulating poisons, is an established fact known for many years.

Stewart Roberts, of Atlanta, in the latest works on pellagra, devotes considerable space to eye complications. As to the formation of cataracts he quotes Fabricius and Procopius, who show that cataracts are of unusual frequency among pellagrins, even pellagrous children develop them in the form of milky cataracts. Welton, in reporting his investigation in Peoria, refers to the frequency of early-forming cataracts, and Tucker found cataracts in three out of forty-five cases, while Whaley, of South Carolina, found cataracts in six out of thirty-

ive pellagrins. Roberts attributes the cataract formation to the metabolic degeneracy of the entire system, the altered and lowered nutrition of the lens, as determined by the presence of the pellagra poisons.

Why, then, not cataracts in hookworm disease?

Frenkel,¹⁵ of Toulouse, in his study of the pathogeny of the lens, states that different body toxins produce changes in the ciliary zone, which also produce changes in the lens.

In very recent letters from Lippitt, of San Juan, he gives me histories of two cases of cataract in young hookworm subjects; one a negro, aged 20, with a well-advanced cataract in one eye and one beginning in the other; the other a 13-year-old girl with a commencing cataract in both eyes. She presented no other symptom of anemia. It is Lippitt's opinion that the production of cataract in early life proves the existence of a toxemia or hookworm disease.

It is interesting in this connection to know that while the negro may be infected with hookworm, uncinariasis does not produce anemia. Such is the experience of Lippitt and Ashford in Porto Rico. I have never seen a negro hookworm patient, and they are extremely rare.

Finally, having in mind the anatomic situation of the lens, its nutritive dependence on the ciliary zone and its neighboring fluids, and an alteration in these structures, whether from an anemia or an accumulation of toxins (or both), I believe them sufficient to produce cataractous changes.

If hookworm disease does produce cataracts, then we have a new cause, and one which can be prevented.

I am indebted to the gentlemen who have aided me with their courteous and interesting letters; especially I wish to thank Drs. Fort and Roberts of Atlanta and Dr. Ablemann of Washington, D. C., for their many suggestions and their help in the preparation of this paper.

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ABSTRACT OF DISCUSSION

DR. HOWARD F. HANSELL, Philadelphia: The only case I ever saw was that alluded to by Dr. Calhoun, published in the *Transactions of the American Ophthalmological Society*, 1901. The patient was an Italian boy, aged 16, who had been brought into the medical wards of the Philadelphia General Hospital from an immigrant ship which had sailed from Mediterranean ports. His case was diagnosed as pernicious anemia, and it was only after a thorough examination of all the bodily organs and eruptions that the cause of the anemia was suspected. The ocular findings were those described by Dr. Calhoun—moderate double optic neuritis, edema of the adjacent retinas and numerous hemorrhages scattered throughout the retinas. The vision was for a time seriously compromised. After the discovery of the intestinal parasite suitable remedies were administered, and the patient recovered his vision and his health. I have no doubt that a considerable proportion of cases of anemia classified as "pernicious" owe their origin to the *Ankylostoma duodenale*. A study of this affection and a wide-spread dissemination of the knowledge gained has resulted and will continue to result in the saving of many lives. I fully agree that hookworm disease may be the cause of cataract. We know in part the etiology of cataract, but we do not know it in full. The presentation of these cases carefully studied seems to point to a new factor in the etiology. We can hardly accept the conclusion that anemia alone is responsible, for we have to remember the many cases of anemias that we have seen to have clear lenses. The excessively high degree of anemia associated with hookworm disease or the toxins of the worm, preferably the latter, certainly point to the justness of Dr. Calhoun's conclusions.

THE DANGERS TO AND THE REQUIREMENTS OF THE EYES OF THE NATIONAL MARKSMAN

JOHN A. DONOVAN, M.D.

BUTTE, MONT.

The time has come when the efficiency of our army and navy depends on our marksmanship. Since Congress authorized the sale of small arms to any citizen affiliated with the National Rifle Association, everywhere an increasing interest is taken in this line of sport. Even our high schools are producing many expert marksmen.

In 1903, of 18,325 men firing the prescribed course in our army, but 907 qualified; while in 1909, of the 27,121 men trying, 2,065 qualified as experts, 6,026 as sharpshooters and 2,945 as marksmen, or a total of 11,036 compared with the 907 six years previously. Of the 10,000 men firing in the navy in 1906, only thirty-six qualified; whereas in 1909, 999 qualified. The Marine Corps report shows 107 having qualified in 1906. At the close of 1910, 3,878 had qualified, of which 555 are experts.¹

Has the oculist kept pace with the increasing demands for his assistance with this work? The efficiency of our present military rifle is limited only by the ability of the man behind the gun, and the limitation of his vision is about the only restriction so far not overcome. The sporting magazines, I fear, are in the lead in the discussions of the requirements of the marksman's eyes and the suggestion of remedies.

At present, the official bull's-eye at both 200 and 300 yards is 8 inches in diameter, the shooter standing for the former and kneeling or sitting for the latter. All other ranges are shot from the prone position, i. e., the shooter lying flat on the ground, head toward the target. Twenty inches is the size of bull's-eye at 500 and 600 yards, and for the expert who shoots the extreme ranges of 800 to 1,000 yards, 36-inch bull's-eye is used.

Using Snellen's standard at an angle of 1' we get a little more than 1 inch for each 100 yards. Thus the 8-inch at 200 = an angle of 4', the same at 300 yards = 2.66', 20-inch at 500 = 4', at 600 = 3.33', the 36-inch bull at 800 = 4.5'; at 1,000 yards it is 3.6'. From this it is easy to calculate the visual requirements from Snellen's test-letters that will enable a man to see a bull's-eye distinctly at 1,000 yards, providing atmospheric conditions are correct. But as a bull's-eye is round—therefore a spot—and the distinctness of a spot depends rather on its illumination than its size, the color contrast, light and atmosphere must be considered in the test. Reflections from the white ground, sand or water, bright sky, sun in eyes, etc., may make the target invisible. How to overcome these obstacles is the oculist's problem. The shooter must elevate his sights, should the target suddenly become clouded, and vice versa, should it become bright. A glass that would maintain a more uniform light would largely obviate this and produce more accurate results.

The expert marksman to-day must be a scientist, understand the laws of internal and external ballistics, the effects of wind, temperature, light, mirage, barometer, hydrometer on the elevation and deflection of each shot fired. In addition to this, according to the visual law of 1' angle an error of 10 inches in the 1,000 yards is to be allowed for. At 500 yards distance, a 6-foot man would be seen at an angle of 13'44", or 2.7

¹⁵ Frenkel: (Ann. de l'oculistique, February and March, 1910),

1. Official Report of Rifle Shooting in the United States, 1910.

times Snellen's requirements. At this standard, if it were not for the obstruction of the atmosphere, a man could be discerned at 1,375 yards.²

Our military rifle, new Springfield model, 1903, using 1906 ammunition, 150-gr. bullet, velocity, 2,700 foot-seconds, is very accurate and effective at any of these ranges. In fact, is sighted up to 2,800 yards. The sights are 22.1254 inches apart and a movement of the rear sight 1-150 inch = 1' sight radius, which moves the bullet 1 inch on target for each 100 yards. Though 1-150 inch in movement is necessary for extreme accuracy, the unaided eye can discern but 1-100 inch.³

Our patients ask for glasses to see rear sight, front sight and target all at one time, and usually attribute the defect in shooting to old age. What can be done?

The rear sight when held close is 9 1/4 inches from the eye when firing, requiring 4.33 D. S. accommodation. The front sight 32 inches requires but 1.25 D. S. accommodation, while the target requires none if the eye is emmetropic. One theory, as taught by Surgeon-General Longmore, C. B.,⁴ is that an alteration of accommodation takes place in rapid succession in shooting. Bouchart⁵ gives credit to Sulzer for solving the problem by the theory of the continuation of retinal impressions (6/100 of a second) gained by seeing each sight and the target separately. To add to this, he shows that the time necessary to send impressions of objects to the brain is augmented with the distance. This theory has much in its favor and seems to have gained many adherents among us. The length of a retinal impression depends on the illumination and size of the object. On the other hand, Greener, a British expert,⁶ says: "The sights, both being out of focus, will be to some extent blurred and must therefore be of shape and color best adapted to impress the eye directed on the target." Dr. W. G. Hudson, one of the world's best experts,⁷ says:

If the eye is focused on the bull's-eye, the rear sight will be blurred very much, and perhaps the front sight may blur a trifle, but not sufficient to make it indistinct. Therefore, all that is necessary is to be certain that we see top of front sight through center of aperture, and after that we may disregard rear sight.

Our War Department, in the books of instructions,^{8, 9} recognizes the same facts. Their advice is to look at what one is shooting and not think of the sights. I have tested this theory by suspending my accommodation with homatropin, being then able to make the same scores. With accommodation fully paralyzed, distant vision was reduced to 20/40, yet through the rear aperture sight on a Springfield I could read 20/15. Wearing correction for the hyperopia, the rear sight was a complete blur, the front sight indistinct, yet in five scores at 200 yards my results equaled my average. Lient. T. Whelen, U. S. A.,¹⁰ says:

Some men have difficulty in seeing the bull's-eye distinctly when aiming. It may appear gray and blurred. In this case center the bull's-eye in the peepsight, instead of the front sight, bringing the front sight to its correct position relative to the bull's-eye.

Experience has shown that those who shoot with both eyes open have much less strain on the eyes and can

maintain a clear bull's-eye which otherwise would become blurred.

The best argument in favor of the theory of the necessity of accommodation in focusing the sights instead of the target is made in an excellent article by Maj. Henry A. Shaw, Surgeon United States Army, and Lient. Col. J. M. Banister, Department of Surgeon-General, United States Army.¹¹ They quote several noted authorities, and with ten sharp shooters made many careful tests, firing five shots each with naked eye, five each with vision blurred by + lenses to make it 20/40, and five each vision blurred to 20/70. The results showed equally good. From this, they prove that an accurate focus of the sights only is necessary. They do not take into account that once the expert finds the bull's-eye and is holding good, he can make each successive shot come near the other as long as he retains his fixed position. Nor do they consider that the bull's-eye is a spot; thus its distinctness depends on its illumination, and the law applicable to Snellen's test-type would not bear the exact relation. Above I have shown that the bull's-eye has sufficient size to be easily discernible by a man with at least one-third normal vision. In fact, all that such a test really did accomplish was equivalent to shooting at a poorly colored target or in a bad light, which, as a matter of choice, no man would make. If accommodation is necessary, why do we find it so much less tiresome and the bull's-eye often more distinct when both eyes are kept open? If we are using accommodation, then we must suspend our convergence. Why does a sportsman choose the aperture and gold bead for use in the woods, if the main part of his vision is to be centered on his sights? On seeing his game, he glances through the rear sight simply to bring it into position, then at the front sight to know the general position of his rifle, and then, watching the game until he notices that the sights come perfectly into his line of vision, he fires. The first two movements, made to bring the gun into line, become unnecessary with long practice. The only requirement is to have sights distinct enough to produce a definite retinal impression once they come into perfect alignment with the object. The snap shooter becomes unconscious of his sights.

The full correction for distance is therefore the glass to be prescribed. For the presbyope, the bifocal is the ideal combination. For defective vision, the rear sight in all cases should be an aperture close to the eye, which is practically the same and gives the same result as the stenopaic disk in our trial case. It should be small enough to admit only the rays the eye can focus, but must be large enough to admit sufficient light to see the object clearly; thus, an extra size is necessary for use in a poor light. Our present military sight is unnecessarily far from the eye, making the very admirable aperture sight in it often impracticable. A new receiver sight, approved by some expert riflemen, is now on the market, and it is hoped the War Department will at least permit its substitution, as it will be of great assistance to all with any visual defects. The front sight for these persons should be sufficiently large that its top may be plainly seen when the eye is focused on the bull's-eye. The improved scores made with the new sights of this class on the Ross rifle (Canadian) prove their advantages. The use of the ophthalmoscope with suspended accommodation will fully explain the correctness of these statements.

2. British Optical Manual, 1885.

3. Suggestions to Military Riflemen, p. 86.

4. Optical Handbook of Instructions, British Army, Ed. 3, p. 14.

5. Wood and Andrews: Practical Medical Series, 1906, ii, 29.

6. Sharp Shooting for Sport and War, Ed. 2, p. 172.

7. Modern Rifle Shooting from American Standpoint, p. 67.

8. Small Arms Firing Manual, 1909, p. 30.

9. Manual for Privates of Infantry, 1909, p. 26.

10. Suggestions to Military Riflemen, p. 67.

11. Circular No. 5, War Department, Jan. 25, 1908.

In putting on the correcting lens, whenever possible, the final test, if lenses are at all strong, should be made with the trial frame on and properly adjusted while in firing position. Nearly all shooters look either through the upper edge or over the ordinary glasses, thus making them useless or worse, by producing diplopia. The center of the lens to be used for shooting only, should be centered up about 1 or 2 cm. and at least 1 cm. in. The lenses must set up very high, toric shape and if possible away from the brow, to prevent blur from sweating. The navy team for match work had the bottoms cut off the lenses to allow the bolt to be withdrawn without hitting the glass.

To protect the eyes from the glare and maintain a more uniform light, a light amber has been adopted by sportsmen. Experience has been their guide.¹² Parsons,¹³ before this Section two years ago, suggested that we were not so well informed as we should be on the effects of light and colored lenses. Judging from the many conflicting reports on the advantages of different-colored lenses, we may still learn much. If didymium glass, which he suggests, being colorless, has proved its efficiency, it would have every advantage. Amber, euphos (greenish-yellow imported glass), etc., all absorb much light. The sportsman is awaiting our conclusions. Something is necessary, more especially for the indoor range work, in which electric lighting is used. Artificial light is prescribed. The 10-spot is the inner $1\frac{1}{2}$ -inch circle in a $1\frac{1}{2}$ -inch bull's-eye at 25 yards. For occasional shooting, this is not annoying; if one peeps at it long, the eyes give out. I have tried several tints of amber, euphos and amethyst lenses and find that all absorb considerable of the light, but the eyes in time fatigue so the black spot becomes gray and may entirely disappear. In careful shooting, the eye is kept on the bull's-eye, steady pressure being made on the trigger until the front sight appears exactly under the center of the lower edge. My observation in the team which for two years held the championship in this indoor shooting was that long before the season closed, every man complained of exhausted vision, and this year, owing to the severe eye-strain experienced, four of the five were unwilling to enter another long contest.

A mark made with a pencil is in the proportion of 10 per cent. to one made with ordinary ink; therefore, standard jet-black should be adopted. A mercury vapor lamp with glass, not quartz, the irritating rays being absorbed by the glass, is possibly the proper illumination, and I have recommended it to the local team, but so far we have not used it.

The use of large glasses, instead of being discouraged should be encouraged, not only to relieve the strain from refractive errors and light, but also as a protection. Accidents from shooting a modern rifle, with our present high grade of ammunition, are usually from small pecks entering the eye, which large glasses would prevent. With 0.22 caliber rifles, we frequently get powder burns from back fire, resulting from either overtempered shells or overloaded ones, or a piece of shell may blow back. This unfortunately occurs in many of our best 0.22 rifles of present make. I have seen many bad results from shells, whole or part being thrown into the eye by back fire or the extractor. This is more likely to happen to any person standing at the side and to the front of the shooter. Pieces of lead may fly off between the cylinder and barrel of a revolver. Another danger,

likely to occur to one standing in front and to side of line of fire, is that pieces of metal fouling or splinters from a poor bullet may fly off from the line of aim. I do not consider the "didn't know it was loaded" accident or the direct effects of a bullet, as these are governed entirely by the law of consequences.

In conclusion, the eyes of the expert rifleman require the greatest care. Full correcting lenses should be not only allowed, but constantly worn. They must be made high enough, in far enough and large enough so that when the head is down and the eye looking upward to almost its limit, vision will be distinct through the glass. The cylinder, if strong, must be rotated in the trial frame, with the head in the firing position, to determine that vertical lines appear as such with the glasses on; otherwise, the rifle will be canted and will shoot to one side. A toric lens is necessary, and for shooting in bright lights or artificial lights, a light amber or some other color is essential. For presbyopia, bifocals are preferable or a pocket lens should be carried to adjust the sights and do other near work. The front sight should be large enough and of color contrasting to the target, to be clearly discernible to the emmetropic eye without accommodation. The rear sight should be close to the eye and of such a size and shape that the light, being best through its center, the eye will naturally see the tip of the front sight through the center of the rear without accommodating, while vision is being centered on the target. Finally, to the ametropes, large tinted lenses, properly correcting the ametropia and snugly fitting, will more than compensate the soldier in relief from fatigue, and in the protection of his eyes from accidents, for all the disadvantages at present urged against them. The frame should be of stiff material, solid temples with soft ear pieces.

The present visual requirements are:

Second lieutenant in coast artillery corps, 20/40 either eye and good color vision. (General Orders 65, 1911.)

Second lieutenant in cavalry, field artillery and infantry, 20/40 each eye and good color vision. (General Orders 131, 1911.)

Second lieutenant in corps of engineers, same requirements. (General Orders 139, 1911.)

Officers of army for promotion—defects of vision entirely corrected by glasses do not disqualify unless due to, or accompanied by, organic disease. (General Orders 192, 1909.)

Medical corps—must be not less than 20/100 and not below 20/20 each eye with glass. (General Orders 112, August, 1911.)

Recruits for army and signal corps—20/40 right eye; 20/100 left eye; Ordnance Department and Hospital Corps—20/70 each eye, correctible to 20/40. (Circular 26, 1909.)

All of these requirements appear to be very reasonable.

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ABSTRACT OF DISCUSSION

MAJOR P. S. HALLORAN, U. S. A.: There are one or two additional reasons for the increase in the number of marksmen in the services of the United States. In the Navy, the gunpointer, who is the most important man in firing, is required to have perfect vision, 20/15. That policy has been adopted in recent years, and is one feature which accounts for the increased average in the Navy. In 1908 the pay of the soldier was increased for proficiency in shooting. A man qualifying as expert receives \$5 a month additional, while sharpshooters and marksmen receive \$3 and \$2, respectively. This is quite an incentive to increased proficiency in shooting.

¹² E. C. Crossman, F. W. King and others in sporting magazines.
¹³ Parsons, J. H.: THE JOURNAL A. M. A., Dec. 10, 1910, p. 27.

I am not in sympathy with the views of Colonel Banister and Major Shaw in that it is not necessary to have a clear vision of the target. I have talked with many expert shots of the service, and they are all of the opinion that one must have a clear view of the target.

The experiments conducted by these officers were with men who were good shots and, almost by intuition, due to their experience, they made nearly as good scores when their vision was reduced. It is doubtful if a man with defective vision can ever become an expert marksman. Focusing on the target is essential. This is illustrated in trap shooting—the man does not see his sights, but he does have a clear view of his target.

DR. ARTHUR G. BENNETT, Buffalo, N. Y.: I have had experience in fitting distinguishing marksmen, because near Buffalo there is a rifle range where the experts go for their competition. My experience with them has been that their shooting falls down about the age of presbyopia. I had a shooting contest with a friend, who was myopic; his best vision was 20/100. He shot without glasses, but he had a good view of the rear sight, which I did not have. His myopia was of the simple form that gave a blurred image of the target, but it was increased in size, and he could estimate it closer than I. With that theory in view, I fitted a number of marksmen at Niagara with a focus a few inches beyond the rear sight, and their testimony is that their shooting has come up to the standard that it was before they obtained the glasses. They are satisfied and have referred patients to me from different parts of the United States, and with them I have followed out the same plan with a good deal of success. The focus is about 3 inches in front of the rear sight. It does not give them the sharpest view of the rear sight or quite such a blurred view of the foresight. The target itself is a blur, but is increased in size, and their shooting average has certainly pleased them.

DR. W. C. POSEY, Philadelphia: My own views are in accord with those expressed by Dr. Donovan and Major Halloran, as I believe it should be the aim of the ophthalmologist to correct the eyes of the marksmen with the best degree of acuity possible for the target. In actual warfare, I think it would be ludicrous to send out sharpshooters to pick off the enemy with their vision focused by glasses to 3 inches beyond the rear sight. As a member of a commission appointed from the Medical Reserve Corps by the Surgeon-General of the Army some years ago to prepare a new standard of visual acuity, I was impressed with the little vision required by ordinary troops, nearly all of the firing being done in volleys at the command of the officers, without any attempt at sighting at the enemy. A vision of 20/40 in the best eye seemed to be perfectly adequate for all purposes. I found that many marksmen of note had relinquished an amber tint in their glasses, because they found it did away with the "mirage," the term they employ to designate the atmospheric effect by which they judge of the direction and velocity of the wind, etc. The euphos tint had been given up for the same reason. Dr. Donovan's suggestion that the glasses should be set at some distance from the eyes, in order to avoid the moistening of the lenses by perspiration in field practice, where the men perspire freely and must throw themselves quickly into a prone position, is a good one. The removal of the lower half of the lenses possesses certain technical advantages.

DR. ALEXANDER DUANE, New York: I am inclined to agree with those who express the opinion that sharp vision is necessary for long-range shooting. We do not need to see the object aimed at distinctly. My own personal experience is that with uncorrected vision of 20/40 in the sighting eye, such as I have, I could see well enough at 200 or 300 yards, but when I attempted to qualify at 500 yards as a sharpshooter I could not see the bull's eye well enough to get my eye on it, and I made no success at all as a marksman. I am inclined to agree with the view of Dr. O'Connor, who studied the subject carefully and gathered the opinions of experts in the Army. Like him, I believe that we really do need sharp sight in the Army, such as is required in the Navy. In the Navy they require for ordinary seamen 20/20 and for gun-pointers 20/15, uncorrected vision.

DR. S. D. RISLEY, Philadelphia: So far as my personal experience goes, both in target practice and in shooting at

birds, sharp sight for the object aimed at is essential. I am sure I always regard first the target or bird, and simply gazing through the sight, uncovered the object, getting a clear view of it. Among my friends who are fond of marksmanship, two are very highly myopic and always used their glasses. As marksmen they stand within the first five in the 100 for marksmanship. One said: "My glasses minify the object and when I see it I have it down fine." So that these two men certainly depended on sharp sight for the object itself and not for the near sight. I am sure that this agrees with my own personal experience.

DR. JOHN A. DONOVAN, Butte, Mont.: We cannot draw very definite conclusions from one individual with myopia. A myope becomes accustomed to a blurred object which to him appears normal. A good shot, in practice, will make much better scores on a blurred target than others can under more favorable conditions. Most Americans are hyperopic and I am inclined to believe our first correction of presbyopia is really correcting the latent hyperopia, which accounts for the better scores obtained with these glasses.

THE FINDINGS OF THE TROPOMETER IN 100 NORMAL EYES AND ITS VALUE IN THE STUDY OF STRABISMUS

WENDELL REBER, M.D.
PHILADELPHIA

Despite the fact that it is twenty-two years since Stevens introduced his tropometer to the profession (1890), it must be admitted that the instrument has not come into what might be called popular use. It is true that Nicati eighteen years earlier adapted the ordinary perimeter to the rough estimation of the rotational power of the eyes; but to Stevens must belong the credit of devising a thoroughly practical instrument of sufficient mechanical convenience and scientific accuracy to justify its every-day use in ophthalmic practice. To maintain that it is without its limitations would be absurd; and to claim that it is without practical advantages is equally at variance with the facts. The truth, as is usual, is likely to be found midway between these two extremes.

There are many ways of estimating the rotational powers of the eyes, all of more or less use. Casey Wood's method of using words of two letters to be carried as far out on the inside of the arc of the perimeter as they can be read is well known and among the most practical and useful of all the perimeter methods. It is a subjective method and, in patients of average or more than average intelligence, a valuable test. Dr. Wood has modified this method somewhat as is shown in the following letter:

My dear Dr. Reber:—Many years ago, I made some observations on the field of monocular fixation in its relation to heterophoria and muscular asthenopia.

While I regard this method as roughly useful and in most instances a practical one, yet I have never regarded perimetrie measurements as efficient as the tropometer of Stevens, if for no other reason than that the ocular movements inwards can be better measured with the latter instrument. Whatever method be chosen, however, standards normal to each instrument should be established for purposes of comparison. The normal extent of each excursion is likely to vary in different forms of the tropometer, just as it varies from time to time in the same individual and in different individuals.

With this proviso let me say, that I propose what I regard as an improvement on the original lettered strips that present a mixture of letters and figures. Following a suggestion of my assistant, Dr. A. S. Rochester, a certain area on the strips is concealed by the object carrier of the perimeter so that the

patient may read continuously as fast as the carrier is removed from this fixation point. I hope to publish a description of this little device so that judgment may be passed on it. Let me add that whenever the field of monocular fixation is measured, the recording chart should have a normal field traced on it for purposes of comparison as in the ordinary charts of the field of vision.

Cordially yours,
CASEY WOOD.

An objective perimeter method to which I myself resorted for some years with much satisfaction is to have the patient hold in his hand Schweigger's hand perimeter. A small electric light is then carried along the arc of the perimeter and the patient instructed to follow it with the eye under examination. The surgeon meanwhile determines the movement of the eye by watching closely the movement of the corneal image made by the electric light. The moment the tiny image begins to waver, the eye is reaching its limit of rotation in that particular meridian.

This method is fairly accurate, requires no special apparatus and is quickly applied. The chief objection is that it is only an approximate measurement. Howe sought to obviate the objections to this method by mounting on the arc of the perimeter a small telescope whose axis is at all times perpendicular to the arc and exactly in the direction of a radius of the perimeter. Naturally this lends the needed element of exactitude to the estimation of the ocular rotations—but the tropometer is much easier to use, in less time, and with quite as much exactness. Indeed it is so easy of application that it may well be asked why it has not come into more general use.

To appreciate properly the usefulness of the instrument, it is essential that one should be familiar with the behavior of normal eyes under its observation.

The limits of the normal field of fixation,¹ as found by early observers are shown in Table 1.

TABLE 1.—LIMITS OF THE NORMAL FIELD OF FIXATION

	Schuerman	Volkman	Hering	Kuster	Schneller	Landolt	Duane
Up	34	35	20	33	....	44	43
Down	57	50	62	44	....	50	63
Temporalward	42	38	43	43	46-54	46	53
Nasalward	45	42	44	45	52-56	44	51

The wide variation in the excursions above cited cannot fail to excite interest. For instance, the difference in Hering's and Landolt's observations of 24 degrees in the upward rotation and 12 degrees in the downward rotation demands some manner of explanation. I think it may be found in the fact that these early observers resorted entirely to perimeter methods in their observations which, as I have already stated, are but approximate at best. Moreover, tests made with the perimeter are much more open to differences in interpretation than are tropometer tests—hence the equation of error will be much larger, as above graphically shown.

Duane (quoted by Howe) alludes to the difficulties of ascertaining the exact limits of the field of fixation; he gives the results of several measurements made on the same individual and states his belief that it seldom happens that any two tests agree exactly in all their details. That such tests do not agree *exactly* cannot be

gainsaid. But that they do correspond fairly well can be elaimed, I believe. Two individuals were selected for the purpose, one (A) a woman in secretarial work; the other (B) a youth of 16. Estimates were made on three different days without any knowledge of the results secured at the previous examination. The records are given in Table 2.

TABLE 2.—LIMITS OF FIELD OF FIXATION IN TWO PERSONS ON THREE DAYS

A: WOMAN IN SECRETARIAL WORK				
	Up	Down	Nasal	Temporal
R. E.	32	50	50	37
	36	55	45	45
	32	52	50	40
L. E.	32	48	42	42
	35	50	45	45
	37	45	45	45
B: YOUTH, AGED 16				
	Up	Down	Nasal	Temporal
R. E.	40	50	48	48
	40	50	50	50
	40	55	55	55
L. E.	42	55	55	50
	45	52	60	49
	40	55	48	48

The figures show a slight variation of from 3 to 5 degrees in the patients from day to day and in the upward rotation in one, a variant of 7 degrees as also in the temporal rotation in the other ease. Naturally, if two or more observations are taken in any one case (and this is most excellent practice) they can justly be averaged and good working conclusions deduced therefrom. Indeed, repeated observations are of the same value in this line of our work as in refraction work and ought never to be omitted if the opportunity offers.

After consideration of the variations in normal rotations noted by the early observers, I was led into investigations bearing on this subject for my own satisfaction. Within the last two years I have selected fifty individuals (100 eyes) with normal muscle balance for infinity as the subjects of this inquiry. All of these individuals presented (with two exceptions) low grade hypermetropia or its allied states (1.00 diopter total or less). The two myopes showed a total of 2 diopters of error in one case and 5.50 diopters in the other.²

The rotations in these one hundred normal eyes were tabulated and averaged, affording the following tabulation, which I now use for my guidance:

Upward	36 degrees	Nasalward	50 degrees
Downward	52 degrees	Temporalward ...	48 degrees

Naturally in a series of such cases there were considerable variations from the averages just noted. For instance, in one case the upward rotation was but 25 degrees in the right eye (equals 11 degrees less than the average); however, it was but 28 degrees in the other eye, showing plainly a deficiency of upward rotation in both eyes. In this case the downward rotation equaled 54 and 52 degrees, respectively, conforming to the normal averages. This patient presented perfect muscle balance for both infinity and 13 inches (33 cm.) the occupation distance. Another case showed upward rotation in the right eye of 25 degrees and in the left eye of 29 degrees, but the downward rotations were 54 and 50 degrees, again pointing to the elevators as insufficient in their work.

On the other hand, excessive upward rotation was found in some cases, conspicuously in Case 29 of the

1. Howe: The Muscles of the Eye, i.

2. I am much indebted to Dr. Joseph L. McCool, my former office associate, now located in Portland, Ore., for the major portion of this work on normal individuals.

series in which upward rotation equaled 45 degrees in the right eye and 47 degrees in the left eye. But the downward rotations were 50 degrees in both eyes (equals normal) so that the case takes on the features of excess upward rotation pure and simple, as the lateral rotations were normal. This case presented esophoria of 1 degree for infinity, but as we generally find in cases of excessive upward rotation, there was exophoria of 7 degrees at the reading distance (13 inches). This patient (a young man of superb physical build) presented an obstinate habit blepharospasm, only partially relieved by accurate refraction and convergence training.

After repeated observations Dr. McCool and myself are both of the opinion that the factor of error in taking observations is about 5 degrees.

The variations in our own series are as follows:³

	Up	Down	Nasal	Temporal
Highest	48	65	60	60
Lowest	25	35	38	40

One other fact is of interest. If the averages established by the early observers already quoted in the table (Schuerman, Volkman, Hering, Kuster, Schneller, Landolt and Duane) are themselves averaged they approach very closely to those established in my own series, to-wit:

	Up	Down	Nasal	Temporal
Averages of early ob- servers	34	54	47.4	45.7
Reber	36	52	50	48

I am therefore inclined to believe that the averages established for my own satisfaction will be likely to be pretty closely approximated by those that may be arrived at by most other present-day investigators whether in our own country or abroad.

It might be of interest also to note that I have had the eye-piece containing the tangent scale so modified that the scale can be rotated through 135 degrees of the circle instead of 90 degrees. This can be very easily done by any mechanical optician and enables the ophthalmologist to estimate the two main oblique rotations as well as the vertical and lateral ones.

While, as I have said, the tropometer is easy of application, it is not so easy to form correct judgments as to the significance of the rotations when their limits have been learned. Lucien Howe has very well said:

It is important to remember that the limits of the fields of fixation are not to be judged *entirely by the number of degrees* which an eye can turn in any given direction. Much also depends on the *manner* in which the motion is made. In some individuals, when the group of muscles under examination is strong, the eye will turn without hesitation to a certain point . . . which is the limit of motion in that direction, and the globe can be held in that position steadily and without effort for several seconds. On the other hand, when this group of muscles is weak and the eye approaches the limit of fixation, it does so in a halting fashion.

Hence it follows that once facility has been gained in the use of the instrument, much depends on interpretation. just as in the use of the ophthalmoscope, the ophthalmometer, the perimeter, the tonometer, the microscope or any other instrument of precision in use in our science.

THE TROPOMETER IN THE STUDY OF STRABISMUS

In my hands the tropometer has not been of much service in studying the rotations of the globes in children

3. These figures will be seen to approach very closely to those set down by the inventor of the instrument (Stevens: A Treatise on the Motor Apparatus of the Eyes, F. A. Davis Company, 1906), who gives the following as his idea of normal rotations:

Up	Down	Nasal	Temporal
33-37	45-50	about 50	about 45

under 7 years of age. It will be readily seen, therefore, that its use has been confined to those strabismics who have arrived at or very near the age when the operative phase of this question is uppermost. This seems to be the tropometer's largest field of usefulness. Valk⁴ is devoted to it in such cases, and Edward Lauder,⁵ likewise, feels that it is practically indispensable in forming final judgments as to operation.

In the sixteen case histories about to be cited, six (Group I) represent the type that in spite of the most careful orthoptic treatment, have passed their eighth year with a goodly residual deviation. No patient of this group has submitted to operation.

Six more (Group II) present the same previous history as those in Group I, save that the patients have all come to operation.

Four more (Group III) were all strabismics in their early childhood, but under orthoptic treatment alone have secured parallel axes; their rotations furnish interesting reading.

GROUP I. ESOTROPICS WHO SHOULD BE OPERATED ON

CASE 1.—W. S., 9-year-old boy, first seen when 3 years old, and esotropia equaled 35 degrees. Developed after pertussis. No family history of strabismus. Refraction in 1906 was

R.—.50 sph.—.50 cyl. axis 45 degrees
L.—1.00 sph.—.50 cyl. axis 135 degrees

Present refractive status:

R.—1.25 sph.—.75 cyl. axis 45 degrees
L.—1.50 sph.—.75 cyl. axis 135 degrees

His present deviation is 30 degrees, with vision 5/6 in each eye (pure alternating strabismus).

His tropometric rotations equal:

	Up	Down	Nasal	Temporal
R.....	40	40	60	40
L.....	40	45	60	40

As would be expected in alternating esotropia, both eyes show excessive nasal rotation and defective temporal rotation. The vertical muscles are not above suspicion in this case, as upward rotation is excessive in each eye and downward rotation defective (see average normals). The patient will be operated on within the next month or two by advancement of each external rectus.

CASE 2.—T. G., a 12-year-old boy, first seen at 4 years of age. Esotropia 20 degrees. Strong family history of strabismus. Refraction at that time:

R.+4.00 sph.+1.00 cyl. axis 90 degrees equals 5/7
L.+4.00 sph.+1.25 cyl. axis 90 degrees equals 5/7

Last seen January, 1912. Refraction equaled:

R.+3.50 sph.+0.75 cyl. axis 90 degrees equals 5/6
L.+3.25 sph.+1.00 cyl. axis 90 degrees equals 5/6

Deviation still equals 20 degrees.

Tropometer rotations are as follows:

	Up	Down	Nasal	Temporal
R.....	30	45	60	40
L.....	30	50	65	38

Thus, as in the preceding alternating case, both nasal rotations are excessive and both temporal rotations defective. Operation declined.

CASE 3.—I. S., 8-year-old boy, first seen when 5 years old. A frail puny child with a doubtful history of acute polyencephalitis a year before. Esotropia 45 degrees. Left eye deviating constantly. Refraction equaled:

R.+1.00 sph.+ .50 cyl. axis 75 degrees
L.—1.00 sph.—2.00 cyl. axis 135 degrees

Present refraction:

R.+ .50 sph.+ .50 cyl. axis 75 degrees equals 5/6
L.—1.50 sph.—2.50 cyl. axis 145 degrees equals 5/60

4. Valk: Strabismus or Squint.
5. Lauder, E.: Tr. Am. Acad. Ophth. and Oto-Laryngol., 1906.

The tropometer showed:

	Up	Down	Nasal	Temporal
R.....	30	45	45	40
L.....	30	53	60	33

In this, the monocular type, the abnormal rotations are confined to the deviating (left) eye, the nasal rotations being excessive and the temporal markedly defective. Operation advised—advancement left externus and tenotomy left externus.

CASE 4.—L. B., a 10-year-old boy, undersized, neurotic, son of a neurasthenic mother. First seen when 8 years old. Deviation 32 degrees, left eye deviating constantly. Present refraction:

R.+0.25 sph.+0.75 cyl. axis 90 degrees equals 5/5
L.+0.25 sph.+0.75 cyl. axis 90 degrees equals 5/15

Has worn glasses for five years. Deviation now 30 degrees. Tropometer equals:

	Up	Down	Nasal	Temporal
R.....	42	45	60	45
L.....	40	58	65	35

This is another typical monocular case, although the vertical muscles are not above suspicion. Operation declined.

CASE 5.—L. G., a 9-year-old boy when first seen; deviation equaled 35 degrees, always the right eye. A paternal uncle had strabismus in childhood. Patient ophthalmoscopically normal in both eyes, but examination revealed a small positive central scotoma in the right (deviating) eye. Present deviation 25 degrees. Present refraction:

R. (retinoscope) +0.75 sph.+.25 cyl. axis 90 equals 1/60
L.+1.25 sph. equals 5/5

Tropometer shows:

	Up	Down	Nasal	Temporal
R.....	48	50	65	45
L.....	50	45	48	45

Excessive nasal rotation in the deviating eye is here shown, as would be expected. The temporal deviation is normal, however, and the action of the elevators so markedly excessive that were I permitted to operate on this case I should tenotomize both superior recti (moderately) before directing any surgery to the lateral muscles.

CASE 6.—M. B., a 7-year-old girl, developed esotropia in her second year. Right eye deviated always. No family history of strabismus. Deviation 37 degrees, right eye. Eye-grounds normal. Refraction is:

R. (retinoscope)—1.00 cyl. axis 180 degrees equals 2/60.
L.+0.75 cyl. 90 degrees equals 5/7

The rotations are:

	Up	Down	Nasal	Temporal
R.....	34	51	60	35
L.....	40	45	55	40

Advised tenotomy right internus and advancement right externus. Operation declined.

In these six cases, deficient temporal rotation is shown in one or both eyes according as they are monocular or alternating esotropias; or the nasal rotation of the deviating eye or eyes is excessive; or in some cases both conditions obtain.

They may be summarized as follows:

TABLE 3.—DEFICIENT TEMPORAL ROTATION IN SIX CASES
SUITABLE FOR OPERATION

Case	Variety of Esotropia	Up	Down	Nasal	Temporal
1	Alternating.....	R. 40	40	60	40
		L. 40	45	60	40
2	Alternating.....	R. 30	45	60	40
		L. 30	50	65	38
3	Monocular.....	R. 30	45	45	40
		L. 30	53	60	33
4	Monocular.....	R. 42	45	60	45
		L. 40	58	65	35
5	Monocular.....	R. 48	50	65	45
		L. 50	45	48	45
6	Monocular.....	R. 34	51	60	35
		L. 40	45	55	40

GROUP II. ESOTROPICS AND HYPERTROPICS WHO HAVE
BEEN OPERATED ON AFTER TROPOMETRIC STUDY

CASE 7.—R. B., boy 9 years old when first seen, June 2, 1908. Monocular esotropia of 40 degrees, left eye deviating. Wearing:

R.—0.75 cyl. axis 180 degrees equals 5/15
L.—0.50 sph.—1.00 cyl. axis 85 degrees equals 5/30

Under thorough cycloplegia there was found:

R.—0.50 sph.+2.00 cyl. axis 45 degrees equals 5/9
L.—2.00 sph.—4.00 cyl. axis 170 degrees equals 5/12

Eye-grounds were normal. Stereoscopic exercises were ordered and faithfully followed out. Two years later the deviation equaled 30 degrees and refraction was:

R.—2.00 cyl. axis 180 degrees equals 5/7
L.—2.00 sph.—4.00 cyl. axis 180 degrees equals 5/15

The tropometer at this date showed:

	Up	Down	Nasal	Temporal
R.....	45	45	60	45
L.....	45	50	70	40

Dec. 27, 1912, under local anesthesia, modified tenotomy of both superior recti and internal recti; this because of the preponderance of upward rotation as shown by the tropometer. March 2, 1911, about 5 degrees of residual convergent deviation. Rotations at this date:

	Up	Down	Nasal	Temporal
R.....	30	50	50	48
L.....	30	52	52	45

CASE 8.—J. S., a boy aged 16, first seen July 16, 1910, with left hyperesotropia, the upward deviation being 10 degrees, the inward 50 degrees. The eye-grounds were normal. He was wearing:

R.+4.00 sph.+1.00 cyl. axis 90 degrees
L.+4.00 sph.

Under thorough cycloplegia we found:

R.+4.00 sph.+1.50 cyl. axis 90 degrees equals 5/4
L.+4.00 sph.+1.50 cyl. axis 135 degrees equals 5/7

The rotations follow:

	Up	Down	Nasal	Temporal
R.....	45	42	60	45
L.....	50	35	65	30

Sept. 1, 1910, under local anesthesia the left superior rectus was tenotomized, by which the left eye was brought down almost on a level with the right eye and the lateral deviation reduced 10 degrees, leaving a residual convergence of the left eye of 40 degrees. A month later operation was performed consisting of wide resection and advancement of the left externus and moderate tenotomy of the internus. Result was 10 degrees of residual convergence under cover for infinity.

CASE 9.—L. Z., a boy aged 11, first seen Nov. 13, 1911. Pure alternating esotropia of 50 degrees. Wearing:

R.—19.00 sph. equals 5/30
L.—18.00 sph.—1.00 cyl. axis 165 degrees equals 5/30

Eye-grounds characteristic of high myopia, but no staphyloma posterior, and retina and chorioid in unusually good condition. Tropometer showed:

	Up	Down	Nasal	Temporal
R.....	25	40	70	30
L.....	30	45	60	30

One week later, under local anesthesia, moderate tenotomy of both interni and advancement of both externi. March 1, 1911, result, residual convergence for infinity of scant 10 degrees under cover.

Refraction to-day:

R.—20.00 sph.—1.00 cyl. axis 75 degrees equals 5/15
L.—16.00 sph.—1.00 cyl. axis 135 degrees equals 5/15

These were ordered for constant wear.

CASE 10.—May 11, 1908, H. C., a woman aged 25. Esotropia since infancy. Left eye always deviating. Vision equals right,

5/7; left, 5/12. Esotropia equals 20 degrees. Eye-grounds normal. Refraction showed:

R.+0.50 sph. 25 cyl. axis 100 degrees equals 5/5
L.+0.75 cyl. axis 90 degrees equals 5/7

Rotations with tropometer:

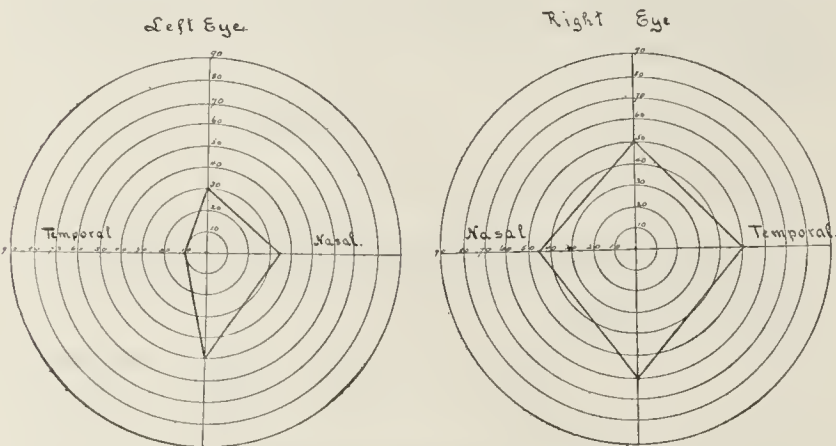
	Up	Down	Nasal	Temporal
R.....	35	50	53	40
L.....	30	50	55	15

The left eye stopped promptly when the 15-degree mark was reached. Under local anesthesia, advancement left externus. Result, residual convergence for infinity of 5 degrees. It is not unlikely that in this case there was congenital paresis of the left external rectus.

CASE 11.—Mrs. A. C., aged 30. Strabismus since childhood, always left eye. Vision, R., 5/9; L., 5/60. Eye-grounds normal. Tropometer equals:

	Up	Down	Nasal	Temporal
R.....	50	60	45	50
L.....	30	50	35	10

As in the preceding case, the diagnosis here was congenital paresis of the external rectus. (See illustration of motor fields.) Under local anesthesia, advancement of the left external rectus was attempted, but practically no muscle was found save a small thin fibrous tendon. Wide resection of the conjunctiva and capsule was therefore done. Result, poor. Not more than 10 degrees of external rotation gained, although the position of the eye was somewhat improved. This may be attributed to the fact that one of the stitches pulled out. The



Motor fields in Case 11.

final postoperative diagnosis was congenital underdevelopment of the left external rectus muscle.

CASE 12.—Patient.—J. C., a boy aged 16. Left esotropia of 10 degrees and hypotropia of 20 degrees. Wearing a good correction for the past two years (high H + Ah). The esotropia developed soon after diphtheria six years ago. Patient complained of diplopia in the upper field, giving rise to difficulty in reading and writing. Study of the double images showed paresis of the left superior rectus. The tropometer showed the following rotations:

	Up	Down	Nasal	Temporal
R.....	35	50	52	40
L.....	20	60	58	38

The eye-grounds were normal. Corrected vision equalled right, 5/5; left, 5/7. Under local anesthesia, wide resection (about 5 mm.) of the left superior rectus was done along with tenotomy of the inferior rectus in the same eye, and button-holing of the internal rectus. Result one week later. Lateral balance and 2 degrees of residual left hypophoria. No subsequent estimate of the tropometric rotations was made, as the patient went to his home in a distant city one week after operation; but later he reported that he could use his eyes in all near work with perfect comfort.

Remarks.—In each of the cases in this group, the tropometer gave positive and accurate indications as to operation and as to which muscle should be operated on. It is freely admitted that by close inspection of the

behavior of the ocular muscles alone most operators would have arrived at probably the same conclusion as to operation; but they would have been obliged to proceed to operation without precise knowledge as to the rotational powers of the muscles they were about to operate on.

GROUP III. ESOTROPICS THAT ARRIVED AT PARALLELISM OF THE VISUAL AXES ON ORTHOPTIC TREATMENT ALONE.

This group comprises four cases of esotropia that arrived at parallelism of the visual axes on orthoptic treatment alone. The first two are monocular cases—the last two alternating ones.

CASE 13.—A 14-year-old boy, studied for several years. When first seen he exhibited deviation of the right eye of 28 degrees and vision in that eye of 1/60. To-day his vision in the right eye is 5/30 and his eyes are straight. His refraction is a high H + Ah condition. His rotations are:

	Up	Down	Nasal	Temporal
R.....	35	43	45	45
L.....	35	50	50	42

CASE 14.—A 12-year-old girl, whose case has been studied for seven years. Esotropia (right eye) 32 degrees when first seen and vision in that eye 3/60. After seven years' use of a good correction and stereoscopic treatment, she presents absolutely straight eyes. She is the subject of high myopic astigmatism, her vision being to-day: right, 5/15; left, 5/6 partly. The rotations at present are:

	Up	Down	Nasal	Temporal
R.....	35	46	50	40
L.....	30	45	45	40

CASES 15 and 16.—Brother and sister, both studied for seven years. The boy was 8 and the girl 11 when first seen. Both were treated for high esotropia by a confrère when 3 years of age. High H + Ah conditions were in evidence in both cases, totalling 4 diopters in the boy and 6½ diopters in the girl. In both cases vision is full 5/5 in both eyes, and the muscle balance is normal, with full binocular vision. The boy's rotations are:

	Up	Down	Nasal	Temporal
R.....	40	55	55	45
L.....	41	50	58	47

And the girl's:

	Up	Down	Nasal	Temporal
R.....	32	58	50	40
L.....	31	55	45	41

These cases just cited are splendid illustrations of the results that often attend the earliest careful attention to strabismic children. When the refraction is thoroughly studied and the eyes put under proper working conditions the eyes and their muscles and innervations develop along normal instead of abnormal lines. Once abnormal innervational habits have been formed, abnormal conditions probably develop in the muscles concerned, such as spasm and overdevelopment in the internal recti of esotropics and stretching and underdevelopment of the external recti. Under such conditions it will be difficult to accomplish the same result in the grown child without operation, as has just been shown in the four cases cited.

When operation becomes imperative and has been decided on, the methods in vogue are to have the patient follow the surgeon's finger in the lateral and vertical meridians. This furnishes information as to the behavior of the associated muscles of the eyes as well as giving some idea of the rotational power of each eye. The study of each eye in relation to its fellow ought never to be omitted, for in this way pareses are often detected. But individual study of the rotational power of each eye with

the tropometer is equally, if not more important, and will lend much greater accuracy to all such observations.

The plea is made for the fullest study of each case of esotropia before proceeding to operation; and as an aid to the exactness of details in such study nothing at present exceeds in value the tropometer.

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ABSTRACT OF DISCUSSION

DR. EDWARD LAUDER, Cleveland: The observer should be familiar with the behavior of normal eyes under the tropometer. In orthophoria there are variations from the normal rotations, namely, 33° upward, 50° downward, 55° inward and 50° outward, as given in several text-books. In all orthophoric cases, however, the approximate relative rotations, as given, obtain, so that, having thoroughly learned and appreciated this fact, we more readily learn to interpret our readings in all abnormal cases.

To any one who has used the tropometer the question of the proper adjustment of the head, no doubt, has presented itself. Great care should be used in this, and when making the ocular rotations the patient should grip the piece of wood firmly with his teeth so that he will avoid the incentive to turn his head. Perfect adjustment of the head being difficult, it is well, in investigating any case of ocular rotation, to make several examinations at different times, and in this way either prove the findings or arrive at a satisfactory average.

Considering the value of the tropometer in the study of strabismus, I cannot fully agree with Dr. Reber when he says, "This seems to be the tropometer's largest field of usefulness." What substitute have we in the investigation of numerous cases of latent strabismus or heterophoria? Furthermore, there are those two other types of cases—dextrophoria and levophoria—in the investigation of which we would be entirely at sea did we not have the use of a tropometer.

DR. FRANCIS VALK, New York: I have always held the tropometer to be one of our best instruments. It invariably confirms all the other examinations. Dr. Reber seems much worried because it does not give exact averages. We say that 20/20 is an average for vision, and yet it is not, for many must have noticed vision 20/15 and 20/10 even. If we take Dr. Stevens' records of 33 up and about 55 down and 55 in and 50 out, that is enough. What I look at is simply the relation which these figures bear to each other. What difference does it make if one figure appears to be 49 instead of 50? The point is, where these conditions of heterophoria exist, to find the relation of one to the other; then you know what the true muscle balance is. If we are specialists we must be able and willing to diagnose every case of abnormal motility. The great advantage of the use of this instrument in your practice when you come to correct the motility and refraction is beyond argument.

DR. A. DUANE, New York: While I agree with Dr. Reber as to the importance of testing the rotation of each eye separately, I cannot agree with him that this measurement is nearly as valuable a means of diagnosis or as valuable an indication for treatment as the measurement of the coordinate movements—convergent, divergent and parallel—of the two eyes acting together. All my observation has led me to believe that ordinary squint is essentially a disturbance of coordination; that it is an affection of convergence or divergence, and does not involve, primarily at least, the inward and outward rotations *per se*. At all events, some cases of squint are alike in rotations and yet are different in nature and require different treatment. Thus a convergent squint in which the convergent element is in excess, as shown by the fact that the deviation is considerably more marked for near than for distance, and that attempts at convergence beget a spasmodic inversion of the eye, is essentially different from a case in which the deviation is at least as great for distance as for near, and the converging power is evidently not excessive. And yet in these two differing cases the monocular rotations may show little or no difference. So also two cases of divergent

squint may be quite alike, so far as the power of monocular rotation is concerned, and yet may differ *in toto* in nature. In one, the deviation for distance is great for distance and less for near, and the power of convergence, absolute or relative, is still good; in the other, the deviation for near is much greater than for distance, and convergence is *nil*. The former will require one method of treatment, the latter another, even though the movements of each eye in the two cases are the same. Even in parietic squint, unless pronounced, I find the measurement of the rotations of each eye taken separately an unsafe guide—far less trustworthy than the measurement of the parallel movements of the two eyes, as determined by the variation of the screen deviation in different directions of the gaze, the lagging of one eye behind the other (on the contrary its spasmodic shooting beyond the other) in one definite portion of the field of fixation, and the measurement of diplopia on the tangent plane.

DR. G. C. SAVAGE, Nashville: Dr. Reber is right in his contention that the inherent strength of a muscle to be operated on should first be known. In heterophoria this can be done in one of three ways; first, by the rotary prism, determining the duetion power of the muscles; second, by the perimeter, determining the verting power of the muscles; third, by the tropometer, also showing the verting power. The duetion is applicable only to heterophoric conditions, and in my judgment is the test that should be resorted to in these cases. In heterophoria the verting test alone is possible, and this must be accomplished by the use of either the perimeter or the tropometer. With the perimeter adversion is interfered with by the nose, and supervision is interfered with by the brow. With the tropometer there is no interference with the version test in any direction. Of course, both the tropometer and the perimeter could be used in determining the verting power of the muscles in cases of orthophoria, as can also the duetion test by means of the rotary prism, but the latter I conceive to be far preferable. The duetion test shows whether the orthophoria is sthenic or asthenic, and if the latter, it gives indication as to necessary treatment by means of exercise. In lateral and vertical heterophoria the duetion power of one of a pair of opposing muscles should be greater than the duetion power of the other member of the pair, and yet the one with greater power may, in itself, not be intrinsically too powerful, and if this be the case, the strong muscle should not be operated on, but the weaker muscle should be given greater strength by being advanced or shortened, the latter being the safer and the surer operation. Even the duetion test will show that the stronger muscle is inherently too strong, and yet the excess in strength is not very great, and then the indication would be to do a partial tenotomy of the stronger and a shortening of the weaker muscle. If in a case of esophoria the abduction should be 6 or 8 degrees, then the internus alone should be operated on. In determining the muscle to be operated on and the character of operation to be done, the tropometer or verting test would not fall far behind the phorometer or duetion test. Only the verting test is available in cases of heterotropia. If the too strong muscle has excess of verting power, it, of course, should be weakened, and in nearly all cases this will be true; or if its excess of verting power is not great, then the balance must be restored by shortening or advancing its opposing muscle at the time that the tenotomy of the too strong muscle is done. The tropometer will rarely fail to show that the too strong muscle has too much verting power; hence, in nearly all cases of heterotropia such a muscle should be weakened. The cases are rare in which a weak muscle should not be simultaneously shortened or advanced.

DR. WENDELL REBER, Philadelphia: The point as to heterophoria touched on by Dr. Valk is one of the things that led me to take up the tropometer once more. I was careful to say that in high-grade latent deviations the instrument would be advantageous, but in ordinary cases of imbalance I am still skeptical. I agree absolutely with Dr. Duane about the study of coordination or associated movements. I believe that by combining the study of the associated and coordinated movements with a study of the individual muscles, we shall arrive at information about the eyes that we have not heretofore had.

SECTION ON LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY

PAPERS[†] AND DISCUSSIONS

THE SPECIALIST IN MEDICINE*

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The practicing specialist in medicine has made for himself a secure position. The advantages afforded by concentration of effort in a restricted field and by closer attention to details have given to the specialist a peculiar opportunity of taking an important part in medical progress. The development of the fundamental sciences underlying medicine owes a great deal to the efforts of the practicing specialist whose studies have reached out to problems in physiology, in anatomy, in embryology and in all the sciences which touch his field of work.

The specialties stand out distinctly as outposts along the advanced line of medical progress. The real specialist in medicine, as in any field of work, is one who by persistent and concentrated efforts succeeds in placing himself in touch with this advanced line and in a position where he is able to see and to attack the various unsolved problems in his particular field. The idea of investigation, therefore, is fundamental in the conception of the real specialist whether he be a specialist in medicine or in another subject. The problems in clinical medicine which more often attract the practicing physician differ only in kind from the problems which the distinctly laboratory worker sets out to solve. The practicing specialist in medicine should be familiar with the methods of research and be able to apply them in the study of cases and in the solution of his clinical problems.

Could anything be more inspiring to the young man entering the practice of medicine than the opportunity offered by the specialties, in which, in limiting his work to a particular field, he may hope by concentration and perseverance to get in touch with the advanced line of medical progress and to take an actual part in the solving of its problems? That man who has the perseverance to succeed in this effort has earned the right to be called a specialist in his chosen field. The dilettant in medicine who loiters along the wayside and never makes himself master of his subject is not a real specialist any more than this type ever becomes a recognized specialist in any field of work. We are inclined to use the term specialist too loosely in medicine. Any practitioner who essays to restrict his practice to a particular field thinks he has the right to be called a specialist. He may be a mere dilettant in medicine, and, as far as his knowledge of the specialty goes, an ignoramus pure and simple, yet he may pose before the public as a specialist, an expert, an authority, in a technical and difficult field of work.

This opportunity for concentration of effort and for doing scientific work has attracted to the medical specialties in this country and abroad many from the best type of medical practitioners. These are men who are persevering, aggressive, who have the instinct for investigation and whose efforts have secured for the specialists in medicine their recognized position as consultants, as

experts in solving difficult clinical problems. The specialties in medicine are unfortunate, on the other hand, in attracting also a less desirable class of practitioners, men whose chief interest in their work is commercial and who think they see in special practice opportunity for receiving larger returns for their services. In this respect the specialties resemble surgery, which, as compared with internal medicine, attracts a disproportionate share of those less desirable men whose interest in medicine is largely commercial and who lack the full measure of those higher humanitarian instincts which attract many to the study of medicine and which should be a conspicuous element in the character of every one who holds the position of medical adviser in a community. We have to admit that it has been chiefly the surgeon and the specialist and not the consulting internist who have been guilty of the dishonest practice of overcharging and of the division of fees.

We are facing at present in this country a situation which reflects discredit on the general medical profession and particularly on the specialties of the eye, ear, nose and throat. The situation is one that has developed out of our deplorable lack of proper standards in medical education. It has been shown¹ that but a couple of years ago we still had in this country more medical schools than are to be found on the whole continent of Europe. A large number of these are purely commercial, proprietary institutions, with practically no standards and sustained chiefly by clever advertising methods. The result has been an enormous overproduction of "uneducated, ill-trained medical practitioners." We have in the United States, for example, four or five times as many physicians in proportion to the population as exist in an older country like Germany.

The specialties of the eye, ear, nose and throat have had to carry a disproportionate share of these uneducated, ill-trained practitioners, who, failing to succeed in competition with the better trained men in their communities, seek to better their condition by limiting their practice to these special fields. The loose way in which in this country we have countenanced the use of the term specialist has made it possible for these men, with often no further preparation than a few weeks' attendance at a postgraduate school, to pose in their communities as qualified specialists in the eye, ear, nose and throat. In many towns, throughout the middle west at least, where the legitimate work in these special fields could be easily taken care of by one, or at most two properly qualified specialists, it is not uncommon to find six or more practitioners advertising on their signs and in the local papers as specialists in the eye, ear, nose and throat. In these cities a larger number of practitioners are sometimes found limiting their work to these specialties than are engaged in the whole field of general practice. It is needless to point out that the public suffers through this overproduction of untrained specialists. It is this type of specialist who justifies the fear so often expressed that the specialist, working in a restricted field, may lose the proper sense of relation

* Chairman's address.

† As the footnotes indicate, certain papers are here printed in abbreviated form.

1. Medical Education in the United States and Canada. Report to the Carnegie Foundation for the Advancement of Teachers, 1910.

between his work and that of the internist. The lack of a proper general medical education and a faulty preparation for special practice give to these men their narrow perspective which makes them disposed to see all human ailments through the particular speculum they may be using.

The postgraduate schools of this country are supported largely by the attendance of practitioners who are seeking courses on the eye, ear, nose and throat. In foreign medical centers, where courses are offered to practitioners of medicine, most of the men taking these courses are Americans, and of these at least 90 per cent. are looking for courses in these specialties. Our postgraduate schools are often blamed for encouraging the development of the so-called "six-weeks specialist," the type which the late Professor Schwartz designated as the "pseudospecialist." As a matter of fact, however, the postgraduate schools are doing only that which is demanded of them. When the majority of the men who come to these institutions are uneducated, ill-trained practitioners, who expect after a few weeks' or at most a few months' attendance on courses to return as qualified specialists, what can be done? To meet such a situation only the most superficial, elementary, so-called practical instruction can be given. No sustained effort can be attempted to give that special training in the fundamental sciences of anatomy, physiology, embryology, etc., which should form the foundation for any one who is preparing to do special practice. The courses covering the specialties which are required of the undergraduate student in our best medical schools are superior in every detail to those courses now offered in the postgraduate schools to prospective specialists.

The courses for practitioners both here and abroad naturally fail signally to give that sort of preparation which ought to constitute the fundamental training for every bona fide specialist whether in medicine or in another subject. This is the training for investigation, for research. Courses of instruction, the sole purpose of which is to drill the student in the established facts in medicine, are at best but superficial. The course which leads the student to approach these facts with the open mind of an investigator gives him the training best suited to meet the problems in routine practice. It is not so much the number of facts that a student acquires as it is the methods for investigating these facts that is of greatest value. The question has often been asked why it is that from so many of our physicians who seek postgraduate study abroad so few ever reach that advanced position where they are able to make actual contributions to medical progress. One reason is that most of them have been content in their studies to have facts ladled out to them and have failed to obtain the really important things—the spirit of research and the methods for investigating these facts.

The discredit which the overcrowding of the profession by uneducated, ill-trained practitioners has cast over the specialties in this country is but temporary. The medical as well as the lay public are demanding more and more that the physician who would be recognized as a specialist must have adequate preparation. In this country, just as abroad, he must identify himself with scientific medicine and win his spurs by making some real contribution to medical science. The readjustment throughout the country of the proper relation of the specialist to the general practitioner, the relation of the consultant, the expert, who by perseverance has pushed through to the advanced line in his chosen field, this

readjustment will be hastened very much by correcting the existing evils in our system of medical education. Already this is being worked out. Already we can see the passing of the commercial proprietary medical school. Medical education in this country is to be taken over again by the university where it formerly was and where it rightfully belongs. Those spurious medical departments of universities, the attached proprietary institutions, where all that the university gave to its medical school was its name, are already disappearing. In their place will be developed the real university department of medicine, in which the idea fundamental in any department of a real university, the idea of investigation, will be made prominent. It is toward this goal that the trend of medical education is leading.

We are still far from the realization of an actual university department of medicine, although we have passed the stage where a self-respecting university willingly permits its name to be attached to a proprietary medical college. We recognize that a medical school organized as is the proprietary medical college cannot be called a bona fide department of a university. It will take time and patience to work out the development of the university department of medicine from the existing type of medical school, for there remains a long step between the medical school as it still exists in this country and a bona fide department of a real university. The full significance of this difference will not always be recognized by men who have grown up in the atmosphere of the proprietary medical college. These men are often found opposing the introduction of university ideas and university methods in medical teaching on the plea that the medical student needs practical as opposed to scientific instruction, that the research man is not the best instructor, etc. They are all anxious enough to have the institution called the medical department of a university but are opposed to the introduction of those methods and ideas which alone can make it a bona fide department of a university. Actual progress in the development of the real university department of medicine must come chiefly from the university. The American Medical Association, working through its Council on Medical Education, has in a very few years accomplished a great work, especially toward standardizing the entrance requirement for medical schools, but the keynote to the medical school of the future, the university department of medicine, must come from the university itself, where alone the ideals and aspirations of university instruction are fully appreciated. President Shurman, in an address on "The Obligation of the University to Medical Education," has sounded this note where he says: "Have done with this sham in medical education . . . let this new institution be not an attachment (or detachment) to the university but an organic and vital member like other departments of the university, and, like them, animated by its spirit and controlled by its standards."²

If the undergraduate instruction in medicine ought to be in the hand of the university, even more urgent is it that the real postgraduate instruction must be undertaken by the university. When the undergraduate instruction in medicine has been thoroughly done, the elementary work in the specialties will not need the "subsequent patching" which is all that the existing postgraduate schools are prepared to do. Real postgraduate instruction in medicine can develop only in connection with a university department of medicine, not in separate, so-called postgraduate institutions. When once

the universities have completed the process of taking over the undergraduate instruction in medicine and have established real university medical departments, it is their problem to provide suitable courses for the training of the medical specialist. Such courses should be arranged to cover at least two or three years' work after the undergraduate instruction in medicine has been completed. They might very properly be of such a character as to lead to the higher degree in medicine, the degree of doctor of philosophy, for example, in ophthalmology or otology. These specialties are fully as technical and as far removed from general medicine and general surgery as is dentistry, yet the state requires of the dentist three years' special training. The public is entitled to at least the same protection from untrained specialists in medicine as from untrained dentists, particularly since the work in these specialties is the more difficult and also more dangerous. The development of the specialties in medicine is so recent that we have not as yet become thoroughly adjusted to the new situation. The training of the specialist presents an entirely new problem in medical education. The feeble efforts that have been made in postgraduate schools to supply this training have fallen far short of really solving the problem. When once the proper facilities are offered by the universities for adequate training in the specialties, it is but a short step for the state to require this training before the practicing physician can enter special practice. All that we offer now for the training of the specialist is an attempt to provide the top story of his preparation, the purely clinical aspect. Is it any wonder that so many, doing special work with this sort of preparation and no adequate general medical training, become top heavy and overtreat patients locally who should be referred back to the general physician? It is no surprise that under these conditions the nearest approach to a scientific contribution, from so many who share this advantage of working in restricted fields, is the more or less garbled case report. The surprising thing is that with conditions as they are at present there should have developed in this country so large a body of real scientific specialists, men who have mastered their subjects, who are doing aggressive work in real medical progress, and who easily take their position among the foremost practicing specialists in the world. We have much for which to be proud and when once our temporary impediments have been removed, when conditions in this country are made more favorable for the development of the trained scientific medical specialist, we may confidently hope to take a much more prominent part in the progress of medical science.

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ETHMOIDITIS AS A COMMON SEQUEL (NEVER THE CAUSE) OF POLLINOSIS † (HAY FEVER)

FRANK C. TODD, M.D.

MINNEAPOLIS

It has been proved by the work of Dunbar, supplemented by the researches of Kamman, that the pollen of certain grasses, grains or weeds is responsible for the

production of pollinosis in susceptible individuals. Not only has it been demonstrated by Dunbar that the pollen of these definite grains and weeds is the sole exciting causative factor, but he has succeeded in isolating from the pollen a certain albuminous portion which is the toxic agent. This poison not only gives rise to the familiar symptoms of pollinosis but is so intense a poison to susceptible individuals that as small a quantity as 1/40,000 mg. will produce a reaction, although a much larger dose is inert in the case of people not susceptible. The susceptibility of different patients varies in degree. It has been demonstrated that a small dose given hypodermatically will quickly kill an animal susceptible to hay fever.

Symptoms are general as well as local, though eye symptoms and nose symptoms predominate because here the pollen gains its easiest access. The poison, however, will affect the susceptible patient wherever applied, be it on the mucous membrane of the eyes, nose, mouth, throat or rectum, and likewise may affect the skin when rubbed on the surface, while most ready absorption takes place when it is administered hypodermatically.

The other symptoms are largely nervous in character—irritability, loss of sleep, loss of appetite, etc.—and these nervous symptoms will be present in any individual, unless his susceptibility is slight, regardless of whether or not he may be classed as a neurasthenic. Such symptoms have resulted in misconception on the part of the medical profession, and the disease has been wrongly classed as a neurosis, in the sense ordinarily meant by that term. Nasal malconditions, deformities, and so-called sensitive areas are not causative factors in hay fever, and the disease is often found in patients having normal nasal conditions; but naturally patients having nasal malconditions suffer more with nasal symptoms.

This preamble ought not to be necessary as these facts are well known and have been thoroughly proved. They are here reviewed and emphasized because despite their truth a large part of the medical profession seems unaware of the facts or else fails to interpret their significance, and our books still continue to publish old theories, long since proved untrue, regarding hay fever.¹

HOW ETHMOIDITIS AND OTHER SINUS AFFECTIONS RESULT FROM HAY FEVER

During each attack of hay fever swelling of the turbinates takes place, causing defective drainage; secretion occurs, infection is added thereto and we have present during pollinosis, ethmoiditis and sometimes pansinusitis. The recovery of the sinusitis usually occurs when the pollen ceases to circulate in the air but repeated attacks of pollinosis may result in a persistent lesion and thus the patient may develop chronic ethmoiditis, sphenoiditis, frontal sinusitis or pansinusitis, often accompanied by persistent swelling of the turbinates and especially the middle turbinate.

Thus is explained the frequent prevalence of chronic ethmoiditis (and other sinus complications) with attendant polyps, swelling of the middle turbinate, etc., so often found present in hay fever patients. It also explains the error which rhinologists have made, in assuming that because of the coincidence of hay fever in conjunction with ethmoiditis, swollen middle turbinates and polyps, hay fever is the result of such nasal malconditions.

† Pollinosis, meaning "pollen-disease" or "pollen-sickness," was suggested by me in a paper published Aug. 15, 1908, in the *Northwestern Lancet*, as an appropriate name for the disease, of which we have two common forms, i. e., pollinosis aestiva (summer pollen-sickness), the mis-called "rose fever," and pollinosis autumnalis (autumn pollen-sickness) or "hay-fever." Other names which have hitherto been suggested, such as hyperesthetic rhinitis, do not properly apply as they signify a disease limited to the nose only.

1. Every rhinologist should read Dr. Reik's article on hay fever in his recently published book on "Diseases of the Nose and Throat." Dr. Reik truly states the facts and severely criticizes the medical profession for its ignorance on the subject of hay fever.

Nasal deformities, lesions and "sensitive areas" have been held responsible for hay fever for many years and now that they must be discarded sinus diseases are also erroneously held responsible. So good an authority as Ballenger in his book discussing the causes of hay fever, makes the following admission: "I have seen cases (of hay fever) in which there was no obstructive septal deformity and no absolute occlusion of the olfactory fissure by turbinal enlargement." Yet later he speaks of the "boggy edematous condition" that is often present in the middle turbinate, and says: "While I do not care to promulgate a new theory as to the etiology of hay fever, I have been impressed with the possible relationship of catarrhal sinusitis, particularly ethmoidal and frontal to hay fever." By which he means that hay fever may be the result of sinusitis. The relationship does exist, but the hay fever is the cause, not the result, of the sinusitis.

A study of many such cases occurring in my practice caused me to realize the truth of these conclusions, and I am sure that a careful study of the histories of the many cases of ethmoiditis and frontal sinusitis occurring in conjunction with hay fever will convince the observing rhinologist of the truth of these assertions. The two typical cases briefly described at the end of this paper are reported merely for the purpose of illustration. Many more are among my records.

WHY ASTHMA PERSISTS AFTER THE END OF THE HAY-FEVER SEASON

As a consequence of the swelling of the middle turbinate body, with or without ethmoiditis, and its possible attendant polypoid condition, reflex asthma develops which lasts as long as these conditions persist, and thus we have the probable explanation of the existence of asthma after the hay-fever season has ended. In these cases a cure of the asthma may be effected by a removal of the nasal hypertrophy and exenteration of the ethmoid cells and in such cases the nasal symptoms are benefited, but the original disease (pollinosis) is not cured.

CASE 1.—Mrs. S., aged 29, consulted me June 16, 1911.

History.—She has had hay fever every autumn for many years. When in California she had "rose fever" in May one year. Later, she had nasal hay fever symptoms even in winter and had polyps removed eight years ago and at various times since. She now has "hay fever" symptoms the year around with constant discharge and sneezing; the nose stops up easily. She has attacks of bronchitis and bronchial asthma; also acute attacks of deafness.

Examination and Operation.—This showed numerous polyps—ethmoidal and sphenoidal. Exenteration was performed; the cells were found full of granulation-tissue and polyps. This resulted in cure of the nose, ear and bronchial symptoms; there was no recurrence of the polyps. Hay fever symptoms are not so severe and are only present during the hay-fever season.

CASE 2.—Mr. J., aged 49, consulted me April 20, 1911.

History.—For eleven years he has had hay fever every autumn. Each year the disease has been somewhat worse and the symptoms have persisted longer. He has had polyps removed nearly every year for the past few years.

Examination and Operation.—Polyps and other evidences of ethmoiditis were found. Ethmoidal and sphenoidal cells were exenterated with resultant cure of the disease. There was no recurrence of polyps nor of other symptoms except the hay-fever symptoms occurring during the season.

ABSTRACT OF DISCUSSION

DR. H. O. REIK, Baltimore: I particularly emphasize the point Dr. Todd makes, that, when ethmoiditis is seen in association with hay-fever or pollinosis, it is always as a concomitant condition or a sequel thereto, and never as the

cause of hay-fever. I do not mean to say that hay-fever never occurs in a person who has a previously established ethmoiditis, but that if it ever does so happen, that occurrence does not in the least degree tend to prove a causative relationship between the two affections. As Dr. Todd has well shown, when any relationship does exist it is much more reasonable to assume, and very easy to prove, that the sinusitis is a secondary pyogenic infection during or following the long-continued inflammatory stage of the hay-fever. It must not be forgotten, either, that there are few diseases more carelessly diagnosed than is hay-fever. Every person who has attacks of frequent sneezing or rhinorrhea is called a hay-feverite. Now, those symptoms may occur at any season of the year and in association with various nasal disturbances; for instance, with chronic ethmoiditis, and have little in common with true hay-fever. If you will investigate those cases of hay-fever alleged to have been cured by ethmoidal or other operations, you will find that they were not cases of true hay-fever at all. The point of the whole thing is that the profession, and especially the rhinologists, should give this disease more honest thought and consideration and should make a careful study of each case before pronouncing the diagnosis. In the next place, we should cease this vain search for some gross lesion in the nose on which to blame the attacks and recognize the real cause so completely and thoroughly established by Blackley as long ago as 1873, and definitely proved more recently by Dunbar.

DR. G. L. RICHARDS, Fall River, Mass.: I do not feel that the general profession is so far in the background as Dr. Todd seems to think. Most of us have for many years assumed that the nasal lesion was only an aggravating factor and not the real cause of the disease. The paper is very interesting and very timely, especially as many men may perhaps have not observed the pathology of the condition so thoroughly. I do not think we can as yet rule out the neurotic element of the disease.

DR. W. L. BALLENGER, Chicago: All of us are inhaling pollen, and yet only a few develop the disease; there must be a predisposing factor. The pollen is only an exciting cause. A neurosis may be a predisposing cause, and yet it is true that most neurotic people do not have hay-fever, so that is not sufficient to stand as a predisposing cause. It is something else, and to my mind it is that condition in the nose itself which lowers the vitality of the nasal mucous membrane, and the conditions which will do this we know are obstructive lesions which interfere with drainage and ventilation, and finally lead to one type or another of ethmoiditis; not necessarily the suppurative form, but a catarrhal ethmoiditis. There is a wide range in the pathology of ethmoiditis. In hay-fever we are sure that the patient is suffering from one type or another of ethmoiditis. Dr. Shadel of St. Paul advanced the theory that it was due to antrum involvement, but, to my mind, he could more correctly have said ethmoidal, although any of the sinuses could constitute a predisposing cause. I believe these patients all have some type of ethmoidal disease, either the hyperplastic type, with or without polypi, or simple infectious ethmoiditis, and that this condition produces an irritation and lowers the vitality of the nasal mucous membrane, allowing the pollen, when it comes in contact with this sensitive membrane, to produce the phenomenon of hay-fever. It does not seem rational to me to say that hay-fever causes the ethmoiditis. I believe it is predisposing and that the hay-fever excites it to still greater activity. Therefore, I think that Dr. Todd is working backward in his investigations, and that we must look for our predisposing cause in a pre-existing sinus disease of one type or another, and I have repeatedly cured hay-fever by removing the ethmoidal mass. One lady from Iowa who for many years sat up to sleep for three months in the year had a radical ethmoidal exenteration, a double Killian, and was so relieved that she stayed at home for years during the hay-fever season. Occasionally, a small polyp would recur, and on its removal she would again be all right. I am open to conviction, but am not at all convinced as yet, and I still believe that hay-fever is one of the many forms of expression of some type of sinus disease.

DR. H. W. LOEB, St. Louis: I have never cured hay-fever by operating on the sinuses. Dr. Ballenger may say that I have not done a complete operation, but I am sure I have been radical enough in these operations. I have had one experience extending over twenty-one years with one patient. With her hay-fever she had severe asthma. After operation the asthma cleared up, but the hay-fever continued just the same; five years later the asthma returned and I again operated and the asthma again disappeared and the hay-fever continued. This went on for eleven years. Five years ago I operated again, and this time I did as complete an operation as I could; since then the patient has had no asthmatic symptoms, but still has hay-fever just the same. If Dr. Ballenger is going to explain the matter of predisposition from a clinical standpoint he has a big task. It is better to accept the explanation that has been given us by Dunbar, who has shown that he can produce the disease at will in the susceptible patient, even in winter, simply by the use of a little of the toxin in the eye. He almost killed himself by injecting a little of the toxin subcutaneously. The question probably belongs to the realm of anaphylaxis, and the real cause must be looked for along this line. I do not often find in my own practice a suppurating sinus with hay-fever. I find enlargement of the turbinates, and the patients are relieved somewhat of their obstructive symptoms by these operations, but that I am reducing the predisposing cause a single bit in operating I do not believe.

DR. C. F. WELTY, San Francisco: I think it is only now and then that a sinus affection will be a predisposing cause of hay-fever. In San Francisco I do not believe that we have the typical cases of hay-fever, or they are very few. Once in a while I get a case from the country. I can say this in behalf of the proposition, and I said it six or eight years ago on the same subject, that hay-fever is dependent on a pathologic lesion, malformations or sensitive areas in the nose as the predisposing factor. The other day a patient said to me, "When I go into the sunlight I begin to sneeze." On examination I found hypertrophy of the septum in the middle turbinate region, and hypertrophy of the anterior end of the middle turbinate as well. Now it is evident that if this lesion is allowed to continue, the patient will sooner or later have the hay-fever symptoms. In fact, all my patients with so-called hay-fever have been cured by intranasal operation.

DR. F. V. LAURENT, Pittsburgh: I believe that Dr. Todd's idea is correct; that the hay-fever causes the ethmoiditis, for we see so many cases in which there are no malformations whatever. Then, too, we must recognize the neurotic element. Another thing that we do not recognize sufficiently is that at this period of the year these patients catch cold easily and there is an impaired vitality. Certainly, in many cases there is no lesion whatever and nothing to operate on.

DR. OTTO FREER, Chicago: While hyperplastic ethmoiditis and chronic swelling of the middle turbinate do accompany hay-fever, it has not been my experience that hay-fever is so often based on or connected with these conditions, or that they are especially characteristic of the disease, while sinus disease is certainly not a frequent complication of hay-fever. The principal pathologic change in my experience is chronic intumescence and chronic hyperplasia of the lower turbinated bodies, with absence of disease in the ethmoid region beyond hyperesthesia.

DR. P. M. HICKEY, Detroit: It seems to me that this matter under discussion is largely one of nomenclature. We are accustomed to speak of hay-fever as a disease in which the patient's symptoms are sneezing and rhinorrhea. This is giving it too wide a latitude. There is no doubt as to the etiology of the pollen of the ragweed, and it has been definitely proved that this is the etiologic factor. The individual has an anaphylaxis that renders him intolerant of this pollen. I saw 100 students taken in one experiment, and those who had a susceptibility to pollen showed the lacrimation immediately on the instillation of a watery solution of the ragweed pollen in the conjunctiva, while others who did not have this susceptibility showed no evidence of any local disturbance. Accordingly, I think we should reserve the term "hay-fever" for

those cases that have this anaphylaxis and adopt a different term, for those who have a rhinitis due to a pathologic condition of the ethmoidal cells.

DR. J. F. KLINEDINST, York, Pa.: I have been a victim of hay-fever from the age of 10 to 40, suffering most severe asthmatic attacks from July to November every year, and I believe I have cured myself, without having had any ethmoiditis as a sequel. I had been treated by several good rhinologists, with the galvanocautery many times; also all nasal obstructions were removed, with only partial relief. I had tried many remedies, and finally came to the conclusion that the trouble was due to intestinal toxemia from the use of too much proteid food. By reducing my proteid food during the spring and summer seasons and using sodium phosphate twice weekly to flush the bowels, I found that the hay-fever was lessening and it eventually gradually disappeared. For the local symptoms a spray of quinin hydrochlorid and antipyrin, each 5 grains to the ounce of water, gave me great relief. With this line of treatment I have cured three patients and relieved many others. I think Dr. Ballenger is right in that there must be some predisposing cause. I am convinced that in many patients the predisposing cause is due to intestinal toxemia from too much proteid food or to chronic intestinal stasis. The absorption of the toxins, I believe, irritates the nerve centers, or, in their elimination, cause irritation of the various mucous membranes.

DR. G. F. COTT, Buffalo: My experience has been similar to Dr. Ballenger's. I do not believe you will contract hay-fever with healthy sinuses. The sinus disease is merely a concomitant condition, necessary to produce hay-fever. I maintain that there is some toxin or some antibody in the blood to cause that; when anaphylaxis is better understood, the question will be explained along that line. I expect to see Dr. Ballenger's theory substantiated in a few years.

DR. EMIL MAYER, New York: The whole trend of the discussion shows that everybody is right. In other words, there are cases entirely due to sinus disease originally; there is a condition in which it is associated with some malformation of the nose and a correction of that relieves the patient; there are others directly due to the pollen; but what about the man who gets it when he rides behind horses or in the presence of cats? Then come the patients relieved by the treatment of intestinal indigestion. You are all right; the fact is that it is a mixed subject. There is some unknown neurotic condition which renders certain people susceptible to a particular poison. We are rhinologists, of course, and want to blame the nose when we can, but it is not always a factor. Some have only a conjunctivitis; others asthma. As to Dunbar's experiments, they are very convincing as far as they go. I had the honor of receiving the first specimen of his toxin before anything was published on the subject. He selected a few men in each country, and I had a chance to make early experiments. I made one very interesting one; a hay-fever patient of mine had a drop of the toxin placed in the lower lid while he had no hay-fever, and for a control I put a drop of the same liquid in the eye of my wife who had never had an attack. Both developed conjunctivitis within five minutes and both were relieved by the antitoxin. To my mind that showed that the patient had the susceptibility to the disease, and that had my wife been subjected to the opportunity she would have developed hay-fever. But to return to the question, it is likely that ethmoiditis may follow hay-fever but there are so many who never develop ethmoiditis independently.

DR. H. F. PYFER, Norristown, Pa.: Five or six years ago I operated on a number of patients suffering from hay-fever, in whom were found deviation of the septum and sinus conditions. In all these patients there have been decided improvements but no permanent cures. Frequently there was present a hyperplastic degeneration of the mucous membrane lining the ethmoidal cells which on inspection showed no apparent disease. Now hay-fever patients are told that operative procedures will relieve but not cure. The causes of hay-fever can be summed up as: first, an unusually sensitive mucous membrane; second, a highly neurotic condition of the individual; and third, an irritant pollen.

DR. W. E. SAUER, St. Louis: The whole question seems to be one of susceptibility. Dunbar produced the reaction only in susceptible individuals. To say that the hay-fever patient has no pathologic nasal lesion is one thing; but to prove it is another. There are undoubtedly some pathologic lesions in the nose which are not revealed by our present methods of examination.

DR. F. C. TODD, Minneapolis: I have no particular objection to the use of the word *neurosis*, provided it is used to mean something different from what is usually meant by it, but the fact that we do not know what this predisposing cause of hay-fever is should not permit the conclusion that it is a *neurosis*; that is simply falling back on an indefinite term. I suggested the name "*pollinosis*" (that is, I speak of the disease caused by pollen) to distinguish it from other forms with similar symptoms not due to pollen. The disease caused by pollen is the true hay-fever and not the condition occurring irrespective of that factor. It is this second kind that Dr. Ballenger cures. I am convinced that what I have taken the liberty of calling "*pollinosis*" is not dependent on any nasal malformation. That fact, it seems to me, is proved because we can, in a susceptible patient, produce the symptoms at any time of the year with the toxin, and it is not necessary to put it into the nose at all; application to the eye will produce the eye symptoms and not necessarily the nasal symptoms; likewise they can be produced by application to any mucous membrane, whether it be the mouth, nose or rectum. I should like to have the profession acknowledge that the cause is not necessarily a *neurosis* but pollen and some absolutely unknown predisposing cause. It is interesting in this connection to note that statistics show, as you all know, that asthmatic patients rarely develop tuberculosis of the lungs; likewise hay-fever patients rarely develop tuberculosis. It has also been observed that the eosinophils are increased in hay-fever and asthma and not in tuberculosis. This may have a bearing as a causative factor and it is more scientific to so consider than to satisfy ourselves with calling the disease a *neurosis*. We have the further clinical evidence that all of us for years have done multitudes of nasal operations on hay-fever patients with failure to cure. Hay-fever patients will have symptoms at any time of year if they go into a barn where there is hay. I am not prepared, however, to say that there is not a disease giving rise to similar symptoms caused by the emanations from a horse; the point I am making is that these pollen diseases are not caused by a local nasal lesion.

THE ROENTGEN RAY IN OTOLARYNGOLOGY

PRESTON M. HICKEY, M.D.
DETROIT

In introducing the subject of the value of roentgenology in otolaryngology, it is fitting to call attention to the great aid which American investigators have rendered in this field. While the painstaking work of our brethren across the water, particularly in Germany, has done much to develop the special technique necessary for the best results, I take pleasure in mentioning the work done by many American roentgenologists. Our knowledge of the anatomy and pathology of the frontal sinuses has derived much benefit from Roentgen investigation. We are able to measure accurately the exact width and extent of these bony caverns, the thickness of the anterior wall, and the distance of the anterior wall from the posterior. We can also determine the number and extent of the septa.

These anatomic facts are invaluable data in deciding many of the questions which may arise in operative cases. The condition of the anterior wall of the sinus can be demonstrated in lateral plates as shown in three cases in which I was able to diagnose positively the presence of syphilitic necrosis of the anterior wall. The worm-

eaten erosion was absolutely pathognomonic. In one case, the sinus required to be opened in order to afford relief from the pain, but in the other two cases anti-syphilitic medication was all that was necessary to afford relief.

In the differential diagnosis of the presence or absence of secretion within the sinus, it is preferable that the examination be made with the patient in the upright position. If the sinus is only partly filled with fluid and the examination is made with the patient lying on his face, the fluid may be distributed in a thin but uniform layer and cause uncertainty in the interpretation of the plate. If, however, the patient is in the upright position, the plate will tell us if the sinus is entirely or only partially filled with secretion. In the examination of doubtful cases, the plates can be made at a time of day when from the patient's symptoms we would expect the sinus to be filled or when from the presence of the pain, we would expect that the retained secretion has not drained away.

In the last few months the intensifying screen has been used by many Roentgen operators in the investigation of the frontal sinus. While this device has the great advantage of shortening the time of exposure, converting what was formerly one of the difficult tasks of the roentgenologist into one much easier, the utmost care should be exercised in the interpretation of the plates obtained with the intensifying screen. Over-exposure and the use of a tube of too great penetration will result in obtaining plates of little contrast and in which may be easily lost the slight difference of density on which the diagnosis depends. In careful hands, however, and when experience has been the teacher, the use of the intensifying screen marks a great step for the average operator.

The stereoscopic investigation of the frontal sinus has resulted in the production of plates which are of great anatomic interest but which, aside from their demonstration of structure, have not yet proved that from the standpoint of diagnosis they possess any considerable advantage. The stereoscopic plates of the probe in the frontal sinus are usually striking and determine at once whether or not the canal has been properly catheterized.

Aside from being a corroborative aid to transillumination, the value of the Roentgen method in the study of antral diseases lies in the opportunity which it offers of differentiating between cases in which the infection has been of nasal and those in which it has been of dental origin. Carefully made films of the roots of the teeth adjacent to the infected antrum will at once tell whether the operative route should be intranasal, or whether the area about the diseased root should be attacked. It certainly avails little to drain an antrum through the nose if there is a constant source of infection in a diseased root of an adjacent tooth.

The presence or absence of ethmoidal disease can often receive much aid in its diagnosis from the x-ray plate. If the pathologic condition has converted the ethmoidal cells from a pneumatic condition to one in which the air has been replaced by retained secretion or granulation tissue, the plates will afford a graphic diagnosis, particularly if the lesion is unilateral, so that the diseased side can be compared with the normal.

In the investigation of the sphenoidal sinuses, we are confronted with technical difficulties due to the fact that the shadows of the sphenoidal sinus are so superimposed on other bony parts that there results difficulty in the interpretation. The shape of the sphenoidal sinus and its depths can be shown with comparative ease. If we

wish to differentiate one sphenoidal sinus from another, we can make oblique exposures so as to avoid superimposing the shadows of the two sinuses one on the other. The differential diagnosis between a sinus which is filled with secretion and one which is not, however, still presents great difficulties.

It has been suggested that after cocainization of the pharynx, a film as large as can be borne by the patient be placed in the mouth and the ray passed from above and behind so that the shadow of the sinuses will fall on the film. The principal ray should pass about $1\frac{1}{2}$ inches anterior to the external auditory canal and should form an angle of 10 degrees with the horizontal plane of the head.

In operating on the pituitary body by the intranasal route, it is often of considerable importance to know the distance of the anterior sphenoidal wall from a selected point on the tip of the nose and also the distance of the anterior from the posterior sphenoidal wall. I would suggest that this can be accurately measured by having the patient lie on his side, placing a lead marker, as a shot, on the tip of the nose, secured by a small piece of adhesive plaster and making a plate with the target of the *x*-ray tube at a known distance from the plate. The distance of the lead marker from the anterior wall of the sinus being measured and the distance of the target from the plate being known, the position and exact size of the sphenoidal boundaries can be calculated very accurately.

The number of cases of acromegaly which are now being studied makes frequent demands on the roentgenologist for the diagnosis of the condition of the sella turcica and the establishment of the integrity of the anterior and posterior clinoid processes. The increasing frequency of these cases renders an accurate study of the sphenoidal sinus of great importance in planning operative procedures.

Like the frontal sinus, the anatomy of the mastoid in the living can be studied by means of the Roentgen plate. The technic of the oblique exposure as developed by Lange gives the operating otologist a great deal of valuable information. The size and position of the lateral sinus can usually be definitely shown as well as the size and extent of the pneumatic cells.

In the diagnosis of pathologic conditions of the mastoid, the Roentgen ray offers decided aid in addition to the more classic diagnostic measures. The technic, as advanced by Lange, is of the greatest value, but often it may be found somewhat difficult to obtain plates of the two sides with the penetration necessary to make decisive comparative study.

I would suggest a technic which in my hands has been found to be quite useful. It is not advanced, however, with any idea of supplanting the technic perfected by Lange, which affords us data as to the size and shape of the normal and pathologic mastoid. My technic affords simply a comparatively easy way by which one mastoid can be compared with its fellow as to the presence of fluid or granulation tissue.

The method of examination is as follows: The patient lies on his back with the plate under the immobilized head. A very small diaphragm is centered over one mastoid with the rays passing slightly obliquely, with the direction slightly toward the occiput. An exposure is made in this position on a large plate and then the tube-holder and diaphragm are shifted till they are centered over the opposite mastoid. The two resulting exposures are made on the same plate and as the time of exposure is comparatively short, it is very easy to get

two exposures of about the same density. This shows at once whether the tip of the mastoid is filled with air or has undergone pathologic changes.

As was stated before, this technic for the investigation of the mastoid is not suggested with any idea that it will replace the lateral exposure; I feel, however, that it may be employed in suitable cases to check or corroborate the plates otherwise obtained.

Another use to which the Roentgen ray has been put in the study of otologic conditions is in determining the presence of an internal ear and auditory canal in children with congenital atresia. In a case of mine, the ear was deformed and there were no external evidences of the presence of an internal ear or bony canal. A plate made with the rays passing through the aural regions, however, so that the shadow of one side did not superimpose on the other, showed that there was a well-formed auditory canal as well as a definite internal ear. With such authoritative knowledge the question as to operation can be easily decided.

In considering the rôle of roentgenology in otolaryngology, we must remember that we are dealing with a diagnostic agent which should always be considered simply as an adjuvant and one which should not be used to the exclusion of other diagnostic measures. I consider it very wrong to hazard diagnoses simply on the plate alone. Such misuse of the Roentgen ray will serve in the long run only to cast discredit on its use.

In general, it may be stated that the basis for the interpretation of plates of the sinuses rests on the fact that the ray in passing through a bony cavity filled with air gives a contrasting outline which is sufficiently different from that obtained when the air is replaced by secretion or granulation tissue. In other words, we can tell if the pneumatic condition of the sinuses is intact. The roentgenologist should not be tempted too far beyond this basic fact in his diagnostic ardor.

Future study and collaboration between the otolaryngologist and roentgenologist will be followed by still more brilliant results. Coordinated team work will be fruitful of great good to the patient.

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ABSTRACT OF DISCUSSION

DR. SIDNEY LANGE, Cincinnati: As a roentgenologist I would not make an attempt to make a diagnosis, but simply report the findings to the otologist and let him draw the conclusions. In doing this work constantly I am impressed more and more with the accuracy of this method, and I see every day that there are a certain number of cases that cannot be accurately diagnosed or treated without the aid of an *x*-ray plate.

There is a type of case I often see in which there is discharge but no pain. Here the plate alone may be the deciding factor as to the origin of the discharge. In other cases there is pain about the face or head, and the diagnosis may depend entirely on the *x*-ray plate.

I have been especially interested in the mastoid work. I presented a paper before this Section several years ago and was then very conservative, but an experience of several years has given me much more confidence in the method. Unfortunately, it requires a large number of cases in order that the method may be accurately employed, by both the roentgenologist and the otologist. The otologist must persistently (not occasionally) use the method in order to know how to draw proper conclusions.

We are still adhering to the classification I gave to this Section several years ago in regard to mastoid disease; thus the plates may show a distinct mastoid outline, with clear crisp cell walls and clear interspaces, indicating a normal mastoid; first-degree mastoiditis as shown on the plate exhibits a haziness of the cells; the cells, instead of being air-

filled, are fluid-filled, but the cell walls are still distinct and crisp; second-degree mastoiditis shows softening of cell walls and cells filled with fluid; some of the cells may be destroyed; these cases usually require operation. Third-degree mastoiditis shows loss of structure of the mastoid. The chronic cases fall into two groups: sclerosis, which may be simple, showing nothing but solid bone, or which may be accompanied by bone defects. I have several slides showing hollowing out by cholesteatoma, only the shell of the mastoid remaining.

Dr. Hickey's original suggestion as to technic is a very valuable and helpful method, because often it is difficult to use this lateral method, especially in young children and in certain types of skulls in which the lie of the land is not favorable to getting the mastoid on the flat. His plates are, too, perhaps less difficult to interpret by one not familiar with the study of *x-ray* plates. Having the two mastoids on the same plate makes the diagnosis easier. The disadvantage is that his method shows chiefly the tip and gives no evidence of involvement of the antrum or superior part of the mastoid.

DR. C. F. WELTY, San Francisco: The most important thing I believe (and Dr. Hickey does not lay sufficient stress on it) is the relation of the antrum of Highmore to carious teeth that may project into it. Instead of taking an *x-ray* of the antrum, take an *x-ray* of the roots of the teeth and you often get very valuable information. Trouble in the antrum can be easily demonstrated by needle puncture. The indications for operation in acute cases are so well marked that with the experienced man there is no chance of a mistake, and in a chronic case there is even less chance for making an error. It matters little whether the sinus is far forward or far back, if you have a large cell or a small one. I made a mistake in a case of furunculosis in which the mastoid was free. Possibly if I had studied the case better operation would not have been done, but this is the only condition I know of in which the *x-ray* would have been of benefit in making a diagnosis of mastoiditis.

DR. W. W. CARTER, New York: Not very long ago I saw a patient who had ethmoiditis and involvement of the sphenoid, and there was a question of whether the antrum was serving as a reservoir for the pus. The patient objected to having the antrum explored with the needle and preferred to have an *x-ray*. He was sent to one of the most expert roentgenologists in New York, who made an excellent plate and pronounced both antra to be filled with pus. On his recommendation we submitted the patient to radical operation, opened the right antrum and found it absolutely normal; no pus whatever. The mucous membrane was not hypertrophied or thickened in any way, and when we found that condition on the right side we did not dare open the other. That was a case in which the opacity was caused by thickness of the walls of the antrum. I think the question of comparing the two sides is very important; it has been of great assistance to me.

DR. J. E. LOGAN, Kansas City, Mo.: The Roentgen ray has proved a great adjuvant to the rhinologist, and is destined to a much wider field of usefulness. In three cases of optic neuritis coming under my observation, the roentgenologist was able to demonstrate to me an excessive development of cell structure in the posterior portion of the ethmoidal body, extending above and external to the sphenoid. It is probable that in many cases of optic neuritis we shall be able to find pressure influences exerted on the trunk of the optic nerve by excessive development, together with pathologic changes in the posterior ethmoidal cells.

DR. WENDELL PHILLIPS, New York: I have had a considerable number of *x-ray* plates made of acute and chronic mastoiditis, and have made it a routine procedure in the last two or three months in my service at the Manhattan Eye and Ear to use *x-rays* in almost every case of mastoiditis, acute and chronic, and of all ages; it has given me extreme satisfaction and is a very interesting study. I deprecate the tendency with many men to place too much reliance on the *x-ray* plate to the detriment of our clinical symptoms. I do not employ the *x-ray* as a necessity, but as a valuable adjunct.

In one *x-ray* plate in the Manhattan Eye and Ear Hospital collection the outlines and location of a large accumulation of

pus in the lateral sinus is distinctly shown, which condition was confirmed at operation. The benefit comes in outlining for the operator the existing anatomic conditions. It gives a distinct knowledge regarding location and size of the lateral sinus, and shows whether you have a pneumatic mastoid or not. A good plate, always taking both sides, is of great value.

DR. OTTO GLOGAU, New York: I should like to mention one case, that of a young girl, suffering for years with pain in the supra-orbital region, middle turbinate hypertrophy, and slight discharge from the middle meatus of the nose. I thought it might be a hyperplastic ethmoiditis, combined with frontal sinusitis. The *x-ray* showed darkness over the frontal sinus. I did a Killian and found no sinus present. It turned out to be supra-orbital neuralgia. In another case there was marked swelling both above and below the eye in an old lady, pain in the supra-orbital region and pus below the middle turbinate. A radiograph showed darkness over the antrum and over the frontal region. I operated on the frontal sinus and there was no sinus present. The trouble was in the antrum exclusively. Thus in some cases in which the *x-ray* picture shows darkness there may be no sinus present.

DR. MAX GOLDSTEIN, St. Louis: Negative *x-ray* findings may often be of considerable importance. As a factor in examination, negative *x-ray* findings may be as essential as negative results in the examination of tuberculous sputum. The finding of the tubercle bacillus is positive evidence of tuberculosis; the absence of the tubercle bacillus in the examined specimen of sputum, however, does not necessarily justify the conclusion that there is no tuberculosis. The same relative condition obtains as far as radiograms are concerned. If we have a definite shadow, outline or other tangible landmarks in radiography, we may infer the presence of pus or other fluid, granulations, anomalous anatomic relations, etc.; a negative *x-ray* picture in my opinion, however, does not exclude the possibility of an existing pathologic condition.

DR. G. F. COTT, Buffalo: I had an experience lately which would demonstrate the importance of the *x-ray*. A girl, 13 years of age, had a swollen jaw. Her physician found that she was blind in one eye. I was called in, had her taken to the hospital, opened the antrum and found a quantity of pus. I intended to open the frontal sinus also, although not having an *x-ray* picture at the time. I worked away until I felt that I was near the danger point and stopped. The child recovered in a few weeks, and we then had an *x-ray* picture made. We found that she had no frontal sinuses. In that case it would have been very valuable to have had an *x-ray* picture taken before the operation, but it was very necessary to act quickly.

DR. B. R. SHURLY, Detroit: I have a case in mind which showed that this modern method offered us something that was absolutely unknown heretofore, as a method of differentiation in some of our more difficult cases of frontal sinus disease. This patient was suffering from necrosis of the anterior wall of the frontal sinus, which gave, by ordinary methods of diagnosis, absolutely no indication whatever of the trouble. On examination with the *x-ray* we were able to make a diagnosis of necrosis of the wall, although the history was absolutely negative. A radical operation gave immediate relief. The mapping out of the frontal sinus before operation is an exceedingly valuable aid, and this applies, of course, to the sinus in the mastoid, outlines which we can so readily obtain by this *x-ray* method.

DR. P. M. HICKEY, Detroit: We are dealing with one of the newer aids to diagnosis. Not everything is yet known about it, and undoubtedly many wrong interpretations have been made and will continue to be made, though we hope they will become fewer and fewer. It seems to me that the field under discussion is one which can extend over into the border of otolaryngology for the benefit of the patient and that the accuracy of this method lies in the correct interpretation of the plates. We are perhaps too apt to think that when the plates have been taken there is the end to the work. I think that the whole field of work is in the interpretation of the plates. One can train one's office girl to make the plates; that is a simple matter of technic, but the deduction of proper conclusions from them is the great field of study.

THE OPERATIVE TREATMENT OF BRAIN
ABSCESS OF OTITIC ORIGIN

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NEW YORK

In dealing with the subject assigned to me in this symposium I shall detail the methods used by me in operating on and treating brain abscess complicating purulent middle-ear disease.

As most of the abscesses the otologist sees occur after a mastoid or middle-ear operation has been done, this type will be discussed first.

When a brain abscess is suspected following one or both of the above conditions and we find a stalk—"the pathway of infection"—leading from the tympanic cavity, aditus or roof of the mastoid antrum, it becomes a comparatively easy task to localize the pus collection by tracing the so-called stalk up to the abscess cavity, by director, knife or long narrow forceps; and when the pus is encountered, enlarging the original pathway of infection by cutting down on it from its dural entrance to the abscess cavity and wiping the cavity gently with sterile strips of gauze soaked in a warm normal salt solution. The introduction of a drainage tube at the lowest point of the abscess cavity and the application of a soft gauze dressing is about all that is usually necessary.

When, however, we suspect an abscess and there is no visible pathway of infection present leading from any of the above locations, the procedure is not so simple.

When the abscess is suspected in the temporosphenoidal lobe, a sufficiently large button of bone should be removed over the roof of the aditus, or overlapping both the adital roof and a portion of the tegmen antri to enable one to explore with ease the entire temporosphenoidal region. The otologist, in the past, has been criticized, and justly, by the general surgeon for making these openings too small to admit of thorough and satisfactory exploration.

The dura is incised in the horizontal plane and fine silk sutures are introduced through its edges. The sutures can be used during the brain exploration as retractors, by gently drawing on them above and below, thereby exposing sufficiently the cerebral substance, and should the exploration prove negative, the dural edges can be approximated and sutured by the silk already in position, thereby preventing a hernia of the cerebral substance.

METHOD OF EXPLORATION

For exploring the brain substance itself, it has been my custom to use a long slender bladed knife, introducing it at first forward, downward and inward for about 1 inch, provided pus is not encountered before, in the region of the tegmen tympani. Should the exploration be negative, the knife is then introduced directly upward and inward for about 1 inch, the introduction being directly through the same opening as that already made. Should this again prove negative, a third exploration can be made in the same manner and depth, backward, downward and inward. Should these three locations prove negative, others can be made in various directions, always starting from the original opening in the brain first. I have made as many as twelve explorations of the temporosphenoidal lobe through such an opening with a slender bladed knife in a search for a brain abscess, which proved negative, and closed the dural flaps in the manner described, with but little or no discomfort to the patient.

Should an abscess cavity be encountered by the knife, it should be left in position and a long narrow bladed forceps passed gently along the knife blade until it reaches a little beyond the point of the knife, which can be easily determined by the tactile sense. The forceps blades can then be gently separated and either the encephaloscope passed between them or a pair of long flat metal retractors. I am inclined to use the retractors rather than the encephaloscope at this stage, because less pressure is exerted on the brain tissue. The cavity should be wiped out as gently and quickly as possible with gauze moistened with a warm saline solution.

It is not necessary to remove every visible evidence of pus with the gauze, for too frequent or active manipulations are detrimental to the best interests of the patient, on account of the danger of opening up new avenues for further brain infection. It is my belief that many so-called multiple and secondary brain abscesses are produced by too energetic endeavors to remove the primary pus collections, thereby injuring the adjacent brain tissue and allowing new foci to form.

DRAINAGE

This is a most important adjunct in the treatment of brain abscesses. If the abscess be one of long standing with a limiting membranous wall, a large rubber drainage tube should be introduced, as the mechanical pressure produced by the tube on the limiting membranous wall hastens resolution. If there be no limiting membrane present and the abscess be of the acute type, then I believe that drainage is better conserved by using a moderate-sized cigarette drain, than by using rubber tubing. In either case, the upper end of the drain should not be placed flush with the cerebral substance, or against the limiting membrane when present, but a small space should intervene to allow for a collapse of the brain substance.

DRESSING

Quantities of soft fluffy gauze should be placed around the distal end of the drain and a loose bandage applied.

Subsequent dressings should not be too frequent—once in three or four days—as too frequent inspection and manipulation delay resolution. At each dressing, the tube or drain should be gently drawn out for a fraction of an inch and cut off. For subsequent inspection of the cavity the encephaloscope is helpful as it allows one to see the condition of the walls and the removal of detritus and discharge is easily accomplished. Long slender metal retractors can, however, be used to advantage.

A slow, gradual or sudden rise of temperature, or a change in the mentality of the patient is indicative of obstruction to the drainage, and when this occurs the cavity should always be inspected in an effort to discover the obstruction, or the development of adjacent foci. An unfavorable postoperative temperature or a marked change in the mental condition of the patient may also be caused by the onset of a meningitis or encephalitis. The position of the patients after operation is of importance. They should be made to lie on the affected side, as much as possible, for the first few days following operation and later the head should be elevated to promote drainage.

SUSPECTED BRAIN ABSCESES

In suspected brain abscesses, when the symptoms are not urgent enough to call for an immediate operation, the technic for opening the abscess, as advised by

Ballance, has met with excellent results. It consists briefly in making a free exposure of the dura, incising it and separating the flaps sufficiently for exploratory purposes, applying a dressing and waiting for from twenty-four to forty-eight hours. This relieves any urgent pressure symptoms, and if pus be present and under any considerable pressure it will take the line of least resistance which is toward the dural opening and can be reached more easily and surely when the brain tissue is incised. It has another advantage, and to me it would seem a most important one, that of minimizing the occurrence of a secondary meningitis by allowing the severed edges of the dura to become plastically sealed, thereby shutting off the possibility of absorption as would be probable when pus came in contact with the freshly severed edges of the dura. At the end of from twenty-four to forty-eight hours after this modified decompression has been done, a knife is introduced into the brain substance after the manner above described and the pus, if present, evacuated. To me, this procedure seems rational and practical, especially if the case be not an urgent one. That secondary meningitis is often the fatal outcome of these cases there can be no question, and anything that will diminish its frequency will be welcomed by the surgeon.

CEREBELLAR ABSCESS

Abscesses of the cerebellum are evacuated almost always posterior to the descending limb of the sigmoid sinus. The technic for this exposure and exploration is largely the same as that discussed for temporosphenoidal abscess. One point of special importance should be borne in mind in evacuating and draining abscesses in this region and that is that the opening in the cerebellum should be sufficiently low down to admit of free drainage. Frequently after an abscess has been opened in this region, the site of which has been in the upper and lateral structure of the lobe, the surgeon has completed his operation without sufficient drainage from below, overlooking the mechanical fact that the cavity in order to drain must first fill up from the bottom to a level with the drainage inserted above.

When one enters the brain for an exploration of abscess, without the middle ear or mastoid having first been surgically attacked, the site of election may be over any point of the temporosphenoidal lobe or cerebellum. The technic for the dural exposure and brain exploration is the same as that already discussed.

CONCLUSIONS

In acute and emergency cases operate early, doing the entire operation at one sitting.

In subacute cases and those cases not urgent, the modified decompression operation with a wait of from twenty-four to forty-eight hours after the dural incision before exploring the brain, conserves the best interest of the patient and minimizes the development of secondary meningitis.

A large opening in the skull is essential. If at point of election and a negative result is obtained the bone button can be replaced. Dural sutures aid materially as flap retractors and should the exploration be negative the brain substance can be covered and protected by tying the sutures. If pus is encountered removal of the sutures follows.

The knife only is to be used for incising brain tissue; avoid finger manipulation and trauma to surrounding substance. Wipe the cavity gently; no irrigation should be used unless in a chronic abscess cavity with distinct

and dense limiting membranous wall. The size of drainage tube should be governed by the extent of the cavity; the material used is rubber tubing in the chronic variety and cigarette drain in the acute type.

Rise of temperature or change in mentality of the patient calls for an immediate inspection of the cavity, with search for obstructed drainage or development of additional foci.

Rapidity in operation is essential to success, and above all frequent manipulation of brain substance should be avoided.

62 West Sixty-Second Street.

DIAGNOSIS AND LOCALIZATION OF BRAIN ABSCESS *

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PHILADELPHIA

DIAGNOSIS

The diagnosis of brain abscess, I need hardly say, is often extremely difficult. We are confronted at the outset in the average case with a compound of symptoms pointing, in part, to some extracranial surgical condition, such as disease of the middle ear, and in part to a lesion within the cranium. That the symptoms of the latter are often extremely vague and indefinite, even when subsequent autopsy reveals gross lesions of the brain, of its membranes or sinuses, every one who has had practical experience in this field will admit. Evidently in a suspected case of brain abscess the first step must always be the search for symptoms indicative of actual intracranial lesion. We will suppose, for instance, that an examination of an ear has clearly established the existence of an infection or that the condition of the ear and the medical history justify the inference of the existence of such an infection in the past. We must remember that brain abscess often presents a latent period extending over many months and years, so that the condition of the ear which originally gave rise to an abscess may have completely and long ago subsided at the time that the abscess makes itself manifest; but we will suppose that positive evidence of an otitis past or present has been established, and that at the time the patient comes under observation, certain other symptoms—certain new symptoms—have made their appearance—symptoms now suggestive of intracranial lesion. What are these symptoms? Frequently we are told that the patient, who had been previously well—at least in whom nothing unusual had been observed—began to suffer suddenly from headache and vomiting. Less frequently do we find that these symptoms, particularly the headache, have supervened gradually; most frequently we are confronted by symptoms suggestive of a pathologic condition that is acute or has suddenly become active. When we talk with the patient, we are also impressed by the fact that he is somewhat dull, heavy and apathetic, sometimes markedly so; and we may therefore say that, in addition to the headache and vomiting, hebetude in some degree is also present.

That the symptoms of headache, vomiting and hebetude may be but slightly pronounced and, notwithstanding, serious brain mischief exist, is well established. In estimating the value of these symptoms, even when slight, we must bear in mind the fact that brain abscess is often

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

quiescent and latent for many years. As is well known, a brain abscess, the symptoms of which become manifest in adult life, may have had its inception in an ear disease of childhood. If the abscess be well encapsulated, the brain becomes singularly tolerant of its presence and it would appear that it is only when some untoward incident arises—usually something so slight as to escape notice—or at times without traceable incident of any kind, that active symptoms manifest themselves.

Granting that headache, vomiting and hebetude make their appearance, these symptoms of themselves do not justify the diagnosis of intracranial disease. Every otologist will, I think, bear witness to the fact that these symptoms may be encountered in cases of acute and uncomplicated otitis media or in cases of chronic otitis with exacerbations and pus retention. At least these symptoms have been known time and again to disappear after paracentesis or other radical operation. The question arises, are there other symptoms added to the triad we have mentioned, the presence of which will permit a definite conclusion? Certainly the presence of dizziness will not help us, and this is true also of the presence of fever. How as to the presence of optic neuritis? While optic neuritis usually justifies the inference of intracranial involvement, it apparently does not always do so.† At least this is the experience of several observers, among them Jansen and Roughton. This, however, is so unusual that it becomes significant only when the optic neuritis disappears after operation limited to the ear. If, on the other hand, an optic neuritis persists after such an operation, the inference becomes unavoidable that the optic neuritis indicates an intracranial involvement. I am inclined to believe that the occurrence of optic neuritis always indicates an intracranial involvement, though that involvement may be slight in degree. Certainly the fact that such a symptom may subside after an operation limited to the ear and in which neither the cranial cavity nor the membranes are invaded by the surgeon, does not justify the inference that no intracranial involvement was present. Similar is it with regard to other symptoms which have been known to disappear after purely aural operations; among these may be mentioned palsy of the sixth nerve, inequality of the pupils, diplopia and ptosis. Here we are again warranted in inferring that the drainage and revulsion resulting from the operation are really accountable for the disappearance of the symptoms. Ordinarily such symptoms may be accepted at their face value, namely, as indicating intracranial involvement. It should be added that neuroretinitis, if associated with other symptoms, may also be significant. It has been repeatedly observed. Potts,¹ indeed, regards it as one of the cardinal symptoms of brain abscess.

To the general symptoms of headache and vomiting, we should also add that of slow pulse which is frequently, though, of course, not invariably, present in brain abscess as it is in brain tumor. Sometimes it is very pronounced. Such slowing of pulse may be present in spite of fever; at other times it may be replaced by a rapid pulse, especially if fever be marked.

Having completed the first step of the diagnosis, namely, that of intracranial involvement, it next becomes necessary to determine the nature of the involvement. Here we are obliged to differentiate between the following conditions: first, external purulent pachymeningitis, i. e., supradural abscess; second, thrombosis of the lateral and other sinuses; third, purulent meningitis limited or

diffuse; fourth, purulent meningo-encephalitis; fifth, non-suppurative localized encephalitis; sixth, serous meningitis; seventh, brain abscess.

Supradural abscess—external purulent pachymeningitis—is beyond all doubt the most frequent intracranial complication of otitis. While it may simulate brain abscess, we should bear in mind that it does not present the focal symptoms frequently present in the latter, while there are often present pain on pressure back of the mastoid, often swelling in this region as well as a tendency to hold the head in a fixed position. Finally, the fact of extradural involvement becomes in many cases apparent in the course of a radical or exploratory operation.

The consideration of thrombosis of the lateral and other sinuses would take us too far afield. Suffice it to say that involvement of the lateral sinus is especially indicated by venous fulness and edema back of the ear in the mastoid and occipital regions. In addition, there is a decided tenderness over the edematous area, especially over the mastoid foramen. Again the external jugular vein on the affected side is less full than its fellow, the difference becoming especially evident on efforts at inspiration. Occasionally, the thrombosis extending into the internal jugular vein, the latter may be felt as a firm and painful cord. In short, there are local symptoms present which are not met with in uncomplicated brain abscess.

Purulent meningitis is differentiated with greater difficulty. If the meningitis is diffuse, however, the symptoms are of such a character as to make the differentiation comparatively simple. We need only think of the retraction of the head and neck, the involvement of cranial nerves on both sides and the numerous other symptoms present in such a case. It is only when the meningitis is limited or circumscribed that the differentiation becomes difficult. It is usually impossible to say whether a brain abscess is or is not complicated by a local meningitis. In doubtful cases we may resort to lumbar puncture, but unless the meningitis be in a degree at least diffuse, no information may be gained. In a diffuse purulent meningitis, the fluid obtained is rich in cells and bacteria; but a slight cloudiness of the fluid and the presence of some bacteria do not justify the diagnosis of a meningitis save, perhaps, such as may result from the abscess impinging or encroaching on a limited area of the pia. In my own experience, the necessity of differentiating between brain abscess and diffuse purulent meningitis has rarely arisen. This is true also of limited purulent meningitis; in the latter the differentiation was on the whole impracticable.

If the purulent inflammation involves not only the pia, but also the subjacent cerebral tissue, i. e., if there be present a purulent meningo-encephalitis—a subdural abscess, in other words—the symptoms may be practically the same as those of simple brain abscess. The fact that subdural abscess more frequently involves the temporal lobe than the cerebellum does not materially aid the diagnosis. As showing the practical conditions that may be found and as indicating the inutility of always attempting a sharp differentiation, the case reported by Amberg² may be cited, in which there were present at one and the same time, extradural and intradural abscess, sinus thrombosis and brain abscess.

We should bear in mind, also, in considering the possibility of brain abscess in a given case, that a non-suppurative localized encephalitis may occur. Its rela-

† See also Risley, *Jour. Nerv. and Ment. Dis.*, Jan. 22, 1909.
1. Potts: *Am. Jour. Med. Sci.*, 1907, cxxxiv, 113.

2. Amberg: *THE JOURNAL A. M. A.*, Aug. 22, 1908, p. 667.

tions to ear disease are, however, generally less direct and clear. As Oppenheim points out, it more frequently involves the frontal and central regions and corresponding symptoms make their appearance. It may, however, involve a temporal lobe and in such instance, especially if it occurs on the left side, it may simulate brain abscess in this region.

The differential diagnosis of abscess from serous meningitis is of considerable importance because serous meningitis may itself result from otitis. The symptoms of serous meningitis are those of a diffuse involvement while optic neuritis is usually an early and a pronounced symptom. The symptoms are relatively mild both as regards the temperature and as regards the physical signs; of course, weakness of the extremities, involvement of cranial nerves and other local symptoms may be present, but they are not so clearly marked as in other forms of meningitis.

Having briefly passed in review the various conditions other than brain abscess, let us now give our attention in detail to the latter affection. A brain abscess may, as we know, run its course in a few hours or days; this it does very exceptionally. On the other hand, it may endure for many years. It may complicate the picture of an acute disease of the middle ear or of an exacerbation of a previously existing disease of this organ. In such case the symptoms added to those of the ear affection may be of such a character as to raise little more than a suspicion of intracranial mischief. Thus there may be fever, headache, vomiting and hebetude, all symptoms which, as we have seen, may be present in disease limited entirely to the ear. Frequently, indeed, the symptoms are such as not to raise the suspicion of intracranial involvement; thus the acute symptoms both of the ear and of possible brain involvement may subside, and the abscess, if really established, passes into a latent stage. Sometimes we will, in a suspected case, learn that during such a supposed latent period the patient has at times complained of headache, but that this headache was not regarded seriously; sometimes that slight and evanescent fever was present, to which likewise no special attention was given. It may be, again, that the patient is observed to be in ill health, that he has lost weight and strength, that he has become apathetic, slightly depressed, a little slow mentally or even slightly confused. As a rule, however, symptoms are entirely absent during the latent period. It appears that the abscess becomes encapsulated at an early stage and thus quiescent. How tolerant the brain may become to an encapsulated abscess, even when the latter is very large, many can testify.

There is one point, however, which it is especially important to bear in mind, and that is that if in a case of disease of the ear—whether the latter be still active or whether it has apparently terminated in recovery—convulsions make their appearance, the suspicion of otitic brain disease should at once be aroused. The convulsions may resemble ordinary epilepsy or they may depart from the typical symptoms of the latter. Thus loss of consciousness may not be complete, or during the seizure rigidity of the muscles rather than clonic movements may be noted; indeed, because of these features hysteria has now and then been diagnosticated in cases in which the patient in reality suffered from brain abscess. If in a case of ear disease, therefore, convulsions supervene, the case should be submitted to elaborate study.

We will suppose that in a given case the latent period has terminated and that from some undetermined cause the brain abscess has become active; what are the symptoms?

1. Headache, sometimes slight, sometimes intense in degree. Sometimes it is diffuse; at times, referred to a site corresponding to the abscess. Very rarely, it is referred to a distant region, e. g., to the opposite side of the head. Sometimes percussion of the skull increases it or evokes it if absent. Rarely local tenderness is elicited. As a rule the headache is made worse by vomiting or by muscular effort.

2. Vomiting. This is quite common, but may be but slightly pronounced. It is especially frequent in cerebellar abscess.

3. Dizziness. Though present at times, dizziness is much less frequent than headache or vomiting. When pronounced or when present in the form of a well-defined vertigo, it should be carefully investigated.

4. Hebetude. The mental state is seldom entirely normal. Usually there is present a certain degree of slowness of thought and of apprehension; at times of apathy and depression. The mental symptoms may be very slight or may be so pronounced as to amount to stupor. Very pronounced mental symptoms are, however, usually present only in the terminal stages. In some cases there are present restlessness, irritability, confusion or delirium.

5. Fever. This, as is well known, may be entirely wanting. In fact, the temperature may be subnormal; indeed, this appears to occur in about one-third of the cases. Special stress has been laid on this fact by Macewen. There is never a high temperature in uncomplicated cases. When temperature is noted, it is usually moderate in degree and may be present only toward the evenings. It is not improbable that when fever is present in a degree, the abscess has impinged on the meninges or that possibly other complications are present. Certainly high fever occurs only when the abscess has actually opened into the meninges or, perhaps, into the ventricles. That rigors may be noted under such circumstances goes without saying.

6. Optic neuritis and choked disk. Optic neuritis is not nearly so frequent in brain abscess as in brain tumor. Oppenheim and Cassirer have estimated that changes occur in the papilla in about 53 per cent. of the cases. We must make a distinction, however, between optic neuritis and choked disk; the one apparently results from the toxicity of the abscess, the other from the increased intracranial pressure. Their relative frequency is well indicated by Okada (quoted by Lewandowsky), who found in ninety-six cases of cerebellar abscess optic neuritis in twenty-two and choked disk in only seven. It is important, also, to bear in mind that, more frequently than in tumor, the optic neuritis is limited to one side, usually on the same side as the abscess, though sometimes on the opposite side.

While brain abscess, like brain tumor, may be attended by the symptoms of increased intracranial pressure, it is not improbable, as Lewandowsky points out, that the general symptoms of brain abscess are, in part at least, dependent on the action of the toxic substances of the brain abscess. Not only is it probable that the psychic symptoms are due to such an intoxication, but even at times also the headache and vomiting; certainly it is the most plausible explanation of the presence of optic neuritis, which, as we have just seen, is far more frequent than choked disk.

If we attempt to summarize the more important symptoms pointing to a brain abscess, i. e., an abscess that has entered on an active stage, we may enumerate them briefly as follows: headache, vomiting, dizziness, hebetude, subnormal temperature or moderate fever, optic neuritis, neuroretinitis, choked disk. These symptoms have additional significance if an examination of the cerebrospinal fluid proves negative. Should a blood examination reveal a high leukocytosis, this is of course also of value.

LOCALIZATION

The important differentiation in otitic abscess is of course between temporal and cerebellar involvement. To begin, symptoms pointing to such differentiation may be entirely absent. A circumscribed abscess may exist in any portion of the brain without evolving localizing symptoms, so tolerant may the brain become to its presence especially during the period of latency. In the majority of cases, however, symptoms are present, though they are often exceedingly slight. They necessarily depend on the extent of the abscess and the degree of involvement of structures producing definite reactions.

In involvement of the temporal lobe, the abscess is mainly, though of course not always, basal. Time and again because of the basal situation, cases are encountered in which no very definite localizing symptoms are present. If the abscess be sufficiently extensive and deep, however, it may by pressure on or involvement of the basal ganglia or internal capsule give rise to weakness of the arm and leg of the opposite side, frequently associated with spasms or convulsions. Hemianesthesia and at times hemihypalgesia of the opposite side have been noted; sometimes conjugate deviation of the head and eyes; sometimes hemianopsia. All of these symptoms may be wanting, however, and yet temporal abscess be present and extensive.

When the abscess involves the left temporal lobe, and provided that it be sufficiently extensive, sensory aphasic symptoms may be present. These symptoms may be very slight, but if present in any degree are significant. Thus a certain amount of word deafness may be noted; in some cases merely a moderate difficulty in understanding what is said. The involvement of the superior temporal convolution or of its subjacent white matter may be very slight, but there may be present a partial amnesic aphasia or possibly a paraphasia; at times also an inability to name objects, as in a case reported by Macewen.³ The speech involvement may not be clearly defined or pronounced, though it may be obviously present. Other speech defects, such as alexia and agraphia, have also been noted, though infrequently.

In abscess of the right temporal lobe, aphasic symptoms are absent, though, it would appear, not invariably so. Sometimes the absence of definite symptoms in right temporal abscess is very pronounced. In a case described by Levy⁴ the diagnosis of sinus thrombosis had been formed and yet the autopsy revealed a right temporal abscess while the sinus showed no involvement.

Cranial nerve involvement may also be noted in temporal abscess; especially is this true of the oculomotor nerve. Not infrequently there is ptosis; less frequently, also, dilated pupil or external strabismus. Sometimes there is involvement of the sixth nerve. Exophthalmos also has been noted.

Anosmia, homolateral, has been repeatedly observed in temporal abscess. In a case reported by Raimist,⁵ it was clearly in relation with the abscess.

In cerebellar abscess vomiting is apt to be more marked than in temporal abscess and there may be rigidity of the muscles of the back of the neck or a tendency to hold the head in a fixed position. The headache is usually occipital, but it may be frontal, as in the case reported by Sieur.⁶ Typical symptoms of interference with the vermiform process are most frequently entirely wanting, owing doubtless to the fact that the abscess is almost always limited to the lateral lobe; curiously enough, too, in cases in which the vermiform process has been involved, such symptoms have occasionally likewise been wanting. If present, the symptoms are rarely marked. Cerebellar ataxia, which may be one-sided, has been noted, however. Of late years Babinski has called attention to a number of symptoms which may be present when the cerebellum is diseased. These symptoms are exceedingly important and should be sought for, I believe, also in suspected cerebellar abscess. Among these is asynergia. This may be demonstrated in various ways; thus the patient when walking allows his body to remain to some extent behind the legs, that is, the trunk is thrown backward and in progression seems to be retarded.

Further, if the patient, being seated, makes an attempt to rise without the assistance of his arms, the trunk and the thighs become flexed, the legs becoming extended. Lastly, and perhaps most important, if the patient attempts to touch an object with his foot, the movements do not occur simultaneously in the knee- and hip-joints, but follow in sequence, first in one joint and then in the other. The symptom, when it is limited to one side of the body, is termed hemiasynergia and is homolateral, i. e., exists on the same side as the lesion.

Babinski has also noted in cerebellar disease an inability on the part of the patient to follow one group of muscle innervation rapidly or normally by another; for instance, he finds that the patient is unable to change quickly from pronation of the hand and forearm to supination. Like the hemiasynergia, it is a homolateral symptom. He has given it the rather unfortunate name of adiadochokinesis. Finally, sometimes in cerebellar abscess we note a tendency of the patient to turn or to fall to one side in walking; the tendency is most frequently to turn or fall to the opposite side, though sometimes to the same side.

Incoordination is occasionally also encountered both in temporal and in frontal abscess, but it is not improbable that the symptoms more especially brought to light by Babinski will in the future aid us in making the differentiation. The symptoms, it should be remembered, are of value if they are clearly marked and present early.

The presence of dizziness or vertigo in a given case always merits serious consideration. The symptom is frequently very difficult of interpretation. To begin with, however, it may be stated that if it be merely subjective, i. e., does not betray itself by any outward manifestation and be variable and inconstant, it may be disregarded. Under such circumstances it can have no localizing value. If pronounced, it may suggest disease of the labyrinth, involvement of the vestibular nerve or possibly disease of the nucleus of origin of the latter.[†]

3. Macewen: *Lancet*, London, 1910, i, 1533.

4. Levy: *Deutsch. med. Wchnschr.*, 1909, No. 8, p. 340.

5. Raimist: *Arch. f. Psychiat.*, 1909, xlv, 127.

6. Sieur: *Arch. internat. de Laryng.*, 1910.

† See also Bárány, *Handbuch der Neurologie*, i, 941.

Similar is it with nystagmus. Nystagmus also must be pronounced and indubitable to have value; we must remember, first, that nystagmus has been observed in temporal lobe cases and no doubt at times is to be ascribed to labyrinthine involvement, itself the result of the infection of the ear. The differential diagnosis between a nystagmus and vertigo due to disease of the labyrinth and of the same symptoms due to brain lesion is exceedingly difficult; indeed, often impossible. Surgically it would probably be of little value, for an exploratory operation would hardly be limited to the ear.

Choked disk may have the same significance as in cerebellar tumor, namely, it may be pronounced and attended by early loss of vision, though, as already pointed out, it is much less frequent than in tumor. Occasionally in given cases, also a hint as to the location of the abscess in the posterior cranial fossa is given by the presence of symptoms pointing to involvement of the pons or medulla.

Diminution of the corneal reflex is of course a symptom which, it should be added, is not infrequently observed in cerebellar abscess.

Pressure on the pons, the quadrigeminal bodies, the medulla and on the cranial nerves may produce special symptoms; among them, eye palsies, nystagmus, paresis of the facial nerve, dysarthria, pain and hypesthesia in the trigeminal distribution and disturbances of the respiration. At times, also, hemiparesis is present in cerebellar abscess. Occasionally pressure on the crossed pyramidal tract may give rise to spastic phenomena: plus knee-jerks, ankle-clonus, Babinski sign, etc. In a few cases, Macewen and Mueller have noted absence of the knee-jerks.

Statistics as regards the frequency of cerebellar and temporal abscesses give us but little aid in the study of individual cases. Those of Heiman,⁹ however, which are well known, are exceedingly interesting. Heiman collected reports of 819 cases, of which he found 645 adapted to statistical study. In these cases, abscess was found 456 times in the cerebrum, 188 times in the cerebellum and once in the pons. Cerebellar and cerebral abscesses occur most frequently in the third decade of life. Otitic brain abscess occurs two or three times more frequently in the male sex than in the female sex. Cerebral abscess, as we have seen, is from two to three times more frequent than cerebellar abscess. It cannot be said that either of the two hemispheres of the cerebellum or cerebrum is more inclined to abscess than the other.

When we pass in review the various difficulties which enter into the diagnosis of cerebral abscess, it would seem justifiable to make use, at least in doubtful cases, of surgical exploration. The surgical procedures should, when all is said and done, in my judgment, follow largely surgical indications. The surgical indications are determined, in part, by a study of the diseased ear and, in part, by the conditions revealed in the successive steps of the operation. As a matter of necessity, it would seem that every operation must be, in part at least, exploratory.

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9. Heiman: Arch. f. Ohrenheilk., 1906, lxxvii, 1.

Cost of Alcohol.—Alcoholic beverages, for which over \$2,000,000,000 are spent yearly in the United States, cause over one-tenth of the deaths.—B. C. Keister before the Medical Society of Virginia.

DISEASES OF THE EAR WHICH LEAD TO BRAIN ABSCESS

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In every important pathologic cycle there is a focal point from which the disease process emanates and radiates. There is no small individual cavity in the human body which occupies so distinctly vital a position in its relations to surrounding areas as does the cavum tympanum. A brief study of its anatomic relations will definitely reveal the close interrelation which exists between the cavum tympanum and its many accessory areas, viz.: the eustachian tube, the mastoid antrum, the lateral sinus, the carotid canal, the labyrinth and the temporosphenoidal fossa.

The irregularly shaped cavity of the middle ear is located in a comparatively inaccessible place in the depth of the temporal bone, surrounded on all sides by delicate and vital structures. It offers a favorable site for fluid contents and an ideal incubator for the many forms of bacteria which so frequently find lodgment there. It is most vulnerable, of course, by way of the eustachian tube.

Infective and suppurative processes of the middle-ear cavity *via* the nasopharynx and eustachian tube route are variously estimated at from 80 to 90 per cent. of all suppurative middle-ear diseases. Anatomically, the tympanic cavity and the adjacent cellular bone areas of the mastoid may be regarded as an accessory space to the upper respiratory tract. The invasion of the tympanic cavity through the eustachian tube, following an infection or suppurative process of the nose, nasopharynx or buccal cavity is as frequent as is the invasion of the accessory sinuses of the nose through their natural ducts and ostia. When we add to this the histologic data of continuity of surface of the mucous membrane we can readily appreciate the enormous percentage of secondary infections of the tympanic cavity from infected fossa in the upper respiratory tract and the frequency with which these pathologic conditions occur.

Mechanical forces may also be considered as factors in the production of suppurative processes in the middle-ear cavity. The short and straight eustachian tube in the child is readily conceded to be one of the important causes for the frequency of middle-ear infections in childhood; the contiguity of the mucous membrane lining the nasopharynx, eustachian tube and cavum tympanum is also a vital feature in the frequency with which middle-ear diseases occur as sequelæ following the anginas and acute infectious inroads of the mucosa in the exanthemas. The use of nasal douches, violent blowing of the nose and even the ordinary physiologic acts of sneezing, coughing and deglutition are frequently aids to the forcing of infectious material through the eustachian tube into the cavum tympanum.

In summing up the various factors which contribute to invasions by pathogenic microorganisms of the cavum tympanum we must not fail to mention the lymphatic and vascular connections between the nasopharyngeal areas and the lymphatic ring of Waldeyer with the cavum tympanum.

Conceding the many points of vulnerability to bacterial invasion of the tympanic cavity from the upper respiratory tract, our next step is to trace the further development of the various types of pathogenic bacteria which find their way into the cavum tympanum.

Suppurative otitis media is simply a generic classification of the many varieties of pus-producers which may invade the middle-ear cavity. On the virulence or activity of the specific coccus or bacillus responsible for this suppurative process will depend the frequency, severity and rapidity of extension of such an active destructive process into the surrounding vital intracranial tissues.

The shape and small capacity of the cavum tympanum admits of but a small quantity of fluid contents, as scarcely eight or ten drops of fluid will completely fill it. As serous exudates and pus accumulation are sometimes developed in a few hours with astounding volume, a fluid or semifluid accumulation in the middle-ear cavity must find a natural vent. The only two normal connecting areas with the cavum tympanum are the eustachian tube and the aditus ad antrum.

In active and acute infections in which pus has found its way into the middle-ear cavity *via* the eustachian tube, its drainage by this natural channel into the nasopharynx is usually cut off because of the swollen and inflamed character of the mucosa lining the tube and consequently blocking its lumen. As the fluid contents of the middle-ear cavity increase in quantity, the only other natural avenue of escape is by welling up into the attic and through the aditus into the mastoid antrum and its surrounding honeycomb of cells. If the mucosa that lines the tympanic cavity, the aditus and adjacent areas of the antrum and mastoid cells is also swollen similarly to that of the eustachian tube, it may offer a considerable resistance to the escape of pus or other pathologic fluid into the antrum and another exit for the accumulated fluid contents must be mechanically found. This usually proves to be the *locus minoris resistentiae* in the membrana tympani which bulges intensely outward by the increasing pressure of the fluid behind it, and if not relieved by the surgeon's knife, forces an opening in the membrana by which the fluid contents of the tympanic cavity can drain into the external auditory canal.

Let us assume in another instance that the pathologic pus-producing focus in the middle-ear cavity is due to a *Streptococcus pyogenes* or bacillus of influenza, that the two natural avenues of fluid escape (the eustachian tube and the aditus ad antrum) are eventually blocked because of the intense plastic exudate and swelling of the mucosa and that the membrana tympani is unusually resisting and strong in structure, and what would be the result?

Another of the vulnerable areas is now attacked: the tegmen tympani. Anatomists and pathologists have often marveled at the fact that the temporosphenoidal cranial fossa is guarded from invasion, injury and infection that may reach it from the cavum tympanum by so thin and delicate a bone partition as is the tegmen tympani. In the early development of the temporal bone, dehiscences and imperfections in the surface of this thin bone-plate are often found which are retained through life and it is very natural that infectious processes should thus rapidly find their way from the cavum tympanum through the tegmen tympani into the temporal fossa of the cranium. These very dehiscences and imperfections in the tegmen tympani are also frequently responsible for the rapid invasion of the cranial cavity following active suppurative processes in the ear in babes and young children, and for the rapidity with which meningeal symptoms are produced.

The tegmen antri is similar in structure to the tegmen tympani; a thin, weak and occasionally deficient lamina

of bone which walls off the mastoid antrum from the deeper and posterior temporal fossa. It has been asserted by close observers that, with every active and destructive suppurative process that attacks the tympanic cavity proper, the mucous membrane lining the aditus, the antrum and the mastoid cells is also involved, and that exudates in the mastoid antrum occur with even greater frequency than is evidenced by our clinical and surgical data. If this observation can be substantiated, invasion from the mastoid antrum through its tegmen may threaten more frequently than has as yet been determined.

In the acute diseases of the middle-ear cavity which may lead to brain abscess, therefore, the two most vulnerable spots by which infectious matter may enter the brain tissue or its membranes directly are the tegmen tympani or tegmen antri, by erosions or through dehiscences.

Another avenue by which the cerebral fossa may be invaded and one which has been brought more prominently to notice in the last few years because of the distinct advances that have been made in its physiologic and pathologic study is the labyrinth. The pathology of the labyrinth was until recently a very obscure field in otology, but it is patent to every clinician and pathologist in this field to-day that a frequent source of invasion of the cerebral fossa is by an attack of a pathologic focus at the foot-plate of the stapes, the development of an acute labyrinthitis and extension of the process into the cochlea and either directly into the deeper cerebral fossa or by following the sheath of the auditory nerve to the cerebellar area.

There are occasional cases of invasion of the mastoid area, or even of septic foci in the cerebral fossa, which in their origin may defy most expert diagnostic skill and only be brought to light on the post-mortem table. These are the fortunately rare cases in which infection is carried to these deeper structures of the cranium either directly by the lymph-channels or by the blood-vessels in direct communication with the original focus of infection.

In passing, it might be only necessary to refer to the numerous emissary veins by which the lateral sinus may communicate with adjoining vessels; of bone perforations for the passage of nerve branches which may at times be the site of dehiscences where a purulent process may attack the vital areas under consideration from an unsuspected point; the facial canal, a tortuous bony aqueduct which may carry pus along the sheath of the nerve to the deeper structures and may infect the labyrinth and cerebellar fossa; all these are avenues of infection which must be taken in consideration when tracing a suppurative focus from its source.

Until recently abscess of the brain was regarded as a complication to be found almost exclusively in the chronic forms of suppurative otitis media, but as a vast amount of careful clinical observation and corroborative pathologic data are being accumulated we are beginning to realize that the acute and actively destructive pathogenic processes involving the middle-ear cavity are also agents in the production of brain abscess.

For many years we have been guided by the observation that a long-standing suppurative process in the middle-ear cavity with its natural destructive tendencies, bone erosions and necroses, cholesteatoma formations, sinus thrombosis, chronic mastoiditis, with its accompanying granulations and invasion through the tegmen antri of the posterior fossa — in fact, that all these more slowly developing pathologic processes were directly

responsible for the formation of extradural, subdural, cerebral or cerebellar abscess. But it is in the acute types that the more atypical development of brain abscess occurs.

The distinction which may be made between brain abscess developed as a sequel to an acute suppurative process in the middle ear and brain abscess developed as a sequel to a chronic suppurative process in the middle ear is, in my opinion, of as little significance from a pathologic point of view, as is the classification of acute, subacute and chronic otitis media suppurativa. The differentiation of the acute, subacute and chronic suppurative processes in the middle-ear cavity is largely a chronologic one and depends pathologically on the amount of tissue involved and destroyed and on the rapidity and virulence of the microorganism producing it. So, too, a brain abscess produced as a sequel to an acute suppurative focus in the middle ear, even if small in size, but dependent on an active streptococcic invasion, may be more serious and destructive and more frequently fatal in character than a brain abscess of large size produced by a less active staphylococcus where the abscess formation may have existed for months.

When we consider, therefore, irrespective of the fact that the invasion of the middle-ear cavity may be acute or chronic in character, that there is frequently an imperfect development of the tegmen tympani or tegmen antri; that the knee of the lateral sinus may encroach markedly on the posterior wall of the mastoid antrum; that the floor of the middle-ear cavity may be incomplete and imperfect and in close touch with the jugular bulb; that the petromastoid and petrosquamosal suture may remain unossified for many years; that emissary veins and small vascular and lymphatic vessels may be anomalously found throughout the depth of these areas, we are justified in our conclusion that there is an enormous possibility in both acute and chronic processes for extension of disease from its primal focus in the middle ear to its surrounding intracranial areas.

If it has been the consensus of opinion so far that brain abscess in its various types has been more frequently determined in chronic than in acute suppurations of the middle ear, is it not possible that the avenues of infection which are so numerous and often so anomalous have not as yet been perfectly understood?

The various types of brain abscess — (1) extradural abscess, (2) subdural abscess, (3) cerebral abscess, (4) cerebellar abscess — considered as sequelæ of middle-ear diseases are simply pathologic entities which differ in location, size and rapidity of development and are dependent on the intensity of the inflammatory process, virulence of the pathogenic organism producing it, resistance of the involved tissues and activity or chronicity of the original pathologic focal point.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. M'KERNON, DERCUM AND GOLDSTEIN

DR. JOHN H. GIBBON, Philadelphia: Most of us who do much brain work feel, I think, that probably we are less certain in this field than in any other—and our mistakes come up before us when it is a question of localization of brain lesions. I remember twelve years ago a case in which a woman had middle-ear disease on both sides and all indications pointed to location of an abscess on one side; I made a complete exploration and found no abscess; the woman died and the lesion was found to be on the other side. Now that is an experience which a good many of us have had. It is a difficult point, too, and needs elucidation, whether the abscess

is in the temporosphenoidal lobe or cerebellum. We have a better opportunity, I think, to say whether a tumor is located in one of these two positions than we have in the case of an abscess, and yet even in the question of tumor we are often mistaken. I recently made an exploration of the right hemisphere of a brain which another surgeon had previously examined, and neither of us found the tumor, though unquestionably the patient had one and at necropsy it was found to be in the cerebellum.

One point brought out in the paper by Dr. McKernon, which, of course, most operators appreciate now, and yet not all, is the mistake of exploration of the brain without reflection of the dura. One may feel a little safer without making a dural flap, but it is far better to have a large opening and make a dural flap. In the other method there is very apt to be an infection of the space between the brain and the dura and even when the flap is reflected the space should be thoroughly protected by gauze packing; I know of nothing more important than this. Of course, if the plan of Ballance is followed of doing the operation in two stages, this danger is largely obviated.

We have made the mistake too often of packing these cavities with dry gauze and medicated gauze, especially iodoform gauze. It is not the fault of the gauze but the way in which it is used. It is a mistake our dental friends make so often, that of packing a piece of cotton into an alveolar cavity. It acts as a dam. The tube, on the contrary, is hard and in the acute abscess cases is capable of doing damage. I consider the cigarette drain—not just a small piece of gauze—the best of all. It is not a cigarette drain until it has its covering of rubber or gutta percha tissue. Then we get capillary drainage, and that is the important matter, in organs like the pancreas and the brain. It should be put in gently and not packed tight.

DR. GEORGE F. COTT, Buffalo, N. Y.: The first one hundred radical operations I did showed eighteen epidural abscesses from not one-half of which were there symptoms. In one patient, the only symptom of intracranial trouble was that he could not speak. On opening that patient's skull we found pus in the anterior fossa, covering the anterior half of the brain. Another patient came to the hospital and walked to the operating-table with no symptoms at all, not even pain or rise of temperature, and we found an abscess bathing the whole of one side of the brain, and at necropsy we found an enormous amount of pus. Both of these patients, however, were syphilitic.

Another patient, sitting in a chair when I was called to see him, had deep-seated pain, a temperature of 104, and had had chronic middle-ear suppuration for many years. In this case I expected to find epidural abscess. I operated and did find an epidural abscess, and pus in the lateral sinus. He apparently had no symptoms except the deep-seated pain. After operation he began to have typical temperature of phlebitis.

Another patient, a boy of 12, I saw in the afternoon and operated on the same day. He simply complained of not feeling able to be up; no other symptoms. He had chronic middle-ear suppuration. Radical operation was done and simply a thickened dura found. That night at 10 or 11 o'clock he suddenly stopped breathing and artificial respiration was carried on for about an hour, but the patient died. Necropsy showed a cerebellar abscess which had apparently no connection with the middle ear.

Another man complained of dizziness and had had chronic middle-ear suppuration for forty-eight years (he was then 49) and no other symptoms, except that occasionally he had attacks of vomiting. We examined the labyrinth and found total deafness and the labyrinth negative to the caloric and turning tests. Apparently the labyrinth had not been acutely involved. So we did a radical operation. The next day the patient said he felt well enough to get up and break stone. Two weeks later he was brought back complaining of giddiness again. There was no nystagmus and in a week he was sent home again. Five weeks later he came back again saying that he was suffering with dizziness and vomiting. He was brought in on a stretcher. We then found nystagmus to

the diseased side and we made a diagnosis of cerebellar abscess. We wanted to operate the next day but he died that night in a great deal of pain. At autopsy we found a cerebellar abscess without any direct connection with the old diseased bone, simply thickened dura.

DR. C. F. WELTY, San Francisco: The diagnosis of brain abscess has been materially improved and made easy within the last five years. I expected something from Dr. Dercum whereby we would be enabled to put our finger on the thing, say definitely here it is and we can operate in one case; let this alone, do not operate in another, but he does not give us anything of the kind. When I was *voluntär assistant* for almost two years in the University Ear Clinic at Vienna, we called in neurologists to assist us and we were more retarded by their advice than helped. Neumann says if you wait for the classical symptoms to develop the patient is beyond help. You must operate on the slightest suggestion; Dr. McKernon says "I have opened the brain several times, failed to find any abscess, but the patient recovered." If you delay in these cases they certainly go to fatal termination provided they have serious trouble. Dr. Dercum did not lay sufficient stress on localized pain. That is one of the very important findings, and must not be ignored. When you have the association of vertigo, vomiting and nystagmus, he says differentiation between cerebellar and cerebral abscess is hard to make. From a pathologic standpoint, the diagnosis can be made easily. Dr. Dercum is not familiar with the excellent work of Barany, which is world-wide and far-reaching. With his work before us it is possible to make the differentiation easily.

I had operated on a patient; two or three weeks afterward I received a message that the patient was paralyzed. The operation was on the left ear. Probably Dr. Dercum can help me out in this before I tell him what happened. She had not felt able to get up in the morning and at 6 in the evening she was paralyzed completely on the right side and had complete aphasia. The woman was a Russian and I could not talk to her. She was sent to the hospital at once and a neurologist was sent for. He diagnosed abscess in the middle lobe, which was my diagnosis also. The patient was operated on the following morning. I put a knife in six different places and there was no pus anywhere. I put in drainage-tubes and closed the wound and the patient recovered. What was the lesion?

DR. S. MACCUEEN SMITH, Philadelphia: A patient with multiple abscess of the brain was operated on for chronic suppurative otitis media, practically without symptoms other than otorrhea. During the operation we found a quantity of pus coming from the tegmen antri. Further exploration showed it escaping from the temporosphenoidal lobe, through a carious opening. The opening was enlarged which allowed the escape of an additional amount of pus. The patient progressed nicely for three weeks, at the end of which time she had convulsions, nystagmus and unconsciousness. She was taken to the operating-room and through the initial opening we introduced the knife anteriorly and evacuated pus from the frontal region. All went well for three weeks more, and then she had a repetition of the symptoms. The knife was introduced posteriorly through the same initial incision and pus was again evacuated from the occipital region. It will be noted, therefore, that pus was evacuated three times and the patient made a good recovery. I cite the case to suggest the adoption of the use of the knife, instead of probes or exploratory needle, or forceps.

I believe, with Dr. Dercum, that the previous history is a matter of much importance. Notwithstanding that there may be recurrent types, I believe, with him, that we frequently find that the abscesses in the chronic cases may have existed for a long time. I recall one case in which there were no symptoms referable to the ear for twelve years, but there had been recurrent attacks for fifteen or twenty years previously. I believe that in cases of suspected brain abscess formation, we are justified in looking for it in the temporosphenoidal lobe, because that is the usual site of involvement, and if the symptoms do not definitely indicate cerebellar involvement, we are justified in expecting to find it in the former place.

I do not think I ever saw a case of brain abscess in which the patient did not have persistent headache to some degree. Given a patient suffering with continued headache, accompanied by convulsive movements, with a history of previous ear disease, we should certainly suspect intracranial abscess formation. I lay little stress on absence of pressure symptoms. In a certain percentage of cases we do not have symptoms of low pulse, temperature, etc.

DR. W. P. EAGLETON, Newark, N. J.: From several operations on temporosphenoidal lobe and cerebellar tumors, I am persuaded that the reason the diagnosis of brain abscess is so difficult is that the average otologist does not give the proper time to the neurologic examination of cases. Few of the symptoms of brain abscess now recognized are really taken account of by the otologist. I observed in the operations on the temporosphenoidal abscess a symptom, which as far as I know, has been very infrequently spoken of, and which I am persuaded is common; that is, a slight facial paralysis of the supranuclear type, on the side away from the lesion. It does not look like the paralysis from injury to the nerve; it is a slight wrinkling of the face on smiling. In examining my patients who have been operated on for mastoid disease and have not entirely recovered—who still complain of headache, or vomiting—I am surprised to find how frequently the so-called dreamy state is. I am persuaded that this condition shows an irritation of the dura over the temporosphenoidal lobe. Attacks of convulsions, as Dr. Dercum has said, any convulsion that occurs in an otologic case, should be thoroughly investigated. You should find out if preceding that convulsion there were any subjective sensations of taste or smell. Perversions of sight are very common in these cases. We should always examine, in a suspected case, the hearing on the opposite side. We will often find some perversion of hearing almost always in the early stage of abscess disease. The temporosphenoidal lobe should not be regarded as a "silent area." Of course, aphasia is common. The headache is always present. A great many of our mastoid cases go on for years with the same thing. The vestibular apparatus covers the whole field of the cerebellum. You must pay attention to the coordination of induced nystagmus. Many of the otologic cases with headache and running ear have this perversion of the pointing sense.

The Babinski sign is important following an attack of epilepsy. Recently lumbar puncture has been of importance to me in diagnosing between serous meningitis and abscess of the temporosphenoidal lobe. A child had convulsions of one side and both ears were running; I diagnosed an abscess. There was epigastric reflex present on one side, not on the other. There was spasticity of one leg. I did a lumbar puncture and withdrew fluid under tension. Immediately the symptoms of spasticity disappeared, showing that it was simply a form of edema. I opened both ears and did not go into the brain. The child died and it proved to be a serous meningitis. Many of the symptoms may be due to edema.

DR. C. R. C. BORDEN, Boston: I call attention to the examination of the opposite mastoid. I have had access to 452 autopsies in cases of diphtheria, scarlet fever and measles. In 202 cases the middle ear, mastoids or both were found to be involved. In the majority of cases the symptoms were not recognized during life and both middle-ear inflammation and mastoiditis were more commonly bilateral than unilateral. In fifty-nine mastoids which occurred in this series, only six were recognized and operated on. Thus it is perfectly possible to have acute mastoiditis present without apparent special diagnostic symptoms. The middle ear and mastoids were involved in 82 per cent. of the diphtheria cases, in 94 per cent. of the scarlet fever cases and in 100 per cent. of the measles cases.

I cite these statistics in order to emphasize the possibility of middle-ear and mastoid disease being active and present and still be unrecognized in spite of careful examination on the part of the attending physician. As we naturally expect to have mastoiditis as a primary cause of brain abscess, we must determine if possible the condition of both mastoid cavities, whenever the localizing symptoms of the brain

abscess are obscure. In the event of doubt as to the mastoid condition on one side or the other, I believe we are called on to open up the mastoid cavity, and examine it thoroughly, lest the focus of infection be located therein.

DR. LEE M. HURD, New York: Next to the otitic origin of brain abscess comes that of the accessory nasal sinuses. Middle-ear disease in a considerable number of cases is due to these accessory sinus infections and the same is true of abscess of the frontal lobe. Stucky has reported a number; so has Coffin, and I have reported a few. But it is difficult to differentiate the frontal lobe abscesses from those of the temporosphenoidal lobe. The nasal accessory sinuses should always be examined carefully in these cases.

DR. G. W. MCKENZIE, Philadelphia: No disease has such various symptoms as cerebral or cerebellar abscess. Brain abscess passes through four stages: initial, latent (which may be prolonged), manifest stage and terminal stage. Cerebral abscess of otitic origin is often accompanied by other complications, epidural abscess, sinus thrombosis or meningitis. We may, therefore, have symptoms not due to the abscess itself, but to the products of the pus-symptoms from pressure, where the abscess is large. Then, symptoms of the opposite side may be caused by pressure on the medulla at the foramen magnum. Of course, later we generally get meningitis. One of the most important works written on this subject is that of Neumann (1908), in which he pointed out the differential value of nystagmus and equilibrium disturbances. When a patient has had, for instance, a previous abscess of the inner ear with symptoms of nystagmus to the well side, combined with other symptoms, such as headache, and develops nystagmus to the diseased side, it is almost proof positive of the cerebellar abscess.

I have studied several cases in which the great variability of the nystagmus struck me. On the same day the patient had had nystagmus at one time to the well side, and at another to the diseased side. Another important sign is that the nystagmus of the internal ear is generally rotatory, while that of the cerebellum is more apt to be horizontal. Localized tenderness is a valuable sign, but it is not to be associated with epidural abscess. Headache may be very variable. I have frequently found frontal headache with cerebellar abscess.

DR. E. L. BULL, Jersey City: A man, aged 30, sent to me by his family physician who had treated him for a long time for very severe headaches on the right side, had had a running ear since childhood. The headaches were very severe and localized in the temporal region, on the right side to a point that the patient said he could cover with the end of his thumb. This case was observed for two weeks, when the patient came to the office insisting that something be done, as he could not stand the pain. He was sent to the sanatorium and prepared for an intracranial operation, but when a radical was done and the tegmen antri and tegmen tympani found normal, the operation was stopped. The patient made a perfect recovery and the headaches entirely disappeared. He had at the same time complained of asthenopia, which also disappeared after the operation.

A child of 5 years was brought into St. Frances Hospital, Jersey City, by its mother for what she thought was a boil back of its ear. An intern opened the abscess, and in a few days, as it continued to discharge, he asked me to see the case. On passing a probe into the incision made back of the ear, dead bone was encountered and the probe passed into a cavity of considerable size. We then learned that three months previously the child had had measles and had had a running ear since that time. There was no history of earache and the child had had no pain since entering the hospital. I thought the trouble a simple mastoiditis. On operation complete destruction of the mastoid was found; the floor of Troutmann's triangle was completely destroyed, and the posterior canal wall was picked out as a sequestrum; Nature had done a complete radical mastoid operation. On removal of the overhang posteriorly in the region of the sinns a large extradural abscess was opened.

The cavity was packed and drained and the child made an uneventful recovery.

DR. ANDREW TIMBERMAN, Columbus, Ohio: Schwartz once said to me, what he afterward said in his most admirable work, "Die chirurgischen Krankheiten des Mittelohrs," that all the symptoms of an abscess might be present and yet no abscess be there—that there might be no symptoms of an abscess, and the abscess still be there. After that dictum I have felt rather easy when I have found that I had made a mistake, especially when I had called a neurologist in consultation. When I heard Dr. Welty say that the diagnosis was very easy I thought a new light was coming into the otologic world, but he spoiled the whole thing by reciting his last case. One of my troubles is this: a case of chronic otorrhea, probably due to measles or some other infectious disease, with discharging ear—practically nothing else. Under treatment its progress is arrested, but not cured. A sinus may lead into some portion of the middle ear. In spite of a few weeks' or even a few months' treatment, the sinus persists. The patient wants to get rid of the discharging ear and we decide that the only thing to do is a radical mastoid operation. We do it. The operation goes nicely; the patient apparently gets better, and then suddenly develops that persistent lancinating pain which he describes as making him feel as if his head would burst. There is a slow pulse—a pulse that Schwartz calls relatively slow. A patient with a fever of 101 ought to have a pulse faster than 72 or 80; if he has no fever, he should have a faster pulse than 50 or 60. With the development of these symptoms and others, we diagnose brain abscess which sometimes we find and sometimes we do not find, but my trouble is this: Was the brain abscess there before I operated or is it there as the result of my mastoid operation? I had one case in which I persisted in the diagnosis of brain abscess when the surgeon and neurologist were against me. I stuck to it because of the blood count: not a high leukocytosis, but a low one, and I had the temerity to say that it was a chronic abscess. The necropsy revealed an encapsulated abscess.

DR. HERMAN JABECKY, New York: An emergency case was referred to me at the Sydenham Hospital, in which the young man was in a condition of collapse. He had had headaches for a few weeks. Two days previously he had gone to the dispensary and had had one ear opened and drained, but the headache persisted and he had vomiting spells and slight fever with relatively slow pulse and then complete collapse. The pupils were unequal. I decided that it was a brain abscess and operated immediately. I did a radical operation and found nothing in the mastoid. I opened up the space above and there was nothing wrong with the dura. The only place where pus was found was in the zygomatic arch. I did not interfere with the dura at all. In two days the inequality of the pupils disappeared, pulse became normal, dizziness disappeared, and in three days the patient could sit up and in a week was out of bed. He made a rapid and complete recovery. He had the classical symptoms of brain abscess, and yet pus was found only in the zygomatic arch.

We have not yet reached the point where we can say with absolute certainty that a patient has abscess of the brain or not. Opening the dura would not have helped me in this case at all. Some years ago I saw an old chronic ear case in one of our public hospitals with symptoms among others of marked dizziness, staggering gait and falling backward; diagnosis of abscess was made. The general surgeon operated and did not find an abscess. Autopsy, however, disclosed an abscess. The symptoms are certainly very varying, and each case must be studied on its own merit and we must have every aid, including that of the neurologist, to help us in making a diagnosis.

DR. W. A. POTTER, Detroit: It has been proved by men in the Vienna school that the majority of cerebellar abscesses are complicated by labyrinthitis, acute or chronic. To differentiate cerebellar from temporosphenoidal lobe abscess, if we test out the labyrinth and find no nystagmus on caloric and none on turning and no fistula, our attention is immediately directed to the cerebellum, but if the labyrinth is active our attention is immediately turned to the temporosphenoidal lobe. Following the cases from this standpoint, if we do not find what we are looking for at the operation we are not in disgrace.

DR. J. A. STUCKY, Lexington, Ky.: It is not sufficient just to make an occasional differential blood-count. We all know

that often the diagnosis of intracranial complication is made by exclusion. We have the psychic symptoms, with peculiar headache and the modified slow pulse, etc., and still we are not sure as to whether we are justified in doing an exploratory operation and here is where the differential blood count made daily or twice a day will help us in reaching a decision. On three occasions I have opened the temporosphenoidal lobe and found pus on only the laboratory findings. The leukocytosis had suddenly decreased and the polynuclears increased. We do not place too much importance on a high leukocytosis, but when that begins to decrease and the polynuclears to increase we know our patient is absorbing rapidly and after excluding everything else we are justified in doing an exploratory operation. I have discarded gauze entirely in drainage. Ballance taught me several years ago that two or three small drainage tubes were far better than one and I still believe that is so. Two or three cigarette drains are better than the small rubber tubing. And since I have been using the cigarette drain I have not had hernia complications.

We must always have atypical cases. Three weeks ago I operated on a young man with no symptom except discharging ear and slight pain in the head. I found in exploring the temporosphenoidal lobe an abscess the size of a pigeon egg. A week later there was return of the headache and the patient went down rapidly. Autopsy showed complete degeneration of one-half of the brain although there were no focalizing symptoms.

DR. M. M. CULLOM, Nashville, Tenn.: We have all encountered the type of a mastoid which predisposes to intracranial complications—a mastoid with a small, deeply placed antrum, covered with bone of exceeding density. The bone is of ivory-like hardness with a complete absence of pneumatic spaces. I have always been taught that this condition of the bone was the result of disease, an eburnation of the bone, a rarefying osteitis the result of chronic suppuration. To my mind Mr. Arthur Cheate of London has upset all our theories and rewritten pathology on this point. In his magnificent collection of sectioned temporal bones numbering somewhere near a thousand he has shown that 20 per cent. of all normal mastoids are of this type.

He has named this type of mastoid the infantile type. It has all the characteristics of the infantile mastoid except that the outer antrum wall is greatly increased in thickness and density. Now what is the practical point? It is that infection in such a mastoid may be attended with an utter absence of external physical signs. Tenderness cannot be elicited on account of the density of the wall. Likewise redness and swelling are absent for the same reason, so that necrosis may proceed unperceived by the surgeon. On account of the density of the bone it is unable to extend outward or downward and more readily extends to the middle or posterior fossa.

DR. THOMAS HUBBARD, Toledo, Ohio: The relation of accessory sinus diseases and ozena to mastoiditis and brain abscess is a point that has not been referred to. As otologists we rather neglect routine examination of the nasal fossae in mastoid cases, and especially such examination as would be useful in the study of complications of mastoiditis, such as brain abscess. We rarely find in the general reports of mastoid surgery and its complications reference to special examinations of the nose. Nasal suppuration considered simply as a cause of mastoiditis is of sufficient importance to merit routine study; and occasionally it may be the direct cause of brain abscess, and the mastoid disease a side issue. This subject was brought to my attention in the case of a woman who was in the hospital a few days for acute middle-ear disease, right side, with symptoms of mastoiditis and who escaped from the hospital and disappeared. Her unruly conduct at this time was probably due to cerebral disease. She came to my office ten days later and immediately on examination I realized that she was in a very serious condition. She had several symptoms of brain abscess; slow pulse, sluggish mentality, severe headache (right occiput), and the history pointed to the mastoid as the cause. I learned that only that morning while sitting with her baby in her lap she had indifferently allowed it to slip to the floor and without

heeding the cries of the infant sat dazed and stupefied. I advised her to go to the hospital expecting to operate and find temporosphenoidal abscess due to the mastoid suppuration. The attendant who came with her remarked to me that she had long been fearful that the woman would injure herself as she had often noticed her picking scabs from her nose with a piece of wire. I found that she had an extensive ozena, and considerable areas of excoriated mucosa with granulations were visible in the upper fossa. I didn't hear from her that afternoon and called the next morning. She had died during the night. Autopsy revealed the mastoid cells filled with granulations and pus, but no abscess in the middle, posterior lobes or cerebellum. In the right frontal lobe, however, in close proximity to the cribriform plate there was an abscess three-quarters of an inch in its long diameter—evidently a rather old one as it had a firm wall, and there was an old fistulous lead toward the cribriform plate. In this case it is probable that the source of the brain infection was the nasal fossa and the mastoiditis was incidental. I examined the ethmoidal and sphenoidal sinuses and there was no evidence of chronic suppuration.

DR. W. L. BALLENGER, Chicago: It has been my misfortune to see a number of cases of brain abscess. I say misfortune because in many of the cases I have failed to afford relief. A few years ago we diagnosed an abscess of the brain located in the arm and leg region. We operated and drained the abscess, but the patient died in forty-eight hours. This winter I saw a case of abscess diagnosed by a leading neurologist and myself. There was paralysis of the arm and leg of the opposite side. There were also, in the early history of the case, some very interesting points. The patient had a peculiar gait, followed by complete paralysis of the left leg and left arm. In the early stage of the trouble there was history of difficulty in swallowing and the existence of hoarseness. The neurologist thought the case probably one of abscess of the cerebellum at the pontine angle on account of the involvement of the larynx. There was no nystagmus of any kind. The physician in charge of the case was an intelligent specialist who said there was no nystagmus at any time. This made me doubt the diagnosis of the location. We did not find pus on exploration. Before the patient went home she had gained to a large measure the use of the arm and leg. The patient is still living and is improving somewhat as to the paresis.

I had this winter an interesting series of cases, eight or ten, of mastoiditis, all of which followed acute tonsillitis. There was subsidence of the tonsillitis and then development of mastoiditis and then intracranial complications. These were all in private practice. The series included brain abscess, lateral sinus thrombosis, meningitis, circumscribed meningitis and leptomeningitis. In none of the cases of abscess so diagnosed were we able to drain the abscess. I consulted a neurologist who thought one case to be temporosphenoidal abscess. We explored this lobe and then went through the tentorium but did not locate an abscess. I made a lumbar puncture and found the fluid loaded with pus. The patient died in forty-eight hours of meningitis.

As to the value of the nystagmus as diagnostic between cerebellar disease and labyrinthine disease: the nystagmus of cerebellar disease is usually of increasing intensity, whereas in acute destruction of the labyrinth it diminishes in intensity and ceases in a few days. That is a point that may aid us sometimes. And so the pointing test of Barany is of immense value.

DR. C. M. MILLER, Richmond, Va.: I had a few years ago what was to me something new. I was called in consultation to see a young man who had distinct mastoiditis, very acute, not chronic, bulging drum, etc. I made a free incision, and insisted on immediate mastoid operation. The patient was timid and refused surgical aid. His physician, who was a relative, persuaded me to continue in the case and treat it. Finally the patient was able to go around and at the end of ten days, though there was still tenderness, sagging of the posterior wall, etc., he was able to go to his office and attend to business, but after a few days he decided to go to the hospital for operation. We had made an exhaustive history

of the case. He thought he remembered in childhood having had a running ear for a short time. We opened the mastoid and cleaned it out but did not lay bare the dura at any point; on uncovering the lateral sinus it was found to be healthy. Early in the morning of the eighth day after operation I received a hurry call saying that the patient was suddenly stricken unconscious with stertorous breathing and slow pulse. I told them to put him on the table and have him ready for operation. I removed a large part of the squamous plate and found the dura as hard as the skin over the bone. I made a crucial incision $1\frac{1}{2}$ inches in each direction and there was voluntarily extruded an encapsulated abscess 2 inches in its greatest diameter and over 1 inch in its smallest, oval in shape; at the point nearest the petrous portion there was a necrotic spot a half inch in diameter. The pathologist made a diagnosis of encapsulated abscess not less than six months old. Now there was no history except this vague one of running ear during childhood; no symptomatology during this attack except that the patient complained of occasional photophobia; fundus oculi was not examined. He died in twelve hours with temperature rising to 106.5.

DR. MAX GOLDSTEIN, St. Louis: In this discussion all opinions seem to point to the indefiniteness of diagnosis. All seem to agree as to surgical points, technic, etc., but the great stumbling-block is diagnosis. Almost all of the cases that have been specially mentioned have been atypical cases. It seems that nearly all the cases of brain abscess are atypical. I do not think the difficulty of diagnosis obtains in apparently typical brain abscess. Until we can arrive, from further data, at a more substantial conclusion as to what constitutes a real symptom-complex in brain abscess, we will continue to have difficulty in reaching a standard by which we can agree as to when to operate and when to wait, or how to differentiate the various types. Too little stress has been laid on the question of destruction of the labyrinth. The labyrinthine research of the last five years, of Barany, Neumann, Alexander and others has been so excellent and active that much valuable information has been obtained, and the diagnosis of labyrinthine diseases and their relations to intracranial complications may now be determined with considerable less difficulty.

DR. JAMES F. MCKERNON, New York: In Dr. Goldstein's paper he mentions that one of the causes of intracranial complications is the dehiscences in the bone. Eight years ago I presented a communication to the American Otological Society on primary bulb thrombosis in children and called attention to the fact that one of the pathways of infection was the presence of these dehiscences in the floor of the middle ear. During the past year and a half I have been making investigations to substantiate that theory. We have had 166 autopsies and in that series there were dehiscences in 28 per cent., leading from the floor into the jugular bulb. It is not probable that they all remain there during life, but it is possible that some of them do and that that is the pathway of infection in these cases. I thank Dr. Gibbon for bringing to my mind one point, and that is protection of the dura at the time of incision. We do protect it, not only with gauze, but cover that with rubber tissue.

DR. F. X. DERDUM, Philadelphia: I recognize fully the importance of determining the labyrinthine condition, but that, of course, is the business of the otologist and not of the neurologist. With regard to the diagnosis of brain abscess, the use of brain puncture, as practiced by Foerster, Pfeifer and others, might now and then in brain tumor prove of value, but it is a dangerous proceeding in brain abscess because it may lead to increased spread of the mischief.

The symptomatology is very different from brain tumor. In brain tumor the diagnosis is very much more clear and definite. We can make out the localization of the growth in many cases, but we frequently fail when the question of brain abscess comes before us. Otologists see, of course, more cases of brain abscess than the neurologists. The latter see them generally when called in by the otologist or general practitioner.

With regard to diagnosis, it seems to me we should perhaps study the nature of the disintegrating process in the brain,

its chemistry, etc. We know that the pus of brain abscess is peculiar in several respects. We know the patient has a condition of mental confusion which is not caused by pressure, but doubtless is due to some toxic agent that is being secreted. Another symptom is that peculiar fetor of the breath with which we are all familiar and which probably also has to do with this toxic agent. This is not present in brain tumor or thrombosis. We must look to our chemists to give us some additional information for we need something more definite on this subject.

THE RELATION OF NASAL CONDITIONS TO ASTHMA

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Asthma is a condition or symptom-complex characterized by intermittent paroxysmal dyspnea and vasosecretory disturbances. As yet, so little is positively known of its etiology and pathology that great differences of opinion exist as regards an exact definition of the affection.

So-called cardiac and renal asthma are not considered in this discussion, since they are not true asthma but rather dyspnea, and are clearly distinguishable from asthma proper.

The principal pathologic conditions exhibited by an attack are spasm of the bronchial and other respiratory muscles, especially the diaphragm, and turgescence, edema and hypersecretion of the mucous membranes of the respiratory tract, resulting in extreme emphysema of the alveoli.

Of the 200 cases diagnosed as "asthma" at St. Mary's Hospital (Mayo Clinic) during the past three years, in sixteen there were lesions of the heart, lungs or kidney sufficient to give symptoms overshadowing those from all other sources. Some of the patients also had pathologic conditions in the upper respiratory tract of secondary importance, which may have contributed to the symptoms.

In 184 of the series the principal lesions were found in the nose, in the accessory nasal sinuses or in the nasopharynx. One hundred and fifty-seven of these had evident purulent, mucopurulent or seropurulent discharge in the nostrils or in the nasopharynx.

Fifty-eight had polypi in one or both nostrils, fifty-two had polypoid degeneration of the mucous membranes of the middle turbinates, and one of the ethmoid region.

Sixty-three patients had suppuration of one or both antra, and in nineteen antra which produced no pus on irrigation were dark on transillumination. In some of these cases there was undoubtedly an inflammatory condition of the antrum without the accumulation of pus.

Twelve children, from 11 months to 11 years of age, had large tonsils and adenoids, associated with, and probably in most cases the cause of, chronic edematous rhinitis.

One hundred and thirty-eight of the 200 patients under observation have been treated by operation, local applications in the nostrils or by irrigation of the accessory sinuses.

Reports from 104 patients, treated more than six months ago, have been received and tabulated as to results, without regard to the extent to which the treatment had been carried. In several instances, only a single treatment had been given, or, an operation had been performed and its object not assured for want of

after-care. Other patients who were free from symptoms for from six months to one year had suffered recurrences and are here classed according to their present condition. Most of these patients are non-residents and many are in such circumstances that they are unable to remain or to return for satisfactory treatment.

Although the tabulation does not show it accurately, a study of each individual history indicates that, almost invariably, relief of the asthmatic symptoms corresponds in degree to the extent to which the pathologic conditions in the nostrils, nasal sinuses and nasopharynx have been improved. This response of the more general symptoms of asthma to strictly local treatment in the upper respiratory tract confirms the opinion which the constant association of lesion in that region with asthma has given, viz., that these lesions are the cause of abnormal systemic condition and that asthma is the manifestation of that condition.

Since the publication of the results of experiments in anaphylaxis by Theobald Smith, Otto,¹ Rosenau and Anderson² and others, the theory that in anaphylaxis is to be found the explanation of the occurrence of asthma has been advanced by Meltzer³ and others. Auer and Lewis⁴ have demonstrated conclusively that the dyspnea which is the chief manifestation of anaphylactic shock is produced by stenosis of the bronchioles, by spasm of

RESULTS, AFTER SIX MONTHS, OF THE TREATMENT OF
104 PATIENTS

	Entirely Relieved	Markedly Improved	Slightly Improved	Not Im- proved	Total Number
Local applications or irrigations of the accessory sinuses	8	11	3	4	26
Operations on polypi, middle turbinals or ethmoid	11	11	13	15	50
Operations on the antra, one or both	5	5	1	0	11
Operations on antra and middle turbinals and ethmoid	2	4	2	1	9
Operations on inferior turbinals or septum	0	1	0	1	2
Operations on tonsils and adenoids	5	0	0	1	6
Totals	31	32	19	22	104

the circular bronchial muscles, and that, while this stenosis is associated with, it is not dependent on, spasm of the diaphragm, since it can be produced separately. This muscular spasm and the resulting emphysema can be produced in the absence of the central nervous system, thus proving that it is not a reflex but a local reaction to systemic condition.

Exactly the same condition of the lungs exists during a paroxysm of bronchial asthma, and thus it is reasonable to assume that in asthma also the reaction is due to the effect of a general condition on the muscles or nerve-endings of the bronchioles, and that a reflex neurosis is of a secondary importance and not essential to the production of the symptoms of asthma.

It has been proved experimentally for hay-fever and the asthma that accompanies it that, on the introduction of a minute quantity of the toxalbumin of the pollen into the blood of an individual subject to those affections, the symptoms of hay-fever and asthma appear, while in the normal individual no reaction occurs. The same has been found to be true of the emanations of animals in the cases of those sensitive to them. The sensitization

has undoubtedly taken place by previous entrance of a foreign proteid into the blood or by heredity, which is an active factor in both asthma and anaphylaxis.

More numerous and more serious are the cases which require the presence of no external irritant to produce the symptoms of asthma, but in which also the symptoms are exactly similar to the anaphylactic reaction. So it is reasonable to assume that in the cases considered as idiopathic asthma there occurs the entrance of a foreign proteid into the blood in some way not yet demonstrated.

It has been found that a foreign proteid capable of sensitizing the individual and later of producing the anaphylactic shock may result from autolysis of retained placenta or other tissues. The frequency with which retained and altered mucoid and purulent discharges are found in the nostrils or nasal sinuses suggests that here is the site of the production and entrance into the blood of the foreign proteid which produces the anaphylactic reaction in these cases. The quantity of the foreign proteid necessary to sensitize and later to produce the anaphylactic reaction in a susceptible individual is so small that the known absorptive powers of the nasal mucous membrane could undoubtedly pass it into the blood under suitable conditions. Moreover, the reaction has been produced experimentally in guinea-pigs by the inhalation of animal emanations followed by the injection of serum from animals of the same species.

The results of treatment of nasal conditions in asthmatic patients present still other analogies to anaphylaxis. Operation to establish free drainage and aeration of the mucous membrane of the nose and accessory sinuses prevents retention of secretions, while in other cases the same may be accomplished by local treatment to stimulate profuse discharge so that secretions are washed away before autolysis occurs. This prevents the formation and intermittent absorption of the specific foreign proteid which causes the anaphylactic reaction, commonly known clinically as asthma.

So long as secretion and drainage are free and continuous, relief from asthma will be complete, but recurrence will usually result from the interruption of drainage even after long periods of immunity from symptoms.

FURTHER EXPERIENCE WITH ENDOBRONCHIAL THERAPY OF ASTHMA

WOLFF FREUDENTHAL, M.D.

NEW YORK

In the cure of bronchial asthma a great many factors have to be eliminated before we decide to resort to endobronchial treatment. The first to consider is the psychic element, which is manifested so strikingly in all those cases that can be influenced beneficially by suggestive therapy. It is these which furnish the wonderful results that are triumphantly recorded by ignoramuses and charlatans. But the large majority of cases demand every resource of medical science which too often is only very difficult to bestow.

In a previous communication, I gave a brief historical review of the excellent showing made by laryngologists in the cure of asthma. Names like Voltolini, B. Fraenkel, Hack, Bosworth and others will bring back to memory some phases of what has been accomplished in the past. They and many others have demonstrated that asthmogenous points may be found in the nose and throat (nasal polypi, spurs, adenoids, etc.), and that by removing the existing pathologic conditions, we may and do rid a number of asthmatics of their trouble. These

1. Otto: Handbuch der path. Mikroorganismen, 1908, ii, 255.
2. Rosenau and Anderson: Arch. Int. Med., 1909, iii, 518.
3. Meltzer: THE JOURNAL A. M. A., Sept. 17, 1910, p. 1021.
4. Auer and Lewis: Jour. Exper. Med., 1910, xii, 151.

are established historic facts which cannot be disputed. But many other chronic diseases may reflexly lead to asthma. Thus, Carl von Noorden but recently drew attention to the frequency with which asthma is associated with eczema, although the same observation had been made long before. Furthermore, affections of the uterus and its adnexa or of the stomach and lower digestive tract may prevent the cure of an asthmatic patient, no matter how successful treatment has been otherwise.

If in spite of every precaution, i. e., a thorough examination of all these organs followed by treatment of any existing disease, the patient is still suffering from asthma, the physician is not only entitled, but morally bound, to put him or her to some more inconvenience, i. e., directly to inspect the bronchi, which, after all, are the real seat of the disease. In doing this one will note that the so-called asthmogenous points are to be found here as well. Many pathologic conditions will be disclosed, and it will be, as it was in the beginning of the laryngologic era, when, for example, a case of hoarseness was not only treated with ammonia and blood-letting, but was really "demonstrated *ad oculos*." It will repay the practitioner scientifically to do bronchoscopy, for it is most interesting work. Thus far, however, some physicians are opposed to this procedure in cases of bronchial asthma. They know the difficulties and dangers of bronchoscopy in cases of foreign bodies, but have not learned of its use for other purposes. In the many cases in which I have used this method under local anesthesia I have not seen the least danger result from it. Besides, with a little good will and cooperation on the part of the patient, it is not even painful. It is in such diseases as asthma, however, that we have a great variety of patients to deal with. Thus, if a badly behaving person coughs into your face even on examination of the pharynx, you will not be able to resort to bronchoscopy at once. On the other hand, I have done bronchoscopy on hysterical patients without any anesthetic whatsoever. These are extremes which encompass all shades and varieties. As a rule, however, I do bronchoscopy in my office and the patients can go home at once. The physician has to exercise a great deal of tact to gain the confidence and cooperation of the patients or else they will not respond and be helpful to him, and he will surely not benefit them.

Now, what pictures do we see endobronchially? Does this method confirm our former knowledge of the morbid anatomy of the disease? Asthma being to a great extent a functional affection, no gross lesions were formerly found while other signs were perceptible mostly *intra vitam*. In pronounced cases, bronchitis is almost invariably associated with the asthma. Endoscopically, therefore, the mucous membrane will be found more or less swollen, often to such a degree that the cartilaginous rings cannot be seen at all. This swelling is sometimes so pronounced that it bulges into the lumen of the tube and for a moment one may be in doubt whether one is in the trachea (bronchi) or esophagus.

As the carina (bifurcation) is but little marked in such cases, it may happen that one passes the bifurcation without being aware of it. In the smaller bronchi this condition is even more pronounced, so much so that occasionally—as has been pointed out before—the orifice of a smaller bronchus does not appear larger than the head of a small pin. In such a case, the diameter of the bronchus may not show any difference during inspiration and expiration. Von Schroetter observed even the reverse of the normal condition, i. e., during inspiration the

swollen mucosa was sucked in and the lumen of the bronchus thus closed, all owing to decreased inspiratory pressure.

The rhythmic contractions of the trachea and bronchial ramifications are at times seen very plainly, but again may be hardly noticeable. The same holds good of the respiratory excursions of the bronchial tree. In no case of asthma have I ever seen the bifurcation move forward and downward, as it does normally.

Spasmodic contractions of the bronchial muscles are quite frequently noticeable, but generally they can be overcome by the application of cocaine. This contraction is observed even when the patient is breathing quite comfortably, but in such a case only a smaller bronchus is affected. On endobronchial inspection, furthermore, all kinds of catarrhal conditions will be found, represented in bronchitis, from a very slight injection of one small bronchus to a swelling of the entire mucous membrane. It seems to me that the latter is to be found especially beyond the place where the spastic contraction takes place. Thus, we will often observe a capillary bronchitis which is not only due to an inflammatory process, but also to nervous disturbances.

I would emphasize that on inspection of the bronchi, the same conditions will be encountered as in the larynx; one portion is affected, the other not. One bronchus may be seen highly congested and thickened, while the other, right next to it, may have a normal appearance. The belief that in asthma the process must necessarily be disseminated all over the bronchi is erroneous. Occasionally you will also find an ulceration, but that is rather exceptional.

TREATMENT

In a previous paper, I asserted that the introduction of the bronchoscopic tube is in itself of therapeutic value, as it relieves the patient of a great deal of secretion, thus naturally rendering breathing easier. But with clearance of the air-passage the task is not accomplished; there remains, as Berkart¹ calls it, the source of the disease. Now we can reach the mucosa directly and make topical applications. At the beginning of my experiments in this direction I used to limit myself at this stage chiefly to the injection of adrenalin (epinephrin), of which large doses were used. But having since then recognized the great danger of this drug in some instances, I now employ much smaller quantities, viz., 15 to 20 drops of a 1:5000 solution. In addition, many of our old well-established astringents have been applied; for example, nitrate of silver, chlorid of zinc, argyrol, sulphocarbolate of zinc and others. In cases in which the secretion has ceased after repeated introduction of the tube, the insufflation of anesthetic or orthoform has had a very sedative effect.

It is not sufficient, however, to depend solely on local applications, for in asthma, more than in other systemic diseases, the specialist must never forget that he has to treat not a single organ but the entire system. The stomach and bowels have to be regulated, an appropriate diet should be prescribed for each individual case, the amount of work and rest must be determined, etc. By all means, the patient must be shown that you are master of the situation, that he must do what you want him to, and that he is capable of accomplishing it. If he learns to obey you, he will carry out your suggestions and will get well.

After the patient has received a thorough course of endobronchial treatment, there is nothing that will assist

1. Berkart: Bronchial Asthma, 1911.

so much in building him up and completely eliminating the disease as a change of climate. There are many resorts here or abroad that are well adapted for such cases, but the selection of the most suitable is not always easy. It will depend on the physical and mental state of the patient, and on the nature of the complications, anemia, obesity, weakness of the heart, derangements of the digestive organs, diseases of the skin, etc. Each of these affords a different indication. "Thus in the one case alkaline muriatic, in another alkaline saline, in another ferruginous, in still others sulphur or arsenical waters" will give the best satisfaction.

RESULTS

To effect a cure in cases in which all former methods have failed—and of these there are not a few—we welcome any new procedure, however difficult its use. The endobronchial treatment, according to the reports of those who have earnestly tried it, fulfils all we expected of it, and will, I am sure, give even better results in the future. After a somewhat extended experience, I feel inclined to say that more than 50 per cent. of patients treated endobronchially have been cured, and that is conservatively speaking. It must be understood that all these cases had been previously submitted to all other means at our disposal and that topical applications to the bronchial mucosa had been the last resource. Where we succeed in finding the asthmogenous points in the bronchi and are able to treat them directly, we generally get quick results. Where we are unsuccessful in that respect, the treatment is prolonged and the outcome doubtful. Furthermore, if neurasthenia is the dominant feature and asthma only one of the many other symptoms of the underlying disease, our task will likewise be very difficult (Case 4).

A relapse may occur after a year or sooner, but such cases generally yield quickly to treatment. Sometimes one or two local applications suffice to restore the lost equilibrium. But I have had cases in which complete relief from the asthmatic attacks has lasted over two years, i. e., ever since I first began treating asthma endobronchially. I may justly assume that such patients are permanently cured.

During the past year I have treated a number of cases of which I will mention only a few instances.

CASE 1.—Mrs. S. H., aged 48, has suffered from asthma for the last twelve years. Several members of her family had the same disease. She had consulted many physicians here and abroad and had taken cures in Germany, England, Switzerland and Egypt. An area between her shoulder-blades was very sensitive, so sensitive that the bare idea that some one might touch that spot gave her pain. She could not sleep longer than two hours at a stretch and smoked many cigarettes (stramonium). She had five intranasal operations and presented a rhinitis sicca. Treatment was begun September 30. As she absolutely refused to permit any application to her nose, I started at once with bronchoscopy. Half an hour after a hypodermic injection of morphin ($\frac{1}{4}$ grain) the tube was introduced. I did not pass it very deeply at this attempt, hardly reaching the bifurcation, but the patient was convinced that the introduction of the tube was possible and that without much inconvenience to her. By and by the morphin was discarded and only local anesthesia relied on, with the result that I finally could easily explore any part of the bronchial tract. The right side was almost exclusively affected and topical applications of silver nitrate (3 to 10 per cent.) cured this patient in about ten weeks.

CASE 2.—H. L., bookkeeper, aged 36, a nervous wreck, had suffered with asthma for twenty-five years. Endocarditis was

present with anasarca for one year. I had to give him $\frac{1}{3}$ grain morphin besides the use of local anesthesia before bronchoscopy could be done. After several weeks he felt greatly relieved, but the morphin caused a good deal of obstipation, a condition from which he had suffered anyway for years. He had pronounced hemorrhoids, but refused to have them removed. The indication for such an operation was very urgent, as his bowels and stomach were constantly upset. This finally prevented a cure of his asthma and he had to be discharged.

Comment.—This case shows distinctly, as pointed out above, that an asthmatic patient can never be cured unless all abnormal underlying conditions are removed. It is my conviction that this man could have been cured by endobronchial treatment if the hemorrhoids had been removed and his diet regulated.

CASE 3.—Miss R. G., aged 25, had suffered with asthma for the past five or six years. The patient was very stout, had poor appetite, and her attacks occurred in the daytime as well as during the night. Aside from the topical applications of diluted adrenalin (epinephrin) and chlorid of zine to the bronchus which seemed to be mainly affected, she resorted to gymnastic exercises, etc., and within five weeks felt perfectly well.

CASE 4.—Annie —, 28 years old, is the severest sufferer from asthma at the Montefiore Home; in fact she hardly gets over one attack when another follows. I saw her on January 10, when she was struggling for breath, applied a 5 per cent. cocain solution and inserted the outer tube only. The pulse had been so weak that I did not risk pushing the cocain. After removing the tube her breathing, if anything, was worse. Then I told my assistant in a loud voice to give her a hypodermic of morphin, "the strongest we have." He understood and injected some distilled water, whereupon the patient breathed naturally within three minutes.

Comment.—This is a case of such pronounced neurasthenia that asthma is only a small portion of the patient's trouble. Her attacks are certainly very severe. She was cyanotic when I saw her, but all symptoms disappeared after she received the supposed morphin injection. I found out later that she was accustomed to bring on these attacks especially when many physicians are around.

CASE 5.—M. N., aged 43, banker, had been suffering from bronchial asthma severely for one year and was forced to give up his business. He had consulted several laryngologists and internists of this city and had received intranasal treatment. On introducing the tube into the left bronchus, such a remarkable pulsation was noticed that I was almost certain I had to deal with an aneurysm of the aorta. The tube was withdrawn and the chest reexamined for an aneurysm, but with negative result. Nor did a skiagram show any evidence of such a condition. Finally, I concluded that this phenomenon was nothing but the pulsation of the normal aorta that was closely attached to the left bronchus. These pulsations were transmitted even to the tube and could be seen externally.

Although this point has been brought to notice before by H. von Schroetter,³ I was still under the impression that after all I might have here some small dilatation of a blood-vessel and accordingly introduced the tube with more care than usual. Within one week the patient developed articular rheumatism that interrupted the endobronchial treatment for six weeks. Dec. 6, 1911, bronchoscopy was resumed and continued for three weeks. After he began to experience relief of his asthma, rheumatism set in again, and on advice of his family physician he went to Hot Springs. A cure of four weeks at that place removed his rheumatic troubles, but in spite of the salicylates and iodids he had taken, his bronchial asthma grew worse, so bronchoscopy was resorted to again. The first four weeks he failed to show improvement. He was just about giving

2. Berkart: Bronchial Asthma, p. 127.

3. von Schroetter, H.: Klinik der Bronchoscopie, Jena, 1906.

up treatment, disappointed, when he commenced to improve rapidly, so much so that in about three weeks his respiration was perfectly free. He was able to enjoy six or seven hours of continuous sleep at night, a pleasure he had missed for many years. Since the middle of March the patient has been free from asthma.

Comment.—In this case, two points were of great interest to us: (1) the pulsation of the left bronchus that was so remarkable, and (2) the fact that the patient became desperate just when his disease took a favorable turn. The case shows how much may sometimes be accomplished even under very unfavorable conditions.

CASE 6.—Mrs. M. G. W., aged 53, was stout, short-necked and absolutely unable to take the least exercise. A short walk of two or three blocks entirely exhausted her. Seven years ago I had removed nasal polypi and had operated on her deviated septum with the hope of abolishing her asthma. She enjoyed free nasal breathing, but remained a sufferer from that dreaded disease with constant attacks. Curvature of the spine was pronounced. In the larynx there were thickening of the posterior wall and paralysis of the transverse muscles. As the patient objected to endobronchial treatment, the larynx was first treated with good results, but the asthma remained *in statu quo ante*. Finally her fear of bronchoscopy was overcome, but it took a great deal of patience and perseverance before a satisfactory inspection could be made. From that moment on she improved remarkably. Masses of mucoid secretion were discharged after the introduction of the tube, then adrenalin (epinephrin) was injected, and finally a powder, consisting of tannic acid and orthoform, was blown in. Another important part of the treatment consisted in restoring the confidence of the patient in her own physical powers. She took to gymnastics slowly, very slowly indeed, but so effectively that the digestion was greatly improved and gradually she became able to sleep quietly at night. She was sent home free from any asthmatic attack, and in a hopeful frame of mind.

Only few of the cases treated have been reported here. They clearly show that after everything else has failed a great deal may be accomplished by the endobronchial method. Of course, there have been failures, but by far the majority of these occurred in patients who consulted me only once or a very few times. On the other hand, I have had two patients who were cured after a single introduction of the tube. The result in these is naturally to be considered as due to suggestion alone. But as long as the patients were cured, I have reason to feel satisfied, no matter how this was accomplished.

In conclusion I would summarize my views as follows: Bronchial asthma may be produced reflexly by disease in different parts of the body. Therefore, every asthmatic should be examined thoroughly, and if gross lesions are found in the nose and throat, in the uterus or digestive tract, etc., they should be treated carefully, after which the asthma frequently disappears. In many other instances, however, this does not suffice. In such cases, the asthmogenous points in certain parts of the bronchial ramification need special treatment and this is accomplished by direct local applications. This, in many instances, is a difficult task, but we are often rewarded by most gratifying and satisfactory results.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. MATTHEWS AND FREUDENTHAL

DR. E. R. LEWIS, DuBuque, Ia.: Keeping in mind the idea that "bronchial" asthma may be largely an anaphylactic reaction, we find it less difficult to explain the discrepancies between cases of pronounced asthma showing slight or

undemonstrable nasal disease and those showing very extensive nasal disease with little or no asthma; between highly neurotic individuals with extensive nasal disease and no asthma, and those non-neurotic persons showing extreme degrees of asthma with only slight or undemonstrable nasal disease.

DR. G. F. COTT, Buffalo: I think Dr. Freudenthal has been treating something which does not exist, that is, idiopathic asthma. I believe it is simply a toxemia and that these other conditions, such as bronchitis, etc., are concomitant and not the causes or effects. I have treated a physician's father, who had been treated by twenty-one different physicians each one of whom said he had bronchial asthma. I was called to see him at three or four o'clock in the morning. Now my opinion of a man with toxic asthma is that he doesn't feel very bright and happy about the time of the seizure, but this man was telling funny stories. He had been suffering for a month with a single attack, which you certainly do not find in bronchial asthma. I proposed doing a tracheotomy and he consented. He breathed more easily but died a few days later and we found a small tumor, about the size of a hen's egg, pressing on the trachea which proved to be an aneurysm.

Another patient, on whom I operated on this past Monday, was supposed to have bronchial asthma. I found that he had a distinct swelling over the trachea. I did a tracheotomy under cocain. Then I cut through and opened up the neck and a tumor, which proved to be a sarcoma of the thyroid, was found. In conclusion, asthma is a symptom only and can never be classed as a distinct disease.

DR. DENNIS McDONALD, New York: Excessive tea-drinking is one of the causative factors in these disturbances. It is surprising to see what proper methods of eating and drinking will do for children who have these spasmodic conditions. The treatment of the intestinal tract also accomplishes a great deal. The next important thing is the matter of baths; the alternate hot and cold baths, though there is nothing like sunshine and the open pool. The next important thing is the examination of such children for adenoid growths and diseased tonsils. These methods will remedy many of the so-called idiopathic asthmas.

DR. JUSTUS MATTHEWS, Rochester, Minn.: In all the cases of this series the patients had a thorough physical examination to exclude, so far as possible, such conditions as those to which Dr. Cott has referred. Several have mentioned reflex asthma, or a reflex neurosis, as a cause of asthma. This has been a long-standing opinion of the profession and has, of course, some facts in its favor. But the exhaustive experiments of Auer and Lewis have proved that all the symptoms of asthma can be produced when all connection of the central nervous system with the respiratory system has been cut off, thus showing that asthma is a local reaction and not the result of a reflex. Dr. Freudenthal's treatment of bronchial conditions is, I think, quite in accordance with the theory of anaphylaxis, and merely points to another source of a foreign proteid.

In many cases of long-standing asthma there is a marked bronchitis or even bronchiectasis, with retained secretions, which may assume the relation of a foreign proteid in cases in which the primary site of absorption has been removed by nasal treatment or operation. The use of epinephrin furnishes another analogy between spasmodic asthma and anaphylaxis. If epinephrin be injected at the same time as the second dose of foreign proteid, it inhibits the anaphylactic reaction just as it does the asthmatic spasm if administered during an attack. The condition of the intestinal tract has a relation to this question, since it is recognized that it has a marked influence on the upper respiratory tract, which might favor the retention or absorption of secretions there. Also, there is the possibility of the foreign proteid entering the blood from the retention of secretions or other substances in the intestines. As to the seat of the disease being primarily in the lungs, I believe that the fact that in early cases there are no pathologic signs in the lungs indicates that the later changes there are the result and not the cause of asthma.

DR. WOLFF FREUDENTHAL, New York: I agree with Dr. Matthews; the lesions in the lungs occur after the disease has

lasted for some time. It seems I have not been understood by Dr. Cott. I have tried to speak of a disease known as bronchial asthma—that is, patients who have spasmodic attacks at night or in the early morning, etc. A man who has had difficulty in breathing continuously for a month and shows afterward a tumor of the trachea has nothing whatever to do with my paper. No matter what name you give the condition, idiopathic or not, the patients were cured. Naturally, if there are spurs or polyps in the nose we would remove them; or if there are tonsils that are diseased we would remove them. But if all these procedures fail to bring on a cure, then we go further, examine the bronchi and treat them by local applications.

INDICATIONS AND CONTRA-INDICATIONS FOR TONSILLECTOMY

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Concerning tonsils, it might be well to divide surgeons into two classes; first, those who want to go to the very bottom of the question regarding the function of the tonsils and base the surgical indications on some theory; second, those who base the indications on the clinical and pathologic facts, as presented, hoping that soon the function of the faucial tonsil will be settled.

It seems to me that the tonsil has some function early in life which is later easily overcome, in many cases, by the raids of bacteria on it. The men with the extreme theories—those, on the one hand, who believe that the gland has an important place in the system, and those, on the other hand, who believe that it has no function and whenever found is abnormal and should be removed—are both wrong.

Dr. Jonathan Wright¹ has given this subject much consideration. He says:

The function is one of defense against infection. . . . The enlargement becomes pathologic only when it injures the system more by its presence than it assists in whatever physiologic acts of defense it may perform. . . . Many large tonsils exist throughout life without danger or inconvenience to the individual. Of course they so frequently reach such size that they injure the patient's health in cutting off the proper supply of air. . . . The crypts are retorts in which the germs are destroyed or modified so that they live in peace with their host, or they are allowed to pass through in such numbers as can be dealt with by internal processes without the destruction of the host. . . . The tonsil is a definite organ and in man is the most highly developed of all the lymph-nodes.

In infancy it is rarely affected but in early childhood it too often causes trouble in a number of ways, and then after puberty it should practically never give trouble.

The tonsil becomes pathologic only when its presence injures the individual, either locally or generally, not because someone discovers a pair of tonsils in that throat.

An observation that I have stated several times in the past is that the submerged tonsil, which may be quite small, is more liable to be doing harm than the fairly large, discrete tonsil. It is only in the last few years that the tonsil has been judged pathologically other than from its size alone.

The very large discrete tonsil may interfere with proper breathing, the development of the jaw and face, or cause an irritation of the fauces; then it should be reduced. In its reduction, tonsillotomy will do wonderfully well in the majority of cases, but it must be remembered that the remaining portion may reproduce the

hypertrophy, or the cicatrices formed over the stump may interfere with crypt drainage and convert the remaining portion into a diseased condition that will allow toxins and germs to invade the system, which the whole gland did not permit before. So it seems reasonable, as it does not increase the patient's risk, that there should be a complete removal of the tonsil.

The tonsil that is more or less submerged is the one that nearly always is to blame for the infective processes about this region and in the neck, and from the neck to the general system.

In peritonsillar abscess, total removal is the only guarantee against recurrence. In deep infections of the neck, when the tonsil is the primary focus, the gland should be removed at the time the infected area is drained.

When the cervical glands at the angle of the jaw become infected either acutely or chronically, the tonsil should be considered the source of the infection, unless something else very definite is found to be the cause, and the sooner the tonsil is totally removed the better the prognosis for the adenitis. I have seen several cases in which partial removal has increased the infection and even produced cervical adenitis, but have yet to see such a condition follow tonsillectomy. A simple adenitis will rapidly disappear and a tuberculous adenitis will be reduced to some extent. This is due to the stoppage of the infecting flow from the primary focus.

In a large percentage of cases of tuberculous adenitis at the angle of the jaw, the tonsil will show tuberculous foci and to remove the tuberculous glands and leave the tonsils is to invite reinfection of the neck. The tuberculosis of the tonsil which leads to adenitis in children is, in a considerable number of cases, of the bovine type and not so dangerous to life as the human type.²⁻⁵

When a tonsil is overcome to an extent that it is no longer able to take care of the germs that are constantly in its crypts, the lymph-nodes at the angle of the jaw, into which it drains, will become somewhat enlarged, and it is in this class of cases that we see evidence of malnutrition, a low grade of toxemia and under-development. When a child's tonsil reaches this stage it should be removed, and totally, because it is down in the bottom of the crypts that most of the septic invasion is taking place.

Bad crypt drainage seems to be the cause of most of the abnormal conditions and this bad drainage is usually due to the tonsil being buried behind the pillars and in the velum palati. This gives, besides the conditions already mentioned, chronic tonsillitis and recurrent acute inflammations. These conditions are rarely found in a perfectly discrete tonsil. It is also true that tonsils may be badly infected; for instance, allowing tubercle bacilli to enter the neck glands, and yet the patient may give a history of never having had an acute inflammation—the tonsil itself attracting no attention to the unobservant.

Though the etiology of the various conditions coming under the head of rheumatism is as yet unknown, every year more men of ability are joining those who believe that these conditions usually enter the body through the tonsil and that, therefore, its removal is of prime importance. I think that the majority of us have seen patients in whom various conditions of the joints and pains in the muscles have disappeared after attention to the ton-

2. Wood, G. B.: Lymphatic Drainage of the Faucial Tonsil, *Am. Jour. Med. Sc.*, August, 1905.

3. Hurd and Wright: *Ann. Otol., Rhinol. and Laryngol.*, June, 1909.

4. Mathews, F. S.: *Ann. Surg.*, December, 1910.

5. Park, W. H., and Krumwiede, C., Jr.: *Centralbl. f. Bakteriologie*, 1910, xlvii, Nos. 22 and 24.

1. Wright, Jonathan: *New York Med. Jour.*, Aug. 8, Oct. 10, Nov. 7, 1908.

sil. It is possible to relieve some of these patients by local treatment, but manifestly this is not so sure as total removal; however, this is a question to settle for each particular patient.⁶⁻¹⁴

The same position has been taken in chorea,¹⁰ but I have had no experience in this connection.

A submerged tonsil that extends well up into the velum, diseased or not, may cause interference with the normal function of the eustachian tube and, indirectly, with the middle ear, producing tubal catarrh, or one of the acute or chronic catarrhal or suppurative inflammations of the middle ear.

The faucial tonsil has been blamed, perhaps justly, for an appalling list of septic and toxic conditions in different parts of the body, but if the chronically diseased tonsils had been treated in a proper way, this list would have been considerably contracted. It also shows what a serious menace a diseased tonsil can be to the system.

New growths, benign and malignant, should be judged by their size, nature and position and do not come under the subject here discussed.

I do not wish to be understood as favoring tonsillectomy for every diseased tonsil, especially in adults, who will tolerate a certain amount of local treatment. It is foolish to demand that a patient go through the risk and discomfort of tonsillectomy when relief can be obtained by such simple methods as slitting open the infected crypts or by the electric or chemical caustics.

Whenever a new procedure that has merit makes its appearance, there is always a rush that carries a few men beyond the mark and for a time brings discredit on the method. In the last five years the pendulum has swung strongly to the side of tonsillectomy; at the same time it must not be forgotten that tonsillotomy has done an infinite amount of good. But there were too many cases of so-called regrowth of the tonsil until it was generally understood by the laity that tonsils, supposed to have been removed grew again, also that tonsillotomy did not always relieve the conditions for which it was done.

Tonsillectomy is receiving some criticism for the poor results sometimes obtained and the deformities resulting in the throat. Tonsillotomy is a comparatively easy procedure, that was, and is, performed by many besides the laryngologists. Tonsillectomy has been the gradual evolution brought about by the laryngologist seeking a better way to meet certain conditions wherein the old operation of tonsillotomy had failed. Tonsillectomy is by no means an easy operation. It requires much experience and technical skill if a perfect result is to be obtained, regardless of the method used.

I have tabulated 1,530 cards which have been kindly loaned to me by Dr. W. A. Scruton. The cards were filled out by the different members of the house staff of the Manhattan Eye, Ear and Throat Hospital. These cards cover all the different operators with their various methods. There was free primary hemorrhage 147 times (9.5 per cent.). Of these patients fifty-two had the tonsil totally removed, and in ninety-five some tonsillar tissue remained. In twenty-five there was both primary and secondary hemorrhage (1.6 per cent.). Of these seven were total, in eighteen the tonsil remained; four-

teen had secondary hemorrhage in which the primary hemorrhage was slight, giving a total of 2.5 per cent. for secondary hemorrhages. In twenty-seven there was profuse primary hemorrhage alone (1.8 per cent.). Of these ten were total, in seventeen tonsil tissue remained. In one case the operation was stopped before the second tonsil was removed on account of profuse hemorrhage. Two of the patients took the anesthetic badly but recovered; these patients had the appearance of status lymphaticus.

These statistics bear out a statement many times made that there is more liability to hemorrhage in partial removal than in total removal.

Contra-indications are about the same as for any other small major operation. The individual case must be studied in the presence of diabetes, renal disease or a non-compensating heart.

It is not well to remove the tonsils in conjunction with some other major operation, such as one for tuberculous glands of the neck, as there is considerably more danger from bleeding after a prolonged anesthetic.

When the temperature is above normal and cannot be accounted for it is better to wait.

Tonsillectomy ideally done should not injure the singing or speaking voice, though a singer may have to learn to use the muscles as they are readjusted. On the other hand, injuries to the pillars, velum or uvula during a tonsillectomy may ruin the singing voice and impair speaking.

Status lymphaticus is an absolute contra-indication (if we could only diagnose this unfortunate condition clinically), as it causes more fatalities than any other one thing.

Hemophilia is also an absolute contra-indication, but fortunately, it is a rare condition. It can be definitely determined by blood examination if suspected from the patient's history. Probably many cases of hemorrhage from the tonsils reported as hemophilia are prolonged bleeding from a vessel so cut that it cannot contract or retract.

I have collected 11,245 cases of tonsils, or tonsils and adenoids in which the patients were operated on at the Manhattan Eye, Ear and Throat Hospital from September, 1906, to September, 1911. Most of these operations were done under ether anesthesia and out of this number two patients died from status lymphaticus, confirmed by autopsy; one patient died on the table; there was no autopsy, and the death was attributed to the anesthetic. One had severe recurrent hemorrhages followed by pneumonia and death.

Dr. Frank S. Mathews has kindly furnished me with the statistics from St. Mary's Hospital for Children. I might state that the method of removing the tonsil with the finger is followed there. From 1900 to 1911 there were 3,702 cases of tonsillar operation with two deaths, one patient acting as if suffering from status lymphaticus; the other was but remotely due to the operation. One hemorrhage was severe enough to require ligation of the external carotid.

Of nearly 15,000 cases between the two hospitals with six deaths, it will be noted that not one was due to hemophilia. Status lymphaticus caused three if not four of the deaths. It might be well to refer to one patient, in reference to hemophilia, who was supposed to have been a hemophiliac. A boy, aged 15, was brought into the hospital one evening practically exsanguinated; he had had the surface of one tonsil sliced off about four hours before. When he was carried to the ward and a tonsil clamp applied he vomited large quantities of blood.

6. Frissel, L. F.: Med. Rec., New York, May 12, 1906.
7. Adler, I.: New York Med. Jour., March, 1906.
8. Beattie, J. M.: Brit. Med. Jour., 1906, II, 1781.
9. Ingals, E. F.: Laryngoscope, September, 1907, p. 713.
10. Rosenheim, S.: Bull. Johns Hopkins Hosp., November, 1908; Maryland Med. Jour., February, 1911.
11. Brown, L.: Lancet, London, 1900, No. 2, p. 970.
12. Brown, R. C.: Med. Rec., New York, March 2, 1907, p. 341.
13. Goodale, J. C.: Tr. Am. Laryngol. Soc., 1907, p. 228.
14. Poynton, F. J., and Paine, A.: Lancet, London, Sept. 22, 1900, p. 861.

The tonsil clamp did not control the hemorrhage and the house surgeon tried all the usual methods without avail. The next morning I was notified. The patient then had had several intravenous injections of normal saline, the radial pulse was imperceptible and the temperature was in the neighborhood of 102 F. I ligated the external carotid which did not fully control the hemorrhage and later the house surgeon ligated the common carotid with a ligature that had been placed about that vessel to be used if necessary. The mother of the boy was sent for so that a transfusion might be done but he died just before her arrival. She said that the boy bled easily from any slight injury and had become very weak each time he lost one of his first teeth. The autopsy revealed the stomach, small and large intestines distended with blood, but no injuries to the large vessels about the tonsil. This case looks like hemophilia, and certainly death was due to primary hemorrhage.

In conclusion, tonsillectomy is the one operation whenever the tonsils are diseased enough to demand surgical interference, and so far as hemorrhage is concerned it probably involves less risk than tonsillotomy.

15 East Forty-Eighth Street.

REFINEMENTS WHICH RENDER TONSILLECTOMY SAFE, SURGICAL AND SATISFACTORY

M. M. CULLOM, A.B., M.D.

NASHVILLE, TENN.

On account of the situation of the tonsil, the radical operation for its removal is beset with certain difficulties and dangers. It is the purpose of this paper to discuss the best methods of surmounting the difficulties and eliminating the dangers.

The difficulties and dangers may be briefly enumerated as those arising from the anesthetic; the obscuration of field and embarrassment of respiration due to flow of blood and mucus, and the danger of hemorrhage. Another difficulty lies in the adequate exposure and illumination of the field of operation. These difficulties not only add to the danger of the operation, but interfere with the perfection and artistic detail of the work. My ideas may be best shown by description of the instruments used and the method employed in operating. In this operation I use a number of instruments of my own device. The principle running through them all is the economy of space. The maximum amount of room for the surgeon to work in, with the minimum amount of interference with sight and manipulation.

Every step in this direction adds to the safety of the patient, the perfection of the operation and the comfort and satisfaction of the surgeon.

Patients are prepared for operation by administration of a purgative the night before; generally castor oil is given. The time of operation is preferably early in the morning, as children can be more easily tided over the breakfast meal without missing it so acutely.

Half an hour before operation in adults, $\frac{1}{4}$ of a grain of morphin and $\frac{1}{150}$ of a grain of atropin are administered hypodermatically. In children, a dose is administered in proportion to their years. In very young children only the atropin is administered. The salutary effect of the morphin is apparent in quieting the patient, allaying fear, and rendering the anesthesia smoother, while the atropin helps to dry up excessive secretion

which often complicates the administration of ether. Then Crile's experiments have shown that the preliminary administration of atropin furnishes an element of safety in operations on the air-passages, by protecting the heart against reflex inhibitory impulses through the superior laryngeal nerve.

The anesthetic used in all cases is ether. Investigations and statistics have convinced me that ether is a safer anesthetic than chloroform and occasions less anxiety in the administration. The sad chapter of accidents in connection with the administration of chloroform in adenoid and tonsil operations makes me feel that chloroform has no place in such operations. For certain reasons gas has been found unsuitable in the tonsil operation.

Gwathmey's experiments and writings have taught us the value of warm vapor in anesthesia, and for the past six months I have used it exclusively. The apparatus I use is the Cain-McDermott, which I have modified to meet my ideas. The apparatus consists of a bellows worked by foot-pressure which vaporizes the ether. The vapor is driven through a coil of pipe enclosed in a metal receptacle containing acetate of soda. This receptacle is immersed in boiling water for fifteen minutes before using and the soda salt will retain the heat for several hours. The vapor driven through the heated coil is delivered warm to the patient.

As sold, the apparatus is fitted only with a metal mouth-piece to be hung in the corner of the mouth. The modifications I have made are the addition of a mask and nasal tubes.

The patient is anesthetized to the point of relaxation by means of the warm vapor delivered through the mask. When the patient is thoroughly relaxed the mask is replaced with nasal tubes and the operation is begun.

I wish to say that my experience with warm vapor has been most satisfactory. The patient is quickly under the anesthetic, the anesthesia is very quiet and in no case has the patient become cyanosed. In using the metal mouth-piece I found that there was too great an admixture of air and it was hard to keep the patient under; then, too, the mouth-piece was in the way, but when I replaced the mouth-piece with nasal tubes there was no such difficulty. The use of the foot-bellows is an advantage, as it allows the anesthetist the use of both hands to steady the head, raise the jaw and render the surgeon any assistance needed. The use of the foot-pump is a great advantage over the hand-bulb of Pyncheon which I formerly used. More vapor is delivered by the increased force from the foot. The squeezing of the bulb by hand is very tiresome and becomes real labor when the operation is prolonged. I can only describe this apparatus as a comfort. Even strong men are kept quietly asleep without the least trouble. The surgeon can go calmly and carefully about his work without feeling the least necessity for hurry. Used in this way it solves the problem of anesthesia in surgery of the oropharynx. It is a great advantage to be able to operate uninterruptedly instead of having to remove the gag and wait while the patient is being reanesthetized.

POSITION OF THE PATIENT

The patient having been anesthetized to the point of relaxation of the jaws, and being flat on the back, the head is lowered slightly, not very much, probably at an angle of 20 degrees. At this angle the patient seems to breathe better and there is less likelihood of blood and mucus interfering with respiration. The patient is flat

on the back so that the assistant standing at the patient's left may be in a position to sponge and render such assistance as may be needed.

EXPOSURE OF THE FIELD

The mouth-gag is next inserted, and I wish to say that a great part of the confidence I feel in this operation is due to the assistance given by the gag. For some time I made use of the Brandt-Stubbs self-retaining gag and I wish here to acknowledge my indebtedness to it. It has many splendid features but experience has shown defects which I have tried to eliminate. The Brandt-Stubbs gag, which is the best of its type, has a tongue-depressor attached which is a very valuable feature. The depressor practically takes the place of an assistant. With the ordinary mouth-gag it is necessary for an assistant to depress the tongue. With the surgeon working in the mouth it is difficult for the assistant to see just where to place the depressor and consequently that instrument slips first to one side of the tongue and then to the other, irritating the surgeon and making the

ing is between the teeth. This gives all the working space possible. The bite-blocks fit into each other so that it is exceedingly easy to insert. The tongue-depressor is adjustable having a lateral as well as a vertical adjustment. This allows first one tonsil to be exposed and then the other. The depressor can be attached or detached instantly. This gag gives a perfect exposure of the field with all the working space possible. Instead of crowding the tongue down on the larynx it exerts a lifting force on the base of the tongue and assists respiration.

ILLUMINATION OF THE FIELD

One of the points on which I insist and on which I lay great stress is the proper illumination of the field. I insist on the field being thoroughly exposed and at the same time thoroughly illuminated. This is accomplished by wearing an electric headlight on the forehead.



Fig. 1.—Cain-McDermott warm-vapor ether apparatus. (1) Foot-bellows; (2) ether-container; (3) metal receptacle containing acetate of soda; (4) mouth-tube which writer has replaced with a mask to begin anesthesia and nasal tubes to continue the anesthetic after the operation is begun.

exposure of the field unsatisfactory. This depressor being attached to the mouth-gag holds the tongue at a fixed point, and exposes the entire field clearly to the view of the operator. There is, too, one less assistant in the way of the surgeon.

The serious drawback to this gag is that the tongue-depressor is attached in the center and takes up a large amount of very valuable room. The slot for the depressor interferes with the free sweep of the adenoid curet necessitating the removal of the gag and the substitution of another gag when removing adenoids. The depressor being in the center crowds the tongue down on the larynx and sometimes causes interference with respiration. A gag of this kind is hard to insert because the bite-blocks do not come close together. It is necessary to open the teeth an inch before this gag can be inserted. The gag which I use has the tongue-depressor attached at the side. The bite-blocks are fenestrated so that noth-

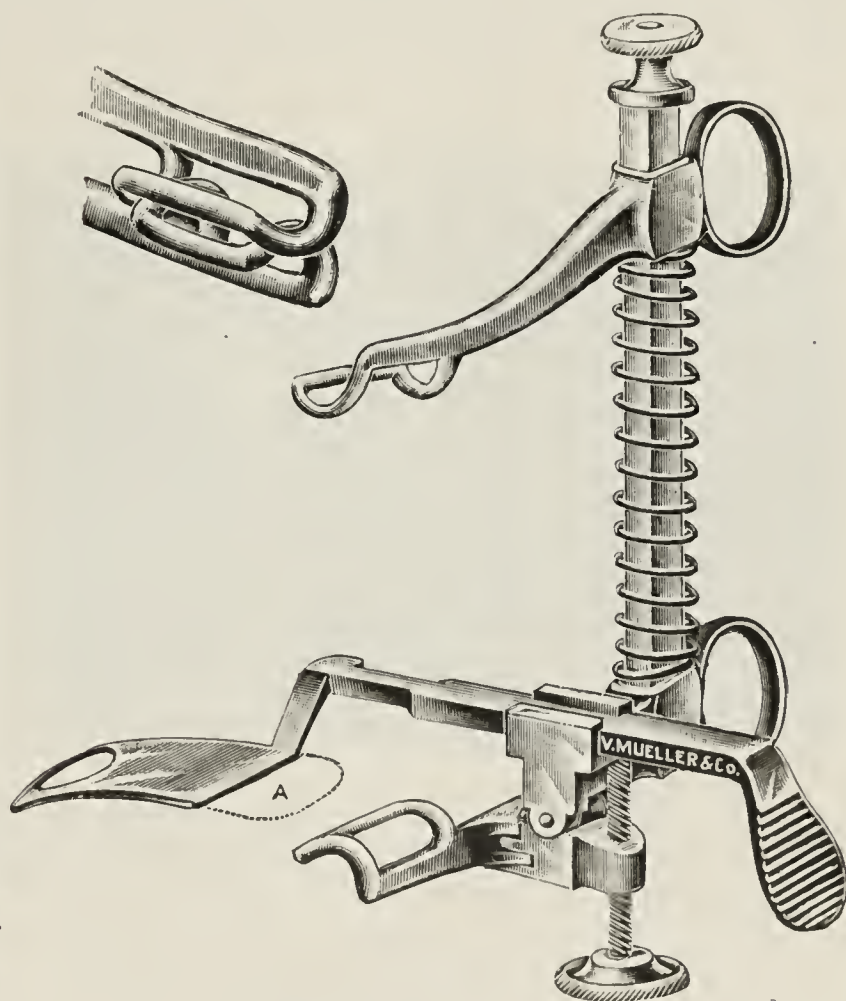


Fig. 2.—Author's mouth-gag.

ASSISTANTS

Two assistants in addition to the anesthetist are required. One stands at the left of the patient on a line with the surgeon, and has charge of four sponge-forceps. The other stands just back of the first on the same side. This assistant, usually a nurse, has an adequate supply of gauze sponges and it is her duty to receive the forceps containing the soiled sponges from the first assistant and replace them with fresh ones as fast as they may be needed.

GRASPING THE TONSIL

The tonsil on the right side is seized with tonsil-forceps and lifted from its bed and its contour and attachments noted. Often it will be seen that the superior margin of the tonsil is high above the junction of the pillars. Traction will cause the outline of the tonsil to appear beneath the mucous membrane and will serve as a guide to the dissection.

The forceps used is of my own device and carries out the idea running through all my instruments, namely,

to interfere as little with sight and manipulation as possible. The first essential in a good grasping-forceps is that they should take firm hold of the tonsil and not tear out with traction. In order to do this it is necessary that they should have prongs instead of teeth. Any toothed instrument will tear out of a friable tonsil. Having the necessary firmness of grasp, the next essential is that they should occupy as little space and be as little in the way of eye and hand as possible. In order to do this, it is necessary that the arms should be as slender as is consistent with strength, and when closed the two arms should present the appearance of a single arm. Carter recognized this principle when he devised his tonsil-screw, and I wish to express my admiration and appreciation of it. For a firm tonsil it is an ideal instrument but we must have something that will not tear out of a friable tonsil. In order to give necessary grasping area the prongs take the form of a semicircle at the point where they come off from the arms. This permits the two arms to come together like a single rod and at the same time gives the prongs plenty of grasp-

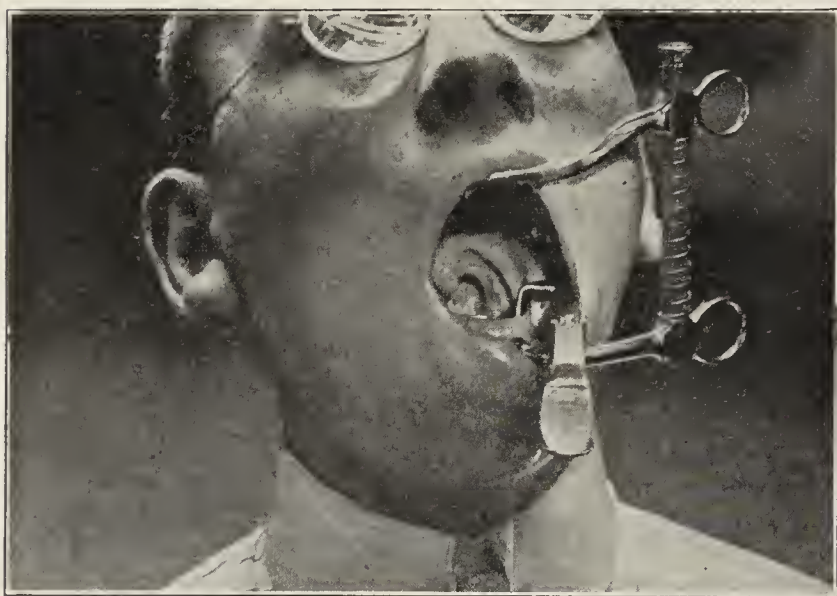


Fig. 3.—Author's mouth-gag in position in patient's mouth exposing left tonsillar region. By means of its lateral adjustment it can be moved over and expose the right tonsil in the same manner. The tonsil has been enucleated and the fossa has begun to fill with follicular tissue. Note that there is no interference whatever with the working space in the mouth.

ing surface. The arms of the forceps should be long enough to permit the hand grasping it to be out of the way. The forceps takes the form of a pair of calipers. This is an additional factor in space-saving, as the hinge joint is at the end instead of in the middle.

DISSECTION

The dissection is started at the anterior superior junction of the tonsil and the pillar. The instrument used is the right-angled knife which I have devised from the Leland knife. There are essential differences. The blade is shorter. I often found that the Leland knife was difficult to manipulate in the throat of a small child on account of the length of the blade. The blade has a rounding sharp point instead of a sharp or probe point. A great convenience is having both blades on one handle, thus doing away with the necessity of laying down one instrument to pick up another and allowing the surgeon to keep his eye on the field; it also does away with the necessity of searching among the other instruments for the one wanted. The dissection is for the most part a semisharp dissection. The side of the blade is used as a blunt dissector when blunt dissection can be accomplished without too much force and traumatism. When much force is necessary, I believe that sharp dissection

is preferable. As the attachments are severed it will be noticed that the tonsil gradually rises from its bed.

When the dissection is complete the tonsil can be lifted from its position between the pillars and is attached only to the constrictor. I have learned that the dissection is not complete until the tonsil can be dislocated in this manner. Any attempt to remove it before this stage is reached will result in only a partial removal and will require a second effort. The anterior pillar is first separated, then the supratonsillar attachments and lastly the posterior pillar. During the progress of the dissection the blood is sponged up by an assistant as fast as it appears and the field of operation is kept clean. Good exposure, good illumination and good sponging make every stroke of the knife visible and add greatly to our sense of safety and security. When the right tonsil is freed from its attachment to the pillars and only remains adherent to the constrictor it is grasped with the forceps put on the stretch and severed with the cold wire snare. As soon as the tonsil is removed the assistant thrusts a sponge on a sponge-forceps into the cavity and makes pressure till the first rush of blood is over.

My tonsil hemostat is then applied and the dissection of the other tonsil is proceeded with. The hemostat has an arrangement whereby the gauze pad can be adjusted instantly instead of having to be tied on as is

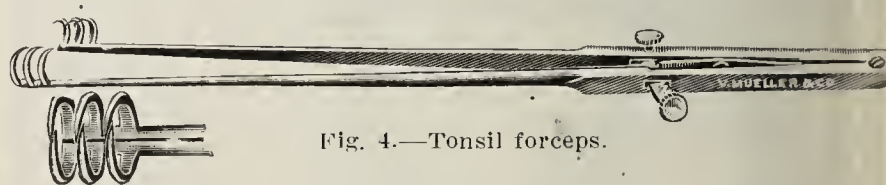


Fig. 4.—Tonsil forceps.

the case with most hemostats. This enables one to save time when it is desired to apply it quickly and is a convenience at all times. The application of the hemostat renders it unnecessary to wait until the hemorrhage has stopped, and allows the operator to proceed at once to the dissection of the other tonsil without loss of time. The application of the hemostat shortens the operation, at least, five minutes.

When the second tonsil is removed pressure is made with the sponge forceps until all hemorrhage is arrested. The patient is not allowed to leave the table until the throat is dry. The pillars are drawn back with retractors and carefully inspected for bleeding points, and to see if any tonsillar tissue has been left. If any remains, it is removed with the snare. If after removal there is an apparent difference in the size of the two tonsils, it is well to search carefully, for it is my experience that after removal the tonsils are approximately the same size, however different they may appear while in the throat.

I consider this operation safe for the reason that every stroke of the knife is made under the guidance of the eye. The patient is under the anesthetic, absolutely quiet, the field is fully exposed and every stroke of the knife can be taken with the most painstaking care. The thing most to be feared is hemorrhage. If troublesome hemorrhage should arise we are in the very best position to cope with it. The bleeding points can be located by sight and if it is an artery it can be grasped and ligated if necessary, or if it is a vein direct pressure can be applied.

WHY GIVE AN ANESTHETIC?

I believe that a general anesthetic should be administered in the first place for the mental and physical comfort of the patient. It is repulsive to most people

to have any kind of manipulation in the mouth. It generally provokes retching and gagging, which is unpleasant. Then the mental effect of the cutting is terrorizing even if local anesthesia abolishes the real suffering. This is from the standpoint of the patient. From the standpoint of the surgeon the gagging and retching keep the tonsils and pillars in constant motion and increase the difficulty of grasping them and placing the incisions properly. This is also an element of danger. The necessity of spitting out the blood causes constant interruption. In comparison with these difficulties the great ease with which one does his work with the patient completely under anesthesia imparts a sense of security and satisfaction that is comforting. The surgeon can proceed calmly and carefully to his work undisturbed by these annoyances. The blood can be mopped up and the hemorrhage limited by pressure with the sponges. After removal, pressure can be maintained until the hemorrhage is stopped and the throat rendered

tomy has been raised to the dignity of a surgical operation, demanding care, skill, judgment and experience. The operation as formerly practiced was practically a leap in the dark. The instrument was introduced, the tonsil amputated and luck trusted to to stop the hemorrhage. If the hemorrhage did not stop the operator was at a great disadvantage. With the patient gagging and retching the bleeding point was difficult to locate and still more difficult to grasp or compress.

The operation as I perform it requires from fifteen minutes to an hour. The tendency to hemorrhage and the amount of dissection required is what prolongs the operation. There has always been an idea prevalent among the laity that removal of the tonsil has a bad effect on the voice. No effect was observed in this series of cases other than beneficial.

In an interesting article on the results of enucleation in fifty-three cases, J. H. H. Pearson¹ of the Royal Edinburgh Infirmary reports an astonishing number of

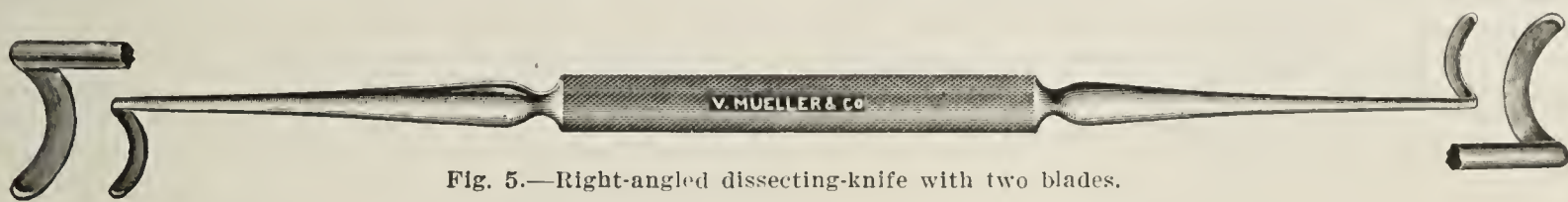


Fig. 5.—Right-angled dissecting-knife with two blades.

clean and dry before the patient leaves the table. Searching for a bleeding point in a pharynx that is moving rhythmically back and forth, accompanied by vomiting and spitting of blood, is very different from a pharynx that is absolutely at rest. Pressure can be applied, bleeding points seized, twisted or ligated, or the pillars sutured with ease. Then again why should we withhold the blessings of general anesthesia from patients requiring this operation, when we extend it in so many operations requiring less time and having fewer unpleasant features?

HEMORRHAGE

In more than six hundred tonsils removed in this manner covering a period of two years only two cases of slight secondary hemorrhage have occurred. I cannot attribute this entirely to good fortune, as with the guillotine operation there were always several cases of hemorrhage each year. A further argument against the good luck theory is that this series of cases contained a large proportion of adults in whom we are taught to expect a much greater tendency to hemorrhage. I attribute this freedom from hemorrhage in the first place to careful dissection in a fully exposed and illuminated field, unobstructed by blood or mucus; in the second place, I attribute it to the careful checking of hemorrhage by sponge pressure, grasping of bleeding vessels, and the invariable rule of having the hemorrhage completely arrested before allowing the patient to leave the table or come out from under the anesthetic. This is not done in a perfunctory way but the pillars are drawn back with retractors and the cavity carefully inspected.

ADAPTABILITY

I claim for this operation that it has the great advantage of being applicable to any type of tonsil and it is an advantage to have a single technic. Any tonsil that can be removed at all can be removed in its entirety by this method and there will be no necessity of changing from one method to another after beginning the operation.

From a haphazard carelessly executed procedure which any novice felt fully competent to undertake, tonsillec-

cases of deformity of the soft palate and pillars. In only eighteen cases were the palate and pillars left without deformity. There was marked asymmetry of the palate with deviation of the uvula from the middle line in nineteen cases; lowering of the soft palate on one or both sides in thirty-four cases.

No such results as these were observed in my case. In one case, a portion of one posterior pillar was removed and in another the uvula was amputated, but in no case was there observed any asymmetry of the palate. I attribute this to the exceeding care with which the dissection is carried out, the tonsil being hugged closely at all times and every effort being made to spare the surrounding structures.

There seems to be no way of preventing the fusion of the anterior and posterior pillars in the process of healing. If we can find some way to carry out the suggestion of Hudson Makuen, to leave the capsule intact, even this may be accomplished.

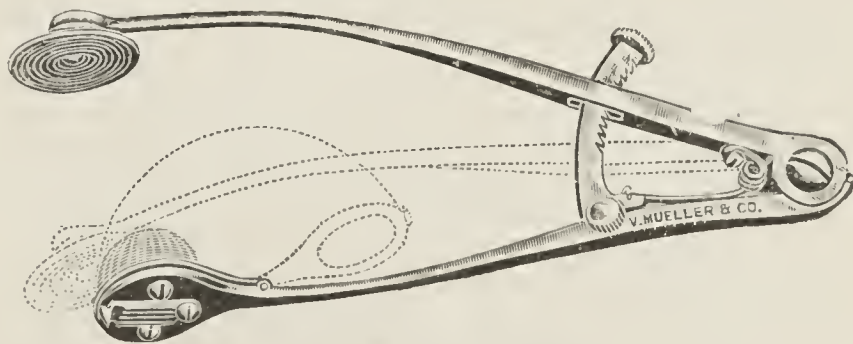


Fig. 6.—Tonsil hemostat.

The oldest patient operated on was 55 years of age. There was a large proportion of adults in the series. It was not noticed that there was any greater tendency to hemorrhage in adults than in children.

In the case of one adult I was notified two hours after the operation that some bleeding was taking place. I returned to the hospital and found some venous hemorrhage from the supratonsillar fossa on the left side. I applied the tonsil clamp, which stopped it at once. There was no recurrence of the bleeding.

1. Jour. Laryng., Otol. and Rhinol., May, 1912.

In the case of a frail boy of 14, I was notified the next day that he had been spitting up blood. I went to see him and found evidence of bleeding from the right tonsil, but no hemorrhage was taking place at the time. I advised immediate removal to the hospital but the mother was averse and promised to send him at once should the bleeding recur. They reported next day that he spat up blood at intervals till 5 a. m., when it ceased absolutely. He passed a quantity of dark blood by bowel and I am satisfied that he swallowed considerable blood. It was noticed by all at the operation that the blood caught in the basin when the adenoids were removed showed absolutely no tendency to clot. It ran around the basin like so much water and at no time gave any indication of congealing.

This paper is not an attempt to exploit any particular method of dissection. It is a plea for the surgeon to place himself under the most favorable conditions possible for performing the operation. Judging by the dangers to be met, the difficulties to be overcome and the results to be accomplished, I believe that tonsillectomy is an operation worthy of our very best skill. Let us spare no effort that will contribute to its perfection and no precaution that will add to its safety.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. CULLOM AND HURD

DR. T. C. WORTHINGTON, Baltimore: The complete extirpation of the faucial tonsil is now a well-recognized therapeutic measure, and deservedly so. I feel sure both from observation and from personal experience that the operation can be rendered one of comparative safety. To accomplish this, the refinements of technic must be strictly adhered to in every case. Safety requires constant caution. My patients are never given morphin and atropin until on the operating-table, and then only if there is reason to think that the ether will be resisted. I do not administer these drugs to children. The anesthetic is always in charge of a specialist in anesthesia or one well trained in this work. Anesthesia is begun with nitrous oxid gas and oxygen, followed by warm ether vapor. The instruments used are a special mouth-gag which when in position rests on the anterior molars and which has a metal tube attached for the administration of the ether vapor; a tonsil-knife slightly curved on the flat and very sharp (*THE JOURNAL*, May 25, 1907, p. 1671); a slightly sharpened dissector, a special grasping and artery forceps, a pillar-retractor and a tongue-retractor. Notwithstanding the use of an electric head-light, the room is not darkened, so that the color and breathing of the patient may be easily observed.

The functions of the posterior pillars are much more important than are the functions of the anterior pillars, and when they are wounded or torn there is usually a loss of symmetry in the pharyngopalatine arch. This may result in impaired hearing or in alteration of the voice, in proportion to the amount of damage inflicted. For this reason the tonsil should be separated from its posterior pillar and from the supratonsillar fossa with care, and without force. It should not be torn from its attachments. Before the tonsil is entirely separated from above, the artery passing down from the supratonsillar fossa and along the posterior pillar is clamped and later tied. The other vessels are smaller and more easily controlled if the dissection includes only the tonsil with its enveloping capsular membrane; but this is not always possible. There is usually very slight loss of blood during this operation, and there should be none afterward. The after-treatment consists of rest in bed for a few days, with the use of all the ice or water which will be taken. This is begun as soon as the patient regains consciousness. The time consumed by a complete tonsillar excision, including the anesthetic and the control of all bleeding and oozing, is from thirty minutes to perhaps an hour. This difference of time is unimportant, because during the later stages of the operation, the patient is getting almost no ether.

DR. JAMES T. GWATHMEY, New York: The safest and best time at which to operate is about one hour before the patient is expected to awake, especially for nervous children who are afraid of the operation. It requires no special technic to put a child that is already asleep under the anesthetic; merely a sponge on an artery forceps, a few drops of chloroform, as needed, and ether when automatic respiration occurs. This method is also good for weak children.

By statistics of over 26,000 administrations, gathered from all over the United States, it is shown that one of the safest methods, safer than the gas-ether sequence is the chloroform-ether sequence. This was a surprise to me and will no doubt be to you. These statistics were not doctored but were sent in by the different hospitals. Of course, in my own work I vary the technic according to the wishes of the different surgeons for whom I give the anesthetic. When allowed to use my own preference, I start with some perfume, generally with one or two drops of the essence of orange, then chloroform, then change to ether. It is the only odor stronger than that of ether. Even if you do not want the chloroform-ether sequence, you may start with the essence of orange. In this way a quiet form of anesthesia is produced, which may then be continued with any special apparatus such as Dr. Cullom's. Dr. Grayson has reported 3,800 chloroform anesthetics without a death. I have had one experience, which though it did not terminate fatally, was alarming, and will last me a life-time in chloroform anesthesia for a tonsil operation. The chloroform-ether sequence is, I think, very safe. The gas-ether sequence produces an engorgement and more hemorrhage than the chloroform-ether method.

No deaths have been reported with the essence of orange-chloroform-ether sequence nor have any deaths been reported from chloroform-ether sequence in children. The fatalities in early chloroform anesthesia have all been in adults and usually strong, robust men. It is not necessary to hold a child that is reasonable in administering the essence of orange-chloroform-ether sequence. The change to ether should be very gradual, as rapidity produces swallowing or convulsive movements. If the warmed ether vapor as recommended by Dr. Cullom produces no coughing or unpleasant sensations it is not necessary, as a rule, to hold the child, but warmed vapor should be used continuously.

The principle of operating under a continuous narcosis and with a bloodless field cannot be too strongly insisted on. No man can do his best work hastily and with the field of vision cut off by blood. The continuous narcosis also allows a last look to see whether or not there are any bleeding points.

DR. HOMER DUPUY, New Orleans: For three years both in private practice and in my work at the Charity Hospital I have been employing heated ether in my operations; I commend the efficiency of this method. In the first place, it produces absolute narcosis, uninterrupted by the usual gagging when the simple cone is used, and it notably shortens the time of operation. As I am sponsor for the Caine-McDermott apparatus, I must praise it. In a four years' experience during which I was occupied in devising an apparatus of this nature, I must concede that the one shown by Dr. Cullom meets every indication. Dr. Cullom failed to make the point that we must first begin anesthesia with the cone and after securing profound narcosis the apparatus is put into play. This reduces the irritation that comes from direct contact of so concentrated a form of ether with the throat. In hundreds of experiences we have found that while the nasal attachment assisted materially when operating on adults, it is not so reliable in producing uninterrupted narcosis as that obtained by the mouthpiece. I believe that this method of heated vaporized ether anesthesia greatly shortens the period of operation, reduces shock, and allows more time for the application of the delicate technic incidental to throat surgery.

DR. GEORGE L. RICHARDS, Fall River, Mass.: When I sent out requests all over the world a few years ago concerning this subject, 90 per cent. of the replies said that there was only one procedure in the way of treatment, and that was surgical. I am glad to see less radical measures suggested for use in suitable cases. The American Laryngological Association has begun an inquiry into this subject, the report to be made

after three years, with the hope of arriving at something definite. The subject of the physiology and pathology of the tonsil has been neglected by text-books and investigators. It deserves attention.

DR. F. VICTOR LAURENT, Pittsburgh: Tonsillectomy may cause a decided change in the voice. It will create a new condition of aconsties in the throat, and may change the quality and range of the voice. It may make the voice larger and deeper but that is not necessarily an improvement. Most people think the vocal cords are the only thing concerned in voice production; the position of the larynx is also of great importance—being low for the chest register, in a middle position for the medium register, and high for the upper register. After a tonsil operation there is sometimes a slight constriction of the pharyngeal muscles concerned in the elevation of the thyroid cartilage. This interferes with the motility of the larynx, marring the flexibility of the voice and making it more difficult to sing the tones of the upper register.

DR. B. D. SHEEDY, New York: I have seen several cases in which the voice has been decidedly injured following careful enucleation of the tonsils. I would advise our profession to be very careful about doing tonsil enucleations on singers. One patient who came under my care after a tonsil enucleation reported that she had lost her means of making a living through the change in her voice following the operation. Many patients have a slight nasal intonation of the speaking voice due to the contractions of the cicatricial tissue narrowing the opening into the nasopharynx.

DR. J. H. ABRAHAM, New York: In 1900 I presented a paper before the Alabama Association on the subject of acute and chronic infections in which I contended that we were dealing with a septic condition requiring surgical treatment—slitting of the tonsils and removal of the caseous infectious material. The difficulty was in getting down to the depth of its capsule. In 1906 I did my first enucleation, a finger operation; since then I have been greatly interested in the radical operation and have presented several instruments before this Section; about four years ago I presented a grasping-forceps and artery forceps which have been greatly modified since. The forceps I prefer has no teeth, but simply fenestrated blades.

As to anesthesia, the other day I operated on a child, 5½ years old, it was the fourth operation he had had for adenoids and the third for tonsils. Chloroform was administered in all of the above operations and it required one hour of hard work to revive the child in the last operation. I prefer ether. I always operate with the patient in the prone position. I have for several years discarded intranasal administration of ether. It may set up inflammation of the nasal accessory cavities, and I therefore prefer to give it through the mouth. After the child is completely anesthetized, a curved cannula with proper connections is all that is required. I have had several accidents with Dr. Hurd's instrument for retracting the pillars and separating them, and am glad to see that he has modified it.

DR. H. W. LOEB, St. Louis: If the physiology of the tonsil is not understood, the therapeutics, other than surgical, is absolutely a page in our work without a mark in the way of knowledge. I have slit tonsils and burned them and made applications and the tonsillar trouble went merrily on. It stopped for a while and then continued: I speak, of course, of the tonsils of adults. It seems to me that Dr. Cullom has presented a nice way of doing the operation, but I fail to see the value of such detail. If I spend fifteen minutes to an hour to remove tonsils, I think it is entirely too long. Whenever possible I commend the new plan of Sluder in which a series of instruments is not necessary. The operation is done with one instrument held in the right hand. Those of you who will give it a trial will find the time of operation greatly lessened and the removal of the tonsils more effectual. Warmed ether vapor may be all right, but there is grave doubt whether it can be warm under the usual method of administration.

DR. W. L. BALLENGER, Chicago: I wish to present in this connection my newer method of doing the Sluder operation.

The instrument is an angiotribe and a tonsillotome combined. It has a dull blade with which the tonsil is clamped; before a drop of blood runs the tonsil is out of its bed and the angiotribe applied. It can be left there any length of time and there will not be a drop of blood in the throat; after two or three minutes to allow clotting, with the screw I force home the sharp blade which cuts off the tonsil. It is free in the throat and taken out. The sharp blade is turned back again, a spring is touched at the side of the instrument and the angiotribe is removed and the operation is complete.

DR. FRANCIS P. EMERSON, Boston: I do not wish to add to the technic of tonsillectomy or its indications in children, but would call attention to that type of tonsil in adults which is the cause of systemic conditions, and which I think we are finding more frequently as we perfect our technic of examination; that type of tonsil which we call the persistent infantile, degenerate or submerged tonsil. As a portal of entry the tonsillar area is becoming more and more important as we study this class of cases in adults, and we want clearly a definite indication when to remove them, as Dr. Hurd has said. If there are systemic conditions in the adult, such as myalgias, joint troubles, endocarditis or adenitis, this area should be very carefully examined. My point is illustrated by the case of a patient, aged 56, who gave a history extending over eight or ten years, of slight sore throat combined with malaise, which he attributed to overwork. In January he had a slight sore throat with soreness in the left shoulder; three weeks later an exacerbation of the throat trouble, with lameness all over the body, which was so marked, that he was in bed three months, unable to dress himself. Two very able throat men had examined him and pronounced the throat negative. His family physician, after a very careful physical examination, including the blood and sputum, still believed that the origin of his trouble was in his throat and advised his coming to Boston. On entering the office he walked like a man with severe lumbago. In the throat examination there was no indication of inflammation of the mucous membrane; the pharynx looked normal, but on retracting the anterior pillar on the left side and introducing an eustachian catheter, there was expressed from a submerged tonsil a half teaspoonful of pure pus. If you examine these cases in this way, retracting the anterior pillar, and expressing the contents of the tonsillar mass, you will be surprised to find how many times what looks to be normal tissue is simply an enclosed abscess; these cases contain a large number of streptococci, which are capable of producing serious systemic conditions.

DR. C. F. WELTY, San Francisco: Tonsillectomy is the only operation that should be done on the tonsil. The indications include hypertrophied tonsils which interfere mechanically, tonsils that have cheesy deposits, buried tonsils, tonsils that are associated with enlarged glands, peritonsillar abscess, recurrent tonsillitis and acute otitis media. In every case of acute otitis media tonsillectomy and adenoidectomy should be performed at the time of the acute infection. It should also be done in cases of acute exacerbations of heart trouble, rheumatism, chorea, all cases of underweight, healthy in other respects.

The mode of examination with the eustachian catheter is one of the best and you will often find indications for tonsil removal in this way which otherwise would not be suspected. Patients who have recovered from acute tuberculosis should have their tonsils removed, because the germs remain in the tonsils as a reinfecting agent. Bromid of ammonia administered by rectum in children under 4 is useful to keep them quiet after operation. It is not necessary to have assistants. All the operator needs is a nurse to hold the tongue-depressor and I think the one I showed at the meeting last year is the best for the purpose.

DR. W. W. CARTER, New York: In the snare operation, the instrument I devised a few years ago, the spiral tenaculum for catching the tonsil, will hold a friable tonsil better than anything else if engaged deep enough. In operating on submerged tonsils, it can be inserted into the small slit between the pillars and by pulling on the tonsil the full outline is shown. I use the Seiler knife for separating the pillars and generally I do not have to cut at all, for by traction with

the spiral tenaculum the tonsil is lifted from its bed. The Seiler knife is then inserted just behind the anterior pillar and the tonsil is pried out. The snare is easily adjusted over the tenaculum (which is a small straight rod) and the tonsil removed with no injury to the pillars.

DR. H. B. LEMERE, Omaha: Many of our patients have submerged tonsils with infectious material deep in the crypts which will make its appearance only on expression. I have found in the last three or four years that the use of Bier's cups on the tonsils is easy and efficacious, both as a diagnostic and therapeutic measure. They are easily applied and in just such cases as Dr. Emerson has referred to the pus can be drawn out and a bacteriologic examination made.

DR. LOUIS OSTROM, Rock Island, Ill.: I have had a good deal of hemorrhage following tonsillectomy. Frequently my patients have had a dry throat when they left the table but as soon as they woke up, cried and struggled they would begin to bleed. I always instruct the nurse—and especially the mother who can be absolutely depended on—to watch the patient carefully as to swallowing and if there is a rate of swallowing faster than five times a minute to let me know at once.

DR. H. F. PYFER, Norristown, Pa.: Methods of tonsil operation have had a slow progressive growth since we have discarded tonsillotomy. Every year that I have been attending the American Medical Association meetings I have gone home with a handful of instruments that the leaders of our meetings have recommended as perfected and needed for a good dissection; but these instruments have in some way failed to do the work. There were still occasional alarming hemorrhages, still retained portions of tonsils, still conditions to meet. Ballenger has shown, in his book, the ideal tonsil dissection with the scalpel, but now he has retrograded to a quicker method, unquestionably safer and more accurate. To my mind it is not the rapidity of the operation but the thoroughness and the care that should be the chief consideration. Searching after many disappointments for an accurate, safe way of removing tonsils I found it when Lee Cohen of Baltimore devised his method of tonsil dissection. With a modified tonsil-knife he carefully dissected the tonsils from the pillars, then retracted the pillars and picked up the numerous little bleeding vessels and tied them off after clamping them with a modified Jackson hemostat. Occasionally I have found it necessary in cases of oozing to suture the pillars with catgut, using McReynolds' needle-holder and needles. I can leave the patient without any fear of a hemorrhage following the operation. The healing is prompt and painless. The suggestion to wait until we have severe hemorrhage and then tie and suture is fallacious, for physicians who wait for this time will discover that they have not sufficient surgical dexterity or developed technic to do the work, and lives will be jeopardized if not lost by their bungling work. Furthermore, no one knows how great the hemorrhage is going to be or how large a blood-vessel is cut. The instruments absolutely necessary for a safe tonsil operation are a half-dozen Jackson hemostatic forceps, any good dissecting knife and McReynolds' needle-holder and needles.

DR. G. F. COTT, Buffalo: As to the employment of the Jackson hemostatic forceps just referred to, I want to say that Jackson does not tie; he catches the vessel and twists it. I have done that a number of times and do not find it necessary to tie. Dr. Hurd states that four of his patients died from status lymphaticus. Status lymphaticus, as an entity, does not exist and so patients cannot die from it. There is a condition of poison which causes the trouble. We must extricate ourselves from the long and well-beaten path of tradition without fact. If you ascertain the cause of so-called status lymphaticus and attack that, your patient has a good chance to recover.

DR. G. W. MACKENZIE, Philadelphia: Apropos of the physiology of the tonsils, I do not know just how many physicians here practice the systematic examination of the lingual tonsil. A year or so ago I had several cases referred to me by general practitioners complaining of spasmodic croup with the request that I remove the tonsils, hoping thus to cure the attacks. I removed them as thoroughly as I knew how

but the croup continued and in some it was increased. I was surprised to find that in a number of these children in which the tonsils had been removed subsequently there was enlargement of the lingual tonsil. We should examine these cases more thoroughly before operation and take into consideration the whole of Waldeyer's ring.

DR. B. R. SHURLY, Detroit: It seems to me that it is necessary that certain definite principles of procedure in the operation should be thoroughly carried out by all of us who are interested in this work. One is, to my mind, the question of anesthesia. I feel that it would be a great mistake to allow the discussion to convey the idea that it is correct to use chloroform anesthesia in any of these operations, at any stage of the operation or at any time. It certainly seems to me to have been definitely decided that we have but one safe anesthetic for this work, that is ether. We talked about that for twenty years and we should stick to our conclusions in the matter.

DR. HOMER DUPUY, New Orleans: This Section can hardly go on record with the statement unchallenged that we cannot produce warm ether vapor. In the Cain-McDermott apparatus we first vaporize the ether and as such it is passed through a heated coil, acetate of soda being used, when it is heated in this last receptacle, from which it is carried warmed to the mouth or to the nose of the patient. It is merely a question of physics and we must admit that ether can be vaporized and heated.

DR. M. M. CULLOM, Nashville, Tenn.: In reply to Dr. Loeb's question the time referred to in the paper means the entire time from the beginning of the anesthesia until hemorrhage is stopped and the patient is removed from the table. I have found by accurate timing that the average time for inducing anesthesia in children with warm ether vapor is four minutes and in adults eight and a half minutes. The anesthetic was not pushed, but the anesthesia induced gradually. If the anesthetic is "crowded" the time can be reduced considerably. The actual time of operation from the insertion of the gag till the removal of the second tonsil averages eighteen minutes. About five minutes more is required to check the hemorrhage from the second tonsil.

DR. LEE M. HURD, New York: Prolonged ether anesthesia seems to increase the liability of hemorrhage. The singing voice will not be injured by tonsillectomy if perfectly done, but a faulty technic with injuries to the structures about the tonsil is more than likely to injure the voice. Rheumatic conditions do not necessarily have to be preceded by an acute inflammation of the tonsil. It can very well be due to a tonsil that would not attract the attention of the unobservant.

I agree with nearly all the indications but it must not be overlooked that acute suppurative otitis media can be due to infected nasal sinuses. In regard to the anesthetic, in two of the cases of death from status lymphaticus ether was used; if chloroform had been the anesthetic it would have been blamed for the result; chloroform may be more poisonous in status lymphaticus but ether is also dangerous.

CHRONIC LARYNGEAL STENOSIS; TREATMENT BY PROLONGED INTUBATION

HOMER DUPUY, A.M., M.D.

NEW ORLEANS

The many difficulties which encompass us when dealing with chronic laryngeal stenosis will test to the utmost the patience, foresight and mechanical ingenuity of the surgeon. Months, and even years, may be required in overcoming the obstruction. My experience confirms that of other observers relative to the greater frequency of this stenosis in children. This one factor adds materially to the problem *per se* for there are also local and regional difficulties which present themselves in the treatment of this condition. The instability of the muscular and nervous mechanism of the larynx, incident

to prolonged yet unavoidable pressure of an intubation tube, renders this organ all the more susceptible to intercurrent and sudden adductor spasm of the glottis. Fright and want of self-control, then, are the elements in these young subjects which may readily precipitate such a crisis as adductor spasm. The method of overcoming this obstruction must necessarily hinge on our conception of its causation and its pathology.

In the light of such evidence as is furnished by a notable contribution from J. Rogers, Jr.,¹ and by six cases which I report in this paper. O'Dwyer's dictum, that retained tube cases are the direct result of traumatism induced by faulty intubation, is no longer acceptable. It is timely to recall that in pre-intubation days chronic laryngeal stenosis in children not infrequently led to long retention of the tracheal cannula. While the literature on this subject is very meager, at least in recorded experiences, the greater number of observers are unanimous in their conviction that, in children more particularly (excluding the presence of papilloma, of granulations and cicatricial changes around a tracheal cannula), hypertrophic laryngitis with a focusing of the hyperplasia in the subglottic region is the logical explanation of this form of stenosis. While the original affection necessitating intubation may be diphtheritic, the more permanent and deep-seated exudative inflammatory changes are scarcely to be attributed, in these days of serotherapy, to a continuous and active diphtheritic process. The original infection may have spent its force while the exudative alterations continue and they must be regarded as a sequel of diphtheria. Why such uncommon tissue changes should follow in the wake of diphtheria in such a comparatively small number of proved laryngeal diphtheritic infections, and not in others, remains unanswered. On the other hand, it is proper to reiterate and reinforce the statement that while diphtheria, by microscopic and clinical evidence, has been proved the undoubted cause for these stenoses, there is indisputable proof that diphtheria should not always bear the brunt of the blame. In my series of six retained-tube cases in only one instance did the microscope give a positive result as to diphtheria.

The cause of these obstructions was forced on me in two instances (Cases 2 and 3), when by a direct inspection through a tracheotomy wound a diffuse infiltration with a velvety appearance was plainly seen to occupy the subglottic region and that portion of the trachea which is encircled by the cricoid cartilage. In these areas there was a marked narrowing of the lumen of the respiratory tract. Further confirmation of these phenomena was obtained by performing intubation. The tube readily passed the glottis, but invariably encountered resistance in the subglottic region.

To O'Dwyer belongs the credit of first suggesting that long-continued dilatation by means of intubation tubes offered a reasonable prospect of success in this condition. Gradual, systematic and continuous dilatation with a special intubation tube, one having a low retaining swell, or with a tube having a silver pin attachment for permanent fixation, have proved, in my experience, distinct advances in the treatment of this stenosis. It is a common experience that in hypertrophic laryngitis, with a subglottic stenosis, the ordinary intubation tube seldom remains *in situ* for more than twenty-four hours. Dangerous auto-intubations continually threaten to thwart our best efforts. Tracheotomy is frequently, but improperly, resorted to for this very reason. But it is

usually inadequate and only retards the final cure. About six years ago Dr. L. De Poorter and myself devised a set of metal tubes with a low retaining swell. We called these our "fat tubes." This retaining swell is so placed that it impinges on that portion of the subglottic and tracheal areas which are the usual seat of the constriction so frequently associated with hypertrophic laryngitis. This "fat tube" certainly reduces the possibility of auto-extubations and, moreover, effectively carries out the all-essential principles of dilatation. Should this fail us, the fixed intubation tube holds out a promise of success. It is a hard rubber golden lined tube with a perforation on its anterior surface, at about its lower middle third. A screw pin fits in this perforation. An incision through the trachea, the tube being properly placed in the larynx, gives access to the perforation for the fixation of the pin. The line of incision is then closed above and below the pin. Permanent fixation is thus secured. Rogers first devised the pin and tube attachment made of hard rubber. This pin swells in the tube and is removed with difficulty. I have practically overcome this objection by substituting a silver screw pin in a hard rubber tube. This tube can be easily



Fig. 1. — Dupuy - De Poorter low retaining-swell intubation tube.

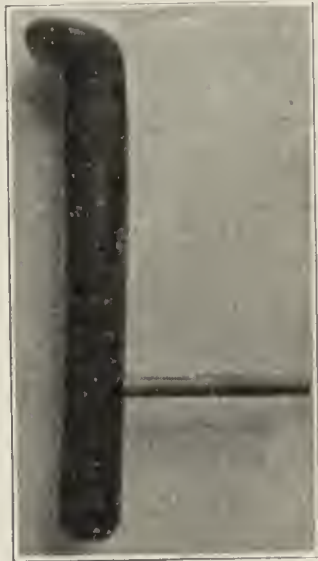


Fig. 2. — Intubation tube with silver pin for permanent fixation in the larynx.

removed to meet the various indications and if replaced within a short period it will be feasible to screw it in without further surgical measures.

The sum of my experience, excluding a patient under treatment, totals six cases. One case was of syphilitic origin, one was due to diphtheria; in three instances cultures were negative as to diphtheria. With the exception of one adult, my subjects were under 3 years of age. There were four successful outcomes and two deaths. One failure, Case 3, resulted from an avoidable accident; the other, Case 2, from an intercurrent bronchopneumonia. The periods of intubations extended for from one month to one year.

CASE 1.—Jones F., aged 30, presented a syphilitic laryngeal stenosis which occasioned a very distressing and increasing dyspnea. The cicatricial contractions reduced the glottis to a mere slit. Under cocaine anesthesia a No. 8 metal intubation tube of the Farroud set was with some difficulty introduced. The tube gave the required relief and remained *in situ* for about a week when a specially constructed rubber tube, with a rubber pin for permanent fixation, was introduced. An incision over the trachea, the tube in position, gave ready access to the perforation in the tube. The line of incision was closed above and below the pin. This tube was only removed about a month later. Dilatation was sufficient to allow comfortable

1. Rogers, J., Jr.: Chronic Obstruction in Larynx and Trachea, *Am. Jour. Med. Sc.*, November, 1905.

breathing. Further to insure this good result the larger size metal intubation tubes were introduced without fixation for another month and then extubated. The patient, seen one year after dilatation, had experienced no further trouble. The usual systemic treatment was resorted to during and after the intubation period.

CASE 2.—Myrtle M., aged 12 months, was referred by Dr. John J. D'Aquin, and intubated by me for increasing and persistent dyspnea. For a period of twenty days several extubations and three auto-extubations necessitated immediate reintubations. On the twenty-fifth day after the first intubation the removal of the tube was followed by normal breathing for twelve hours. The obstruction, however, recurred at the thirteenth hour, requiring a reintubation. A low tracheotomy was determined on to safeguard life in the event of auto-extubations. For one year with the tracheal cannula in position systematic dilatation by tubes progressing from the No. 1 to the No. 3 (Farroud set) was the method of procedure. This finally secured sufficient dilatation to allow free breathing without the tracheal cannula and intubation tube for a period varying at first from a few hours to almost twelve hours. Even under these apparently favorable conditions the cannula was always replaced when she left the office as a protection should the stenosis occur during the night. When the victory seemed certain bronchopneumonia intervened with a fatal issue. The microscope negated the possibility of diphtheria. The persistency of the dyspnea, fixed in its degree, and the absence of paroxysmal attacks of impending suffocation, strongly suggested chronic hypertrophic laryngitis as the cause of the trouble.

CASE 3.—Clarence F., aged 2 years, came to me wearing a tracheal cannula. For several months futile attempts had been made to remove the cannula. The little patient then came under my care at the Hotel Dieu. On enlarging the wound of the trachea a distinct infiltration was disclosed in the subglottic region. I at once introduced a hard rubber gold-lined No. 2 intubation tube (O'Dwyer) securing permanent fixation by means of a silver pin screwed into the anterior surface of the tube itself. The tracheal wound was closed above and below the pin. The fit seemed perfect and the child breathed through the tube without difficulty. This tube was not disturbed until after four months. Its removal showed that considerable dilatation had been effected, but it was not sufficient for normal respiration. A larger tube, a No. 4, with the silver pin contrivance, was placed in position. Baby Clarence was frequently overfed. Though on a liquid diet the vomiting of curdled milk with particles entering the tube caused several attacks of bronchopneumonia. He always tided over these accidents. But here again when just in sight of victory a night nurse overfed him and while in a supine position he vomited curdled milk. The tube was suddenly occluded and Clarence died before the intern could render assistance. The history and the inspection of the parts through the tracheotomy wound pointed to undoubted infiltration in the subglottic area and in the upper limits of the trachea just above the cricoid.

CASE 4.—Robert H., aged 3, was referred by Dr. J. W. K. Shaw, of New Iberia, La. Suprasternal and diaphragmatic tirage called for mechanical help. The insertion of a No. 2 tube (Farroud) immediately relieved the dyspnea. It required one month to overcome the stenosis. About ten extubations and reintubations were practiced before obtaining the final results. After extubations the patient would sometimes breathe perfectly for several hours, after which the progressive but certain return of the stenosis made reintubation imperative. The negative microscopic findings as to diphtheria, the slow onset and the very gradual increase in the dyspnea after extubations, the absence of those rapidly induced paroxysms of threatening asphyxia, seemed to argue that here again was a case of hypertrophic laryngitis.

CASE 5.—(Reported by Dr. J. G. Hirsch, intern, Charity Hospital, New Orleans.) J. R., white, male, aged 1 year, was referred to the Charity Hospital for laryngeal diphtheria, with impending asphyxia. Intubation was done successfully by house surgeon Danna. Cultures were negative. On admission

2,000 units of antidiphtheria serum were given. Three days after insertion of the tube auto-extubation occurred. He was reintubated and 2,000 units of serum were given. Two days after last intubation another auto-extubation occurred which required reinsertion of the tube within an hour. Ten thousand units of serum were administered. The third auto-extubation happened in twenty-four hours and the tube had to be reinserted. Six thousand units of serum were injected. The tube was coughed up within forty-eight hours, but it was swallowed by the patient and was passed two days after by rectum. Tracheotomy was performed by assistant surgeon Stafford and the cannula was removed after ten days. The patient seemed to be improving when a return of the dyspnea on the fourth day necessitated a second tracheotomy which was done by assistant surgeon Cole. Bronchopneumonia followed. Dr. Dupuy was called in consultation. He reintubated with a special metal tube with a low retaining swell. The tracheotomy wound was allowed to close. The tube was not coughed up during a period of three weeks. It was removed several times for cleansing purposes and to test the degree of dilatation in the respiratory tract. After final removal of the tube the child was kept under observation for some weeks, and as it breathed perfectly well was discharged cured.

Comment: Uninfluenced by a large dosage of antitoxin and cultures negative, this case appeared to be one of hypertrophic laryngitis. The tracheal cannula was abandoned as it did not promise to overcome the actual stenosis.

CONCLUSIONS

1. An affection presenting the distinctive features of exudative inflammatory changes with a narrowing of the respiratory lumen in the subglottic and upper tracheal areas, in most instances is the essential cause of persistent laryngeal stenosis in children. This is what we consider as a pathologic entity in itself and the term hypertrophic laryngitis expresses its chief feature. It must, however, be considered as an end-result of some active inflammatory process, which may be of diphtheritic origin. But some other cause non-diphtheritic in character may also prove the essential factor.

2. In children prolonged intubation with a special tube (one with a low retaining swell), using the largest tube possible for the age of the subject, offers in the present stage of our knowledge the best prospects of success in overcoming the stenosis.

3. If repeated and dangerous auto-extubations occur, in spite of the use of the special tubes, the fixed intubation tube, made of hard rubber and gold-lined, offers the best safeguard.

4. This hard rubber tube for prolonged intubation is preferable for the reason that incrustations do not occur around the tube and the possibility of ulcerations of the parts, due to contact, is minimized.

5. Tracheotomy not only fails to effect mechanical dilatation in the constricted areas, but it actually invites tracheal cicatricial changes and deformities which will only complicate matters and drive us from Scylla to Charybdis.

ABSTRACT OF DISCUSSION

DR. H. L. LYNCH, New York: I have had experience with these cases covering a period of eight years, and I read a paper on the subject last year and one again this year. The different types I classified as follows: First, the type in which there is a nervous spasm before the tube is removed from the larynx, holding the tube as in a vise, and making extubation extremely difficult; when the tube is finally removed there is a violent spasm and immediate intubation is necessary. Second, the spasm type without nervous element. This is due to the long-continued wearing of the tube, the tube virtually acting as a splint to the intralaryngeal muscles, holding them in a state of fixation or functional disuse. The abductors being

held apart so long a time, the balance of power is exerted by the opposing set of muscles, which promotes adductor spasm. Third, the polypoid type, which occurs at the base of the epiglottis and ventricular bands. These polypoid outgrowths fall together as the tube is removed and immediate reintubation is necessary. This type simulates the spasm type. In these three classes the dyspnea is inspiratory, but can be overcome by general anesthesia, only to return when the patient awakens. Fourth, the hypertrophic subglottis type. In this the stenosis is slow and gradual, accompanied by both inspiratory and expiratory dyspnea, and sooner or later intubation is necessary. This contraction usually occurs at the cricoid level, but may involve the entire lumen of the larynx. Fifth, the cicatrix type, due to traumatic or surgical interference. To add a cicatrix to the already complex pathology is most certainly not the proper procedure in the treatment of these cases, and laryngotomy or tracheotomy should not be performed, for the scar when contracting may pull one vocal cord below the other, and the voice may be lost from failure of approximation of the cords. Lastly, the atrophic type, which occurs in cases treated by prolonged dilatation and in which thick sticky mucocrusty masses obstruct the larynx. Here intralaryngeal medication is of benefit, but is of no use in the treatment of the other types. The primary cause in these cases is the severity of the diphtheritic lesion, which prolongs intubation, and this, in turn, produces ulceration, necrosis and sloughing of the cartilage. The firm cartilaginous larynx at the cricoid is now converted into a collapsible tube. Now Nature endeavors to regenerate these areas with fibrous connective tissue, and the cartilage is replaced by new bone formation with projections into the lumen of the larynx. The recurrent laryngeal nerves in these cases are absolutely normal; there is no paralysis of the vocal cords. Dilatation, not laryngotomy, is the only proper treatment for these cases of chronic laryngeal stenosis.

DR. B. R. SHURLY, Detroit: In a long experience, which includes more than 500 intubations for diphtheria, it has been my misfortune to treat seventeen cases of prolonged or retained intubation tubes. We should make a definite classification between prolonged and retained tubes. It was not uncommon in the older days, before we had antitoxin, to see prolonged intubation tubes, those that are required perhaps for more than a week. It is customary, of course, to remove them on an average four days after intubation. In these seventeen cases, which were diphtheritic in origin, sixteen patients recovered and one died; the latter was discovered dead by the mother in the morning; she had slept through the night and the tube was found under the bed, so that result was due to carelessness in nursing. The other sixteen recovered by the use of saturated alum applied to the tube. We should classify these cases carefully, and that has been well done by Dr. Lynah. I cannot agree with Dr. Dupuy in not giving consideration to traumatism as a very frequent cause of the prolonged intubation tube. A number of these cases occurred in the days when we used metal tubes, which were certainly followed by injury to the larynx. They were attended with much more danger to the larynx in the way of traumatism. Some of these cases, too, are subjected to the most humiliating lack of skill in passing the intubation tube. It is not surprising, therefore, that we should meet with injured larynges from bad technic and lack of special knowledge and experience which is difficult to obtain at present. There are so few cases now that there are very few experienced operators left in the field. The entire matter revolves around the earliest possible relief when symptoms of stenosis are beginning. The earlier the treatment, the more certain and perfect will be the results.

DR. EMIL MAYER, New York: Dr. O'Dwyer's tubes are as perfect to-day as they were when first presented. Any single change from the O'Dwyer tube, for the conditions for which they were designed, results in the worst effect one can imagine. O'Dwyer himself found occasions in which some other size or shape might be necessary, but that is only in the exceptional case. As Dr. Shurly has said, he had seventeen cases out of 500, thirty-four in a thousand, that required something else besides the ordinary tube. Something had to be devised, and everyone who has made a study of the subject can show tubes of almost all shapes. I have in my possession a tube that is perfectly round except at the head which was used in a case

in which the whole interior of the larynx had been taken out. A retaining swell may be made in any position, and I have no doubt that such a swell in the lower part of the tube may be of advantage in some such case as is referred to by Dr. Dupuy. As to the origin of the diseased condition, I think it will be found on careful examination that the condition is diphtheritic in every single instance. There are, of course, other causes of stenosis. I have presented here before this Section the case of a soldier who was in the Spanish-American war, in which a bullet entered the eyebrow, came down through the maxilla, struck the thyroid cartilage and then dropped into the esophagus, passing out through the bowel. He had a hole in his soft palate, which was the first suggestion that stenosis of the larynx might have been caused by the wound. This patient was treated by intubation with ultimate cure. Another cause is posttyphoid perichondritis and another a rhinoscleroma.

DR. HOMER DUPUY, New Orleans: O'Dwyer's tubes certainly answer every indication in acute stenosis of the larynx in children, and we who enjoy the precious heritage of this contribution should not change the diameter and shape of these tubes one iota, but in hypertrophic laryngitis with a subglottic stenosis we have to meet special conditions, and the fixed tubes and those with the low retaining swell seem to offer the best safeguards in averting dangerous auto-extubations; they, moreover, by procuring dilatation, offer the best prospects for a final cure. In adults laryngostomy may be applicable. It is too long and tedious to be applicable in children. I did not touch on the question of bony changes, because my cases did not show, in my opinion, such profound alterations. I believe that it is only after a period of three or four years that a chronic stenosis of the larynx shows these bony end-results; up to the second and third year they should be regarded as purely fibrous infiltrations.

THE DILATATION OF BRONCHIAL STRICTURES

NOTES ON THE CLINICAL PATHOLOGY
OF BRONCHIALECTIA

CHEVALIER JACKSON, M.D.

PITTSBURGH

Bronchial stenoses may be divided into functional and organic. The organic stenoses comprise a number of widely different lesions, but it is only cicatricial stenosis that will be considered in this paper. The chief causes of cicatricial bronchial stenosis are traumatism, syphilis and tuberculosis; or perhaps more accurately, the secondary infections complicating these lesions. Tuberculous processes are of such slow progress, as a rule, that the lung accommodates itself to the altered conditions, and cicatricial bronchial stenoses secondary to tuberculosis rarely require local treatment, though they occur as the result of erosion through the bronchial wall, and I have seen six such cases. Cicatricial stenoses, in some instances, may require dilatation in order to secure proper drainage of the infrastrictural bronchiectatic cavity, and thus cure the patient of bronchiectasis with its distressing cough, foul expectoration, dyspnea and lesser symptoms. For syphilitic strictures it may be necessary to use prolonged intubation with bronchial intubation tubes, put in place with the aid of the bronchoscope and left *in situ* for a period of from one to seven days. The tube should be left for a few hours in case of daily removals, or a few days in case of weekly removals. Extubation is performed with an extubator used through the bronchoscope. In order to obtain a sufficient lumen for the insertion of the intubation tube, a laminaria or tupelo tent may be used, placed *in situ* with my instrument for the purpose. The tent is open to the objection, that it obstructs all drainage for the time it is in place, though this need be

for only a few hours. Divulsion, as hereinafter described, is the best method by which to obtain a sufficient lumen for intubation, and even if some trauma results from divulsion, cicatricial tissue is not readily infected by the organisms present, to which the patient is already more or less immune.

In cases of traumatic cicatricial stenoses, such as follows the prolonged sojourn of a foreign body in a bronchus, I believe the best results for gaining access to the foreign body are obtained with my divulsors (Figs. 1 and 2). For the treatment of the stricture after the removal of the foreign body, if such treatment is ever necessary, these same instruments would probably serve equally well, but of this I cannot speak from experience, because in my cases of cicatricial stenosis following the most prolonged sojourn yet recorded of a foreign body in a bronchus (seven and ten years respectively), the patients entirely and completely recovered from all symptoms, including the septic symptoms and the cough. The expectoration lost its odor and purulent character and then ceased altogether, the patients regaining robust health, so that there was no occasion for after-treatment of the stenosis. In both of these cases, the strictures were firm and rigid and of very small lumen. The following is a brief summary of the history of two cases of bronchial stricture treated by divulsion.



Fig. 1.—Small dilator for bronchoscopic dilatation of bronchial strictures. The dilator is actuated by the author's universal forceps handle.

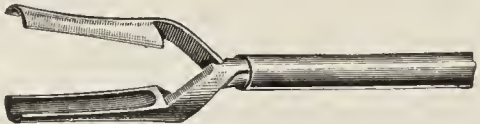


Fig. 2.—Larger dilating forceps with a channel in each member, so as to furnish a canal when the dilator is closed for insertion.



Fig. 3.—Forceps jaws, curved on the edge.

CASE REPORTS

CASE 1.—B. G., a boy, aged 18, small, frail and undeveloped for his age, gave a history of pneumonia eight years before (1903), followed by pleurisy and empyema, which one year later (1904) was tapped and drained. Only a very small amount of pus was obtained and drainage during three months was very unsatisfactory. Temporary improvements were followed by relapses. Chills were attributed to a supposed malarial infection while living in Virginia. One of the most eminent internists in the United States diagnosed pulmonary tuberculosis, since which time treatment has been chiefly climatic, by residence in Arizona. The boy never regained his health sufficiently to dispense with a nurse. He was frail, under-sized and pigeon-breasted. He suffered continually from cough, usually with purulent sputum, frequently pink-stained, and occasionally of foul odor. He had low, irregular temperature elevation very suggestive of tuberculosis, but sputum examination was always negative.

Report of Physical Examination (by Dr. James I. Edgerton and Dr. John W. Boyce.)—Patient is underweight, pigeon-breasted, and has marked dextrocardia; apices free from disease. Physical signs are confined to base of right lung. Low down posteriorly, and extending to edges of lung, both breath and voice sounds were increased with a suggestion of amphoric breathing and whispered pectoriloquy. No change in percussion note. We are unable to demonstrate either tympany, cracked-pot note or Wintrich's change of tone when mouth is open.

Such was the history and condition of the patient when taken to Dr. James I. Edgerton of New York. Unlike his predecessors, Dr. Edgerton did not conclude that all the physical signs were attributable to the secondary changes, following the supposed empyema of eight years before, and sought the aid of Dr. Lewis Gregory Cole, of New York City, who located with wonderful accuracy by radiographic triangulation, a portion of a lead collar button midway between the angle of the scapula and the spine, $2\frac{1}{2}$ inches from the posterior wall of the chest. The collar button consisted only of a base and post, without a top, giving the appearance of a rivet as seen in the radiograph (Fig. 6).

Operation.—The parents remembered that the child had "choked" ten years (symptoms eight years) previously on the collar button; and they had reiterated their suspicion that the collar button might be the cause of all the symptoms, and in recent years they had even requested that a radiograph be taken. But the scoffing at lay opinions had silenced them. Dr. Edgerton brought the boy to me and at the Eye and Ear Hospital. I removed the collar button through the mouth by bronchoscopy. The ten years' sojourn had produced some interesting pathology. On passing the bronchoscope through the larynx, a large quantity of very foul, blood-stained pus was continually being coughed up from below. This coughing



Fig. 4.—Radiograph by Dr. Willis F. Manges, showing price-tag fastener which had been in the right bronchus seven years. Removed through the mouth by bronchoscopy after bronchoscopic dilatation of the bronchial stricture.

could, of course, have been stopped by deep general anesthesia, but the cough reflex was preserved under slight ether anesthesia as an invaluable aid in ridding the lower air passages of the foul secretion, which obscured everything. Swabs on long carriers were introduced and passed through and beyond the distal end of the bronchoscope. Then when the cough had filled the lower 2 inches (approximately) of the bronchoscopic lumen with secretion, the swab was drawn into the bronchoscope and thus the thick fluids were drawn out by positive lift, as an ordinary water-pump acts on the water that is above the plunger. After the fluid was removed from the trachea in this way, it was easy to see that the pus was coming from the right bronchus. This tube was pumped out and then it could be seen that almost all the right bronchus was a bronchiectatic cavity with a cicatricial bottom, at the right edge of which was a small strictural opening, about 2 mm. in diameter. A cicatricial web occluded about two-thirds of the bronchial lumen just above the stricture and this web at its right end curved downward forming part of the edge of the stricture. The apertures of the upper and middle lobe bronchi seemed more than usually oval in outline, though of this it was difficult to be certain, and the time could not be spared for careful examination, since it was practically certain that the collar button was below the stricture, which therefore must be dilated. The dilator (Fig. 1) was passed and readily entered the lumen of the stricture. The divulsion to

the full extent of the forceps (1 cm.) did not require great force. After the withdrawal of the small dilator, the large dilator (Fig. 2) was introduced and expanded and allowed to remain *in situ* for a few minutes. Next, the cavity below the stricture was wiped out with small bronchoscopic swabs. Basing his judgment on the fact that the physical signs as above given were below the point at which Dr. Cole located the foreign body, Dr. Boyce advised me that the collar button would be found at the top and not the bottom of the abscess cavity. Acting on this advice, a small patch of granulation tissue was found immediately under the overhanging left edge of the dilated strictural opening. During exploration of this granulation tissue with the jaws of the forceps (Fig. 3) the collar button was felt and removed. At the first attempt, the tip of the post of the button came away, permitting the removal of the balance of the button (Fig. 7) edgewise. The boy returned to his home a few days later, and four months afterward, entered college in perfect health, free from cough and expectoration or any remnant of the old condition. One year after the operation, he was sound, healthy and normal in every way.

CASE 2.—Mary N., aged 23, was seen in consultation with Drs. J. Solis Cohen, D. Braden Kyle and Tello d'Apery. The patient gave a history of continual cough and foul yellowish expectoration for about a year and a half, during which time she had an irregular temperature elevation and had lost weight. For seven years she had been subject to severe cough with expectoration during the winter, these symptoms disappearing in summer. The diagnosis of pulmonary tuberculosis had been made by a number of physicians. The foregoing is in brief the history she gave on admission to Jefferson College Hospital.



Fig. 5.—Price-tag fastener lodged for seven years in a lung of a girl aged 23 years. Removed bronchoscopically through the mouth after dilatation of the overlying bronchial stricture. Only one branch wire shows, because the two were in line.

Radiographic Examination.—Dr. Solis Cohen in consultation with Dr. d'Apery found both apices free from disease. The only abnormal physical signs were slight impairment of resonance at the right base, with diminished voice and breath sounds. As these, in his opinion, did not sufficiently account for the symptoms, he referred the case to Dr. Willis F. Manges for radiographic study. Dr. Manges in a beautiful stereoscopic radiograph (Fig. 4) showed a stricture of the right bronchus, with a metallic body resembling an upholsterer's tack, point upward below the stricture and behind the bronchus. The patient remembered having "swallowed" a price tag fastener seven years before, but as she was told that it would pass harmlessly, she had forgotten the occurrence. She had had no symptoms whatever until the following winter.

Bronchoscopy.—At Jefferson College Hospital I passed a bronchoscope through the mouth. The trachea was full of foul purulent secretion which was removed in the same way as in the preceding case, the patient being kept only partially under ether to gain the aid of the cough reflex. The last of the secretion removed from the right bronchus was mixed with blood. The right main bronchus, just below the orifice of the middle lobe bronchus, was occluded by a firm stricture, the lumen of which was a mere slit, extending about 3 mm. laterally, and with no appreciable anteroposterior diameter, the anterior and posterior edges being in contact. At each coughing effort, bloody secretion was forced through the slit. The stricture was dilated by the instruments described in the foregoing case in the direction of the narrowest diameter. Then the source of the bleeding and the blood-stained secretion was found to be a mass of granulations below the stricture and posteriorly. Below this was a large cavity from which a quantity of very thick pus was removed. This pus was not

foul like the tracheal pus. On exploration, the mass of granulation tissue at the top of the cavity posteriorly was found to protrude from an accessory cavity, extending posteriorly and medianward, outside of the bronchus. On removal of the granulation tissue, the foreign body was found and removed. It proved to be a price tag fastener (Fig. 5).

Pathologist's Report.—The granulation tissue removed was examined by Dr. Ernest W. Willetts, who reported as follows: "Pathologic Report of Granulation Tissue: Specimen consisted of several very small pieces of tissue. Microscopic examination shows tissue with covering of stratified squamous epithelium which has normal appearance but is thickened considerably at some points. Beneath the epithelium there was a mass of connective tissue showing many mast-cells, fibroblasts, new blood-vessels and some older more fibrous areas. There is also considerable round-cell infiltration. The process appears to be a chronic inflammatory one, the exact nature of which is not evident from microscopic examination."

Subsequent History.—The patient made an entire and complete recovery, and now, one year afterward, Dr. d'Apery reports that she is working at her occupation in the stocking-factory, in possession of perfect health, the cough and expecto-

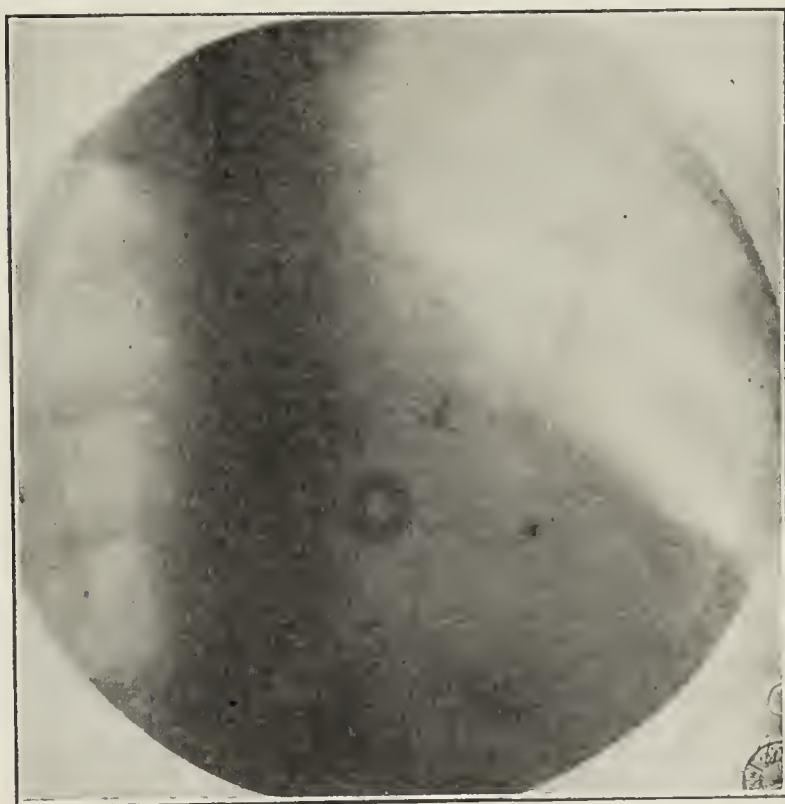


Fig. 6.—Radiograph by Dr. Lewis Gregory Cole, showing lead collar-button (minus head) in right lung of a boy of 18 years. Removed bronchoscopically through the mouth, after divulsion of the overlying stricture.

ration having been totally absent for the past winter, the first out of seven winters.

In view of the fact that almost all cases of unremoved foreign body in the lung are fatal within two years, the prolonged resistance of these two patients to the impaired pulmonary function, and especially to the secondary septic process (for eight and ten years respectively) is remarkable. This resistance in the case of the boy may be partially accounted for by the open-air climatic treatment in Arizona. These two cases being of the longest in duration yet recorded, afford interesting data on the clinical pathology of bronchiectasia. Autoptical pathology is entirely wanting in my personal experience, so that all I can offer is the clinical and the living pathology based on bronchoscopic appearances and the examination of granulation tissue removed. From these and the accepted fundamental pathology of the text-books, the following is formulated: Doubtless very minute bodies become encysted or invade the interlobular connective tissue, as in anthracosis, but aspirated foreign bodies of larger size apparently rarely, if ever,

become encysted, though as in one of the foregoing cases the foreign body may migrate and become somewhat "pocketed."

It is evident from these two, and other, cases, that the foreign body by gravity, as well as by aspiration, reaches the smallest bronchus it can enter, where it stops. Later negative pressure draws it still further downward. By mechanical irritation alone, or, more likely, from this combined with pyogenic organisms carried down with the foreign body there results a productive inflammation which first completely occludes the involved bronchus with swollen mucosa (plus the bulk of the foreign body itself) ending in abscess of the lung below the foreign body. Later, sloughing or ulceration follows in the tissues surrounding the foreign body, permitting the slow escape of discharges, which because of the lessened expulsive cough effort from below consequent on the obstruction, tend to accumulate producing the condition of bronchiectasis above the obstruction. In time, the obstruction owing to the productive inflammation becomes a cicatricial stricture. Below the stricture, the abscess cavity becomes, in a sense, a bronchiectatic cavity, also. The loss of the cilia and even of the epithelium itself follows, as well as increases, the stagnation of the secretions. The law of gravity would lead one to expect to find the foreign body at the bottom of the cavity in the formation of which it has been the chief etiologic factor. The following seems a plausible explanation: The abscess, of course, forms below the obstruction, but by the time the substrictural bronchiectatic cavity has been produced the foreign body has become sufficiently



Fig. 7.—Portion of lead collar-button (used by laundries) removed by bronchoscopy, through the mouth, from the lung of a boy aged 18 years.

fixed by organization of a part of the surrounding cicatricial tissue to hold the body in its place at the top of the cavity which it has caused. The development of a stricture above the foreign body is plausibly explained by the ulceration which is more or less annular. Such ulceration in any channel or tube in the body always results in more or less constriction of the lumen when the scar tissue contracts. That it does not occur to the same extent immediately below the foreign body is probably due to the conditions which cause the substrictural bronchiectasis.

The recovery of both these patients after the removal of the foreign body indicates that the stretching of the stricture improved the drainage of the cavity above as well as that below the stricture, to so great an extent that Nature made a very efficient repair of the bronchiectases. Of course, it is not known how frequently foreign bodies may be the cause of bronchiectasis, but the similarity of the symptoms in bronchiectasis and in foreign bodies in the bronchi, would certainly render exploratory bronchoscopy advisable even in a case with negative radiograph. The close parallel between the symptoms noted in these two cases, as well as in others, and in pulmonary tuberculosis, would seem to render it advisable to suspect the presence of a foreign body in every case of seeming tuberculosis, in which no bacilli are found in a purulent sputum, and especially if the symptoms are confined to the lower lobe, particularly the right lower lobe. This would still leave out the cases of foreign body in which a tuberculous infection has preceded, or, more often followed the aspiration of

a foreign body. The use of the radiograph as a routine procedure would certainly seem indicated in the diagnosis of thoracic disease. The erroneous diagnosis of pleural disease in these and other cases of foreign body in the lung has been ably pointed out by Dr. Boyce.¹

Dr. E. Fletcher Ingals has reported a case in which he diagnosticated a foreign body in a patient previously tapped for supposed pleural effusion.

The location of the foreign body at the top, instead of the bottom of the abscess cavity, is a point of greatest importance, as without the advice of Dr. Boyce on this point, the search in both of the foregoing cases would have been prolonged, and might have been futile, because the foreign body was not in either instance free in the cavity, but, on the contrary, was fixed and bedded in granulation and fibrous tissue, external to the bronchial wall, through which it had eroded its way. The finding of the foreign body would have been difficult, if not impossible, without dilatation of the stricture above them. No useful forceps could have been inserted through the strictures, and the foreign body could not have been found and certainly could not have been withdrawn. If withdrawal were possible, trauma would have been extensive, and probably fatal. The dilatation of the purely cicatricial tissue of the stricture was harmless. Further, and very important, the dilatation improved drainage, so that Nature could care for the lesions resulting from the long sojourn of the intruder. A period of a year has now elapsed and able clinicians pronounce the patients well.

Prolonged dilatation of the stricture after the removal of the foreign body evidently should be deferred until such after-dilatation is indicated by absence of improvement in symptoms, physical signs, and radiographic signs after a number of months.

The method of dilatation by divulsion devised by me and used in these cases possesses the following advantages:

1. It is safe because it is under the guidance of the eye and the trained touch, by which both the direction and the extent of the dilatation are accurately limited at will.
2. It does not require tracheotomy in any case.
3. There is no danger of pushing the foreign body downward as is possible in certain cases, if anything in the shape of a bougie were to be used. Pushing a foreign body downward not only makes removal more difficult but involves serious risk of rupturing the bronchus.
4. It is, obviously, better adapted than tent dilatation or prolonged intubation to foreign body cases, and is, in any case, much safer and simpler.

In view of the foregoing, I feel justified in urging divulsion in the treatment of bronchiectasia.

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ABSTRACT OF DISCUSSION

DR. EMIL MAYER, New York: Dr. Jackson referred to a case that occurred recently in the wards of the Mt. Sinai Hospital; the patient had bronchitis and for general reasons only a bronchoscopy was asked for by Dr. Yankauer and was permitted. A quantity of secretion of a nasty offensive character was pumped out, and finally a foreign body was found: a piece of chicken-bone was removed from the bronchus. The patient had no recollection of having inhaled it. The patient had improved and the result would no doubt be perfect. My most interesting case I reported at the American Laryngo-

1. Foreign Bodies in the Lungs Simulating Pleural Effusion, Med. Rec., New York, Oct. 14, 1911.

logical Association. The child had a most peculiar crowing respiration; physical signs showed absolute obstruction at the lower portion of the right lung, without any previous history of any trouble. No foreign body could be seen; it was thought to be present, however, although x-ray examination did not disclose it. Bronchoscopy was done and a tumor was found which filled the lower portion of the bronchial tube. Its removal completely restored health.

THE SUBMUCOUS RESECTION OF DEFLECTIONS OF THE NASAL SEPTUM

THE AUTHOR'S PRESENT PERFECTED METHOD *

OTTO T. FREER, M.D.

CHICAGO

This article describes my way of performing submucous resection of the septum in its now perfected state.

ANATOMY OF DEFLECTIONS OF NASAL SEPTUM

Traumatic Deflections.—These are commonly confined to the cartilage in the form of a sharp, usually vertical, but sometimes more or less horizontal angle at the front

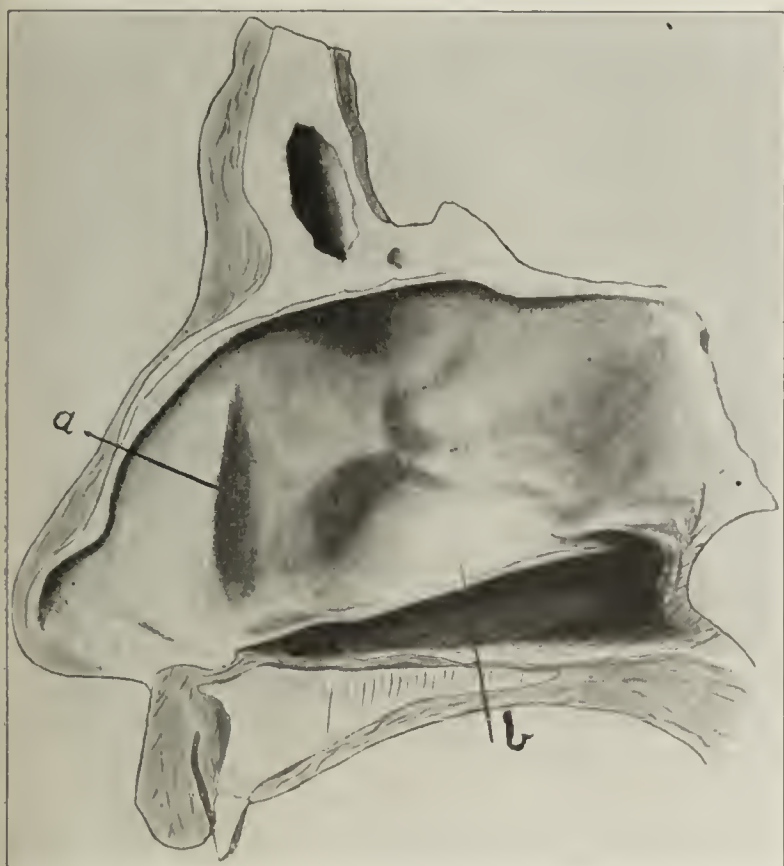


Fig. 3. Side view of the nasal septum, showing a typical double angled deflection with a, the vertical angle, and b, the ascending crest deflection. From a specimen.

of the septum (Fig. 1, Fig. 2, a, b, c, d, i), whose anterior plane lies obliquely or directly across the nostril, or may curve forward. The apex of the angle is the line of the usually ununited fragments, each in its own perichondrial envelope. They often overlap, forming, instead of a pronounced angle, an irregular thickening of the foremost part of the septum (Fig. 2, d, e, f, g, h, j).

The false direction given the growth of the septal cartilage by a fracture may augment a primarily moderate deflection and even involve portions of the bone.

The Osseocartilaginous, Horizontal Crest Deflection from Disproportionate Growth of the Septum.—A septum growing too fast in a normal nasal cavity or normally in a contracted one, not finding room for its expansion, escapes the chronic pressure due to its proportionate excess of growth by buckling horizontally or

vertically. The horizontal compression creates a vertical bowing or angle in the septal cartilage (Fig. 3, a).

The vertical pressure takes place between the unyielding hard palate and base of the skull, the result being the familiar horizontal crest deflection forming a sharp angle or crest ascending obliquely from the nasal floor along the anterior border of the vomer toward the sphenoid body in the naris of the convexity of the deflection (Fig. 3), with a corresponding groove in the naris of the concavity (Fig. 4). The vertical pressure which creates this deflection bends over the bony base of the septum formed by the incisor crest and the vomer resting on the superior maxillary and palatine crests, until it arches over the nasal floor, and so makes the grooved articular surface on the incisor crest and anterior border of the vomer, which normally looks upward, look sideways. The pressure also makes the cartilage descend on and overlap the vomer, the cartilage carrying the entire vomero-cartilaginous articulation down with it and pushing before its advancing lower border that flange of the vomeral articular groove which comes lowermost and which hypertrophies into the well-known crest of bone with cartilage so often sawed away (Fig. 6, B, cr).

The arrangement of the periosteum and perichondrium in the crest deflection is also important and was

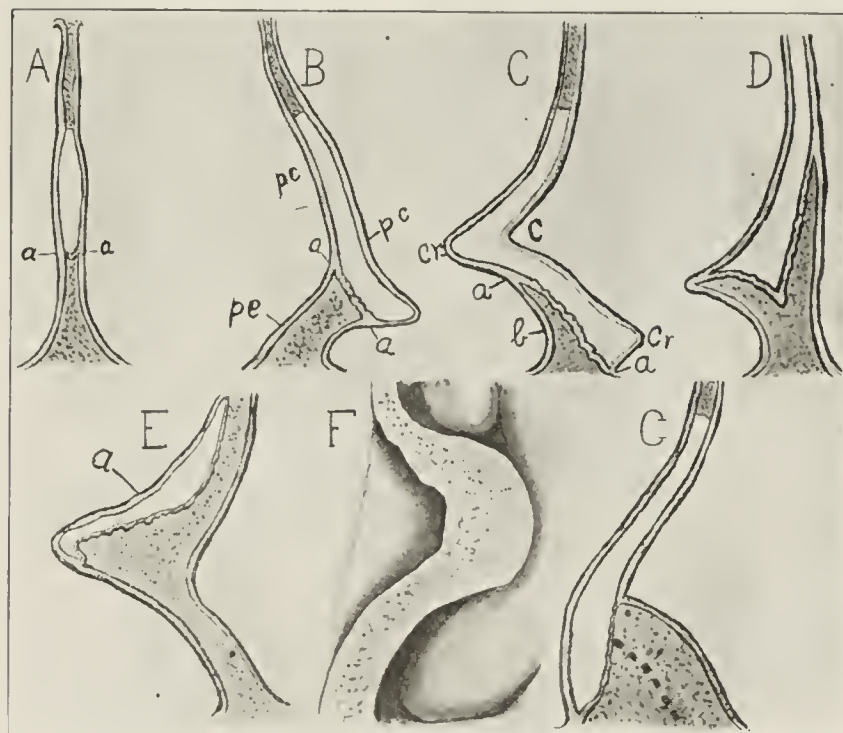


Fig. 6. Vertical sections through the septum. A, normal septum, a—a, vomerocartilaginous joint with crossing of conjoined periosteum and perichondrium from naris to naris; B, typical crest deflection with crossing of periosteum-perichondrium in tilted vomerocartilaginous joint, a—a, pc, perichondrium; pe, periosteum; C, crest deflection with tilting of the vomerocartilaginous joint into naris of concavity; c, concavity; cr, cr, cartilaginous crest in both nares; a—a, articulation; b, vomer. The cartilage is shown bent on itself in the form of a knee in a manner typical of this type of deflection. D, rare case, cartilage resting in crotch formed by hypertrophied flanges of anterior border of vomer. E, the bony V, formed by the junction of the perpendicular plate and vomer and showing, a, cartilaginous strip created by escape of cartilaginous prolongation, normally within the vomero-ethmoidal articulation. F, a massive bony V. G, crest deflection with typical concavity, yet with the other wall of the septum nearly straight because of lack of overhang of the deflected vomer. Dotted line shows position of usual overhang.

first described by me. (*Journal of Ophthalmology and Oto-Laryngology*, 1907.) The periosteum, ascending on the vomer from the nasal floor on the side of the convexity, passes over the tilted articular surface under the overlapping cartilage to the top of the vomer whence it descends on the other side of the vomer into the opposite nostril. Similarly, the perichondrium, descending over the cartilage on the side of the convexity, curls around its lower border and, blending with the perios-

* Because of lack of space this article is abbreviated in THE JOURNAL with the omission of most of the illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

teum under the overlapping cartilage, ascends on the cartilage in the other nostril. The membranous bridge thus passing through the vomero-cartilaginous articulation must be cut through to denude below it (Fig. 6, B a-a).

The bottom of the groove of the concavity of the crest or horizontal deflection coincides with the upper border of the vomer and the tilted articulation described, while what has become the lower border of the articulation corresponds with the crest of the horizontal angle of the deflection in the naris of the convexity. Between groove and crest lies the hidden articulation (Fig. 6, B, a-a).

The angle formed by the cartilage and bent-over vomer is continued posteriorly and upward by the vomer and perpendicular plate bent out to form a V lying on the side (Fig. 7, Fig. 6, E, F). The formation of the V by these two bones opens the joint between them at the apex of the V and so permits the cartilaginous strip, lying normally within the joint, to grow out from its open side, where it is attached by indentations to the broadened, rough surface of the laterally opened articulation as a thick, long cartilaginous crest (Fig. 7, a, Fig. 6, E, a).

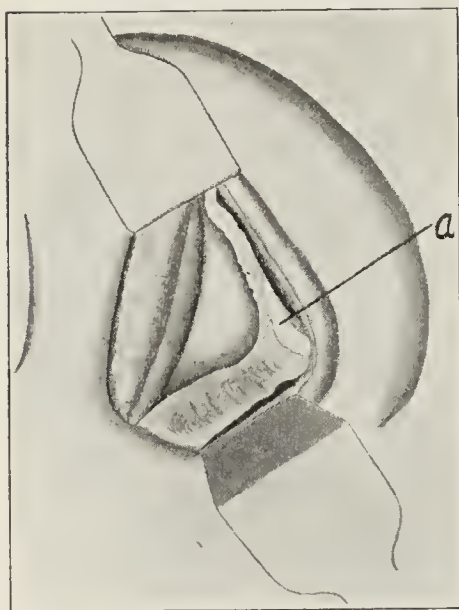


Fig. 7.—Nostril held open with retractors, showing the perpendicular plate and vomer joined to form the bony V; a, strip of cartilage extending backward over opened vomero-ethmoidal joint.

a horizontal crest deflection, either both in the same naris or in alternate nares, when they form a horizontally sigmoid deflection.

Where the perpendicular plate of the ethmoid bone bulges into the nostril opposite to the horizontal or crest deflection a vertically sigmoid deflection is formed.

Displacement by growth downward and forward of the free movable part of the septal cartilage, the so-called columnar cartilage, dislocates the free anterior inferior border of the cartilage from its position above the cutaneous septum and causes the columnary cartilage to curl out into one or the other external nostril (Fig. 8). This may be the only existing deviation of the septum or the free border may form the lower border of the anterior plane of a vertical angular cartilaginous deviation, the free border then lying across both nostrils (Fig. 1, a).

STEPS OF THE OPERATION

Position of the Patient.—The patient lies on an operating chair which can be raised and lowered and whose back may be fixed at any desired angle to the seat of the chair (Fig. 9). In all cases, the operator stands beside the patient on the side of the naris in which the operation is conducted. For the final tamponing the

patient is placed in an ordinary straight backed chair with the operator sitting in front of him.

Illumination.—The Kirstein head-lamp fitted with the umbrella filament Brünings' miniature lamp.

Anesthesia.—From the tenth year on, in nearly all cases, local anesthesia is employed, a light general narcosis combined with local anesthesia being reserved for younger children to overcome resistance. After clipping the hairs from both nasal vestibules, a small swab is wet with a 1 to 1,000 epinephrin (adrenalin) solution and dipped into pure flake crystals of cocain, the cocain epinephrin mud being then rubbed into the mucosa on both sides of the septum over the area of the operation. In about three minutes the anesthesia is complete. All the mucosa becomes insensible except where it is cutaneous

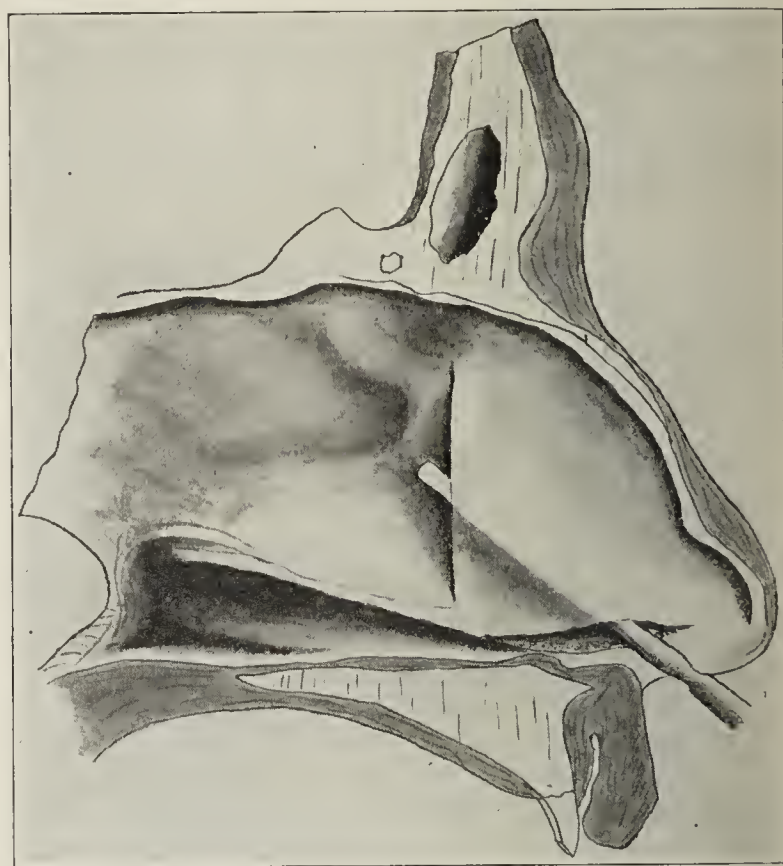


Fig. 12. Convexity of a double angled deflection. The sharp elevator is seen entering through the horizontal incision and cutting out through the mucosa-perichondrium from underneath to make the vertical cut.

in the nasal vestibule. Later, anesthesia is made complete here by rubbing cocain into that part of the incision.

Time Required.—The patient, not understanding that the operation, when properly done, is painless, imagines that the longer it lasts the longer his supposed suffering. Taking advantage of this misconception certain operators make much of the short time in which they claim to do the operation. Gentleness and care take time, while haste means violence, injury and pain. The time required is from one-half hour to two hours, according to conditions. Bleeding from high blood-pressure and especially the results of preceding unsuccessful operations make slow and cautious progress necessary.

Assistants.—Two are needed.

Specula.—In place of a speculum, two narrow, flat retractors held by an assistant hold open the sides of the nostril. A third retractor held by the operator pulls the bottom of the nostril downward (Fig. 10).

Incisions in the Mucous Membrane.—Except in a few horizontally sigmoid deflections, where the operation is begun in the concavity of the anterior bend, the resection is done in the naris of the convexity. Unless peculiar incisions are demanded the operation is begun by the creation on the convexity of the deflection of a flap reflected forward. The first cut (Fig. 11) is made with

the knife D, from behind forward, along the base of the septum where it joins with the nasal floor. In the adult, the cut is begun $\frac{3}{4}$ to $1\frac{1}{4}$ inches behind the posterior border of the external nostril and is carried well forward into the cutaneous portion of the septal covering to within $\frac{3}{8}$ inch of the anterior border of the nostril. After oozing has stopped, the incision is spread open by having the assistant pull the posterior border of the nostril down with a retractor while the operator lifts the upper lip of the wound with a dull elevator, in order to see whether the perichondrium has been divided. If not, it will be seen as a thick white membrane which is divided with the knife E, enough of it being scraped upward to expose the dead white of the cartilage. From the slit so made, the angular knife 1a or the straight one E is introduced under the perichondrium, dissecting it from the cartilage until dull denudation becomes possible. It is continued as far as the dull elevator can go, upward, backward and downward. Downward it is

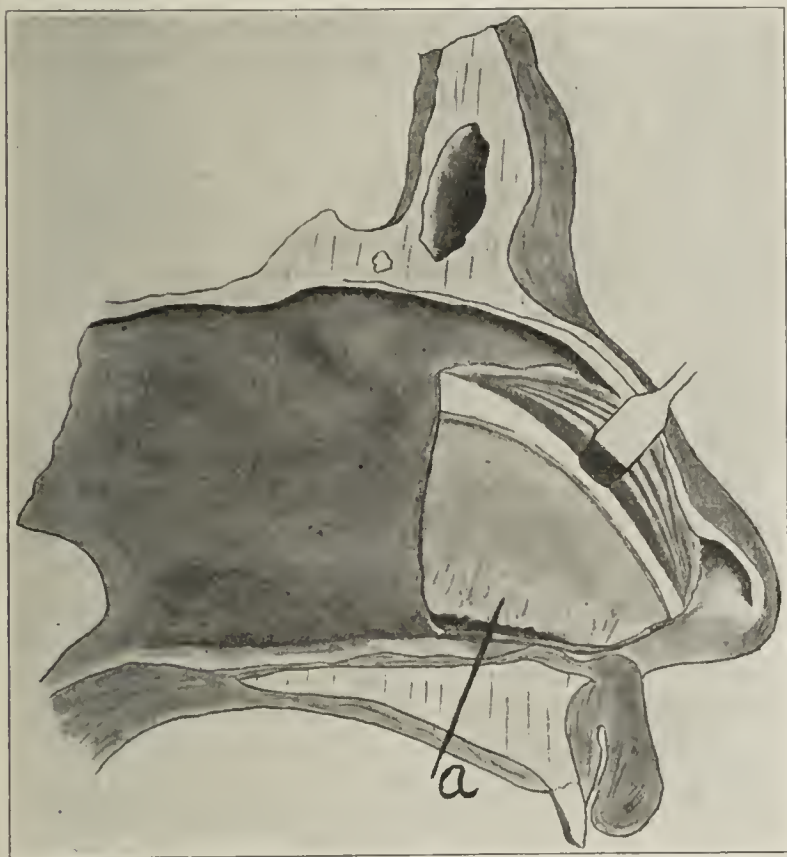


Fig. 13. Side view of convexity of a double angled deflection. The cartilaginous deflection has been excised. The mucosa is shown lying loose and detached behind the vertical cut. The L flap is pulled upward and forward to show the dorsal cut in the cartilage; a, anterior part of vomer and incisur crest, ("the ridge") concealed under the periosteum.

arrested at the apex of the sharp horizontal angle of deflection by the crossing of the periosteum-perichondrium from naris to naris. Here the sharp elevator is used and, cutting around the crest, close to cartilage and bone, it detaches the flap to the nasal floor. Backward, the denudation for the flap is carried as far as may be, passing a vertical angle of deflection with the dull elevator if possible. If not, the sharp one must be used. Denudation around the vertical angle is impossible in some extreme traumatic deflections and here the vertical incision of the L must follow the crest of the angle.

When the denudation for the flap is done, a sharp elevator, I or W, is passed through the horizontal incision under the detached covering to the rear of the denuded area. The blade is then thrust through the mucosa from underneath and, cutting up and down, makes the vertical incision of the L as far back in the naris as possible (Fig. 12). The sharp elevator, thus entering through the horizontal incision and emerging from under the flap through the vertical one continues the vertical cut down-

ward to the nasal floor and releases the flap by cutting free its corner. The flap is now reflected *forward and upward*, until it can be caught and held by the assistant's retractor in the external nostril.

Next, beginning at the posterior edge of the vertical incision, the covering on the posterior part of the deflection behind this incision is uplifted down to the horizontal angle of deflection with the dull elevator, the sharp one then cutting around this angle and to the nasal floor under the periosteum of the vomer. The convexity of the deflection is now bared and the cartilage, uncovered by the reflection of the flap forward, is in plain sight.

The Resection of the Cartilage.—The resection of the cartilage in growth deflections is described here as the typical procedure, the changes from it demanded by the rarer traumatic deflections being noted later. The first incision in the cartilage is made with the round-edged knife E in the line of reflection of the flap and parallel to and as far behind the dorsum of the external nose as sufficient removal of the cartilaginous deflection permits. This incision I call the dorsal cut and the cartilage left under the nasal bridge the dorsal strip (Fig. 13).

In the flap operation the important dorsal cut is made in plain view and is placed just where it is wanted in relation to the nasal bridge, whose under surface it should not approach nearer than $\frac{3}{8}$ inch. In contradistinction the tearing, hidden, ill-controlled course of the swivel knife may go dangerously close to the bridge (Fig. 14).

When the anterior inferior free border of the septal cartilage stands normally over the cutaneous septum or

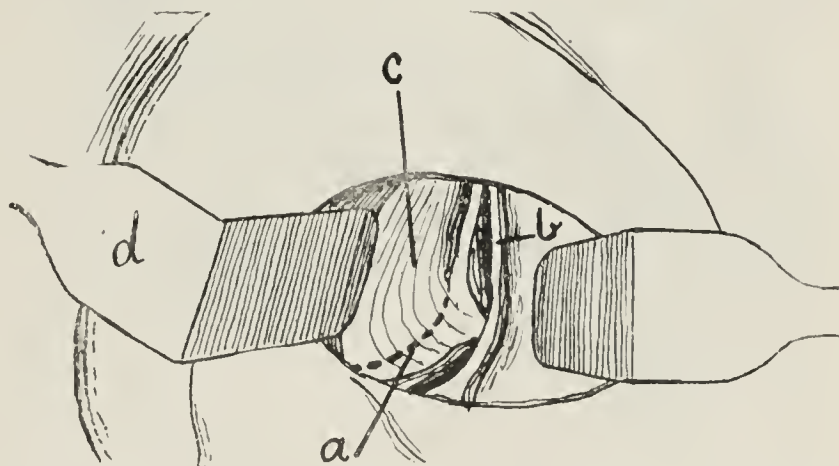


Fig. 17. A.—The ridge (incisor crest and vomer) hidden under its periosteum, which is continuous above with the perichondrium of the opposite naris. Dotted line, a, shows line of cut through periosteum to ridge; b, detached mucosa behind vertical cut; c, mucosa-perichondrium of opposite naris; d, retractor.

curls away into the other naris, the dorsal incision in the cartilage is joined by a horizontal one following the horizontal mucous membrane cut described. If, however, the free border curls into the naris of the operation, the uplifting of the cartilage from its underlying mucosa-perichondrium is begun with the sharp and dull angular elevators 1a and 1b from the free border by dissecting upward from it between the cartilage and the covering of the opposite nostril until the dorsal cut is reached. In the other cases, the uplifting of the cartilage from its attachment to the mucous membrane of the other side is begun either from the dorsal or from the horizontal cartilaginous cut with the small angular knife 1a (Fig. 10). In either case, as soon as a tongue of cartilage is freed, its edge is seized with a mouse-toothed forceps and turned up to show whether a film of perichondrium clings to it, for, if not scraped off, this film leads the elevator away from the cartilage and into and through the mucosa of the opposite nostril.

Behind the anterior adherent portions the dull elevator will usually readily denude the under side of the car-

tilage until it is arrested at the bottom of the groove of the concavity of the horizontal angle of deflection by the crossing of the periosteum from naris to naris as described. To force dull denudation below this crossing creates the commonest type of perforation, along the anterior border of the vomer. The dull elevator should therefore be replaced by a keen one which, entering the vomero-cartilaginous joint, cuts the cartilage from its broad, rough attachment to the side of the vomer and emerges in the naris of the convexity from under the cartilaginous crest, so completing the detachment of the cartilage along its lower border. This overlapping portion of the cartilage is unreachable by the swivel knife, which is arrested by the anterior border of the vomer.

The cartilaginous deflection is next cut away behind by means of the sharp hoe which is passed backward between the cartilage and the detached coverings of the naris of the concavity to the rearmost part of the area of denudation (Fig. 15). Its blade is then turned away from the mucosa and made to cut through the cartilage up and down, severing it from its posterior remnant.

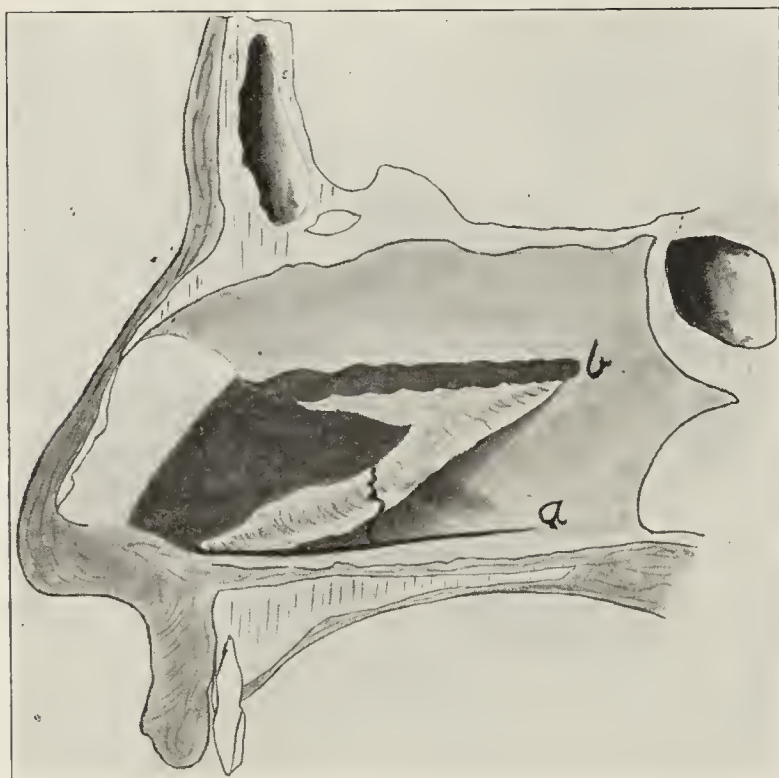


Fig. 19. The undercutting, a, and the overcutting, b, of the ridge and bony V with the chisel below and the punch forceps above.

Its attachment above is then cut through with the sharp elevator and the detached part of the cartilage is pulled out of the nostril. Its remnants are now cut away strip by strip with the hoe and the sharp elevator.

Where, as described, the tilted vomero-cartilaginous articulation slants away from the operator into the naris of the concavity, dull denudation of the cartilage from the covering of that naris may go almost to the nasal floor. In this case, however (Fig. 6, C, b), the vomer lies between the operator and the overlapping cartilage which must be detached from the bone by cutting down over the top of the vomer, the cartilage being dug piecemeal out of its bed between the vomer and the covering of the naris of the concavity.

The Resection of Traumatic Deflections.—Where the anterior plane of the vertical angle of deflection is of difficult access because it lies transversely or curls forward, it is usually best merely to outline the resection in front by the dorsal cut in the cartilage and to detach the cartilage toward it forward from the apex of the vertical angle of deflection and upward from the base of the septum. As the planes of the vertical angle of a

traumatic deflection are the commonly ununited fragments of the fracture, each in its own perichondrium, the removal of the anterior fragment or plane leaves no cut edge of cartilage visible behind it to indicate the anterior border of the posterior fragment, which is only found after the perichondrium has been split along it with the knife. Denudation backward with the dull elevator is then usually easy.

The sharp-angled concavity of extreme traumatic deflections is filled by a long tongue of mucosa-perichondrium (Fig. 2, a, b) whose whiteness renders it liable to be mistaken for cartilage and excised with the creation of a large perforation.

When fragments of cartilage overlap, two or even three, lying side by side may have to be dissected out of the thick adherent perichondrium, layer on layer of imbedded cartilage being thus encountered (Fig. 2, e, f, g, h). When the columnar cartilage lies in one or the other of the external nostrils, it may narrow it to a mere slit and yet be hidden from view because closely attached to the side of the incisor crest and to the nasal floor (Fig. 16). The resection of the hidden dislocated cartilage replaces the collapsing slit nostril by a roomy one which will not collapse.

When the columnar cartilage alone is deflected, it is excised through a curved incision through the mucosa-perichondrium made about a centimeter behind and parallel to the free border, the integument, when dissected up with the knife E, being slipped over the border of the cartilage, which pops out of the slit thus made. This incision places the cut out of sight back in the naris. The columnar cartilage is then dissected from its bed while held with forceps, and is cut away with the sharp hoe as high as required. When the dislocation of the columnar cartilage is merely the foremost lowest part of an angular deflection in the same naris, the reversed L flap is used. In the cases in which the free border is dislocated into the nostril opposite to the one containing the angle of deflection, it must usually be dissected out from the latter from the incision just described.

The Resection of the Bony Portion of Deflections.—In the crest deflection, after the removal of the cartilage, there is seen, slanting steeply into the naris of the operation, the broadened, rough articular surface of the vomer, covered by the periosteum which crosses from nostril to nostril (Fig. 17). As it is continuous above with the perichondrium of the opposite nostril, it hides the so-called ridge (incisor crest and anterior part of the vomer) from view.

The denudation of the bony deflection is begun behind in the concavity of the bony V on the perpendicular plate, which is bared of its periosteum with the dull elevator down to the apex of the concavity of the angle formed by the junction of the perpendicular plate and vomer (Fig. 17). From this point forward lies the top of the hidden ridge, discovered by feeling upward on the septum until bony resistance ceases and bagging of the covering of the opposite nostril shows where the top of the ridge is. Along its whole length the periosteum is now split with the knife E (Fig. 17), to the foremost part of the incisor crest (Fig. 17). Downward from this periosteal cut, on the side of the convexity the raspatory now bares the articular surface and also the under surface of the over-arching vomer of periosteum to the rearmost limit of the deflection. The raspatory is then cautiously worked over the top of the ridge and strips the periosteum from its other (concavity) side to the nasal floor in the opposite naris (Fig. 18).

The bony deflection now stands naked and the chisel, applied to the front of the incisor crest, is driven backward on the hard palate underneath the ridge with a dental mallet. To cut closely to the hard palate the bevel of the chisel blade should look upward. If the chisel is stopped by diving, the bevel should be turned downward, when the chisel will rise and again make progress. When the ridge has been undercut to a vertical line drawn through the junction of the perpendicular plate with the vomer, the handle of the chisel is lifted to break off the severed bone at the rearmost part of the cut. Remaining periosteal attachments, made tense by pulling on the loose bone with forceps, are then cut through and the detached ridge is pulled out of the nostril.

The removal of the bony V is next begun by continuing the under cutting of the vomer with the chisel on the hard palate as far back as the deflection goes. The V is then severed above by cutting a path with the punch forceps in the line where the deflected part of the perpendicular plate joins its straight part above (Fig. 19).

If the V, thus detached above and below, now becomes freely movable, it may be safely broken from its posterior attachment with the forceps. If it still remains firm, it is not safe to break it from the strong bone that holds it behind and it should be cut away with the punch forceps (Fig. 10). Bent out portions of the perpendicular plate are now cut out with the punch and the bony resection is completed.

The tilting of the vomero-cartilaginous articulation into the naris of the concavity does not materially change the bony resection from that just described.

The flaps are then smoothed down, and if all of the deflection has been removed, will lie flat, the septum appearing straight on both sides and the posterior pharyngeal wall being visible through the now very roomy naris. The resection of even a moderate deflection produces a surprisingly capacious naris by not only straightening but also thinning the septum.¹

Perforations.—In my last 200 cases only three perforations occurred, so small that their reporting is merely a matter of conscience.

Protection of the Dorsal Strip by the Flap.—In addition to giving a free operative field, the most important office of the flap is to blanket the cut edge of the cartilage left under the nasal bridge, thus protecting this important buttress during healing and preventing the softening and absorption of cartilage which, as I have observed, spreads to a variable distance beyond an uncovered cut edge of cartilage and might lead to a saddle nose. I have never seen one after an operation by my method in the eleven years which I have practiced it, but know that enough have been created by other operative ways to hurt the esteem of the submucous resection.

15 East Washington Street.

SOME SUGGESTIONS IN THE METHODS OF CORRECTING DEFLECTION OF THE NASAL SEPTUM

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All operative work permits of variation in the technic within certain bounds to accomplish the result desired, according to the ingenuity and individual equation of the operator. No operator should follow a set routine in doing an operation when circumstances in the case or

1. For the after-treatment, see the complete article.

his own predilection demand a modification. It is necessary only to follow the basic principles governing the technic in order to secure a successful issue.

ANESTHESIA

In my early work in this operative procedure, I adopted the prescribed method of inducing anesthesia through the use of cocaine. After operating a number of times by inducing local anesthesia, I became impressed with the fact that I was doing justice neither to the patient nor to my sense of nervous equanimity through operating by this method, and resolved to do the subsequent operations under general anesthesia. I have now, for over a period of years, done all of my submucous operations under chloroform narcosis. In producing general anesthesia for this operation it is, of course, essential to have a good anesthetic, and it is important that the anesthesia be maintained only in a sufficient degree to keep the patient quiet. Every one must admit that this operation is essentially a major one, and, therefore, a hospital procedure. It has always impressed me as remarkable that so few ill results to the welfare of patients have been recorded from the unwisdom of doing this operation in the physician's office and permitting the patient thereafter to go home. Admitting that this operation is a major one, and, therefore, a hospital operation, should it not be done by a method that will give the patient the greatest freedom from shock, the minimum degree of pain, with the greatest degree of comfort and ease of operative procedure on the part of the surgeon? It seems to me that the above-indicated advantages can be more certainly assured under general than under local anesthesia. Shock is greater under local anesthesia in this operation than under general anesthesia in proportion to the nervous susceptibility of the patient. Pain is absolutely annihilated by the general anesthesia; under local anesthesia the operation may or may not be devoid of pain, always in proportion to the amount of bone removed. I find few operators who are unqualifiedly willing to state that they may remove bone by chisel or forceps without giving their patients pain under local anesthesia. Under general anesthesia the surgeon is absolutely at his ease; he is not obliged to divide his time between entertaining or quieting the fears of his patient and the various steps of his operation. He can operate more to the purpose and center his whole attention on the technic of the operation. The fact that the operation can be done in practically half the time—actual operating time—under general anesthesia than under local anesthesia demonstrates the fact that the operator is more at his ease through this method. The only objection that I can conceive to the production of general anesthesia is the agent used and the slight increased annoyance from the bleeding. The ischemia produced under local anesthesia is no doubt more decided than under general anesthesia through the use of the adrenal preparations; nevertheless, the slightly increased bleeding under general anesthesia is almost a negligible quantity, unless there is undue tearing of the flaps. With only the primary incision, without breaking or perforating one or the other flaps, there is only sufficient bleeding to require occasional mopping, never enough to interfere with a good view of the field of operation.

The armamentarium which is required may be reduced to a few instruments, as follows: a Freer right angle retractor; a Ballinger septal knife for making the primary incision; a Killian double-armed separator for raising the mucoperichondrium and periosteum; a Freer sharp separator for work at the cartilago-osseous articula-

tions and where adhesions exist; Killian's long nasal specula; Killian's septum forceps; Luc's forceps for cutting through thickened vomer; Ballinger's swivel knife; a V or other type of chisel; mallet, and a pair of nasal forceps. With this simple armamentarium, ingenuity and surgical skill, all cases of submucous resection, however complicated, may be mastered.

THE CHARACTER OF THE PRIMARY INCISION

I uniformly resort to the vertical incision through the mucoperichondrium and the cartilage, extending from as high under the dorsum of the nose as it is possible to go, down to, and extending into, the floor of the nose. The instrument employed for this purpose is the Ballinger septal knife. This incision is uniformly made on the convex surface of the septum, unless conditions in the individual case require it to be made on the concave surface. The incision is made through the cartilage down to the perichondrium on the concave side, the finger being inserted in the concave side as a protector and guide. It is important to make the incision through the tissues throughout its whole course. The incision into the floor of the nose, as suggested by Yankauer, is of great importance, as it permits the placing of the flap on the convex side well against the outer wall of the nose, thus giving a broader field through which the subsequent operative manipulations are to be employed. In those cases in which the free end of the cartilage is bent outward into either nasal cavity, the incision is made directly down on the free presenting border of the cartilage and the dissection is made directly backward from each side of the cartilage. The incision is made, ordinarily, so far forward as to overcome the point of bending. Should a puncture be made in the course of the primary incision through the mucoperichondrium of the concave side, indicated by sensation, or by a drop of blood showing on the protecting finger in the concave side, a perforation is likely to occur at the point of penetration, unless it be guarded against. In order to prevent such a puncture developing into a perforation, after the soft tissues are separated on the convex side, a new incision is made through the cartilage about 3 mm. posterior to the former incision down to the mucoperichondrium of the concave side, and through this new incision the soft tissues are separated on the concave side. There is no operation in which the axiom, "Make haste slowly," is so important as in the submucous operation. The starting of the raising of the flap on both surfaces should be done very cautiously. The operator should exercise due caution at the cartilago-osseous juncture in the separation, remembering that, as demonstrated by Freer, the periosteum and perichondrium are not continuous at these borders.

It is well to bear in mind that any incision which deviates from the vertical incision is apt, except in the hands of the most experienced operator, to leave a greater or less area of gap, which must fill in by granulation, and which enhances the danger of perforation should any accident occur to the other unincised flap. Especially is this true of any form of flap which entails a horizontal incision, such as the various forms of L-shaped flaps. Usually, after performing a perfect operation through the vertical incision, without any injury whatsoever to flaps and with their perfect coaptation, there is practically no crust formation and the case requires no attention at the end of ten days. All operators using the vertical incision, when finding a tear in the lower border of the flap, simulating in result an L-shaped incision, are well aware of the protracted

healing, the crust formation and the cicatrix which results when the healing is complete. The nice coaptation of the lower border of the horizontal leg of the L-shaped flap is almost impossible; consequently there is more or less of a gap which must fill in by granulation. The control of the flap during the subsequent phases of the operation and its protection from injury must entail greater embarrassment and care than is required by operating through the simple well made vertical incision.

A great advantage of having the patient under a general, rather than a local, anesthetic is the freedom with which the finger may be used for exploration, if this be desirable. The advantage of this exploration to one who has made use of it in desirable cases is too patent to require argument. Well-bowed septa, which permit no view of the nasal fossa beyond the dome of the convexity, can be perfectly oriented through this method of exploration, establishing the existence or non-existence of ridges or spurs of the septum beyond the parts subject to visual inspection. The use of the finger is also of value in cautiously forcing over sharp angles and marked convexities of the cartilaginous septum, so that the extreme angle is softened down and the dome of convexities made less pronounced. The cartilage so forced over remains in the altered position only a few moments, but this is usually sufficient time to assure greater ease and safety in surmounting these otherwise difficult passages in the above-mentioned type of septal deformities. I find also that, through the appropriate use of the finger during the operation, the amount of bone removal is reduced to the minimum. Usually I remove the necessary amount of cartilage and chisel away as much of the nasal process and the vomer anteriorly as the circumstances of the case may require. Following this, if the vomer and perpendicular plate are much bowed, a narrow ledge of bone in an anterior posterior direction is removed through the point of greatest deflection as far back as is required. After the completion of this stage of the operation, the Killian speculum is removed, if it has been employed, and the index-finger is inserted between the flaps down to the osseous septum, when slight pressure toward the concave side is employed by the end of the finger on the lower bony ridge first until it fractures and then on the upper until it fractures; a little molding will then place the osseous septum in a perfectly vertical position. When this procedure can be adopted, it not only materially lessens the amount of bone removed, but also lessens the actual time required in making the operation. Even after the removal of pronounced ridges or spurs, in the osseous portion of the septum, the bone above and below will often be found out of its normal vertical plane. These are ideal for finger correction, as a little pressure will snap them over into the vertical plane. These suggestions are not new, but, if they prove of practical utility to some of my hearers, I would feel repaid.

1317 Connecticut Avenue.

SUBMUCOUS RESECTION OF THE NASAL SEPTUM

INDICATIONS AND CONTRA-INDICATIONS

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The operation known as submucous resection of the nasal septum has been in general use for about eight years. During that time, it has become an important part of the rhinologist's work, and it seems almost grat-

uitous to offer any additional words on its indications and contra-indications. And yet, on the other hand, the greater experience and opportunity for observation afforded by the multitude of cases make a definite statement of much greater possibility than heretofore. For this reason, the invitation to take part in the symposium on submucous resection was accepted.

INDICATIONS

There is little argument as to the indications. While some rhinologists still cling to older forms of operation, the vast majority are more and more limiting themselves to the submucous resection. And with the coming of the younger generation, there is a still greater tendency to ignore the older forms of operation. What is more logical than the removal of an offending deflection after elevating the mucosa on both sides? How much better than to saw it off, to smash it, to cut it cross-wise, to use any of the cartilage flap operations, and then put in a retaining splint for a longer or shorter period! Certainly the millennium for nasal surgery is almost at hand when such operations can be done speedily and safely and with so little discomfort to the patient.

In considering the indications, it is first necessary to study the deflection itself. The varieties have been classified in various ways, as to position, character and amount. While these are important from a pathologic standpoint, they are not so essential in determining the indications. For our purposes it will be sufficient to group the deflections as to degree as follows: (1) slight, (2) marked, (3) extreme.

While there is no hard-and-fast line of division between these, the designations are sufficiently clear for the purposes outlined. The term deflection is here used generically to include deviations, spurs and ridges.

1. *Slight Deflections*.—These vary from the minutest degree to that which of itself cannot materially act as an obstruction to nasal drainage or respiration.

2. *Marked Deflections*.—In this group there is always some interference with nasal respiration or drainage.

3. *Extreme Deflections*.—This division comprises those deflections which cause a continuous and excessive obstruction to nasal respiration or drainage. What would be a marked deflection if confined to one side becomes an extreme deflection if the other side is also affected.

These groups having been thus defined, the indications may be outlined as follows:

Recurrent Acute Inflammations of the Nose.—Slight deflections rarely exercise an etiologic influence in this disease, though marked and extreme deflections often do.

Acute Inflammation of the Accessory Sinuses.—Removal is indicated for any deflection of the second and third degrees, as the interference with nasal drainage is one of the marked predisposing causes. There is even some justification in operating on a slight deflection if other means have been tried without avail.

Hypertrophic Rhinitis, Chronic Rhinitis of Various Forms.—Whether or not operation is contemplated on the turbinates, deviations of the second and third degree are to be corrected. Operation on slight deflections is not indicated.

Atrophic Rhinitis.—It is always a matter of some doubt whether septal operations are of any value in atrophic rhinitis of long standing. At any rate, little can be expected from operation on any but extreme deflections. In early cases improvement may follow operations on marked deflections especially where drainage is subjected to material interference.

Chronic Inflammation of the Accessory Sinuses and Nasal Polypi.—Marked and extreme deflections are to be corrected and even slight deflections when they interfere with proper treatment or drainage of the sinuses.

Nasal Fever.—Experience has shown that while a septal operation has no curative influence on this condition, it generally assists in alleviating the symptoms.

Diseases of the Pharynx, Larynx, Trachea and Bronchi.—Whenever there is nasal respiratory insufficiency causing mouth-breathing, its cause should be removed and hence deflections of marked or extreme degree are to be corrected.

Middle-Ear Affections.—Marked and extreme deflections are to be corrected in view of their influence in causing and increasing affections of the middle ear. Removal of a slight deflection may be called for especially when it is so located that some change in the density or supply of air is occasioned.

CONTRA-INDICATIONS

Nasal operations are subject to very little danger, and an unfavorable issue, so far as the life or health of the patient is concerned, seldom results. This has been ascribed to the fact that the nasal mucus is sterile ordinarily or at least that it is not a good host for bacterial flora.

Besides this, it must be remembered that the drainage after nasal operations is especially good and there are no confined places where pus bacteria may find a favorable nidus for development. This refers more particularly to the ordinary cutting operations. The submucous resection is an operation of a different type, for here we traumatize the osteochondral surfaces of the mucous membrane which have previously not been exposed to the air. When these surfaces are more or less closely approximated, they afford opportunity for the formation of pockets between them in which bacteria may develop. In this situation, too, the danger is greatly increased by the lack of drainage from these pockets. The practice of retaining the plug in the nose for more than twelve hours still further encourages septic invasion.

Serious results have been reported by some observers. Thus Hays¹ had two cases of septicemia, one resulting in death. Horn² reports, out of 110 cases, tonsillitis occurring thirteen times, in one of which severe pericarditis and endocarditis resulted, otitis media suppurativa three times, septal abscess twice, perichondritis once.

In my own practice, before I adopted the plan of removing the plug within twelve hours after operation, I had far more cases of tonsillitis following the operation than since. In one case, the septic tonsillitis was accompanied by a nephritis. In another, otitis media suppurativa followed. I am convinced that the danger of infection is materially increased in proportion to the time during which the plug is allowed to remain in the nose.

Naturally, too, the dangers are decreased in proportion to the means taken to operate under the strictest modern surgical technic. Hence operations performed in the office cannot offer as much in this respect as those performed in a hospital.

Correspondingly, the contra-indications are not so potent in the one type as in the other.

The following are contra-indications:

1. *Age*.—The very old and the very young are not good subjects for operation. In the first instance it can

1. Hays: Septicemia Following Submucous Resection of the Nasal Septum, Laryngoscope, 1909.

2. Horn: Die Schwierigkeiten und Complicationen der submucösen Operation bei Scheidewanddifformitäten, Ztschr. f. Laryngol., 11.

only be most exceptional for the operation even to be considered and then the short period of life yet before the patient, the greater danger of operation, its decreased value in patients of this type and the fact that it is not a life-saving measure all contribute to make the operation unjustifiable. In the second instance, no harm will result from postponement. There is even a great deal of question as to the advisability of operating on those who are beyond middle life. In most instances, the damage has been done and as a rule no further harm is occasioned by the presence of the deflection. Sometimes growing deafness calls for removal of the obstruction, particularly if it be of the extreme degree, although under these circumstances even one of a marked degree should be removed when its influence is clear. But to remove the obstruction simply for respiratory purposes is indicated but seldom in individuals past middle life.

In children and in young people below the age of 18 there is always great doubt as to the advisability of operation. Even now, experience has been insufficient to establish just what influence the removal of a large portion of the septum in the young has on the development of the nose.

Moreover, Rethi³ states that the development of the septum has a marked influence on the face in adult life. Lothrop⁴ reports that of eight children between 7 and 13 years of age on whom a submucous resection had been performed, the tip of the nose was depressed in five instances. He ascribed the depression not to the insufficient support from too little cartilage but to a retarded growth of the remaining cartilage, while the bony parts develop normally. I refrain from doing a submucous resection in those under 17 or 18 unless it is imperative by reason of associated conditions involving the sinuses or middle ear. Even then I remove as small a portion as is consistent, preferring to postpone the more radical operation until a later period.

2. *Acute Sinus Disease.*—The presence of a suppurating focus close to the seat of operation materially increases the danger and hence the operation should be postponed until the cessation of the active process. In chronic conditions there is far less danger.

3. *Acute Middle-Ear and Pharyngeal Diseases.*—Under these conditions, operation is inadvisable and when there is much tendency to them, great circumspection should be observed.

4. *Syphilis.*—Very naturally, during the active stages all operations not urgently indicated should be postponed. There is, moreover, much danger in operating on the septum in the presence of nasal syphilis in the tertiary stage. I have seen a patient with tertiary syphilis of the nose on whom a submucous resection was performed by a practitioner who failed to note the presence of the disease. Following the operation, there was extensive destruction of the nasal bones, the septum, malar bone, floor of the orbit and palate and the greater part of the superior maxillary. Frequently, a deflection will be the seat of a syphilitic process which may escape the attention of the rhinologist intent on the obstructive condition.

5. *Tuberculosis.*—Tuberculosis of the upper respiratory tract is a contra-indication. Pulmonary tuberculosis is likewise a contra-indication, unless it is probable that the operation on the nose will lessen the symp-

toms due to the condition of the nose, pharynx, larynx or ear. Even under these circumstances nothing should be done, if it be manifest that the patient has only a short time to live.

6. *Serious General Conditions.*—General conditions, if serious, should deter one from performing the operation, especially chronic inflammations of the kidney, heart, etc., diabetes and most mental affections. Hemophilia, severe anemia and leukemia, carcinoma and other diseases which are likely to terminate in early death are definite contra-indications.

CONCLUSION

In conclusion, it may be stated that, besides the indications and contra-indications enumerated, there is always the personal element to be considered, made up of the technique of operator and his conscientious appreciation of what is best for his patient.

537 North Grand Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FREER, RICHARDSON AND LOEB

DR. W. L. BALLENGER, Chicago: As to the swivel knife, I have little to say. If an instrument cannot take care of itself after it has been used by the profession for eight or ten years, I have not the slightest inclination to defend it. As to its being the cause of deformities of the nose, I have no information whatever; perhaps it is because it is used a hundred times more often than any other method. Now, if the swivel knife is used with intelligence, and certainly Freer's instruments require intelligence for their use, I am sure it could never cause sinking in of the nose. It is my practice before operating on the nose to feel the tip and see if there has been previous injury followed by softening; if so, I do not perform any extensive operation on that portion; they are the cases in which there is sinking in. Another kind consists of those followed by infection of the wound and destruction of more or less of the cartilaginous tissue. I do not believe the swivel knife or any other instrument has ever been the direct cause.

Now, as to the use of the finger, as referred to by Dr. Richardson, it has been my practice to use it, and I learn much more in that way than I can with the speculum; you can feel projecting points that otherwise you may overlook.

I have never given general anesthesia but once. I find it easy to introduce my finger into the nose and feel the whole septum without discomfort to the patient under local anesthesia. The safest and best method for the use of cocaine is with pledgets of cotton on a probe dipped into the powdered cocaine, as suggested by Dr. Freer many years ago.

DR. B. D. SHEEDY, New York: I am much surprised to hear Dr. Richardson say that he employs general anesthesia in this operation. In New York, at both postgraduate schools and at one of the universities, students are instructed not to use general anesthesia in this work on account of the associated difficulties and dangers. Dr. Richardson's remark that he does not know a surgeon who can do this work without pain under cocaine shows that his acquaintanceship with the New York men, at least, is limited. I know of many. It is seldom that a week passes during which a frontal sinus or an antrum of Highmore is not opened before the class at the Post-Graduate under local cocaine anesthesia, and I have assisted Neumann in Vienna in doing radical mastoid operations under cocaine. At the New York Post-Graduate School, as well as at St. Joseph's Hospital, general anesthesia is seldom, if ever, employed. Cocaine with epinephrin is generally employed; sometimes cocaine in crystals. Occasionally a writer recommends that the tampons be allowed to remain in the nose from twenty-four to forty-eight hours; I saw a recent article in which it was advised that they be kept in thirty-six hours. If one thinks of the amount of secretion that there must be in the upper breathway while these tampons are in position he will appreciate the danger of sinus infection if the tampon

3. Rethi: Ueber Septumoperationen im jugendlichen Alter, Wiener med. Wchnschr., 1910, No. 47.

4. Lothrop: Observations on the Late Results Obtained by the Submucous Resection of the Nasal Septum, Boston Med. and Surg. Jour., May 12, 1910.

is allowed to remain in for more than twelve hours. The longer the tampon is in the better the chance for sinus infection and tonsil infection.

DR. C. F. WELTY, San Francisco: The remarks I made with reference to the swivel knife are not just exactly as they have been put. I made the statement that "undue force in the use of the swivel knife is liable to tear or break the cartilage from its attachment above and result in saddle nose." A patient that came home after having been operated on in Europe by one of our celebrities had such an experience. Undue force was used, and in three days there was dropping of the nose, which persisted. The biting forceps Dr. Freer speaks of in contradistinction to breaking of the bone is perhaps a very good suggestion. I have always broken the bone, but when it did not break easily I used the punch.

DR. W. W. CARTER, New York: I think Dr. Freer uses too many instruments. I employ only four, a small knife, a speculum, a combination elevator and curet and a punch forceps. The point of this curet-elevator is so directed that when the instrument is held in a straight line the tip always rests against the cartilage. The punch forceps I devised is the first punch forceps used in this procedure, and I am glad to see that it is now being generally conceded that this instrument is the proper one for removing the septum. I saw recently a case, sent to me for bone transplantation, in which there was sinking in of the bridge, due to the removal of the upper edge of the septum where it rests between the lateral cartilage and where it acts as the keystone to the nasal arch. I am surprised to hear Dr. Richardson say that he prefers general anesthesia. I have operated in two cases in this way and found it very difficult.

DR. LOUIS OSTROM, Rock Island, Ill.: I want to enter a protest against all forms of packing after the submucous operation. For the last four years I have operated on a great number of patients without any packing whatever, with better results than I obtained previous to this method. You cannot pack the nose so as to obtain uniform pressure when the reaction produces swelling of the turbinates, and the size of the apertures of the nose absolutely limits packing over the entire operated septal area. Furthermore, removing the packing during the next twelve hours allows hematomas to form, which the packing is supposed to prevent.

After completing the operation I cut or punch several holes into the mucous membrane, so as to allow drainage of blood, etc., from the intraseptal space. Of course, I pack if bleeding takes place to demand it, but in four years I have not needed any packing by my method. Instead of packing I keep the patient perfectly quiet for three or four hours, and I have no hematoma that I would not have with packing. In the course of three or four days the great majority of patients are able to be back at work.

DR. GEORGE L. RICHARDS, Fall River, Mass.: I have happened to see Killian operate lately; he uses no packing and no suture. He simply puts a pledget of cotton over the nose to prevent breathing through it.

DR. G. C. KNEEDLER, Pittsburgh: I make the Ballenger incision and use the swivel knife. After removing as much of the cartilage as possible in one piece, I correct the abnormalities as to thickness and curvature, placing it in a normal salt solution at about 99 F., until the operation is completed, when it is reinserted and the incision closed by two stitches. This procedure I have followed for the past two years without losing the cartilage or a failure to secure union in a single case out of a series of thirty-eight done during that period. By this method I secure a septum which approaches the natural one by making a firmer support to the mucous membrane, and by preventing the possibility of the enlargement of an accidental perforation that might be made during the operation. A portion of the cartilage is also left at the tip of the nose. I have never seen any sinking of the nose.

DR. OTTO T. FREER, Chicago: I do not need general anesthesia for my operation, for the shock and pain which have impelled Dr. Richardson to make general anesthesia a part of his method do not belong to mine. By taking time I can employ the gentleness and patience which avoid these features. Dr. Richardson speaks of the bleeding as slight under general

anesthesia. Of course, where the operation is confined to merely cutting out a piece of cartilage with the swivel knife and perhaps breaking over some bone, the bleeding is slight, even when the patient is put to sleep and foregoes the hemostatic effect of cocaine-epinephrin anesthesia, but where the real surgery demanded is done and the often massive bony deflection is resected, as it should be, with the cartilage, there may be free temporary bleeding from bone and periosteum, even under local insensibility, not to speak of general narcosis, under which hemorrhage is as unchecked as in the days before cocaine.

Dependence on general narcosis necessarily makes the operation a hasty one. The virtues of the flap are, as stated, protection of the strip of cartilage under the nasal bridge, visual access to everything and the avoidance of hematoma and possible resultant abscess. I find neither the crusting nor protracted healing mentioned by Dr. Richardson as pertaining to the flap, which, contracted during the operation, expands by the next day, so that there is linear union of the L wound.

Dr. Richardson speaks of inserting his finger between the flaps to break over bone. It is unsurgical to put a finger in a wound if it can be avoided. A thick bony deflection can seldom be broken over, and where it does break in a thin place, the thick part of the bone, with its projections, is left to obstruct. Bone should be resected, not broken over and left by easily satisfied surgery. Fracturing, unless the bone be overcut and undercut, is liable to send dangerous fissures into the sphenoid sinus, the optic foramen or the cranial cavity. I have had as good results in patients over 70 years of age as in younger patients. I must ascribe the depressed tips of the five children mentioned by Dr. Loeb to the popular Killian method, which is unsuitable for children, and includes the swivel knife, whose dangers, its unguidable, tearing cut, its likelihood of pulling on and breaking the bridge, would be increased in a child's frail nose. In my hundred operations on children I have had perfect results and no deformity.

Text-books have called my operation a modification of Killian's. My first description of my operation was in THE JOURNAL of the American Medical Association in 1902. Killian's first paper appeared in 1904, two years later. My instrumentarium and operation are original throughout, and I was the first to describe the preservation of the mucous membrane, before Hajek, Menzel or Killian.

DR. CHARLES W. RICHARDSON, Washington, D. C.: I believe that in this, as in a good many other important procedures that have been suggested, that, after general anesthesia has been tried and its advantages recognized, a great many will adopt it in this work. I would like to call attention to the fact that there are more deaths being caused by the use of cocaine and epinephrin in this operation than can ever be produced through general anesthesia.

The clean finger properly used is necessary in a great deal of operative work. I have never had an infection in septum work. I did not refer to breaking thick bone—I stated distinctly that I cut away the thickened angle of deflection, and, should there be still thin portions of the perpendicular plate or vomer out of the perpendicular above and below the portion of deflection removed, this could be replaced by gently fracturing it over by the pressure of the finger.

The swivel knife is not to be used as a tearing instrument, but as a cutting instrument, and in all the cases in which I have used it on the cartilage, it has cut as perfectly as any instrument could. Guided with good judgment and discretion it can be used as safely as any instrument working back in a cavity. I use a tampon, such as has been referred to by Dr. Freer. Excessive bleeding, either before or after tamponing, means excessive tremor of flaps. With the vertical incision you cannot get much hemorrhage. I never have any hemorrhage in these operations after tamponing or after removal of tampons.

DR. B. D. SHEEDY, New York: I want to say in regard to Dr. Richardson's remark about deaths from cocaine in the submucous resection, that there have been no deaths in our city from that operation so far as I know. The deaths that have been reported by rhinologists were in patients in whom cocaine and epinephrin had been injected into or around the tonsils.

If Dr. Richardson will refer to my recent article on "The Use of Bisulphate of Quinin as a Local Anesthesia," in the *New York Medical Record*, in which the deaths that had recently occurred were reported, he will find that no deaths from or in connection with this operation were reported.

DR. H. W. LOEB, St. Louis: I have discarded the method of operating in the sitting position which is so tiring. If you operate with a patient in the recumbent position, the danger from cocain is much less; the patients do not faint and the position is much better for the operator.

THE EXPLORATORY NEEDLE PUNCTURE OF THE MAXILLARY ANTRUM IN ONE HUNDRED TUBERCULOUS INDIVIDUALS

DEMONSTRATING THE MARKED DISSIMILARITY BETWEEN
THE CLINICAL AND POST-MORTEM
FINDINGS

ROSS H. SKILLERN, M.D.
PHILADELPHIA

Ever since I began to pay especial attention to the accessory sinuses of the nose, it seemed to me that the post-mortem findings of several investigators in sinus disease and pulmonary tuberculosis appeared unreconcilable with clinical findings.

Fränkel,¹ in necropsies on forty-five patients who died from pulmonary tuberculosis, found that the sinuses were diseased and that sixteen, or about 35 per cent., contained pathologic secretion.

Harke² found inflammatory exudate in one or both of the maxillary antra of twenty-three patients, or 60 per cent., out of thirty-eight who had died from pulmonary phthisis.

Minder³ discovered four, or about 23 per cent., in seventeen, and Wertheim,⁴ thirty-one, or 29 per cent., in 106.

The method employed by these investigators to inspect the sinuses closely adhered to the technic of Harke. This consists in peeling back the scalp in front to the eyes, behind to the foramen magnum, and in sawing a vertical cut which divides the nasal chambers. The two sides are pried apart with heavy chisels, thus laying bare the frontals and sphenoidals and making the ethmoid capsule and maxillaries easily accessible.

Reverting to these post-mortem findings, it will be noted that four pathologists give the proportion of sinus disease in tuberculous individuals as approximately 37 per cent. This would mean that one out of every three phthisical patients had a sinus affection. I had never been able to substantiate these findings in clinical examinations on the patients referred to the laryngologic department at the Rush Hospital for Consumption and, while accepting their possibility, could not do otherwise than look on whatever sinus inflammation might exist as insignificant or at least so latent that no subjective or objective symptoms were ever occasioned. This standpoint, however, was highly unsatisfactory, as it did not prove that inflammation failed to exist because no signs of purulent secretion were present in the nose, nor did it disprove the apparent connection between pulmonary

tuberculosis and sinus disease. On this account, three years ago I started an investigation which would demonstrate conclusively the exact proportion of maxillary sinus empyema occurring with consumption. This consisted in making needle punctures of the antra, when permitted, on each tuberculous individual admitted to the hospital, regardless of the nasal symptoms, and in irrigating the cavity with warm normal salt solution. The maxillary sinus was selected because (a) it could be punctured with little or no inconvenience to the patient; (b) it is more frequently diseased than all of the other sinuses, and (c) it requires but a moment and is free from untoward after-effects.

TECHNIC

Both nasal chambers were thoroughly irrigated with warm normal saline solution until perfectly cleared of all secretion. Cotton carriers saturated with 20 per cent. solution of cocain were introduced beneath the inferior turbinates as high as possible and allowed to remain in place for at least ten minutes. The point of a sterilized Lichtwitz needle was placed in the anesthetized area and with a gentle push penetrated into the antrum. Only in exceptional cases was the slightest force required. Air was now forced into the sinus through the needle in order to ascertain whether the lumen was free and in proper position. The syringe was then filled with the normal salt solution and under slight pressure the liquid was forced into the cavity, the patient holding the head inclined forward in order that the escaping fluid would appear anteriorly and be caught in a clean basin. In this manner the sinus was irrigated and the returning fluid subjected to careful inspection. Both antra were treated in this manner. If pathologic secretion were present even in small quantities it could easily be detected as it presented a cloudy aspect in the basin.

One hundred patients were thus examined, nearly all being in the last stages of consumption, with the following results:

Of the 100 right maxillary sinuses, seventy-two were absolutely normal; fourteen showed considerable blood; in eight returning fluid was turbid, and in four purulent secretion was found.

Of the 100 left maxillary sinuses, eighty-eight were absolutely normal; none showed blood; in seven the returning fluid was turbid, and in three purulent secretion was found.

On the right side, if we accept the blood as a mark of disease, the percentage would be 26, while that of the left side would only be 10, making an average of 18 per cent. If we eliminate those which showed excessive hemorrhage, the proportion would be very much less, totaling only 11 per cent. When one takes into consideration that the bleeding occurred only from the right side and that no pus was apparent either with the naked eye or microscopically (in two cases), it would seem that other factors, such as possible traumatism of the antral mucosa with the needle, might have been more or less responsible. In 7.5 per cent. the returning liquid was turbid, showing that secretion of some sort had been present in the sinuses. We must consider these as diseased. In only seven sinuses, or 3.5 per cent., was purulent secretion present. Considering then that 11 per cent. were proved diseased, why do the post-mortem examinations show such a high percentage (37 per cent.)?

Before attempting to explain this discrepancy let us briefly consider the physiology of the maxillary sinus under normal and pathologic conditions.

1. Fränkel, E.: Beitrag zur Pathologie und Aetiologie der Nasennebenhöhlenerkrankungen. Virchow's Arch. f. path. Anat., 1896, cxliii.

2. Harke: Beitrag zur Pathologie und Therapie der oberen Athmungswege, Wiesbaden, 1895.

3. Minder: Fünfzig Sektionsbefund der Nase und deren Nebenhöhlen. Arch. f. Laryngol. u. Rhinol., 1902, xii.

4. Wertheim: Beitrag zur Pathologie und Klinik der Erkrankungen der Nasennebenhöhlen. Arch. f. Laryngol. u. Rhinol., 1901, xi.

Törne,⁵ in a series of elaborate experiments, was able to prove that the normal sinuses during life are sterile. By making necropsies as soon as possible after death he showed that it required several hours for bacteria to infect these cavities. In all those cadavers which had not been dead for over two hours the healthy sinuses were sterile while contamination occurred in direct relation to the length of time elapsed since life became extinct. In all bodies microorganisms were present five hours after death. The reason for this normal sterility is explained by his experiments on the heads of freshly slaughtered calves. These heads, while yet warm, were opened in such a manner that the nasal wall of the antrum was fully exposed, yet not soiled with blood. Small particles of lamp-black were placed on different portions of the sinus and observed under a strong reading-glass. They were seen plainly to move continuously in the direction of the ostium and finally to disappear into the nose. The rate of speed equaled about 0.5 cm. per minute. This was, of course, due to the ciliary action of the sinus mucosa. The action became feebler and feebler as cadaveric rigidity became established and finally ceased altogether. This explains the reason for the sterility of the sinuses during life. Even should minute foreign bodies find their way into these cavities, the ciliary action of the mucosa would expel them through the ostium into the nose.

When the mucosa becomes inflamed, even though slightly, the increased hyperemia causes swelling which interferes with the action of the cilia in direct ratio to its volume. Bacterial action in conjunction with this inflammation can destroy large areas of the columnar epithelium and after the cilia are destroyed the character of the tissue often changes from columnar to squamous epithelium. A sinus which has been the seat of a chronic disease would therefore be unable to resist microorganismal invasion to the same extent as one fully supplied with normal ciliated epithelium. During life the cilia prevent the wandering in of microorganisms and should any gain access to the sinus through forcible blowing of the nose or otherwise, they are subsequently expelled unless the mucosa is diseased or injured, in which case it might prove a suitable medium for their growth.

It is this action of the cilia which explains the discrepancies between my clinical findings and those recorded by the pathologists. The antra in those cases in which the fluid returned clear were healthy beyond all shadow of doubt, as they showed no symptoms either previous or subsequent to the needle punctures. In those cases which showed an excess of blood, subsequent puncture in ten of the fourteen brought forth the rejected fluid unchanged. Only those in which the liquid was turbid or contained pus could be unqualifiedly accepted as cases in which pathologic secretion was present in the sinus. As mentioned before, this was 11 per cent., while the post-mortem examinations showed secretion in 37 per cent. Shortly after death the cilia become motionless, yet the glands continue to secrete or at least become relaxed so that whatever secretion was present would appear in the sinus. Specific gravity would also cause the secretion to collect in the most dependent portion. Even were the walls but moist, the collection of this fluid would not be inconsiderable and might readily appear turbid either from chemical changes or from the action of bacteria. In many of these cases the mucosa was reported unchanged. It is even possible that maceration

from the contact of the secretion, together with the action of the microorganisms, might cause microscopic changes to appear in the mucosa. Törne⁵ found pathologic changes in the antral mucosa of seven (23 per cent.) of thirty individuals who had died from pulmonary tuberculosis. While in all these cases microorganisms were found in the fluid within the antrum, in not one could the tubercle bacillus be isolated. In seven tuberculous individuals (not pulmonary) no changes were present in either the maxillary or frontal sinuses demonstrating clearly that no direct connection exists between tuberculosis and sinus disease.

As a further test in this direction, my assistant, Dr. H. M. Goddard, employed the following technic in five cases. The nares on both sides were thoroughly flushed out and the Lichtwitz needle introduced under strict antiseptic precautions. A small quantity of sterile normal salt solution was injected into the antrum; then aspiration was practiced. The fluid thus obtained was caught in a sterile vessel and incubated. Various cultures were attempted, but in no instance were microorganisms present.

To revert now to our question, it would seem that the difference between the clinical and post-mortem findings depends largely on the length of time which has elapsed between the necropsy and the death of the patient. The longer the time the greater the probability of finding secretion. This would account for the variance in the results of the previously mentioned pathologists which appear in the following order:

1. Harke, sinus disease in 60 per cent.; post mortem.
2. E. Fränkel, sinus disease in 35 per cent.; post mortem.
3. Wertheim, sinus disease in 29 per cent.; post mortem.
4. Minder, sinus disease in 23 per cent.; post mortem.
5. Törne, sinus disease in 23 per cent.; post mortem.
6. Skillern, sinus disease in 11 per cent.; intra vitam.

The pathologic explanation of this discrepancy appears to be due to the action of the cilia. It is entirely within the range of possibility that during the last days of a consumptive, owing to the debilitating character of the disease, the action of the cilia becomes feebler and feebler until the ciliary wave is so weak that it is unable to expel the secretions from the cavity. This would explain the post-mortem conditions found several hours after death. We must, however, admit that sinus disease in tuberculous patients is far less prevalent than post-mortem examination would lead us to suppose. This fact was clearly brought out and substantiated by the results of the exploratory needle punctures.

CONCLUSIONS

1. The sinuses in health are free from bacteria.
2. Tuberculous subjects are not more prone to sinus inflammation than are other individuals.
3. Tuberculosis of the lungs does not predispose to sinus inflammation.
4. Genuine tuberculous processes are rarely if ever found isolated within a sinus.

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ABSTRACT OF DISCUSSION

DR. JUSTUS MATTHEWS, Rochester, Minn.: I have found suppuration of the antrum possible without the constant presence of demonstrable pus, and I think that fact offers a possibility of error in Dr. Skillern's conclusions.

DR. L. W. DEAN, Iowa City: I have seen two cases of alveolar necrosis in which exploratory puncture of the antrum was negative although it contained pus. One of the patients was operated on in the public clinic and the statement was made

5. Törne: Studien über die bakteriellen Verhältnisse der Nasen- nebenhöhlen, Nord. med. Ark., 1904, i.

after puncture that the antrum was not involved, and it was somewhat embarrassing to find on operation that the antrum was filled with polypi, although there was no purulent secretion present.

DR. HANAU W. LOEB, St. Louis: While these experiments are certainly very interesting they hardly justify completely the conclusions of Dr. Skillern. It is quite possible that there might be disease of the sinus without a sufficient amount of exudate to show in the washings. I do not think Dr. Skillern has done enough as yet to justify the theory that inflammation results from the fact that the cilia lose their function during the last few days of life. Examinations made immediately before death might show whether this conclusion is correct or not.

DR. W. C. BALLENGER, Chicago: Dr. Evans, of Chicago, who was pathologist at the Cook County Hospital several years ago, made some observations along this line as to exudate in the crypts of the tonsil; he found that a large percentage of these cases showed the presence of diseased exudate in the sinuses and crypts of the tonsils and his conclusion was that just previous to death the vitality of the individual became so low that there developed in these cavities an inflammatory condition that had not existed a few days earlier. It is quite possible that these examinations might have been made just at the time when there was no demonstrable pus; that we might have a diseased sinus without the presence of demonstrable pus, at least by the methods pursued by Dr. Skillern. While the observations of Dr. Skillern are interesting yet they would have been more valuable if he had had x-ray pictures to show if there was any inflammatory process in the antrum. I do not agree with Dr. Skillern in his statement that the antrum is more often diseased than any other sinus; I believe that the ethmoid sinuses are much more frequently involved than any other.

DR. ROSS H. SKILLERN, Philadelphia: That needle puncture might be negative and yet disease of the antrum exist, is, of course, unquestionable; but I was not looking for changes in the mucosa, but rather for exudate in the cavity. I investigated the matter after the findings of the men I quoted, particularly Minder, who speaks of an exudate being present. If it were present, it would have to come out with the needle puncture as employed. Examinations, microscopically and by culture, were made, and even these failed to disclose inflammatory products. X-ray and post-mortem examinations would have been desirable, but were not available under the circumstances.

USE OF SALVARSAN IN LESIONS OF THE NOSE AND THROAT

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Of all syphilitic lesions, those of the nose and throat yield most rapid and satisfactory results. Unlike the other specific lesions, the stage of the disease apparently is of little or no consequence. The tertiary symptoms give way to the magic of salvarsan as quickly as do those of the primary and secondary stages. Bone lesions of the roof of the mouth and of the nose recover nearly as rapidly as do those of the mucous membranes and muscles of the throat. One structure alone in our field of work resists the treatment for any length of time. Specific lesions of the larynx for some reason or other do not react to the treatment with the same degree of satisfaction as do those of the nose and oropharynx.

Early syphilitic lesions often find their way to the specialists in nose and throat diseases and tertiary lesions are often seen in our special field of work. Thus we are frequently called on to treat the ravages of this dreaded disease. Were nose and throat lesions our only consideration, the task would be an easy one. It frequently becomes necessary, however, to assume the entire

responsibility of the patients' misfortune and in that capacity we are called on to diagnose and treat any specific lesion in the entire body. To combat the disease successfully in our own field of work, we must thoroughly understand the action of this new and not altogether harmless drug on every other organ of the body; particularly as certain structures are highly susceptible to its irritating influences.

Generally speaking, salvarsan is indicated in diseased conditions of the body when a positive Wassermann reaction is present. Occasionally this diagnostic reaction may be negative. Should experience in syphilitic disease lead us to suspect the lesion to be specific and a careful systematic exclusion of other causes still points toward syphilis as a probable cause, salvarsan is still indicated and in many cases will speedily give the desired result. Experience has taught the profession, however, that there are certain limitations to this mode of treatment which must be clearly understood and rigorously observed lest harm come to the patient.

Broadly speaking, salvarsan is contra-indicated in any acute inflammation of the eye, heart, kidney or nervous system. To use salvarsan in an acute inflammation of any of these organs may mean danger or even death to the patient. There is again an exception to this rule, however. Whenever active inflammations in these organs are of specific origin, salvarsan is not only indicated, but demanded for the welfare of the patient.

More than one death has occurred in Boston from the giving of salvarsan and severe inflammation of important organs has followed its use, to my certain knowledge. Certain individuals show a marked idiosyncrasy to arsenic, and in such instances average doses of salvarsan may give rise to very disagreeable symptoms. One such case occurred in a woman from a comparatively small dose and continued for a considerable length of time with highly disagreeable symptoms. One Boston physician, if he has any reason to suspect such a tendency in his patients, tries them out for a few days on Fowler's solution. In the early days of salvarsan treatment, much was written about arsenical poisoning, due no doubt to an impure preparation of the drug, or to a faulty solution of it. At present, this particular phase of the treatment causes comparatively little trouble, even when very large doses are given. So much has been written on the method of giving salvarsan that little good can come from further discussion. Suffice it to say, that intramuscular injections are almost never given at present.

The choice of location and method of introducing the solution into a vein rests with the operator. The dissection method and the Schreiber method each has its advocates and it makes little difference to the patient which is used, providing the solution reaches the bloodstream and no leakage occurs. The Schreiber method is open to this objection that a very sore arm will result in the case of any fluid leaking into the surrounding tissues. The dissection method is oftentimes used for this reason, and it practically does away with such a possibility.

Both methods have been in use in the Boston City Hospital since the beginning of salvarsan treatment and are equally successful in their results.

Two equally distinct systems are used also in the amount of the drug given. One system uses comparatively small doses repeated at intervals. The other gives one large dose not repeated. The first system in addition employs iodids and mercury as a routine treatment in conjunction with salvarsan. The other relies

on salvarsan alone and gives neither iodids, mercury or other antisyphilitic medication. In the case of the combined treatment, the dose varies with the age, size and strength of the patient, stage of the disease, etc. From 0.4 to 0.6 gm. constitutes the dose in this system followed at once by mereury and iodids or both, in the ordinary doses. In the other method, 0.9 gm. is given in one dose and is not repeated for three months. As before stated, this method is not followed by iodids or mereury. Equal results are claimed for both methods so far as clearing up of symptoms is concerned. Just what the comparative results are in obtaining negative Wassermann reactions I am unable to state. In the first method, the operator prefers giving mereury by inunction first, deep injection second and by the mouth last of all. When eye symptoms are present the succinimid of mereury is chosen, the great advantage claimed for this drug being its free solubility.

All primary and secondary symptoms clear up like magic under treatment with either system, and tertiary lesions yield to it in an almost equally spectacular manner. Tertiary bone lesions in a state of inflammation are usually very rapid in their recovery, as are also any broken-down tissues in this stage of the disease. The deeper the spirochetes are in the tissues, the less rapid and effective is the treatment by salvarsan. The greater the blood-supply of diseased tissue, the more rapid and effective is this treatment. This is undoubtedly the reason that nose, throat and eye symptoms are so rapid in their recovery. This is doubtless also the reason why broken-down tissue in the tertiary stage yields so much better results in the same period than intact lesions such as gummata. Here again is the theory advanced for the use of iodids.

Tertiary lesions occur most frequently in comparatively dense tissue, and the process of this stage is more or less to wall off the lesions from adjacent structures. This walling-off process, as in the case of gummata, decreases the blood supply to a marked extent. In this process the salvarsan in the blood stream has far less ability to reach the spirochetes, and thus to exert its antisyphilitic power on them.

Iodid of potassium has the peculiar power of breaking up this walling-off process, peculiar to the tertiary stage and accomplishes a great amount of good by establishing free access to the tissues for the blood to enter. Neither salvarsan nor mercury possesses this ability, peculiar to the iodids. Mercury and iodids or salvarsan and iodids, work hand in hand in this respect, however, as the mereury and salvarsan rush in to kill the spirochetes as soon as the iodids have broken down the wall of resistance to their antisyphilitic powers. Personally, I believe that the iodids play a most important rôle in this respect. It is claimed that salvarsan ceases to have any potency after five days have elapsed. If this is true, mercury in conjunction with the iodids is an important factor in clearing up the spirochetes left unharmed by the salvarsan.

The sudden breaking down of walled-off cavities containing large numbers of spirochetes occasionally gives rise to a curious phenomenon. Great numbers of spirochetes are then released in the tissue in too great numbers to be overcome and killed by the salvarsan, or the potency of the drug is too feeble to destroy them. When such an occurrence takes place, a local inflammation begins in that locality, and the lesion in that particular part becomes exaggerated and more active.

Shortly after salvarsan has been introduced into a vein certain symptoms may develop, which are some-

what disagreeable to the patient. A sensation of fulness in the head or vertigo often occurs; headache, nausea and an occasional rise of temperature and chills may follow. The headache occasionally is severe enough to require an opiate of some kind. Usually, however, all such symptoms last but a few hours and are of comparatively little consequence. In two cases, of which I know, extreme hysteria occurred and persisted for two days.

Elevated temperature is most apt to arise in early secondary symptoms with extensive rash present. It occurred, however, in one of our hospital cases in a tertiary lesion of the larynx. In this case it rose to 102.8 F. after the first injection, to 102.2 F. after the second, and to 100 F. after a third. Except for the comfort of the patient, little or no attention need be given this phase of the treatment.

Untoward symptoms have occurred in the city of Boston in a very small percentage of cases, so far as I can learn. I have heard of two deaths following the use of this drug. Very sore arms were encountered in the early days of the treatment, but rarely occur at the present time. Arsenic poisoning has occurred several times with its attending symptoms. Other than this I have heard of no harmful results. At least five or six hundred cases have been reported by Boston writers, which brings the percentage of fatal or complicated cases down to a very small figure.

In the early days of salvarsan treatment, great stress was laid on the danger of blindness following its use. Three factors entered largely into the reason for this: (1) Other forms of arsenic than true salvarsan were used in experimenting; (2) the salvarsan used was not properly prepared; (3) experiments were performed largely on small animals whose eyes are very susceptible to irritation from arsenic. This is particularly true of cats. Latter day treatment with salvarsan has given little trouble in the eye, and except in optic inflammation of a non-specific origin, the eye is not particularly subject to inflammation. In syphilitic diseases of the eye, such as iritis and interstitial keratitis, brilliant results have followed its use. In one case of chorioiditis, in the Boston City Hospital, the treatment failed to give relief. The question may be raised, however, as to whether or not this particular case was of syphilitic origin. It is only fair to state also that in one case salvarsan caused decided harm; panophthalmitis developed, which cost the patient the loss of an eye. In this particular case, salvarsan undoubtedly made the eye worse and was responsible for its loss. One or more of the eye cases deriving marked benefit from the treatment were patients with congenital syphilis.

Aural complications following the treatment are rare. Two cases have occurred to my certain knowledge, however. One of them occurred in my private practice. Both occurred in tertiary cases and developed soon after injections of salvarsan. My own case was peculiar in that it followed the third injection, having had no trouble in that respect following the first two injections. Both patients had tinnitus and fulness in one ear only, accompanied by a certain amount of decreased hearing in the one ear. Both cases cleared up after a few weeks, and the patients had no further trouble in that respect.

I wish to call attention to headache, especially of the nocturnal variety. Several cases have come to my attention, accompanied by this symptom, which have yielded to salvarsan treatment, when everything else failed. When this distressing symptom fails to respond to treatment, this method of treatment should be

seriously considered, even if a Wassermann test is negative. A number of such individuals have obtained the most blessed relief in this manner, and as a last resort, salvarsan often gives the desired result. The same may be said of the pains of tabes in many instances.

CASE REPORTS

The following cases are interesting and illustrate very well certain phases and characteristics of salvarsan treatment:

CASE 1.—This case, which is claimed to be the most spectacular salvarsan recovery known in Boston, occurred in the service of Dr. Cunningham, at the Long Island Hospital. The infection was undoubtedly of Asiatic origin and physicians who have seen cases in all parts of the world have pronounced this particular case to be the worst one they had ever seen. The patient, a young married woman, developed the rupial type of the disease and after a time showed the blebs practically over the entire body. At this time she presented a horrible spectacle. Salvarsan was given and, a few weeks later, the lesions entirely cleared up, except three scars the size of a ten-cent piece, and a small loss of tissue of one of the alæ of the nose.

CASE 2.—A. J., male, chauffeur by occupation, entered the hospital because of dyspnea. Examination showed the cords to be closely approximated and considerable swelling of the arytenoids and epiglottis was present. Tracheotomy was necessary and was performed. Three injections of salvarsan were given at intervals. After each injection the temperature was raised for a short time and also after each injection the patient coughed up a black material which appeared to be from an abscess cavity somewhere in the larynx. Considerable relief apparently followed each injection. After several months' treatment the patient was able to get about the ward without the tracheotomy tube, but occasionally the abductor paralysis returned temporarily and the tube had to be reinserted.

CASE 3.—This case illustrates the uncertainty of salvarsan, when the treatment is neglected.

A. O., aged 20, male, entered the hospital for specific disease of the nose. There was necrosis of the septum and of the nasal bones and the odor was so bad that patients refused to remain in the ward with him. Salvarsan was given and in a month's time all the necrosis, crusting, odor, etc., had entirely cleared up. He was discharged from the hospital with instructions to return in thirty days for further treatment. He did not return for five months and when seen again was in practically the same condition as before. Salvarsan was again given and the symptoms entirely disappeared for the second time.

CASE 4.—The fourth case was very spectacular, particularly in the early history. Mrs. S. came to my office July 7, 1911. She complained of an intense headache, which had persisted for a long time. The pain was mostly on the top of the head and was worse on stooping. There was also a gnawing pain over the nasal bones. Examination showed the cartilaginous septum to be entirely gone; the vomer and turbinates were intensely red, covered with crusts and bled freely on the slightest touch. July 11 a Wassermann test was made and found positive. The following day salvarsan was given by Dr. Sanborn. Twenty-four hours after the treatment was given the headache and gnawing pain ceased. Within the next four days there was a sharp line of demarcation between the living and dead bone. The necrosed bone separated easily and was picked out of the nose with a small pair of forceps. Eventually the entire nasal septum came away, but the nasal bones and the turbinates were unharmed. The crusting decreased to a very considerable extent within the next few weeks and the odor practically disappeared. The headache has given little discomfort since. The patient has had three injections of salvarsan and has taken mercury off and on. She does not tolerate mercury well and cannot use injections at all. After the third injection this patient developed aural symptoms, consisting of fulness, tinnitus and decreased hearing; all in

one ear only. This lasted for several weeks and gradually disappeared. We have never been able to get a negative Wassermann reaction in this case, but the woman is under observation still.

Innumerable cases might be given of nose and throat symptoms which cleared up under this treatment. In one case of leukoplakia, seen and treated in the hospital by Dr. Binney, the patient improved very much, but was not, at the time of the last note, entirely well.

There seems to be a strong feeling in Boston that salvarsan should not be given with an acute inflammation of the larynx present. Just why I have never been able to learn. One case particularly was cited against the procedure in which a hurried tracheotomy was necessary. It so happened, however, that in this much quoted case the tracheotomy was done before the salvarsan was given. This patient had a laryngeal growth of some kind, and had been unable to lie down for some time. When the patient was placed in the recumbent position, just previous to a salvarsan injection, the growth in some way obstructed the larynx and a tracheotomy was necessary at once. False rumors of this case went abroad, and from them grew the theory that salvarsan should never be used in laryngeal cases.

What the future will prove as to the numbers of cures is a matter of speculation only. No man can tell. Cases have been reported of the reinfection of syphilis, after salvarsan treatment. One such case occurred at the Long Island Hospital, after Dr. Cunningham's treatment, in which a man had a typical hunterian chancre. Such instances are rare, however, and a recurrence of symptoms in the same case is not uncommon. In a great many cases it has been impossible to obtain a negative Wassermann test. When such negative tests are obtained it is impossible to know whether or not they will remain so for the rest of the patient's life. We do know, however, that in the vast majority of cases, salvarsan will cure symptoms like magic, and that if the first dose fails, others may be given at proper intervals, until the symptoms are conquered and disappear.

No syphilitic lesions will have been well treated until salvarsan shall have been administered in scientific doses, and repeated at proper intervals as long as the lesions persist.

Experience is teaching us, however, that in many cases, salvarsan alone is not sufficient. Our old friends, mercury and iodids, are still necessary to accomplish the results we desire in syphilitic disease, and they are still valuable agents to be used in conjunction with the brilliant but somewhat unreliable salvarsan.

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ABSTRACT OF DISCUSSION

DR. GEORGE P. SANBORN, Boston: During the past year and a half I have used salvarsan in the treatment of more than 200 cases of syphilis. Among the interesting topics which suggest themselves is the question of how much confidence to place in salvarsan alone, without the aid of mercury and potassium iodid. That a single dose of 0.5 or 0.6 gm. cannot be depended on to extinguish the disease became evident when one of my earliest patients developed an iritis two months after the secondary rash and mucous patches had disappeared following 0.5 gm. salvarsan. Other early experiences also led to the same conclusion. It was perfectly evident that some of the spirochetes had continued to exist in spite of the treatment. Since almost the first, therefore, I have used mercury and potassium iodid as the most conservative treatment to supplement salvarsan.

In the very early stages of the chancre the infection approximates a local one. Just before the rash develops and later, the

condition becomes a septicemia, the spirochetes become generally distributed throughout the tissues. The chances of destroying all the microorganisms are obviously much greater in the first than in the second case. Hence the importance of early diagnosis and intensive treatment at the time when the conditions are most favorable. At this time absolute cure is apparently attainable. Intensive treatment means in most cases two doses of salvarsan, ten days apart, followed by mercury salicylate $\frac{1}{2}$ to $1\frac{1}{2}$ grains every six days for three or more months. Mercury should be continued after the Wassermann reaction is negative.

I hope the time will come when the syphilitic can be isolated during the most infectious stages. Until such ideal conditions come about, it is incumbent on the hospitals to eliminate so far as possible these individual foci of infection, by offering each and every actively infectious syphilitic vigorous treatment with salvarsan and mercury. I cannot emphasize too strongly this feature of salvarsan, namely, that in a very few days the recipient, even though previously at the height of his infectiousness, becomes practically non-infectious and of little danger to the community. Extensive, intelligent use of salvarsan cannot help but lessen the incidence of syphilis. Of the various methods of administering salvarsan, the Schreiber seems to me the best. Experience in inserting the needle into a vein is soon obtained, so that incision to lay bare the vein will be necessary only when the veins are small or deeply situated, or both.

DR. WOLFF FREUDENTHAL, New York: I have treated twenty or more cases and have had about the same result as other men. One point which has not been brought out in Dr. Borden's paper is the question of whether we should inject salvarsan in tuberculous patients. I had two remarkable experiences: one, a patient sent to me from Philadelphia who had received one injection of salvarsan which was followed by a large ulceration in the pharynx and larynx which nothing could check. Finally, the patient could take no food at all. We examined his lungs and found incipient tuberculosis. The patient soon died. In another case I had the opposite experience. On the basis of this first case I advised my patient not to have salvarsan injected, but in spite of that he received it and it was remarkable how his symptoms improved.

DR. J. H. ABRAHAM, New York: I had two cases of gumma of the septum, one of which was under treatment two months; the patient had been advised to have an operation for the obstruction. There was necrosis and almost complete occlusion to breathing. He was injected with salvarsan, and on the fifth day it was impossible to see any vestige of the diseased condition in the nose. The second injection was given on the sixth day and the third at the end of the third week, at the end of which time the Wassermann was negative. While abroad last year I met Professor Ehrlich, who introduced me to several physicians who administer salvarsan in hospitals in Frankfurt. They prefer inserting the needle with the point directed upward.

DR. GEORGE L. RICHARDS, Fall River, Mass.: Has any one seen any cases of facial paralysis following the use of salvarsan? I translated Professor Alexander's report of some cases last year in which this had occurred. Some cases also occurred in Kaufman's clinic in Vienna. I should like to know if any have occurred in this country.

DR. H. W. LOEB, St. Louis: I had a case of evident labyrinthine trouble which followed the administration of salvarsan. The patient had an initial lesion; spirochetes were found in the lesion, which was excised, and salvarsan was administered two days after the patient first noticed the sore. There were no immediate untoward symptoms, but three weeks later the patient was suddenly taken with nausea, vomiting and dizziness and was put to bed. I saw him sometime afterward when the vomiting had ceased and the nausea was practically gone, but found he had spontaneous nystagmus toward the side of complete deafness, the right side. This was elicited only when he looked toward the affected side. His spontaneous nystagmus continued six months, but now is hardly perceptible. His deafness has not improved. The man's labyrinth now reacts normally. During the time of the nystagmus the test with the finger movements was normal. There was no ear trouble whatever before the injection. Some have thought that

the ear symptoms following salvarsan were due to the disease rather than to the injections. Since the time of the initial lesion the patient has had no symptoms of syphilis.

DR. DUNBAR ROY, Atlanta, Ga.: A medical student who contracted syphilis last fall, followed by secondary eruption, was given salvarsan; no symptoms were produced in the ear. All the rash disappeared and the general symptoms improved. Two weeks later the patient began to have tinnitus and loss of hearing. That was in November; in February I saw him and made further tests. While I could not see that any of the indications were labyrinthine definitely, I considered it a nerve deafness, and now he is totally deaf in both ears. A physician in Atlanta has used the new preparation in a hundred cases and finds it better in every respect. He says that many of the toxic symptoms that occurred with the old preparation do not occur with this neutral preparation.

DR. EMIL MAYER, New York: The statement has been made that specific lesions of the larynx do not yield so readily as those of the nose and throat. I should take exception to that from my experience and judging from the experience of those who have seen a great deal of these conditions. I might say in this connection that I think there is hardly a person present in the room who has seen such a number of cases of serious syphilitic lesions in our own country as is seen abroad. I should like to know how many men there are who have had patients coming to them year in and year out for the introduction of bougies to distend cicatrices of the pharynx. In my experience of twenty-five years in New York, where I have seen perhaps 50,000 cases, I recall but one single case in which it was necessary to use divulsive methods. On the other hand, in Berlin and Vienna, we see many patients with extensive lesions in the pharynx and larynx. When we hear men like Chiari and Onodi relate their experiences with salvarsan and state how the lesions of the larynx disappear like snow under the summer sun, we must believe them, and with the few cases we have seen we feel that their statements are justified.

DR. C. R. C. BORDEN, Boston: In answer to Dr. Mayer, I did not mean to say that inflammations of the larynx did not yield to salvarsan, but they do not yield, in my experience, with the same rapidity as do lesions of the nose, mouth and upper pharynx; neither do they remain cured as the others do. There is now in the hospital a case of paralysis, the cords being closely approximated, and a tracheotomy was necessary at once. A Wassermann test was strongly positive and salvarsan was given immediately. The next day the patient, in a severe paroxysm of coughing, coughed up a black material. This patient has had three injections of salvarsan, four weeks apart, and after each has coughed up this same black material. He has been in the hospital now four months and has had three injections of salvarsan, potassium iodid and mercury. He is now able to walk about the ward without the tube, but if he becomes excited in any way the tube has to be reinserted. There is a strong opinion in Boston that injections of salvarsan cause edema of the larynx. This idea came from a case in which it was said tracheotomy had to be done immediately after the use of salvarsan. As a matter of fact, this patient had an intralaryngeal growth, and he had been unable to lie down for several months. When he was placed in a recumbent position, in order to administer the salvarsan, the growth suddenly obstructed the larynx, and a hurried tracheotomy was necessary before the salvarsan was injected. We have had several larynx cases in the hospital, and in all of them the results have been slow.

The syphilis we see in this country is not the same as that seen abroad. What is said to be the worst case that ever occurred in Boston was of Asiatic origin. Several medical army officers and physicians with European experience pronounced it to be the worst case they had ever seen; yet one injection of salvarsan cleared up all symptoms in a few weeks.

Intramuscular injections I still maintain are very little used at the present time, because of the disagreeable and dangerous symptoms which follow their use. Compared with the intravenous method the results obtained have been almost uniformly unsatisfactory.

In answer to Dr. Richards, I know of no case of facial paralysis following the use of salvarsan.

CELLULAR CHANGES DURING AND AFTER
ACUTE MASTOIDITIS WITH A CONSIDER-
ATION OF THE INADVISABILITY OF
CERTAIN OPERATIVE PROCEDURES
AT PRESENT LARGELY IN
VOGUE

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I was prompted to present this paper by an informal discussion of the subject with a fellow member of this Section, during which discussion it developed that there existed between us a wide difference of opinion in regard to certain surgical fundamentals involved. My own observations have convinced me that the number of operators who do not hold views similar to mine is not small, and this opportunity is sought for a comprehensive discussion of the subject. It is to be hoped that none of the Section's time will be taken up with discussions of unimportant differences in technic or of procedures applicable to unusual departures from type, which in no way form any part of the subject. I appreciate that certain individual cases are laws unto themselves and present conditions which cannot be foreseen; exceptional virulence of infection, unusual lack of resistance on the part of the patient, in short, anything which has a "*sui generis*" all its own," as a western writer once expressed it, may be adduced in valid argument against some portion of the contents of this paper, which deals only with general principles underlying the surgery of acute purulent mastoiditis.

It was my intention originally to make the pathologic findings during and after acute inflammation the basis of a study of the questions involved, but physical incapacitation at the time projected for this part of the work, and discovery of some authoritative statements regarding these pathologic findings determined the presentation of the subject without pathologic material.

My propositions are briefly the following: In operative treatment of an acute purulent inflammation of the tympanomastoid structures, any procedure having for its object aught than relief of pressure and establishing drainage is a surgical error. The antrum should not be opened in the absence of special indications for so doing, and should never be curetted under any circumstances.

The mucoperiosteum of the tympanic cavities, unlike its continuation in the eustachian tube, contains almost no glands, only a few scattered ones being found on the floor, the inferior portion of the outer wall, and the outer part of the superior wall of the cavum (von Tröltzsch and Bulle). The epithelium is ciliated cylindric in type only over small areas. That covering the membrana tympani, the ossicles, promontorium, attic and pneumatic spaces of the mastoid is pavement epithelium (Jacobson and Blau, and Kölliker). Transitional cell zones delimit the latter areas. Kessel describes minutely stomata in the pavement epithelium of tympanum and antrum communicating directly with underlying lymph-channels, and calls attention to the enormous absorptive powers of this structure, as does Bezold, who adds a comment relative to the equally great power of recuperation after violent inflammation and enormous swelling incidental thereto, thickening of 10 to 12 mm. having been observed in membrane normally 0.02 mm. thick, with subsequent absorption of all inflammatory exudate and complete subsidence of swelling.

Mucous secretion has its origin in two sources, the glands and the epithelium. Siebenmann failed to find

the glands reported by certain authors and takes issue with them as to the existence of any glands at all. Schwalbe, Blau and others remark the possibility of the existence of moderate accumulations of secretion on the floor before eustachian tubal drainage can begin. It seems certain that to cause the outflow via the eustachian tube of accumulated secretion is not the sole function of the cilia.

The pneumatic spaces of the mastoid process and the aditus are dependent almost entirely on the pavement epithelium to remove secretion. In the tympanum a considerable part of the secretion is removed through absorption by the lymph-streams via stomata in the pavement epithelium, ciliary action being concerned in urging onward the masses of secretion toward the tube and toward the pavement-epitheliated absorption areas. The mucoperiosteum of the aditus, antrum and pneumatic cells of the mastoid bears non-ciliated pavement epithelium, and its blood-supply is concerned in nourishing the mucosa on the one hand, and the underlying bone on the other. Where it covers non-diploetic bone it constitutes the sole source of nourishment to the bone; diploetic bone receives additional nourishment from the circulation of the diploetic vascular system. Diploe is found in the temporal bone in widely varying distribution; Zuckerkandl, Zoja, Schwartz and others have examined many hundreds of temporal bones with a view to ascertaining facts relative to the presence of diploe; the consensus of these findings indicates that in about 40 per cent. the pars mastoidea contains no diploe; in about 22 per cent. it is entirely diploetic, and in about 38 per cent. it is mixed, pneumatic-diploetic. Diploe is normally absent from three sites in the temporal bone, the promontorium, the prominence of the horizontal semicircular canal, and the internal auditory meatus (Neumann).

After acute destructive processes involving the periosteum alone, or the periosteum and underlying cortex, diploetic bone undergoes rapid repair, granulations nourished by new-formed vessels from the diploetic circulation springing up and covering the site of the destructive process very rapidly; non-diploetic bone, on the contrary, undergoes repair very slowly, for the reason that it is entirely dependent on one vascular supply, that of the periosteum, which has been involved in the disease process and hence is not so well able to respond to the call for new vessels and nourishment.

Now consider briefly the steps in common to all acute purulent inflammations in the pars mastoidea, the avenue of infection of which is the tube and tympanum. Acute purulent infection of the cavum tympanicum, epitympanum and aditus causes acute inflammation of the mucoperiosteum, which swells enormously; the eustachian tube is closed and there is purulent matter under pressure in tympanum, attic and antrum. In writing of pus enclosed in the cavities of the middle ear under pressure, Körner says:

The earlier this pressure is relieved and the freer the drainage, the better the prognosis for cure without bone-destruction. The later pressure is relieved and the less adequate the drainage, the oftener the bone and mucoperiosteum will partake in the destructive process. In case of inadequate drainage, the thin bony walls will suffer synchronous attack of the destructive process from both sides. By swelling of the mucoperiosteum the small mouths of the tubes are easily closed off from the antrum, thus setting up a purulent process apart in such cells, while antrum and cavum tympani may undergo complete healing.

The previously existent cavities of the tympanum and mastoid are completely filled by swollen mucoperiosteum, the circulation of which is so interfered with by counter-pressure of the non-yielding bony walls, within which is found insufficient space for swelling, as to result in back-pressure and consequent epimembranous and subperiosteal serum extravasation. The infecting organisms multiply rapidly under such circumstances and under the influence of their life-products on the tissues decalcification and peptonization begin in the bone.

Up to this point the pathologic changes described are common to non-diploetic, diploetic and mixed pneumatic and diploetic types of mastoid process. In the non-diploetic mastoid process the first bony tissues to suffer are the thin walls of pneumatic cells, which are solely dependent on the periosteal circulation for nourishment and protection. Deprived of this, they undergo rapid destruction, and abscess formation occurs. The abscess enlarges in all directions until some portion of bone is encountered possessed of sufficient resistance to withstand the action of the infectious products. Such resistance can lie only in bone whose circulation is unimpaired—or, in other words, bone not solely dependent for its vascular supply on the infected mucoperiosteum. In such bone, response to the call on the resources of the body for serum and phagocytic protection is prompt; serum protectives in excess flush the part, cohorts of phagocytes assemble, Nature's ramparts in the shape of delimiting organized exudates are thrown up and the progress of the destructive process in this direction is arrested. Then attempts at repair become evident almost at once in the form of granulation tissue, new-formed vessels extending into the exudate, organization and cell replacement, having their source of nourishment in the unimpaired vascular supply of the bone where the destructive process has been arrested. To repeat, an arrest in the progress of a destructive suppurative process in the mastoid may occur when it reaches bone possessed of an unimpaired vascular supply independent of the mucoperiosteal lining of the pars mastoidea. In the type of mastoid process now under discussion (the non-diploetic) the cortex would be the first bone encountered capable of such resistance. In a mastoid process of this type, abscess formation may proceed from one, or more than one nidus, separate abscesses forming at first, breaking into one another as their centrifugal enlargement goes on. Thus the whole processus mastoideus from zygomatic cells to tip cells may be converted into one or more cavities filled with pus and products of bone destruction. The mucoperiosteum by reason of its vascular content is able to withstand the acute inflammatory attack better than the bone, and it is unusual to find mucoperiosteal sloughing even in the presence of wide-spread destruction of bone. In non-diploetic mastoid processes with very thin or dehiscant cortical areas, it not infrequently occurs that the bone destruction proceeds to the external periosteum before the arresting of the purulent process takes place. In such cases pus under pressure finds its way through the bony cortex and intra- or extracranial subperiosteal abscess results (Bezold's perforating abscess, epimastoid abscess, epidural abscess, perisinus abscess, etc.).

In diploetic mastoid processes containing only one or perhaps two pneumatic spaces, genuine abscess formation does not take place. This type of mastoid process is only very rarely the seat of inflammatory disease of any kind. Acute purulent invasion of such a mastoid results in either one of two radically different pathologic con-

ditions. Ordinarily the bone itself escapes infection, true empyema atri being the condition. When the diploetic bone surrounding the antrum does become affected by the purulent inflammation, acute osteomyelitis of the mastoid process occurs. Acute osteomyelitis is extremely rare in the mastoid process and occurs only in young subjects of low vitality, in whom it is very apt to prove fatal. In spite of radical pathologic differences, differential diagnosis between acute osteomyelitis and abscess is not easily made.

There remains the mixed type of processus mastoideus, partly pneumatic, partly diploetic, constituting about 38 per cent. of all. Of these about three-fourths are pneumatic except for 3 or 4 mm. of diploe at the tip, and about one-fourth are half pneumatic and half diploetic, according to Zuckerkandl, Schwartz, Zojka, Politzer and others.

In the mixed type of mastoid process, purulent inflammation effects the formation of small abscess cavities which may remain discrete or become confluent, at whose margins are found organized exudate and granulation tissue. This is almost the only condition in which granulation tissue is found at operation within the pars mastoidea during the course of acute mastoiditis. Most so-called "granulation tissue" found at operation is not true granulation tissue at all, but intensely inflamed and swollen mucoperiosteum.

Analysis of the sequence of changes during the ordinary course of acute purulent infection of the mastoid process fixes the ultimate responsibility for tissue destruction on structural peculiarities of the affected part: unyielding walls completely enclosing mucoperiosteum which undergoes enormous swelling within inadequate spaces, resulting in almost complete retention of inflammatory products because of occlusion of natural ways by the swollen mucosa—almost complete stagnation of circulation because of increased intramastoid pressure—serum-exudation—infiltration of tissues—decalcification of bone—peptonization of pulp—pus under pressure—absorption of toxic products into general circulation—systemic effects of absorbed toxins.

Unlike the mastoid spaces, the tympanic cavity is equipped with a safety appliance, the membrana tympani. This bulges or ruptures in the presence of increased intratympanic pressure, which obviously can never rise beyond the breaking-point of the membrana tympani. Relief of pressure by sufficiently wide opening of the membrana tympani affects the mucosa of the cavum tympani, aditus and antrum, resulting in rapid subsidence of swelling and increasingly better drainage of these cavities. The Germans say: Every acute middle-ear inflammation manifests a tendency to heal spontaneously in spite of all treatment.¹ It has been remarked by many observers, among whom Jacobson and Blau, Politzer and Neumann may be mentioned, that in many cases of acute abscess of the pars mastoidea no communication exists between the abscess cavity and the antrum; and further, that healing takes place in these cases much more rapidly when the antrum is not opened. Many writers have corroborated the observation of Körner that during the course of acute mastoid abscess formation the antrum and cavum tympani may undergo complete healing as the result of adequate drainage through the membrana tympani.

What general surgical principles apply to the operative treatment of these various conditions? Free drain-

1. Jede akute Mittelohrentzündung zeigt die Tendenz sich spontan aufzuheilen, trotz aller Behandlung.

age of the tympanum, aditus and antrum by means of a large incision in the membrana tympani, kept freely open by reincision as often as necessary, should be regarded as the first and most urgent indication. This cannot be emphasized more strongly than it already has been by those who have spoken with an authority I do not possess, yet again and again in my practice I have encountered cases of acute tympanomastoiditis in which actual "puncture" of the membrana has been made. A "puncture" is practically no better than no opening, as it is sure to be closed up almost immediately by the edematous mucosa of the tympanum.

The local depletion of the tympanic mucosa incidental to free incision is a desideratum hardly second to giving exit to retained purulent matter. True empyema antri will need no further surgical procedure in order to secure complete healing as a rule.

Acute mastoid abscess should be opened freely and drained thoroughly as early as possible. Acute osteomyelitis of the processus mastoideus should be laid wide open and treated as an open wound until completely closed from the depths by healthy granulation tissue.

Diagnosis between abscess and acute osteomyelitis may not be made in many cases; it is possible to overlook a cell containing infectious material unless the operator makes a complete exenteration of the processus mastoideus from tip to zygoma via the antrum. Nevertheless I believe that complete exenteration as very widely practiced and advocated to-day, whether by chisel and gonge, burr, rongeur or curet, for any form of acute purulent mastoiditis, is inconsistent with sound surgical principles. I have witnessed many operations for the relief of acute inflammation of the mastoid process at the hands of technically skilled operators who did not cease their operative ministrations until they had encompassed a thorough removal of every visible vestige of intracortical tissue, leaving the exenterated inner cortex from tip to antrum and upward to zygoma as smooth as a billiard-ball, when as a matter of fact their services to the patient for the last thirty to forty-five minutes of the operation were of a nature to increase liability to serious internal ear and intracranial complications, as well as to render healing as difficult as possible rather than to promote it.

In the course of healing after such operative treatment, the cavity must first fill up by granulation. The granulations must have their origin in vascular supply not incapacitated by disease or operation. The inner cortex, denuded of every vessel-bearing tissue, has only a very minute haversian system by which to transmit nourishment from the circulation of its remaining periosteum for the growth of new tissue; the inner antral wall, non-diploetic and bare of mucoperiosteum, is incapable of granulation. These surfaces remain almost as smooth as the operator left them until overspread by extensions of granulation tissue originating at the wound margins, which carry down with them their own source of nourishment and tissue-repair in the form of new-grown vessels, ultimately reaching and covering the antral wall. Then, and not until then, can epithelial extensions from the mucosa of the aditus find foothold in the antrum. During all this process, which consumes weeks, the wound remains open practically to the aditus, while at the wound margins the granulations will have become so exuberant as to necessitate repeated destructions. Not until the antral walls are epithelialized is the wound converted from an antral fistula to a granulating wound filling up from the bottom. From

four to eight weeks elapse between operation and final cicatrization. This is not the end, however. Contraction goes on apace in the new-formed cicatricial tissues and ultimately there exists, at the end of the aditus, a "step-off" cavity much larger than the original antrum, not lined with mucoperiosteum, but with an epithelialized cicatricial basement-layer poor in blood- and lymph-vessels, lacking entirely the absorption mechanism peculiar to the endantral periosteomucosa, a cavity poorly drained as compared with its predecessor and, by reason of poorer drainage and lack of high absorptive efficiency and rich vascular supply, peculiarly defenseless in the presence of a reinfection.

Too much stress has been laid on the danger of failing to clean out thoroughly every pocket of pus when operating for relief of acute purulent mastoiditis. In empyema antri this danger practically does not exist at all. In acute osteomyelitis the conservative surgery of open-wound treatment involves allowing the separation of viable from non-viable diseased tissues by necrobiosis or necrosis and the removal of the latter in the form of pus, slough or sequestrum in the natural course of dressing the wound. It is not regarded as possible or desirable, in dealing with acute osteomyelitis, to effect removal of all infected bone at operation, nor is it considered a menace to possible recovery to overlook pockets of pus or areas of infection. Furthermore, no surgical procedure whatsoever can prevent the reinfection of the whole surface of the wound within the twenty-four hours following operation.

In acute abscess of the mastoid process, the prime indications are free drainage and relief of pressure, just as in the case of abscess in any other locality. Failure to clean out pockets of pus during the course of the operation which meets these two indications constitutes no potential danger to the patient, whereas overzealous removal of tissue wide of the abscess cavity limits does constitute very grave potential danger, in that it involves destruction of a safeguard the importance of which to the patient cannot be overestimated, namely, the bulwarks of organized inflammatory exudate which Nature throws up, completely surrounding any such circumscribed purulent infection, obstructing far more effectively than any device of man egress from the septic focus of toxins into the general circulation, and of micro-organisms into the neighboring tissues and vessels. The vascular anastomoses between the circulation of the pars mastoidea and that of the meninges and internal ear render extension of infection from an acute mastoid abscess into these danger zones more likely after operation involving the destruction of Nature's barriers than after operation leaving these inviolate.

The second indication, therefore, in the surgical treatment of acute purulent mastoiditis is to make sufficiently wide removal of the outer cortex and intercellular lamellæ to make certain of free drainage and relief of pressure. In a non-diploetic mastoid process, this removal should extend from the uppermost cells downward to the tip and backward to the rearmost cells; in semidiploetic, from the uppermost cells to the inferior and posterior limits of pneumatic cells.

Opening of the antrum should be dependent entirely on the existence of specific indication for such procedure. General indications for opening the antrum are the following:

"1. When bone intervening between abscess cavity and antrum is found by the probe to be softened and mushy.

"2. When the swollen lining of the abscess cavity protrudes directly into the antrum.

"3. When direct communication exists between abscess cavity and antrum.

"4. When, in addition to symptoms of mastoid abscess, symptoms of meningeal irritation are present.

"5. When, after simple opening of abscess cavity, no amelioration of pain in the ear follows, or when symptoms of cerebral nature present suggesting extradural abscess or meningitis.

"6. When in the presence of normal healing after simple opening profuse discharge from the ear persists for several weeks."

Should it be decided to open the antrum, either at first operation or later, the operator should never do more than make free opening into this cavity. The use of the gouge or curet in the antrum is never indicated and should never be made for at least two main reasons, viz:

No matter how badly swollen and inflamed the endantral mucoperiosteum may have been, with the subsidence of the acute inflammation consequent on free drainage, it will return to its former condition with practically no impairment of structure or function, a postoperative result not possible after the curet has been used in the antrum. More important even is the second reason, that the curet traumatizes the bony wall of the vestibule and tegmen, and increases the possibility of the extension of infection to the internal ear and meninges.

1130 Main Street.

ABSTRACT OF DISCUSSION

DR. NORVAL H. PIERCE, Chicago: The idea of the feasibility of opening the antrum instead of entirely cleaning out the mastoid bone to the inner surface is not new. In 1882, Hessler wrote an article in the *Archiv für Ohrenheilkunde*, in which he supported the theory that it is unnecessary to open the antrum or clean out entirely the mastoid cells in the majority of acute cases. As to opening the antrum I agree with Dr. Lewis that it is much better if possible to avoid opening the mastoid antrum and for the reason that he has given. If we take away the outer and posterior walls of the antrum we leave only the inner wall clothed with its mucoperiosteum. The surrounding defenseless bone is very poor in blood-supply and granulation tissue develops relatively slowly from this portion, and a large cavity is left, much larger than the original antrum, that is clothed or nourished by a low grade of mucoperiosteum, which is very liable to repeated inflammations, and the recurring mastoiditis that we so often see, especially in children, is due to this enormous cavity buried in the depths of the wound and the additional invasions following influenza and colds. We cannot gain access to the antrum and drain it and wash out the middle ear without running the risk of the formation of this large poorly nourished cess-pool that occurs from taking away the outer and posterior wall. In a certain number of cases recently I have been able to enter the antrum from below, leaving the outer posterior walls of the antrum, making an opening the size of a pea into the antrum, through which it may be washed out and with it the cavity tympanum. In that way we retain the natural shape of the antrum and do not have that large cavity which occurs from the other way of operating. Regarding the taking away of the osseous structures down to the inner cavity of the skull, we are between the devil and the deep sea.

There is not the slightest doubt but that the vast majority of the patients would do better if we simply took away the outer wall of the mastoid as far as the cells reach, back to the occipital bone, upward to the zygoma, scraping away the softened tissue that probably never would regenerate; but, if we invariably follow this

course we are bound to leave certain dangerous foci about the sigmoid sinus; there is no way of avoiding it. To examine the mastoid thoroughly and find out if there are any of these dangerous foci, it is necessary to exenterate the mastoid process; if we want to run the risk of some of these concealed foci remaining, I suppose that 90 per cent. will heal quickly by the simpler method.

DR. CALVIN R. ELWOOD, Menominee, Mich.: It is not a pleasant task, especially for one who does not open the mastoid as often as he should, to keep in best practice to work with chisel and gouge in such close proximity to the cranial cavity, and, if in favorable cases, the desired result can be as safely and surely attained by simply removing the cortex and exposing the superficial cells, without the anxiety which attends the opening of the antrum, it would be fine.

It may be assumed that all are agreed concerning the source of infection—an extension of an infectious process from the middle ear through the aditus to the antrum, and thence to the ramifications of the mastoid cells. The walls of these cells—especially the non-diploetic type—are poorly nourished, being dependent on the mucoperiosteum along which the infectious process may spread by pin-head prolongations to remote cells. This mucoperiosteum becomes greatly swollen and easily falls prey to bacterial action, in which condition it would be logical to suppose it would sufficiently deteriorate to leave the underlying bone without protection or nourishment. Such fragile bony partitions would naturally become necrotic and necessarily be thrown off as sequestra before repair can take place. We cannot tell definitely the condition of the mastoid from observations previous to surgery. We cannot tell at the time of operation the viability of the osseous structure, while experience has taught that dead bone left behind means delayed repair, if not more serious trouble. Therefore, when surgery is necessary why not do it thoroughly? I do not leave the surface as smooth as a "billiard ball" believing as Beck has pointed out, that the burr, probably through heat generated, delays repair. I do, however, endeavor by use of the curet to leave a perfectly clean cavity without a cell unopened, believing that thereby I hasten the healing process both by granulation from the bottom and sides and the periosteum above.

DR. C. F. WELTY, San Francisco: So long as we have a method in which we can eliminate all the possible source of infection it seems to me there is absolutely no question left as to the course we should pursue. We may be a little longer in bringing our cases to complete healing, there may be a little more depression, but no such deformity as Dr. Lewis speaks of in his paper have I seen. In about a hundred acute cases, only one patient did not recover and required a radical mastoid afterward. The others recovered without secondary operations. That is a sufficient number to show that there is something worth while in the procedure of going down to hard bone. It is not possible to have such results by being less thorough. Dr. Lewis himself says that, if you have profuse discharge at the end of two weeks, it is better to open the antrum; there you are subjecting the patient to a second operation which should not have been necessary at all. I recall a patient seen in consultation who had been operated on and continued to have a small amount of fever and deep-seated pain. I insisted that there must be some cells that had not been uncovered and when these were eliminated the patient recovered speedily. On three or four occasions I have found cells almost on the inner end of the petrous portion of the temporal bone.

DR. G. F. COTT, Buffalo: When we have a virulent infection due to streptococci or colon bacilli, then I think we must open up freely in every case. When the infection is a mild one and the ear is dry before or at the time of operation, then it is not necessary in any case to open the antrum. When you are sure that you have the cells cleaned out and that no more pus is present, then, instead of packing, close up the wound and heal by blood-clot and the patient can go home in three or four days. If a focus is left it is no trouble to take out the stitches and clean it out. I have had one

patient go home in three days perfectly healed. The result remained good for I observed him for several weeks.

DR. SEYMOUR OPPENHEIMER, New York: What proportion of cases in which the antrum is left intact require reoperation and in what proportion of cases in which closure has been successful has there been a continuation of discharge from the ear? I think the proposition a very retrograde one. Dr. Lewis says that to open the antrum is not surgical; I think just the opposite. I am quite satisfied that a great many cases that require reoperation are cases in which the mastoid antrum has not been opened sufficiently. The mastoid antrum bears the brunt of the burden and if the proposition were placed before me to open the antrum and not do anything else or to leave the antrum unopened and clean out the rest, I should accept the former proposition.

DR. T. R. CHAMBERS, Jersey City: I second what Dr. Oppenheimer has said and enter a protest against the position taken by Dr. Lewis. I am amazed at Dr. Pierce. He knows that in every mastoid operation you should open the antrum. Many times we find a dry antrum and we do not curet, of course, or do a radical operation.

DR. B. A. RANDALL, Philadelphia: The question must depend, I think, a little on the definition of osteomyelitis. Those of us who have seen cases of genuine temporal-bone osteomyelitis, such as reported in this Section by Dr. C. W. Richardson, will never be in doubt about it. It is not true in a clinical sense that because a little of the contents of the diploetic bone is involved, there must be osteomyelitis. The middle ear involves all the pneumatic cavities. The antrum, which so many speak of as mastoid, is the posterior portion of the tympanum and as such is as well able to take care of itself as the tympanum proper or the eustachian tube. As well say you must curet the eustachian tube as to say that you must always curet the antrum and open all the cells. The pneumatic cells may extend clear to the sella turcica in some instances. We must realize that these operative cases offer an infinite variety and we can lay down for the beginner no rule that will make the matter an easy one, so that he can do it as well as the expert who has had a thousand cases or more. If we are to do good surgery we must first decide whether we are dealing with empyema or caries. I hold that empyema of the mastoid can resolve successfully and safely with no bad results, but I do not advise the younger man to trust that. If you are not sure it is better to operate thoroughly; it is safer, but there are many cases that can clear up just as does many an empyema of the antrum of Highmore. When you have caries to deal with, it is a totally different proposition. Tissue which is no longer viable must be taken away. The expert recognizes this by sense of touch with his curet; the beginner who has this yet to learn must risk overdoing a little rather than slight his work.

DR. E. R. LEWIS, Dubuque: I am afraid I have been misunderstood by some; these men will get my ideas more clearly by reading the paper. One speaker alluded to my not opening the antrum, but I say that the man who opens the antrum without specific reason makes a surgical error; and he who, with or without specific reason for opening the antrum, curets its mucoperiosteum, has, without any justification, destroyed what is of enormous importance to the patient, a lymphatic organ which cannot regenerate. I wanted to bring out particularly that the mucoperiosteum is an important organ, possessing functions of great value to the individual, and that unnecessary surgical destruction of any part of it is an unjustifiable procedure. Dr. Oppenheimer asks for something with which I cannot furnish him. I have not a large clinical practice and corps of clinical assistants to tabulate the results of my work. I have been practicing otology for eleven years in a town of 40,000 and have had my share of mastoid work; all the surgery has been based on the principles here set forth. I have not had one patient with an acute case who has been under my care from the outset develop intracranial complication, chronic suppuration, or internal ear disease; and not one of my cases has terminated fatally.

TONSIL DISSECTOR, TONSIL-GRASPING FORCEPS, TONSIL HEMORRHAGE CLAMP

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One end of the dissector (Fig. 1) is a retractor for the anterior pillar while applying forceps, and while inspecting the cavity from which the tonsil was removed. The other end is for dissecting out the tonsil. The edge is neither dull nor sharp, but rather an edge that is produced by the use of a fairly rough oilstone, and will cut when given a quick stroke with some pressure and will act as a dull dissector when used without much force.

The forceps (Fig. 2), from the nature of its action, buries itself deeply in the tonsillar tissue under all rea-



Fig. 1.—Dissector.

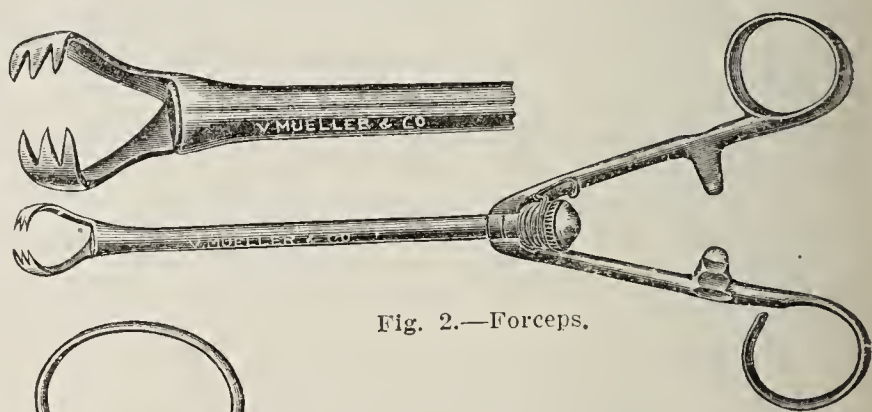


Fig. 2.—Forceps.

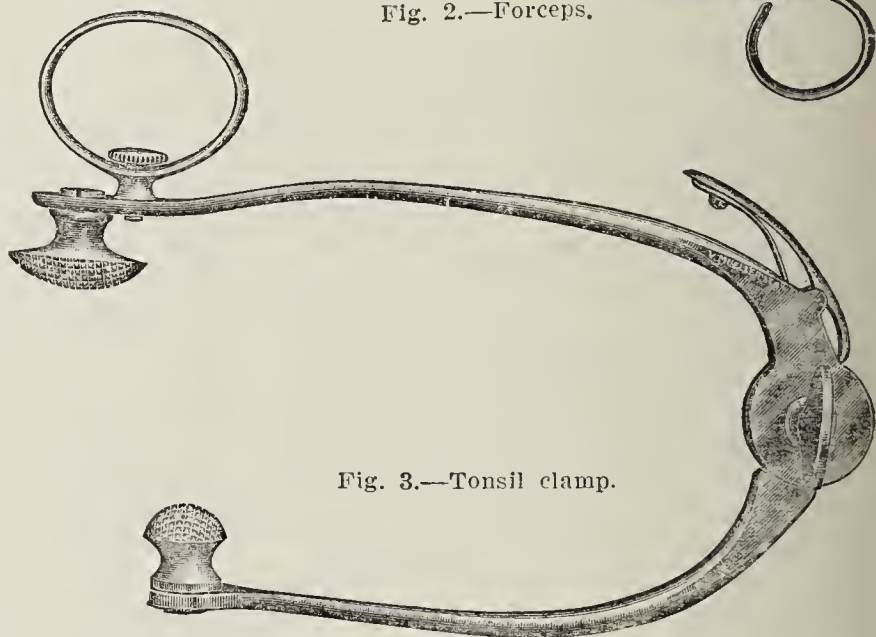


Fig. 3.—Tonsil clamp.

sonable conditions. The forceps is laid against the tonsil with the jaws open, one jaw at the inferior end of the tonsil, the other jaw crowded up into the supratonsillar fossa, and then the jaws are pushed into the tonsil as the handle is locked.

I have used these two instruments for five years. They have never been recorded; but now that the dealers are importing the dissector by the gross (most of which are incorrect models) I feel compelled to offer the instruments.

The tonsil clamp (Fig. 3) is intended for a double purpose; first, as a method to control hemorrhage while removing the second tonsil if the blood from the first one interferes; for this purpose there is a ring fitted to the outside arm through which the assistant can slip his finger and by having the clamp half open exert pressure in the fossa and still be out of the way; second, as a tonsil hemostat clamp to be placed in position and remain for a reasonable time to check prolonged hemorrhage.

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CARDIAC COMPLICATIONS OF PREGNANCY AND LABOR *

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One of the long-standing obstetric traditions which have been copied from text-book to text-book is that the heart of the pregnant woman undergoes marked hypertrophy, particularly during the latter months of pregnancy. This would seem reasonable on account of the extra work which the burden of carrying on the fetal circulation necessarily throws on the heart, but the recent observations of Stengel and Stanton do not bear it out. These authors assert that there is little, if any, hypertrophy of the heart during pregnancy and that the apparent hypertrophy is due to a displacement of the heart upward and outward, arising from the pressure of the growing uterus on the diaphragm. Accepting their observations as correct, we must assume that the reserve power of the normal heart is sufficient to carry on the fetal as well as the maternal circulation without reacting markedly to the added burden, and, therefore, that in the absence of complications which call on the cardiac muscle for extra work, the normal heart is not subjected to an excessive strain during pregnancy or labor. McKenzie, however, calls attention to certain circulatory changes which are not uncommonly noted during pregnancy and which would seem to prove that the apparently normal heart may react to a greater or less degree to the strain of pregnancy.

These symptoms are: (1) limitation of the field of cardiac response when a sudden burden is thrown on the heart; (2) dilatation of the right side of the heart occurring during labor or shortly after labor; (3) a tendency to edema of the lungs in the latter part of pregnancy or during labor; (4) a tendency to overfilling of the veins of the legs during pregnancy, resulting frequently in marked varicosities; (5) the occurrence of marked pulsations in the veins of the neck.

All of these symptoms must be classed as more or less abnormal and are not to be observed in a patient whose heart is perfectly capable of carrying on its work under the conditions which are present. It is fair to assume, therefore, that the burden which is thrown on the heart during pregnancy must be a considerable one, since otherwise the frequent development of these minor abnormalities would not occur, although it may demand only a minor degree of hypertrophy to preserve satisfactory compensation when the reserve power of the heart is unimpaired. These changes become more or less

accentuated in patients in whom the heart is abnormal, particularly in those patients who have a valvular lesion as the result of a chronic endocarditis, and for this reason valvular disease of the heart must be considered as a distinctly serious complication of the pregnant condition.

In speaking of the prognosis of valvular heart lesions complicating pregnancy and labor Guerard gives a mortality of 28 per cent., while other observers place the mortality considerably higher, Rubinsky reporting a mortality of 100 per cent. in his series of cases. These figures, however, apply only to cases in which a failure in compensation had been present for a considerable time or in which the cardiac lesion is associated, either with marked renal changes which increase greatly the amount of work which the heart must do, or with a toxemia of greater or less severity which also throws a markedly increased burden on the heart due to the increased blood-pressure which accompanies them. The high mortality reported by these observers is due to supervening conditions and not to the strain thrown on the heart by an uncomplicated pregnancy, and the prognosis of valvular heart disease complicated by pregnancy is far less grave than these figures would indicate.

The cardiac complications which may be noted during pregnancy are acute endocarditis, chronic endocarditis with valvular lesions and myocarditis.

ACUTE ENDOCARDITIS

Acute endocarditis may arise during pregnancy as a result of a septic infection, acute articular rheumatism or some other acute infectious disease. It is always a serious and often a fatal complication of pregnancy. The symptom which is most apt to accompany acute endocarditis is pulmonary congestion with edema of the lungs, resulting in a distinct tendency to overstretching of the right side of the heart, the cardiac muscle being weakened by the acute infectious process, with the result that serious cardiac failure and syncope frequently occur. In many cases rest and the use of cardiac stimulants may tide the patient over the acute stage, and it may sometimes be possible to prolong the pregnancy to viability or even to term, but in many cases abortion becomes urgently indicated on account of the patient's alarming condition. The prognosis in general is so grave that acute endocarditis must be considered as a dangerous complication of pregnancy and the patient must be watched with care, the uterus being emptied promptly if any sign of cardiac failure appears.

CHRONIC ENDOCARDITIS

Valvular lesions as a result of chronic endocarditis can be demonstrated according to different observers in from 1.5 to 2.5 per cent. of all pregnant women. The effect that the strain of pregnancy will have on the damaged heart, however, is estimated very variously by different observers. According to one observer, only one-seventh of the cases of valvular lesions develop symptoms during

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

pregnancy, whereas in another series two-thirds of the cases are reported as showing symptoms. Such a marked discrepancy as is shown by these figures would tend to indicate either a difference of opinion between different observers as to what constitutes a valvular lesion, or a difference of opinion as to what constitutes symptoms as a result of the valvular lesion. Probably both hypotheses contain a certain amount of truth. One author considers a certain heart murmur to be due to a valvular lesion which the next observer considers purely functional, and, similarly, one observer classifies certain symptoms as being due to a valvular lesion, while the next considers them due to the pregnancy and believes that the valvular lesion has had no effect in their causation.

This difference in the interpretation of the signs and symptoms has given rise to a marked difference in the attitude assumed by various observers as to the advice to be given a patient who is known to have a valvular lesion, in regard to the propriety of marriage and childbearing. Probably most authorities would agree that it is safer for a patient who is known to have a valvular heart lesion, even though it is fully compensated for the burdens of her ordinary life, not to become pregnant, since pregnancy throws a somewhat increased burden on the already damaged heart, and, therefore, must tend to exhaust the reserve power of the heart. The ultimate result must be to shorten the patient's active life, even though she may not die during childbirth, and the danger of serious cardiac failure increases with each succeeding pregnancy.

The most conservative figures give the mortality of valvular disease of the heart complicating pregnancy as from 5 to 7 per cent., all cases being included, but this is only part of the story, since it does not take into consideration at all the damage which is inflicted on the heart by the strain of pregnancy and labor and the almost inevitable shortening of the patient's active life or the chronic invalidism, which sometimes ensues as a result of the extra burden which pregnancy throws on the already weakened heart, even though the heart is perfectly compensated for the ordinary conditions of life. From my own observations I should advise a patient who consulted me as to the propriety of marriage and childbearing, that it was her right to do as she saw fit in the matter as long as she thoroughly understood the dangers which she ran; that it was absolutely impossible to estimate accurately the danger in a given case, but that certain lesions showed certain general results and that if the satisfaction of having children were worth the risk to her and her husband, she would be justified in taking that risk with the understanding that it would undoubtedly shorten her active life to a greater or less degree, the danger increasing with each succeeding pregnancy, and that a single attempt might prove fatal or that invalidism might ensue. If the heart were perfectly compensated and no sign of renal failure present, and if the patient had never had any symptoms as a result of the cardiac lesion, she could probably go through one or more pregnancies under careful supervision without serious danger to life, but the immediate prognosis would depend on the way in which the heart reacted under the strain of pregnancy, which could only be definitely determined by the attempt. If the patient had had attacks of broken compensation when not pregnant, she should be most strongly advised against running the risk, and pregnancy should be held out as a most serious danger, since a heart which has once failed under the burdens of ordinary life is almost sure to prove seriously incompetent during pregnancy.

The nature of the lesion must be taken into consideration in giving a prognosis in the given case. Mitral stenosis is much the most fatal of the single valvular lesions, a mortality of more than 50 per cent. being recorded in several statistical tables. Uncomplicated aortic disease comes next with a mortality of from 23 to 25 per cent., while mitral regurgitation, in cases with no history of previous failure, has an almost negligible mortality. Mitral stenosis when complicated by mitral regurgitation has a more serious prognosis than uncomplicated mitral stenosis. These statistics are not, however, based on patients during their first pregnancy, but include a large number of patients who have been subjected to several pregnancies, and, therefore, cannot be accepted as reflecting the danger in the case of a young woman who is anxious to have one child. A careful study of the statistics of the valvular lesions complicating pregnancy leads to the conclusion that each case must be studied on its merits, since the prognosis which must be given in the case of a multipara who has suffered from a failure of compensation in previous pregnancies and in whom the power of cardiac response is lessened must necessarily be much more grave than that of a young primipara whose compensation has never failed.

In regard to mitral stenosis Lusk states that the diagnosis of this lesion in a pregnant woman calls for an immediate abortion for the safety of the patient, whereas Hirst makes the broad statement that with proper treatment he has no fear of heart disease as a complication of pregnancy, making no distinction as to the nature of the lesion or the previous history of the patient. The truth lies somewhere between these two extremes. Undoubtedly many patients have died under care as expert as Hirst can give, and on the other hand many patients with mitral stenosis have gone through a carefully guarded pregnancy with comparatively little inconvenience. Therefore, in giving advice to the individual patient the factors present in her case must be carefully considered irrespective of what the general statistics show. If a patient, although she has a definite valvular lesion, has never had a failure in compensation, if she is at an age at which her powers of recuperation can be counted on to restore a possible break in compensation, and if she understands the importance of taking care of herself during pregnancy, and can be under careful observation such a patient may fairly elect to run the risks of pregnancy, if the satisfaction of having children outweighs in her mind the possibility of death, the inevitable shortening of her life and a possible invalidism following the pregnancy, but it is not fair to advise such a patient that it is right for her to have children unless she fully understands the risks involved.

The impossibility of accurately estimating the efficiency of the cardiac muscle in the individual case renders the problem a very difficult one. I have recently seen a young woman of 25 about six months pregnant who was suffering from her first attack of failing compensation, due to a mitral stenosis. At the time when she was first seen her condition was such that the induction of labor seemed to offer little hope for her life, and palliative treatment was therefore advised. Under absolute rest in bed and the use of digitalis her condition rapidly improved, the edema of the lungs, which was very marked, entirely disappeared and the heart contracted down to approximately its normal size. Two competent internists who saw her in consultation stated as their opinion that there was no reason for interfering with the pregnancy, that she would undoubtedly go through to term without trouble if carefully looked out

for, and would probably deliver herself without cardiac failure. My advice to her was to have the uterus emptied at the thirty-sixth week of pregnancy in order to avoid the dangers of the last month, when the cardiac strain is the greatest. She died suddenly during sleep when about seven and a half months pregnant, a few moments before having been perfectly comfortable and apparently in good condition.

This illustrates the impossibility of estimating the condition of the cardiac muscle, for if any patient should have been able to go through her pregnancy satisfactorily, a young woman who had only had one failure of compensation from which she had recovered promptly and apparently completely should have been able to do so.

The symptoms which we see accompanying cardiac failure are dyspnea, edema of the lungs, general edema, cyanosis and palpitation. The occurrence of any of these symptoms indicates the beginning of a failure of compensation, and must be met promptly by rest and appropriate treatment. In addition we occasionally see a patient who is doing perfectly well and who without other symptoms suddenly collapses and dies, and, therefore, it is never fair to give an unqualified prognosis in any case of valvular lesion complicating pregnancy irrespective of the previous history of the patient.

Unquestionably a great deal can be done throughout pregnancy to improve the patient's chances, and the general hygiene of her life should be kept under careful observation. Moderate exercise in the open air, followed by definitely prescribed periods of rest; a careful diet, including comparatively little meat; free catharsis, and frequent examination of the urine to demonstrate the absence of passive congestion or of supervening renal changes will suffice in most cases to prevent untoward symptoms in young women in whom compensation has never failed. Small doses of digitalis in the last months of pregnancy will also aid in preventing the development of symptoms. Labor should be made as short and easy as possible, even though no symptoms are present. In cardiac cases the patient should always be delivered promptly under ether at the end of the first stage so that the strain of the second stage of labor may be avoided. If the soft parts are rigid so that it seems probable that the stage of dilatation will be prolonged and exhausting, the substitution of abdominal cesarean section for the other methods of delivery has very definite advantages, and should certainly be considered in the case of a primipara. The use of gas-oxygen anesthesia has been advised in these cases as a substitute for ether, but I believe that the increased arterial tension which occurs in the preliminary stages in gas anesthesia may prove the determining factor in producing an acute dilatation which may have serious or even fatal results. I have seen one case in which it occurred, the patient ultimately recovering.

In patients who have suffered from failure of compensation either before or during the pregnancy a more strict routine must be followed. Exercise should be reduced to a minimum and massage substituted. The slightest sign of loss of compensation should be met by immediate delivery, unless promptly restored by rest in bed and the use of digitalis, and the pregnancy should be terminated at about the thirty-sixth week or shortly after if renal changes are present whether of a chronic or toxemic nature. With an attending high blood-pressure it is wiser to empty the uterus early and not allow the extra burden to wear out the already damaged heart. If a patient with a valvular lesion is allowed to go into labor she must be carefully watched

throughout, and the labor shortened as much as possible. She should be delivered at the end of the first stage of labor in any case, and earlier if any symptoms arise, since the greatest danger comes during the second stage when the most marked changes in the blood-pressure develop and the strain on the heart is increased. The few hours immediately succeeding delivery are an exceedingly dangerous period since the heart is peculiarly liable to collapse with the drop of blood-pressure which follows delivery.

If an acute failure of compensation occurs during labor it should be met by prompt measures and delivery should be completed as rapidly as possible. Venesection with the extraction of a pint of blood, or possibly more, will take the load off the distended right heart and allow the heart to shrink down. The use of digitalis, strychnin, etc., may prove of great advantage, but the most important thing at this time is to relieve the strain by emptying the uterus as quickly as possible.

ACUTE DILATATION OF THE APPARENTLY NORMAL HEART

There are certain patients in whom no heart lesion is demonstrable during pregnancy and whose previous history contains nothing to suggest the possibility of a cardiac weakness, in whom the changes in blood-pressure which occur during labor, particularly during the second stage, result in acute dilatation of the heart with symptoms which may cause the greatest anxiety. Although it is not possible to determine in advance that a given patient will develop this condition, we can recognize the classes of patients in whom acute dilatation is most liable to arise. Pregnancy is for the average woman a period of general development, and the patient should be in better condition at the end of pregnancy from a purely physical standpoint than at any other time. The patients in whom acute dilatation of the heart is most liable to develop are those who do not conform to this rule. The patients who for some reason are unable or unwilling to take proper exercise during pregnancy and so come to labor in a generally flabby condition are unquestionably the patients among whom we find most of the cases of acute dilatation at the time of labor. A second class of patients among whom this condition is particularly common includes patients suffering from a low-grade toxemia during pregnancy who perhaps develop a slight albuminuria and show other toxemic symptoms, not of a sufficient severity to warrant interference with the pregnancy, but of a degree to cause some apprehension as to the result in the mind of the attendant.

The patients of the first class come to labor muscularly flabby and in poor condition to withstand a severe physical strain; the heart muscle is presumably in a similar condition and, therefore, is unable to respond properly to the extra work which is thrown on it during labor. In the patients of the second class it seems probable that a certain degeneration of the heart muscle has taken place during pregnancy owing to the toxemia which is present, so that the heart is really abnormal, although the abnormality cannot be demonstrated by physical examination. In both classes of patients labor usually goes on normally until toward the end of the first stage or even to the end of the second stage, the heart, however, showing signs of tiring as evidenced by the rising pulse. When, however, the power of response is exhausted acute dilatation takes place with its accompanying symptoms, cyanosis, dyspnea, rapid pulse and the ordinary signs which accompany a failure in compensation of a valvular lesion.

Frophylaxis is of great importance in the treatment of cases belonging to either of these types. The administra-

tion of digitalis in small doses for two or three weeks before the onset of labor will in many cases prevent an explosion, and all hygienic measures which may improve the patient's general condition are of the greatest importance. When labor begins the patient should be watched most carefully from the start, so that if any sign of undue reaction to the strain of labor appears, the patient may be delivered promptly before the severe symptoms develop. The labor should be cut short by operative delivery either at the appearance of symptoms or at the end of the first stage in all patients who are muscularly in poor condition or who have shown signs of toxemia during pregnancy, whether they seem to be reacting unfavorably to the labor or not.

Patients treated in this way will seldom develop alarming signs of acute dilatation. If, however, acute dilatation occurs in spite of the precautions or if the precautions have not been taken, it demands adequate treatment. Venesection, to diminish the strain on the dilated right heart, will prove of great value for treatment in the emergency, while the use of digitalis, morphin and strychnin usually results in restoring compensation promptly, even in cases which seem desperate, and the prognosis is usually good if the patient is adequately treated, but the treatment must be prompt and active to be of value.

MYOCARDITIS

Myocarditis is a condition the diagnosis of which is so difficult that it rarely can be made during life. It may, however, prove a most serious complication of pregnancy and is undoubtedly one of the most frequent causes of sudden death during or shortly after labor, as is shown by autopsy findings. Any unusual cardiac action during the latter part of pregnancy or during labor may be classed as due either to myocarditis or to a neurosis, and the impossibility of determining during the patient's life under which category the symptoms should be placed makes it impossible to give a definite prognosis in the given case. The treatment is unsatisfactory owing to the difficulty of diagnosis. If it were possible to recognize definitely the existence of a myocarditis, prompt delivery at the onset of the unusual cardiac symptoms might result in saving the lives of some patients who, if allowed to complete their term of pregnancy, would otherwise die, whereas the neuroses seldom require treatment. If a careful physical examination reveals nothing abnormal and the urine is negative, it is usually fair to assume, at least in a patient under 35, that the condition is neurotic and will require no treatment.

CONCLUSIONS

1. Any organic heart lesion, even if perfectly compensated under normal conditions, should arouse apprehension and call for constant watchfulness if pregnancy supervenes.

2. In case pregnancy comes as a complication when the heart is imperfectly compensated, the uterus should be immediately emptied, since a heart which has failed under the ordinary burdens of life has no chance of sustaining the added burden of pregnancy.

3. When a heart which has been previously well compensated fails during pregnancy, an attempt must be made to restore compensation by rest and appropriate treatment, but unless the attempt is promptly successful the pregnancy should be ended.

4. If compensation has failed during one pregnancy, future pregnancies should be absolutely forbidden.

5. In any case in which an organic heart lesion can be demonstrated, even though it may have caused no symptoms during pregnancy, labor should be regarded with apprehension, and every measure should be taken to shorten the labor and thus relieve the heart of a serious burden, although it may seem to be doing its work perfectly well.

6. A patient with an organic heart lesion will usually stand an operation well if the operation is performed at a time previous to a failure in compensation. On the other hand, an operation after failure of compensation will often prove fatal in patients who would have stood operation well at an earlier time.

7. Any patient known to have an organic heart lesion who is contemplating marriage should be advised of the dangers pertaining to pregnancy and labor, the prognosis in the individual case depending on the nature of the lesion, the age of the patient and her previous history as regards the efficiency of the heart under normal conditions.

8. It is impossible to estimate accurately the efficiency of the cardiac muscle in any patient in whom a failure of compensation has once occurred, since although compensation may have been promptly restored under treatment, she may die suddenly before, during or after labor, without warning.

9. Labor should be shortened as much as possible in every patient who has a demonstrable heart lesion, although no unfavorable symptoms may have arisen. In primiparas the propriety of a cesarean section to relieve the heart of the strain of labor may be very properly considered in any case, particularly if the soft parts are rigid, since it is poor policy to test the endurance of a given heart unnecessarily.

10. The demonstration of a mitral stenosis should call for the most careful observation. Any sign of failing compensation should be met promptly, and if any condition supervenes which is accompanied by a rise in arterial tension, the pregnancy should be terminated at once.

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ABSTRACT OF DISCUSSION

DR. ALFRED STENGEL, Philadelphia: So far as the individual lesions are concerned I think there can be no doubt that it has been established that mitral stenosis is the most dangerous cardiac lesion. I believe, however, that we should scrutinize statistics a little more carefully, because there are many more cases of mitral stenosis of not very pronounced type which are overlooked than of mitral regurgitation. During the last five or six years I have been inquiring with some care into the histories of pregnancy in women in whom mitral stenosis was recognized late in life, and I have been surprised to find, contrary to my preconceived ideas based on this statistical evidence, how many cases I have met of women who have gone through multiple pregnancies with mitral stenosis. A few figures must not be relied on absolutely. When we are taking cases of recognized cardiac disease and trying to determine the mortality of pregnancy in such cases, we are not to overlook the case of mitral stenosis in which the physical signs are not very distinct. We have no proof that the heart does actually hypertrophy during pregnancy, but what is of much more importance, there is no doubt that the apex of the heart is displaced during pregnancy, that murmurs are frequently produced by mechanical enlargement of tissues, etc., and that consequently the diagnosis of heart disease is easy to make during pregnancy, and when heart disease does not perhaps actually exist.

We have heard of the desirability of therapeutic abortion for tuberculosis on the one hand and cardiac disease on the other hand. I think this is a proposition which the profession

in general must approach with a good deal of hesitation. It throws open the doors to therapeutic abortion too widely. The desirability of abortion in certain cases cannot be doubted, but we want to be sure that there are no pitfalls such as the possibility of supposing heart disease exists, whereas we are dealing only with functional derangements incident to the pregnancy.

The outlines of the treatment given seem to me excellent and could not be improved. I have seen in consultation patients who have been treated throughout the whole pregnancy for cardiac weakness and who have gone through the subsequent labor very well and I believe on account largely of the careful treatment carried out through the entire pregnancy. We ought to recognize that there is a middle ground. Some cases must be brought to termination at once, but the great majority I think can be allowed to go on. I believe that the author of the paper has exaggerated somewhat the danger that pregnancy may shorten life in women with such cardiac lesions.

DR. HAROLD C. BAILEY, New York: It is very interesting to recall that Dr. Mackenzie was first led to undertake his heart work by noticing that pregnant women frequently had marked jugular pulsation, and he designed an apparatus to take tracings of this pulsation. I think Dr. Newell should more clearly define his position in regard to treatment at term. We see quite a number of patients brought into the hospital with loss of compensation and in labor, and I believe it is very much better to treat them by restoring or attempting to restore their compensation, and allowing the labor to take care of itself. Crystallized strophanthin is similar to digitalis but perhaps does not raise the blood-pressure to such an extent. Deep intramuscular or deep intravenous injection is quickly effective. The dose of the drug is $\frac{1}{2}$ mg., which is about equal to a teaspoonful of digitalis. Reaction occurs in from four to six hours and lasts twelve hours. Probably not more than 1 mg. should be used during the twelve or twenty-four hours. I have used it in labor and it restores compensation. I have used the drug also a great many times in heart disease, and published a paper on it some years ago. The drug is practically inactive in ordinary doses by mouth, but very active by subcutaneous or intramuscular injection.

A NEW METHOD OF TREATMENT OF ULCER OF THE STOMACH *

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My method is a combination of the various beneficial remedial measures proposed at one time or another for the cure of ulcer of the stomach. It is a method of methods. The diet is original. The other procedures, except for details, are not. The diet is vastly different from the very sparse diets of the von Leube and the Lenhart ulcer cures. My method does not require a stay in bed. The patient goes about his business as usual. Hard work, however, should be forbidden. I have had very little experience with it in the acute cases of ulcer of the stomach, and I do not know its field of usefulness in those cases, my experience having been confined solely to the chronic type of ulcer of the stomach. As a rule those are the cases that yield least to medical means, but my experience has been most gratifying with them. I should also like to state that while some of the patients cured by me had typical ulcers, the majority of the cases were not of that type. They belonged to the type which years ago was called hyperacidity, but which the extensive

experiences of surgeons, notably Moynihan, the Mayo brothers and others during the past few years, have shown conclusively to be ulcers. In other words, if a patient complained to me of suffering with pain in the stomach, heart-burn, belching and sour eructations coming on from one to five hours after meals and relieved by the ingestion of food, vomiting or an alkali, I called it an ulcer of the stomach or duodenum, regardless of whether such classical signs as a tender point, occult blood or hematemesis were present or absent. In spite of Moynihan's contention that patients presenting the symptoms of hyperacidity coming on four or five hours after meals, which means duodenal ulcer, must be operated on, as they can never be cured by medical measures, I have repeatedly cured such patients by my method. To those of my medical colleagues who would not be convinced that the syndrome of pain, heart-burn, belching and sour eructations coming on one or more hours after meals means a duodenal or gastric ulcer, I offer my method as a specific for that syndrome. As far as I know those symptoms of hyperacidity not only could never be cured, but they could not even be relieved, except for a little while.

My success has been most pronounced in the simple, uncomplicated cases of ulcer in which the stomach has not been distorted or deformed by adhesions, cicatrizations, perforations, connections with other viscera, or narrowing of the outlet. That such complications do not exist in a given case can be demonstrated by the patient merely complaining of pain, heart-burn, belching and sour eructations coming on one or more hours after meals, without any great suffering at the least indiscretion in diet, without copious and numerous hematemesis, without great loss of flesh and strength: when on physical examination the stomach is found not to be much dilated, not to splash at the least touch, and when the motility is not disturbed. I have cured patients of the more complicated variety of cases in which considerable stasis of food was a factor; and yet at the end of the treatment the patient had regained his normal motility.

Every case that I handled was of long standing, extending for years, and each patient had undergone treatment at the hands of numerous physicians without success. I have a letter from a woman who suffered from a typical duodenal ulcer for fifteen years, stating that the last winter was the first in all those years that she was free from stomach trouble.

There are some cases of very obstinate constipation extending for years in which the syndrome mentioned by me may be obtained by questioning the patient. I thought that the constipation might possibly be due to an ulcer of the stomach, as gastric ulcer patients suffer much with constipation. The treatment failed in one or two cases that I tried, and there is no doubt in my mind that those cases were not ulcer cases.

The treatment must be carried out precisely, to all its details, by both the physician and patient, else it is a failure. My results with clinic patients have been unsatisfactory, while they have been excellent in my private patients. I finally would like to mention here that pain, belching, heart-burn, etc., simulating somewhat an ulcer history, may be present with disease of the appendix, gall-bladder or pancreas. I am also fully aware of the fact that a large number of gastric and duodenal ulcers have their spontaneous ups and downs and their seasons. The patients recover spontaneously under some care with diet, to relapse in the future. Under such conditions one is likely to draw wrong

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

deductions as to the efficacy of any plan of treatment. That the patients were cured by me and not spontaneously is evidenced by the fact that under my regimen of treatment every patient invariably came back for the next examination one week later much improved, if not feeling well.

METHOD OF TREATMENT

In devising a plan of treatment for ulcer of the stomach several objects are to be kept in view.

We must give an appropriate diet.

We must give something to cure the ulcer.

We must check the flow of hydrochloric acid which interferes with the healing of the ulcer.

We must combat the stasis of food, if there is any, in case the ulcer is situated in the pyloric or duodenal region with a resulting narrowing of the outlet.

We must combat a continuous flow of acid from the stomach, if there is any.

The ideal diet in ulcer of the stomach must have the following characteristics: It should be bland and non-irritating to the ulcer and the mucous membrane of the stomach. It should cause the least secretion of hydrochloric acid. It should leave the stomach in the shortest possible time. With these qualifications it should combine the highest possible caloric value. These objects are accomplished by the following dietary directions, a copy of which must be handed to the patient:

Eat slowly. Chew your food well.

Patient may take bread (white only); zwieback; toast; soda crackers; corn flakes; farina; cream of wheat; potatoes (mashed only); eggs (soft boiled; may try also hard boiled, if they agree); cream cheese; butter (in plenty); sugar; fish (boiled only, without the skin, without bones); raw or stewed oysters; baked apple (without the skin, without core).

Drinks: Water; milk; buttermilk; matzoon; prepared buttermilk; vichy; weak tea (in moderation only); cocoa.

Patient must not take any other food. No food should be fried. Use very little seasoning; just the least bit of salt.

It is seen that meat and broths are excluded from the dietary, for, as shown by Pawlow, of all foodstuffs, meat extractives are the greatest stimulants of gastric secretion.

This diet must be strictly adhered to for four weeks; then easily digested meats and soups are added. The diet is agreeable to most patients and its caloric value is high enough, so that most of them gain flesh, while I have never seen any one lose. The meats that are added are broiled steak, broiled lamb chops, boiled beef and chicken. The patient should be instructed to remove, while eating, all tendons, sinews, veins, ligaments, tough parts and skin of all meats and poultry. The charred and burnt parts of the top layers of broiled or roast meats should be removed. Meats may be roasted, broiled or boiled, but not fried.

Soups and broths may be of different kinds. They must not contain any vegetables of any sort (unless, perhaps, carefully strained). The vegetable cellulose acts as a mechanical irritant to the ulcer, as well as to the mucous membrane. Moreover, vegetables stay very long in the stomach. Potatoes are permissible. The cooking should be of the simplest kind.

To cure the ulcer I give bismuth. After a good deal of experimentation, as to kind and dosage, I finally settled on the subcarbonate, in doses of 4 gm. (1 dram), to be given once a day in the morning on an empty stomach, in a tumbler of buttermilk thoroughly stirred up. The patient must not have anything afterward for one hour. As shown by radiographs the bismuth distributes itself all over the stomach. It thus soothes and

heals the ulcerated surface of the stomach. Bismuth shows cumulative tendencies within the intestinal tract and I found it expedient to clean it out thoroughly once a week by the administration of a dose of castor oil. I order 1½ tablespoonfuls for this purpose.

To check the flow of hydrochloric acid I employ two plans. One consists in giving atropin sulphate from 1/150 to 1/100 grain three times a day ten or fifteen minutes before meals, or extract of belladonna in doses of one-fifth grain. This serves the purpose of diminishing the flow. In addition to it I give an alkali in the form of magnesium oxid in doses varying from 5 grains to 1 dram, according to the condition of the bowels, the average dose being one-half dram. The bowels are usually constipated in ulcer cases, and through the administration of the magnesium two birds are killed with one stone, namely, the acidity is neutralized and the bowels regulated. The bowels must be regulated just right, else the treatment does not work. If the bowels happen to be normal or rather loose, which is uncommon, we give the bicarbonate of soda instead, in doses of 5 grains to 1 dram. Some cases require a combination of the two. The alkali is administered about one or two hours after meals in about 2 ounces of water. Most patients do well on this plan.

For some patients who do not do well on this plan I give instead of the belladonna and the alkali, olive oil in doses of 1 or 2 tablespoonfuls ten or fifteen minutes before meals. Oils, as shown by Pawlow, diminish the secretion of hydrochloric acid. The oil also relieves the constipation. I met no difficulty with the patients taking it. A good oil should be administered. I prescribed a French olive oil.

The stasis of food, if there is any, is met by lavage of the stomach, which is done seven hours after the meal. The best way to manage is to have the patient take his luncheon about noon and eat nothing up to about 6:30 p. m., when the stomach is thoroughly washed out. If there be but a little food present, once a week is sufficient. If there be considerable food present, it should be done twice a week. In addition if there is much food present the patient is instructed not to eat anything until the next morning. This serves the purpose of giving the stomach a good rest over night.¹ In case of food being present seven hours after a meal, which implies a narrowing of the pylorus or the duodenum due to cicatrization, I also massage the stomach and pyloric region, provided there is no contra-indication, such as great tenderness over that region.

The motility of the stomach must be determined in every case of ulcer before starting the treatment. This is done by giving a regular dinner and washing out the stomach seven hours later; the patient must not ingest any food or drink in the interim. If food is present the motility is impaired; if food is absent the motility is normal.¹

The continuous flow is treated with the same remedial agency, lavage of the stomach once or twice a week. I add bicarbonate of soda to the wash-water. It is needless to remark that washing ulcerated stomachs requires some skill and caution. I never met with any mishaps. In case of a large quantity of food being found in the stomach seven hours after a meal, the patient should be told to have a regular dinner in the evening; the stomach is washed out the next morning before breakfast, and if considerable food be found it means that the patient is suffering with a pyloric or duodenal obstruction.

1. Weinstein: Atony of the Stomach, New York Med. Jour., Aug. 20 and 27, 1910.

tion, and the case is not suitable for medical treatment. A case of this order requires a gastro-enterostomy.

The last step in the treatment is the application of wet compresses to the stomach every night. The patient sleeps through the night with it and removes it in the morning.

This course of treatment is carried out for eight weeks. I make it a rule to see the patient once a week. The patient is to be questioned every time carefully, whether or not he carries out the instructions correctly, for most patients are improved as soon as the treatment is instituted, and are apt to transgress the dietetic rules. I found a good many taking candy, especially chocolates. This is most objectionable, for candy creates hyperacidity. It must be strongly emphasized to the patient that the treatment will lead to no results unless it is carried out correctly to its minor details. About the fourth or fifth week the dose of bismuth is diminished to 3 gm., then to 2 gm. At the end of eight weeks it is stopped altogether, and the patient is discharged as cured with the following dietetic rules to be kept up for at least six months:

Avoid fried foods; fatty meat; sausage; delicatessen; sardines; caviar; cabbage; canned foods; the tough parts, veins, sinews and skin of meats and poultry; the stones, pits, seeds and core of fruits and berries; liquor; radishes; pickle; smoked salmon; herring; the bones of fish; highly seasoned foods.

RESULTS OF TREATMENT

The results are very satisfactory, and the patients who come back one week later, as has been the custom in most of my cases, invariably report that they feel much better. Letters were sent out by me to ascertain the present conditions of the patients and the following is a brief summary of one and a half years' work.

Fourteen patients have been cured entirely up to the present date. After about half a year, four, none of whom carried out the treatment precisely, had recurrences. There was marked improvement in three patients, one of whom had a case with complications; this patient is in very good condition now. With two patients the treatment failed to do good. One was a man over 60 with a typical story of duodenal ulcer and considerable stasis of food, the other a woman who had numerous and copious hemorrhages for several years. There were strong suspicions of malignant implantation in both. Several patients are under treatment at present and are doing well.

All my cases were of long standing, dating as far back as fifteen years, with treatment at the hands of a large number of practitioners. It should finally not be forgotten that ulcers of the stomach and duodenum with complications, such as adhesions, hour-glass contraction of the stomach, narrowing of the outlet, perforations and connections with other organs, can never be completely cured by any method of medical treatment and must have surgical interference for their relief.

The great value of the method is its simplicity and lack of sacrifice on the part of the patient in carrying it out. No patient with a simple superficial ulcer who suffers only from some heart-burn, belching, etc., for a couple of hours a day, will agree to subject himself to stay in bed and carry out the stringent regulations of the von Leube or Lenhartz cure. It is only when the ulcer becomes severe and threatening and occasions a great deal of suffering or vomiting of blood, that the patient will be forced to undergo those cures. No patient, however, will refuse to carry out the simple method of treatment which I propose. This simplicity of treat-

ment, combined with the ease and simplicity in diagnosis as revealed lately through surgical research will, I hope, enable the physician to attack ulcers of the stomach and duodenum in their incipiency and thus prevent the onset of complications and possibly even the malignant transformations of ulcers.

71 East Ninety-Sixth Street.

ABSTRACT OF DISCUSSION

DR. ARTHUR A. GILLETTE, Rome, N. Y.: I endorse what Dr. Weinstein has said concerning the use of atropin and other belladonna preparations in the treatment of ulcer of the stomach: be sure of the quantity of your atropin and guard the physiologic effects.

DR. JULIUS FRIEDENWALD, Baltimore: Ulcer of the stomach is a very serious condition, and should be taken in hand early. A few weeks ago, I reported a series of 1,000 cases at the meeting of the Association of American Physicians at Atlantic City, and attempted to show that if one treated these cases by the rest-cure from 72 to 74 per cent. of cures could be obtained, and if treated surgically, 74 per cent. When one attempts the treatment by means of an ambulatory cure with nitrate of silver, olive oil, bismuth, and so forth, only 40 to 50 per cent. of the patients recover. At the beginning, we have difficulty often in determining just what we have to deal with. The symptoms, however, become more and more aggravated, and then we cannot look on the condition too earnestly. I believe in the efficacy of rest in bed: many failures to cure result from not keeping these patients in bed long enough. Often a stay in bed of three or four weeks is not sufficient and the rest in bed should be prolonged to even six or eight weeks.

DR. CHARLES D. AARON, Detroit: Bismuth treatment of ulcer was emphasized by Kussmaul in the eighties. Alkaline treatment with belladonna or atropin was suggested about fifteen years ago by Riegel, and Cohnheim published a description of the olive oil treatment a few years ago. Dr. Weinstein has done well to advise restriction in the administration of the extract of beef on account of its stimulating effect on the secretion of gastric juice, as proved by the researches of Pawlow. Cellulose, we all know, is very irritating to gastric ulcer; I cannot therefore see any benefit in giving the patented foods, shredded wheat biscuits and corn-flakes, which are rich in cellulose.

DR. ALBERT E. ROUSSEL, Philadelphia: Apparently the proportion of free hydrochloric acid in the analysis of the stomach contents is no longer considered as important as it was in the past. In cases of gastric ulcer this may be normal or there may be a slight diminution; yet in the majority of the cases the free hydrochloric acid is increased in amount. I think what is of great importance is the presence of occult blood in the feces. Of course, an examination of the gastric contents is very important, but I think an examination of the feces is of great importance as well. Whether the case is one of acute or of chronic ulcer of the stomach or duodenum, look for occult blood in the feces. I am inclined to believe that certainly a large number of cases are made decidedly better by the employment of the rest cure. Those of us who are connected with hospitals and with the dispensaries, treating these patients under the so-called ambulatory treatment, know that they do not do so well. They need more rest in bed; this treatment turns the scales in their favor.

I have been teaching medicine for twenty years and I am more skeptical than ever about 70 per cent. of cures by medical treatment. You will find that patients will return to you five, six, eight or ten years afterward with all their symptoms in an aggravated form. The condition had been going on, as shown by the radiographic views, with malposition and maladhesions of the stomach for a long time. If, in the course of three months and in some cases a lesser time, there is no amelioration in the symptoms of gastric ulcer, and with the presence of occult blood in the feces, even when

the symptoms are not absolutely pronounced, I make it a rule to call in a surgeon for operation. I do not believe, however, in calling in a surgeon to make a diagnosis; surgeons rely too much on an exploratory incision to make their diagnosis. We do not need them to make the diagnosis. We call them in when we want them to operate for us. Moreover, I do not think there is any doubt at all but that many cases of gastric carcinoma are found to be present on the seat of a previous gastric ulcer.

DR. LOUIS M. ALLYN, Mystic, Conn.: I do not believe that the method of treatment of gastric ulcer as outlined by Dr. Weinstein is entirely new. I have tried various methods in the treatment of this disease. The ambulatory treatment of gastric ulcer is all right if one cannot get the patient to go to bed. A woman with three or four children to support who works in a factory or in a mill will not go to bed for six weeks. "Go to bed? Who feeds the kids?" These patients must have some treatment that keeps them out of bed and, therefore, I think that Dr. Weinstein's treatment is very good indeed, helping as it does this particular class of patients. In the diagnosis of gastric ulcer many difficulties are encountered. I know of one patient who went to three or four experts in different cities and each diagnosed some different gastric disease. There did not appear to be a true condition of gastric ulcer, but something that simulated it. If the same treatment will cure in these different cases, it does not matter what one calls them. It takes a surgeon to give the true diagnosis.

After we have eliminated the pain I find that autocondensation with the high-frequency current helps these patients. When there have been recurrences after five or six years I think that in nine out of ten cases, they have been due to intemperance in eating or drinking or both. If these patients could be made happy, could be made to sleep well and feed well, I believe that everything would be all right.

DR. A. W. CALLOWAY, Asheville, N. C.: An important point is that we should not expect to get much help from the surgeon in making a diagnosis of ulcer of the stomach. These cases should be diagnosed in the office and not in a surgical clinic.

DR. M. MILTON PORTIS, Chicago: I do not agree with the results stated by Dr. Weinstein. Not all cases of real ulcer can be cured by his or any other method. I have been doing experimental work along these lines and can refer only in brief to my publications. There is one point that is not sufficiently emphasized. In ulcer it is not so much a question of hyperchlorhydria as it is a hypersecretion. If a larger amount is secreted the surplus of free acid will be greater than if a smaller amount is secreted. The percentage secreted remains a constant. The aim then should be to control the amount secreted. If the diet includes meat, secretion will go on for seven or more hours, as compared with two or three hours when meat is excluded. Again, if an alkaline salt is given a half-hour before meals, the total gastric secretion will be diminished, for the alkali on reaching the duodenum reflexly checks secretion in the stomach. Finally, no matter what the type of treatment, it is by far better to start the cure by a sufficiently long enough period of rest in bed.

DR. ANTHONY BASSLER, New York: I agree with what Dr. Friedenwald has said in regard to the treatment of such patients by rest in bed. The heart then beats from ten to fifteen times less often a minute. The stomach is improved by this rest and the amount of hydrochloric acid secreted is less. I think that these are very valuable essentials in the treatment of ulcer of the stomach.

One should be very careful not to make such a diagnosis of ulcer of the stomach merely on the presence of hyperacidity or hypersecretion. The statement has been recently made that a diagnosis of ulcer of the stomach could be made when there was present an increase in the amount of hydrochloric acid and particularly when no food is in the stomach, but clinically this is not a fact that can be depended on alone.

DR. WILDER TILESTON, New Haven, Conn.: The diet tables do not seem to be any different from the ordinary diets that are used against hyperacidity; I think it is a diet that is used extensively by many clinicians. It is impossible to say

how many of these cases of Dr. Weinstein will relapse on account of the short time they have been under observation.

DR. J. W. WEINSTEIN, New York: It was argued that belladonna and its derivatives often cause unpleasant symptoms. I can state from a very extensive experience (for aside from the cases reported here I treated a large number of cases at the Vanderbilt Clinic), that in the doses employed by me I have never seen any unpleasant results, save a slight dryness of the mouth in some cases. I did give bigger doses before and I had to abandon them. We should not prescribe belladonna in liquid form and then employ the teaspoon as a measure, for it is well known that the teaspoon contains more than a dram. An exception was taken to what some called my loose methods of diagnosis. My methods of diagnosis of ulcer of the stomach and duodenum are based on the unanimous deductions of the foremost surgeons of the age—deductions that are founded on careful studies and corroborated by exploratories on hundreds of cases. Finally, an objection was offered that there was nothing new in my method. Bismuth was used by Kussmaul years ago, said Dr. Aaron. On the surface, this objection would appear to be valid, but I stated in my paper that my method was a combination of different remedial measures proposed by others. The whole combination, however, is certainly new. There are two methods in vogue in the treatment of ulcer of the stomach, the Von Leube and the Lenhartz cures. It is evident that my method is as far from the method of Von Leube with its stay in bed and rectal feeding, or from the method of Lenhartz with its stay in bed and feeding on raw eggs and milk by the teaspoonful, as north is from south.

I know very well that bismuth, magnesium oxid, belladonna and olive oil were employed in the treatment of ulcer of the stomach. It is from Kussmaul, Fleiner and other authors that I got these ideas, as stated in my paper. But so was potassium iodid recommended and used in the treatment of meningitis! I ask, however, how many meningitis patients did potassium iodid ever cure? I ask again, how many cases of ulcer of the stomach or duodenum did bismuth, magnesium oxid or belladonna ever cure? They never cured and never will. It is only the whole combination in my method that does the work. That combination must be carried out in all its details, else there is no result.

HUNGER PAIN *

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Hunger pain is a sensation of gnawing distress in the stomach coming on several hours after meals. It varies greatly in its intensity and may be described as a mere soreness in the epigastrium, or it may assume the form of a burning pain of sufficient severity to occasion real suffering. It is often accompanied by a feeling of impatience and irritability of temper, which renders it difficult to continue work or to concentrate the attention. It prompts the patient to lie down and may be partially relieved by heat or gentle steady pressure on the epigastric region. It occurs in some cases three hours after meals and continues until the next meal is eaten; or it may persist for an hour or two and then abate without the ingestion of food. It is usually unaccompanied by eructation or regurgitation, but in its more severe grades nausea of some degree coexists and vomiting may occur.

Hunger pain is not an accompaniment of any constant or invariable chemical state of the stomach. As a rule, hydrochloric acidity is high or actual hyperchlorhydria exists, but lesser or even very low degrees of acidity are often found. The pain does not depend altogether on

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

the acidity, as many patients are found to have high percentages without it. Notwithstanding these facts it must be admitted that hyperchlorhydria, with its other manifestations, is the condition most frequently found in cases presenting the symptom referred to here as hunger pain.

It is, or may be, associated with gastric ulcer near the pylorus. For many years it was taught that the pain of ulcer of the stomach followed early on the ingestion of food, and it was not until a more intimate acquaintance with gastric diseases was acquired that it became known that burning gnawing distress or pain occurring many hours after meals was not infrequently present with pyloric ulcer.

The location of the ulcer has much to do with the incidence of the pain in its relation to the ingestion of food. If it is in or near the fundus, or is situated proximal to the vestibule, some degree of discomfort or actual pain follows soon after eating. There is a popular impression that hunger pain occurs only with an empty stomach, but it is usually at its height with a highly acid chyme, which passes through the pylorus slowly and with difficulty. The retarded passage of the gastric contents into the duodenum may depend on pyloric spasm from any cause, or on a benign organic narrowing of the pyloric ring. In cases with gastric ulcer near or at the pylorus, or with pyloric irritability and spasm the pain is usually well localized to the pyloric region of the stomach; but in cases having organic stricture resulting in the retention of a large amount of superacid contents, the pain is more generally distributed over the gastric area, and it often extends to the region of the cardia. The distress is not only more diffuse, but supervenes sooner after eating than is the case in ordinary hyperchlorhydria and is more apt to be accompanied by vomiting which gives relief.

The reason food ingestion gives rise to temporary relief in cases of ulcer at the pylorus is probably that its alkaline constituents neutralize the hydrochloric acid and its protein elements combine with it. The nature of the ingesta has a large influence on the incidence of pain. Acids, condiments and coarse, irritating articles of diet are soon followed by marked discomfort, whereas milk and cream, soft eggs and other bland foods give a longer respite from distress. This particular type of epigastric suffering more often attends the common peptic ulcer than the multiple erosions or hemorrhagic erosions described so well by Mathieu.

Hunger pain is, as would be expected, a rather constant result of duodenal ulcer, in which disease the ulcer area is rested and relieved until such time as the acid gastric contents enter the intestine in more copious amounts. We are indebted to Moynihan for emphasizing the importance of "hunger pain" as a symptom of duodenal ulcer. He regards the symptom as positive and diagnostic. He also considers hyperchlorhydria as being equivalent to duodenal ulcer. It should be remembered, however, that duodenal ulcer not infrequently exists without pain, and hemorrhage may be the first symptom to herald its presence.

In the earlier years of my work I was under the impression that this symptom occurred only in hyperchlorhydria and I recall with distinctness the first case in which I found achylia gastrica associated with it. The patient was a man who had definite gnawing, burning pain about three hours after each meal, and who was thoroughly relieved by eating the next meal. Several instances of achylia gastrica with hunger pain have since

come under my observation. Some of these cases presented evidences also of chronic gastritis. It may be a symptom of acid gastritis, especially the stenosing gastritis of Boas; it is also found occasionally in catarrhal gastritis in cases in which the contents show an excessive amount of mucus and a low acidity.

It is present in gastrectasia, and is quite often found in cases of gastropptosis, enteropptosis or nephropptosis. Boas has dignified a condition in which pain with an empty stomach occurs as gastralgokenosis. Hunger is not present in this condition, but prompt relief is given by eating. There is little, if any, difference between this condition and that which may be termed hunger pain. The element of hunger is inconstant; at all events, it may or may not accompany the distress. In hyperorexia or parorexia the sensation of hunger may become so intense as to amount to, or merge into, actual pain. Gastric hyperesthesia is closely related to the distress which is relieved by food ingestion, and is, indeed, an important factor in the production of the symptom-complex. Reichmann's disease, or gastrosuccorhea continua, is also a state allied to those discussed above, and in this affection, contrary to the experience in simple hyperchlorhydria, epigastric distress may be present in the early morning before breakfast.

Not only may this late postprandial gastric suffering result from a variety of chemical and nervous disorders of the stomach, but it is found in patients with disease of other abdominal organs. Of these diseases the most common are pathologic conditions of the gall-bladder and appendix. Among diseases of the gall-bladder, cholelithiasis or cholecystitis with pericholecystitis, possibly involving the pylorus or duodenum, may produce late gastric pain after meals. Among diseased conditions of the appendix, chronic appendicitis with adhesions and deformity is the morbid state frequently underlying the incidence of late postprandial gastric suffering. The explanation of this probably lies in the ready response of the neuromuscular apparatus of the stomach to an irritative focus near or remote from it.

In some cases the symptom is an accompaniment of anemia or of a low state of general nutrition and strength. In such patients periods of discomfort occur from loss of sleep, anxiety, fatigue, both nervous and physical, and from dietary indiscretions with overtaxation of the stomach, from eating too large amounts of food and to the drinking of alcoholic beverages, especially the rich, sweet wines and champagnes.

The treatment of the symptom should be guided by a consideration of its cause, the regulation of the diet, the giving of alkalis and gastric sedatives, the observance of proper rest, or the wearing of a suitable abdominal support, the administration of tonics, and the employment of lavage or operative measures, as the case may demand.

In conclusion, it is my desire to emphasize the need of careful consideration and study of patients who are afflicted with this late postprandial, or anteprandial, suffering in the epigastrium. It seems an error to arrive too hastily at a diagnosis of gastric or duodenal ulcer in these cases, and to hurry the patient to a gastro-enterostomy on the evidence of this symptom alone.

436 Franklin Street.

ABSTRACT OF DISCUSSION

DR. M. A. COHN, Brooklyn: Is the hunger of diabetes mellitus, according to Dr. Jones' classification, a hunger pain? What is the real difference between hunger pain and hunger

plain, unless it be the difference between the physiologic hunger of the normal individual and the morbid hunger as a pathologic condition? Is it not perhaps the degree of hunger that makes the distinction between the two? At all events it is not wise for the practitioner to base his diagnosis on one symptom alone, unless it be one that is always present in a certain disease and decidedly pathognomonic.

DR. WALTER L. BIERRING, Des Moines, Iowa: Unless more fortunate than others, I feel that we have all had some personal experience with the hunger pain referred to by the essayist. I can also recall clinical histories in which errors were made in not properly interpreting the symptom of hunger pain. This is a valuable contribution because it sounds a warning against a too ready acceptance of this symptom as an indication of ulcer or preulcerous condition of the stomach, and emphasizes the necessity of correlating all the symptoms before making such a diagnosis. In this connection it should be remembered that a condition of hyperesthesia is peculiar to some individuals, and this should not be overlooked in interpreting the phenomenon of hunger pain.

DR. WILDER TILESTON, New Haven, Conn.: In my opinion more emphasis should be laid on the frequency of duodenal ulcer as the underlying cause of pronounced hunger pain. Many of these cases show no increase in hydrochloric acid; in the majority of the cases I have seen there has not been an abnormal amount of acid. I think that in this Section we are more likely to overlook these cases and treat them as cases of acid dyspepsia when they should be turned over to the surgeon, whereas in the Section on Surgery the reverse might be the case. I have had three or four patients recently who had been treated from five to twenty years for dyspepsia; they all had definite duodenal ulcers, and all were completely relieved by the performance of a gastro-enterostomy. We should remember the words of Moynihan that persistent hyperacidity that is not relieved by medical treatment is almost always duodenal ulcer. Many of these patients show no symptoms beyond these of hyperacidity; there is no hemorrhage, no occult blood in the feces, and the diagnosis is based mainly on the history.

DR. CHARLES G. STOCKTON, Buffalo, N. Y.: While it is perfectly proper to listen to what Moynihan states about the importance of hunger pain, we must admit that hyperchlorhydria occurs in cases of duodenal ulcer and also that hyperchlorhydria does occur without the presence of duodenal ulcer. This is a point that should be kept before us. We may have hyperchlorhydria with duodenal ulcer; and we may have duodenal ulcer without hyperchlorhydria, and without any suffering whatever. What we should guard against is expecting to have a case of duodenal ulcer simply because there is present a hyperchlorhydria with characteristic symptoms. I hope, too, that Dr. Jones will take time in closing the discussion to make clear to us just what he means by hyperchlorhydria as related to hunger pain; does hunger pain mean simply being hungry?

DR. ALLEN A. JONES, Buffalo, N. Y.: There does occur great hunger among diabetics but that does not constitute hunger pain as described in my paper. What Dr. Biering has said is correct; there is, in these cases, hyperesthesia, and a hyperacidity is the underlying condition. Among physicians themselves I find this to be a common symptom. In regard to the matter of duodenal ulcer and hyperacidity, or hyperchlorhydria, the point that Moynihan has emphasized I have carefully watched and I do not wish for a moment to detract at all from the importance of the value of this symptom of duodenal ulcer. In my paper I said that the symptom might accompany duodenal ulcer. Duodenal ulcer is a bizarre affair in some cases. There often are no clear symptoms. In some cases hyperchlorhydria is a persistent manifestation. Sometimes hunger pain is uncontrollable, obstinately refractory, and a constantly recurring symptom, not yielding to any treatment, then in the absence of other symptoms, one may regard the condition as one of duodenal ulcer. In these cases, of course, an exploratory operation is the proper procedure. I have seen cases in which a diagnosis of duodenal ulcer was made

solely from this symptom; at operation, however, an appendix was removed which was found to be the only diseased structure, no evidences of ulcer being present. I have seen cases diagnosed as duodenal ulcer turn out to be cases of cholecystitis or cholelithiasis.

THE UNRELIABILITY OF UNIMPORTANT MEDICAMENTS *

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The quality of an article or commodity, in general, is directly dependent on demand and on competition. That is, if there be a large demand for an article and if a considerable number of firms put it on the market, then its quality is likely to be of a high order. Further, as a large demand will commonly bring about competition, "demand" is the chief factor which affects the purity of an article. As an illustration of the high quality of widely used commodities it is but necessary to mention the exceptional purity of ordinary table-salt and the fact that granulated sugar, almost without exception, barring a little moisture, approaches absolute purity. As further illustrations of high quality one may take flour, calico, pins and needles. It should further be stated that, although our Food and Drugs Act has had a beneficial influence even on these staple articles, their purity is in the main guaranteed by the large demand. A report on the purity of sugar by the Department of Agriculture¹ showed that of more than 500 samples purchased in the open market in different parts of the country not a single specimen was found which contained added matter, i. e., the department had not secured a single grossly adulterated specimen of sugar. Further, granulated sugar was in general found to be of exceptional purity. The list of every-day commodities which are to be had of a very high quality is a long one and it is very important to note that these articles of high grade are not unduly expensive because of this high quality.

The same conditions apply to drugs and thus we find drugs which are widely used and open to free competition, such as sodium bicarbonate, potassium iodid, quinin sulphate, morphin sulphate, chloroform and alcohol of a very acceptable degree of purity and of a relatively low price, that is, the high quality of these substances has been found practicable without any great increase in cost.

As illustrations of drugs which, in spite of apparent monopoly, are of a high degree of purity, such products as phenacetin, sulphonal and aspirin may be cited. But these products have, after all, enjoyed but nominal monopoly, even in this country of unfair patent privileges. The manufacturers of aspirin have found it expedient to sell a product whose purity would compare favorably with non-proprietary brands with which it had to compete in other countries. But even in this country, where aspirin is a monopoly, it still must compete with other salicylic acid compounds; that is, if aspirin of poor quality were sold, physicians would soon give preference to other related salicylic acid compounds. That medic-

* Read in the Symposium on the Desirability of a More Restricted Materia Medica in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. U. S. Dept. Agric., Div. Chem., Bull. No. 13. Foods and Food Adulterants; Part 6: Sugar, Molasses and Syrup, Confections, Honey and Beeswax, 1892.

inal substances which are not sold under competition are unreliable and inferior has been so thoroughly demonstrated by the reports of the Council on Pharmacy and Chemistry that it need not be argued here.

The findings of the Council having forced the conclusion that all proprietary medicines, no matter how reliable the firm which makes any one of them, are well worthy of careful scrutiny, there was a tendency to assume, conversely, that all drugs and medicines not of a proprietary nature were as represented, at least so far as their identity and purity is concerned. This assumption that non-proprietary medicines are to be relied on, because it is to no one's advantage to make false claims for them, has been found unsafe. For, while none would sell these articles under grossly false claims or would adulterate them, because the profits to be derived from their sale is more than offset by the danger of detection, this small demand also operates in another way. The conditions which make it unwise to sell such non-proprietary drugs dishonestly also appear to make it impracticable for the legitimate dealer to go to the pains of furnishing an article that is pure and reliable.

The following is an outline of the findings of the Chemical Laboratory of the American Medical Association which shows that, in general, firms have not considered it expedient or worth while to take any considerable pains to insure that little-used drugs shall be of a high quality. While some firms have shown commendable pride in improving the quality of their products when the findings of the laboratory were brought to their attention, this merely serves to emphasize the general uncertainty of little-used drugs.

Calcium phenolsulphonate is sold by several manufacturers of chemicals. Although it is a definite chemical substance, the examination of the commercial salt showed that the several brands differed considerably in composition and were unsatisfactory as to purity. For example, one specimen which was claimed by its manufacturer, the Abbott Alkaloidal Company, to contain about 4.5 per cent. of water of hydration, was found to contain about 15 per cent. A second specimen which was sent by the same firm with a reiteration of the claim as to its water of hydration content (about 4.5 per cent.) was found to contain only about 2 per cent. The Merck, the Mallinckrodt Chemical Works, and the Powers-Weightman-Rosengarten brands all gave tests for uncombined phenol. It is gratifying to report that the findings of the laboratory having been transmitted to the several firms interested, the Abbott Alkaloidal Company, and the Mallinckrodt Chemical Works now offer a product which complies with the standards adopted by the Council.

Cicutine granules, each of which was claimed to contain 1/134 grain cicutine (coniin), were placed on the market by a manufacturer. As coniin is a volatile alkaloid, it seemed absurd that any manufacturer would attempt to incorporate the free base in granules or tablets. Examination revealed that the granules contained no free coniin but that the combined alkaloid was present in amounts equivalent to about one-half of the quantity of coniin claimed to have been present in the free state.

Copper citrate as found on the market was examined and was shown to vary considerably in composition and purity. The Merck brand contained a small amount of acetate while the others contained sulphate. As a result of this examination, the Mallinckrodt Chemical Works has placed on the market a product free from sulphate and of satisfactory purity in other respects.

Fluidextract of goldenseal, of U. S. Pharmacopeia quality, and otherwise, may be had. As dealers in hats seek to change style in order that both husband and wife must buy new head-covering, so manufacturers of medicines are constantly on the watch for something new. When, therefore, it was found desirable and advantageous to replace certain drug tinctures by more concentrated and less alcoholic liquid preparations, manufacturers at once attempted to prepare fluidextracts from all drugs, regardless of the adaptability of such drugs to this treatment. Not content with this the manufacturer was inclined to prepare two or more kinds of a fluidextract from the same drug, such fluidextracts being intended for a particular use, and thus we find in the price lists of many manufacturers, besides the official fluidextract of golden seal, also a non-alcoholic fluidextract of golden seal and a "colorless hydrastis." While among the fluidextracts are to be found some of the best and most carefully prepared drug preparations, a long list of fluidextracts also contains many that are unreliable. As an illustration of this an examination was made of "colorless hydrastis" and "non-alcoholic fluidextract" of hydrastis as found on the market. It was found that, although "colorless hydrastis" preparations were generally listed with fluidextracts, they were not fluidextracts at all but weak solutions of salts of hydrastin in a menstruum of glycerin and water, evidently intended as a substitute for a widely used nostrum. As to the non-alcoholic fluidextract it was found that out of ten firms' products but one approached the requirements for the official fluidextract of hydrastis.²

Keratin is one of the many unofficial drugs entering National Formulary preparations. As a member of the Committee on Standards for Unofficial Drugs and Chemical Products of the American Pharmaceutical Association, I was requested to formulate a standard for keratin, necessary because the Formulary contained directions for preparing the solution of keratin for use in coating pills. As the value of such a coating is dependent on the resistance of keratin to the digestive fluids of the stomach, an academic description of keratin was made to contain a provision requiring keratin to be practically insoluble in hydrochloric acid-pepsin solution. While the description was submitted to a considerable number of pharmaceutical manufacturers and dealers in drugs, no criticism of the proposed test was received. One firm, Lehn and Fink, in particular, went to considerable pains to examine the description submitted, but finally advised that it appeared to be quite satisfactory. Nevertheless the specimen purchased from this firm was found to be almost completely (98.73 per cent.) soluble in hydrochloric acid-pepsin solution. It furnishes an excellent illustration as to the unreliability of claims made for products by those who are commercially interested in them. In this case it is not supposed that the statement was deliberate. Instead, the matter was not deemed of sufficient importance to warrant the precautions which would have been taken if large contracts for a well-known substance, say quinin sulphate, had been involved.

Maguesium peroxid is one of a number of metallic peroxids offered as a substitute for hydrogen peroxid. From the claims made physicians have imagined that these metallic peroxids were as definite in composition and as permanent as the definite chemical formula, ordinarily assigned to these peroxids, would lead one to imagine. But while, for instance, the formula MgO_2

2. THE JOURNAL A. M. A., July 4, 1908, p. 52.

is commonly assigned to magnesium peroxid, the Laboratory's examination showed the several commercial brands to contain but from 12.17 per cent. to 25.18 per cent. of real magnesium peroxid.³

Quinin tannate is official in most foreign pharmacopœias, in some of which methods for preparation are given and in which the official product in all cases is required to contain not less than 30 per cent. of anhydrous quinin alkaloid. The methods prescribed by these pharmacopœias, however, were found, in the Association's laboratory, to yield products which did not contain the stated amount of alkaloid. Four commercial brands of quinin tannate were examined. Three of these were found to be of fairly good quality. The other (Merck brand) contained about 9 per cent. of uncombined alkaloid and, consequently, was bitter and unfit for use.

Aromatic digestive tablets are listed by a number of pharmaceutical houses. Among other ingredients the tablets were claimed to contain hydrochloric acid. While it is possible to prepare tablets containing small quantities of hydrochloric acid loosely combined with protein or weak bases (not sufficient to be of appreciable remedial value), the determinations of the acid content of the tablets showed that only one-half of the brands were true to label. The product sold by Parke, Davis & Co., and that sold by Truax, Greene & Co., contained no hydrochloric acid either free or in protein combination, although the labels in each case declared the substance to be present. The Sharp and Dohme product contained only the merest traces of hydrochloric acid.

Bismuth, opium and phenol tablets are marketed by several firms with definite statements as to the quantities of their ingredients, of which phenol is the most important. Various brands were tested for phenol and the quantities present indicated a wide variation from the claimed content. Two years after these results were published, specimens of the same brands were investigated, and it was found that no appreciable improvement in the tablets had been made. Still later, a third series was examined and the tablets found to be, in most cases, no nearer to claim than before. The results found for these phenol tablets as well as those reported for the compound digestive tablets are, without doubt, characteristic of a considerable number of ready-made tablets. As in the case of fluidextracts, the general utility of tablets having been recognized by the manufacturer, attempts were made to put out in tablet form all the remedies under the sun. As many of the remedies do not readily lend themselves to the tablet form and as their small sale does not make a high quality profitable to the manufacturer, the market is supplied with material whose quality depends on chance.

Zinc permanganate as found on the market was found to vary considerably. The examination showed that some of the brands had decomposed, yielding relatively large amounts of insoluble matter and therefore showing a diminished permanganate content. While the best specimens contained as high as 97 per cent. of the theoretical amount, others contained but about 73 per cent. In some cases a decided difference was found between the permanganate content of purchased specimens and the content of those submitted by the manufacturers. If this variation in the quality of zinc permanganate be compared with the general high quality of even commercial potassium permanganate, the unreliability of little-used substances will be appreciated.

535 Dearborn Avenue.

DESIRABILITY OF A MORE RESTRICTED MATERIA MEDICA FROM THE STAND- POINT OF THE PHARMACIST *

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The point of view of the pharmacist is the point of view of the composite who seeks, finds, identifies, collects, preserves, prepares, standardizes and dispenses remedial agents. And let it be understood and accepted that this tremendous and powerful composite would not be led to seek and prepare this great mass of material if there were no market for it. Do not be misled to believe that the market grows less and less profitable. The contrary is most positively proved by cold, commercial figures, carefully collected, at considerable expense, by our progressive "Uncle Samuel." Therapeutic nihilism has had about as much effect on the misuse of drugs as political nihilism has had on the misuse of governmental power. Rationalism is the better remedy for both evils.

Wherever there is a market, there will be market-men, and the market will invariably afford just that class and quality of goods that is demanded. The competent, composite pharmacist is the market-man for your drug-supply, and I sincerely hope that one of the principal objects of this symposium and of all other such discussions is the bringing about of such reforms as will make it possible for the pharmacist creditably to meet the requirements his important vocation entails.

I trust that, because of the comparatively few years left me wherein I may labor effectively with you and because of the smaller interest that is now mine I may be allowed, without the semblance of presumption, to impress on the medical profession that it needs this "market-man" to whom I have just referred, no matter whether his other name is pharmacist or something else. Neither should the respect paid him be based on what he has been or, maybe, what he is; it should accord with the requirements he must meet and the abilities necessary to meet those requirements. If this respect is vouchsafed him and the recognition such respect should win for him is forthcoming, I believe medicine will have a much abler and more helpful ally in the effort now making for a more restricted and, consequently, a more scientific materia medica in which the pharmacist is, undoubtedly, greatly interested.

But, both conscientious physician and conscientious pharmacist are more sincerely interested in a truer and better materia medica than they are in the mere restriction of the list of agents to be used. It is the betterment they are seeking and the restriction is but a means to the end; at this time, rational and reasonable restriction is imperative and is the veritable key to the situation, as it effects broader pharmacy.

A division of labor and specialization has helped pharmacy in its accomplishments as specialization has helped in other scientific fields. But this is not enough to further and insure better and more constant pharmaceutical work; specialization, even to inconvenience, will fail if there is to be no limit to the demands, especially, in scope. We have just reached the dawn of serious pharmaceutical research; remarkable possibilities are appearing that are most promising. It is possible for one with

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a clear and extended vision, running over forty years of pharmaceutic practice, to estimate more exactly how very much larger is the amount of knowledge one must now have, respecting each individual article, than was formerly required. The intelligent pharmacist is forcefully impressed with his greater responsibility, largely because he is now informed as to the cause and effects of the multitude of changes that occur, due to factors that, not long ago, were entirely unknown, or, if known, were ignored.

I am sensible of the difficulty of citing fit illustrations to an audience like this; some would appreciate examples of bacterial invasion, others light induction or ionic saturation. It will, however, be more consistent to call attention to personal observations of the want of knowledge of so comparatively a simple salt as sodium nitrite, which rather recently has become quite popular. Sodium nitrite is frequently prescribed in combination and because of a want of sufficient knowledge of it by both prescriber and compounder, it rarely gets to the patient without decomposition. Acetyl-salicylic acid and sodium nitrite is a favorite combination.

Medical men and pharmacists have fallen into very bad habits, habits that naturally follow enforced, restricted or superficial knowledge of the agents they are using. There are too many drugs to be studied properly; or, if the physician or pharmacist were fitted or equipped for to-day, to-morrow would bring such a multitude of "new and non-official remedies" that one must, of necessity, forget the "old and official" ones. The 958 of the Pharmacopeia, added to the 589 of the National Formulary, would be easy for the pharmacist if it were not for the eight or ten thousand additional varieties. But it is the "lean and hungry apothecary" who must know the names and something about seventeen thousand remedies and appliances that are in his shop and used in the healing art that should have your sympathy.

Want of control is the pharmacist's sad plight and this is more pronounced in the smaller establishments. Want of control in purchase, in preparation, in preservation—how is it possible? Present methods and practices are not so bad for the large concerns and combinations; they make these possible and are helpful to them. Present methods and practices make of the smaller pharmacist a mere distributor with no incentive to do the better things or to become equipped for a proper control of his stock and a close and helpful assistant to the clinician. In despair, he wails, "What's the use?" and is carried on helplessly in the flood—the veritable flood of an unrestrained and unrestricted materia medica.

A restricted materia medica is most desirable from the point of view of the pharmacist, because an unrestricted materia medica means an untaught, unlearned and uncertain materia medica; more than all this and worse than all this, lack of knowledge and reckless and meaningless use of the materia medica destroy respect for it, and for the users, and this want of respect is, unquestionably, the most detrimental influence imaginable against pharmaceutic excellence. Naturally inactive drugs, undefined and non-standardized drugs, destructive and strangely modifying combinations, non-established and greatly varying doses, all following and resulting from an embarrassing profusion of agents, engender an utterly reckless disregard of all the finer touches that should make pharmaceutic technic a most helpful element in medical practice and an honor to its votaries.

THE DESIRABILITY OF A MORE RESTRICTED MATERIA MEDICA FROM THE POINT OF VIEW OF MEDICAL INSTRUCTION *

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The desirability of a more restricted materia medica, from the point of view of medical instruction, is conceded by every teacher of the subject. No part of the medical curriculum has been subject to more criticism than the teaching of materia medica; the statement is frequently made both by the general practitioner and by members of examining boards that the average medical student is not sufficiently instructed in the science and art of therapeutics, and is especially weak in his knowledge of drugs and their incompatibility and behavior in combinations and in his ability to write prescriptions. The present medical curriculum is by far too extended, so that it is practically impossible for the students to give sufficient time and attention to many fundamental subjects, because many others of minor importance have been introduced into it.

In order to determine to what extent the licensing examinations are influencing the teaching of materia medica, I have made a study of the questions that have been asked by state boards in recent years. This shows as follows:

The total number of questions reviewed were 2,409, which were asked on 510 drugs. One hundred and twelve questions were asked on thirty-one comprehensive topics, such as anodynes, anthelmintics, antipyretics, carminatives, cathartics, cholagogues, counter-irritants, deodorants, depilatories, escharotics, ecboles, galactagogues, parasiticides, refrigerants, sialagogues, styptics, etc.

Taking as a working basis the schedule of materia medica in the report of the Subcommittee on Pharmacology, Toxicology and Therapeutics on Group A, which contained the important items to be studied thoroughly, 1,244 questions were asked on 103 drugs; on Group B, containing relatively unimportant drugs to which but brief mention was to be made, 485 questions were asked on ninety-five members, and 568 questions were asked on 281 drugs not included in these lists, most of which were of doubtful value. In many examinations the patented name of the drug was used in the questions.

From this examination, it is evident that, while a large percentage of the questions fall well within the list of drugs with which every student should be familiar, still a large number of questions are asked concerning drugs that are of questionable or of little therapeutic value. Many of these drugs have merely a "local vogue" but are included in the Pharmacopeia, which must be the official standard for the druggist, and are therefore considered suitable topics for licensing examinations. The importance that has been given to passing the licensing examinations, as a method of judging the standard of medical schools and the instruction in these schools, has necessarily caused the teaching to be more or less determined by the questions that are asked. This has caused undue emphasis to be laid on the mere materia medica part of the subject, and the students have had a smattering of information concerning many drugs, rather than a thorough training in those that are of the greatest therapeutic value. The effect of the students' attention being called to minor matters is that a great

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deal of time is wasted and the students lose the sense of proportion and become careless prescribers and observers of therapeutic effects. Much of the knowledge that they have obtained in the medical school is of little practical use to them, because they memorize these drugs merely for examination purposes at the expense of definite training in the more important drugs.

It is unfortunate that untrained state board examiners should in this way influence the character of medical instruction. In New York a new departure has been made by the appointment on the examining board of men who are teachers and authorities in their respective lines, and who have as well a clear insight into the questions which bring out a practical knowledge of the subject.

In review of the criticisms that have been made of the teaching of *materia medica*, it is evident that many of the critics have not appreciated what is the function of the medical curriculum. It is not to turn out skilled pharmacists, but men well grounded in the principles of pharmacology and able to apply these principles to the correction of the pathologic physiology of their patients. It is therefore evident that the major portion of the course should be devoted to the thorough teaching of pharmacology, from both the laboratory and the therapeutic side. To what extent *materia medica* should be taught is still a matter of discussion. Medical botany and plant chemistry, at one time considered so important, are now of too little importance to be more than referred to in the course. The same applies to descriptive pharmacy and the recognition of crude drugs. If the number of drugs taught were sufficiently restricted, then it would become possible for the student to familiarize himself with the composition and physical characters, with the appearance, odor and taste, with the solubilities miscibilities and incompatibilities, and with the methods of administration and dosage of those which are commonly prescribed in practice. It is not possible or necessary that the student should know all the preparations of even the more important drugs.

There is both a science and an art in therapeutics. The science of therapeutics should be taught in the medical school and form the basis for therapeutic application. The art of therapeutics is a life-long study and comes only with experience. The medical curriculum cannot turn out a finished subscriber. The effect on the student who studies a large number of useless drugs is that, after graduating, he finds that they are of doubtful value and he immediately begins to look for those of more definite effect. His imperfect training and careless observation cause him to turn to the newer drugs and to accept at their face value the statement of their manufacturers. He barely gets his diploma when his attention is called to these drugs, or rather old drugs with new names, and he is led to believe that they are superior to the standard forms.

The work of the student is increased largely by the want of correlation between *materia medica*, pharmacology and therapeutics. The present method of arranging the text-books in *materia medica* and pharmacology is defective. Those that are arranged alphabetically dissociate the drugs from their pharmacologic and therapeutic relations. When the drugs are arranged from the pharmacologic or chemical standpoint, an unnatural classification is adopted, so that the student, at the beginning of his course in therapeutics, has presented to him a new classification based on therapeutic action. This is confusing and entails an extra amount of work. With a more restricted *materia medica*,

a greater degree of efficiency can be demanded of the medical graduate; the instruction would be more definite, and he would also appreciate the fact that while not all of the drugs that are used in the treatment of diseases have been considered, those that are most important and have stood the test of time and experience have been brought to his attention.

That a recent graduate is not a skilled pharmacist—that he has but slight art in prescribing—is conceded, but the recommendation that the teaching of *materia medica* should be more extended, and that chemistry, toxicology, pharmaceutic laboratory work and prescription-combining should occupy the major time of the course is unwarranted.

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THE DRUGS WE NEED *

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We are fortunately, now, in the midst of an age of careful analysis and investigation of all treatments of disease, and especially of drug treatments. We have passed through the era of absolute faith in drugs and combinations of drugs and mystical mixtures; we have passed through the era inaugurated by some of our best clinicians who were enthusiastic pathologists but therapeutic nihilists, and who spread the belief that drugs had no value; and we have come to the era of pharmacologic research and the knowledge derived from such investigations, which show that many drugs are potent and as such have valuable therapeutic uses.

We have not yet eliminated mystery from medical practice, and still have a belief (unless we very carefully eliminate it) in a multiple mixture, although it may not be a mysterious mixture—we may know its contents. It is so easy to believe when we are told that a drug in this particular combination has a particularly pleasant and efficient activity; or that this particular kind of a drug or preparation will not cause the disturbance that the well-known and well-tried basic drug causes.

A thorough knowledge of the pharmacologic activities of some drugs, and an equal knowledge of the pharmacologic uselessness of other drugs are now necessary in the preparation of the medical student. Having such knowledge, he will not make the mistakes which have long been made in the use of drugs. It is being attempted by the state examining boards and by teaching institutions to limit the *materia medica* questions at state examinations to drugs that have positive value. Such questions cannot be made too strong or too difficult, as such knowledge shown by the applicant to practice medicine is the greatest possible protection to the public against the misuse of drugs, and would soon cure the use of multiple mixtures, and the use of mixtures, the ingredients of which are not known. In other words, instruction in, and examination on, useful drugs only will be a cure for the mistake of using nostrums, proprietaries, or even absurd and useless pharmacopial preparations.

What drugs shall be used, and how? The only way to discuss the subject is to classify drugs under the objects at which they are aimed. It is advisable to

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classify drugs, not chemically or by some particular pharmacologic activity, but according to their therapeutic use. In other words, when we wish to meet an indication, what drug shall we use?

I do not think it longer profitable, although I have, as is known, done my share of it, to urge the use of many Pharmacopeial and National Formulary mixtures. There is no question that these books furnish formulas, and each druggist can well prepare such formulas, to satisfy the desires of every physician, and thus many times prevent the necessity of specifying some particular proprietary mixture. My desire is to go one step farther, and state that we need these mixtures, whether Pharmacopeial, National Formulary, or proprietary, very rarely. I do not say that such mixtures have no value, but I do say that the active drug of the mixture can generally be given in a very simple manner and the results obtained be perfectly satisfactory, and the treatment be much more scientific.

I will not discuss the long, ever-varying list of drugs used as antiseptics and dressings, nor those used as parasiticides and escharotics, nor those used for various conditions of the skin; but will take up for consideration the drugs that are to be administered internally. In the discussion which follows I take it for granted that we always desire the best drug to meet the indication, and never desire a second and third-best drug; also, that we want the best preparation of that drug, and would not often desire a second-best preparation. In other words, we need no second- and third-rate drugs, and no third- and fourth-rate preparations. It is immediately seen that I have eliminated about three-fourths of the Pharmacopeia from our discussion.

The drugs that we need to diminish secretions, viz., astringents, are: alum for local use, rarely as a mouth-wash or gargle, never internally; bismuth subcarbonate or subgallate (subnitrate may cause, in rare instances, poisoning); silver nitrate internally only intermittently for an ulcer of the stomach or for some chronic inflammation of the stomach, and there is no other use for silver internally. Copper seems to have no positive use internally, and the only valuable salt is the sulphate as an emetic or as a local astringent. Zinc sulphate is the only zinc preparation we need, and should be used as an emetic or locally. There is absolutely no use for zinc in any form whatever internally. Tannic acid is suitable for local use and some of the newer combinations of tannic acid for internal action; rarely, perhaps, gallic acid for action after absorption.

Of drugs to increase the appetite, i. e., stomachics, if we cut out the useless bitters of the Pharmacopeia and their preparations and the large number of proprietary mixtures said to be reconstructive, tissue-builders and appetizers, we have eliminated nearly one-third of the proprietaries that are brought to us, and that eliminates one-third of the National Formulary substitutes. In my opinion we need none of these. If it is desired to give a bitter alcoholic cocktail before a meal, the compound tincture of gentian of the Pharmacopeia is efficient. The compound tincture of cinchona, carrying with it a little more medicinal activity, is another similar cocktail preparation. These drugs furnish all the bitter that is necessary to start an appetite. Very much bitter has been found to inhibit gastric digestion rather than to promote it.

One drop of the tincture of nux vomica in a wine-glass of water, taken before a meal or during a meal, will answer all the bitter purposes of any preparation offered as an appetizer.

Now as for iron, let me first state my belief that there is no organic iron that will do as much good as a simple inorganic iron; also, that 0.20 gm. (3 grains) of an iron salt will present to the patient, who is not undergoing red blood-corpuscle deterioration in his system, more iron than he can metabolize during twenty-four hours. Therefore, large doses of iron are not needed. The main point of the organic irons, ordered at great expense and furnishing enormous profit for pharmaceutical houses, is that they furnish less iron than the physician has been accustomed to order of an inorganic salt. The patient who could not take the inorganic salt does take such an organic preparation without unpleasant symptoms. If the dose of the inorganic salt is reduced to 0.03 gm. ($\frac{1}{2}$ grain), three times a day, it will be exceedingly rare to cause any symptoms that are noticeable or unpleasant.

While each individual physician has a pet iron salt which he prefers to use, still, there is no real chemical or physiologic reason why a certain few are not all that we need for internal use. These few are the reduced iron, the Bland pill, saccharated iron oxid (*Eisenzucker*) and the tincture of the iron chlorid. Except the last, these are but little astringent and are pleasant to take, and any one of them can do everything that any iron can do in the system. The strongest iron we can administer seems to be the tincture of the iron chlorid. It is never necessary to give enormous doses, and one drop of the tincture of iron, either in the syrup of citric acid and water or in freshly made lemonade, is of course not noticeable, and yet will give all the iron that is required for physiologic purposes. Five drops of the tincture of iron in fresh lemonade every six hours, even for a condition like diphtheria, is entirely sufficient, and even a child will rarely notice that he is taking anything disagreeable. The sugar of iron tablet is almost a confection; the child enjoys it. We can cut out of the Pharmacopeia, therefore, as far as our needs go, about thirty iron salts and preparations.

As to digestants, physiologists tell us that pepsin is rarely needed in the stomach, and that the starch digestion is generally sufficient. Therefore, pepsin and diastase are not needed. The physiologic chemists tell us that pancreatin is probably rendered inactive in the stomach. Certainly any starch digestant and pancreatin will act in the stomach only until free hydrochloric acid or a considerable amount of acid peptones are present, and this will occur anywhere from one to one and one-half hours after food has been taken. They tell us that proper chewing of the food, to mix the starchy food well with the saliva, is all the starch digestant that is needed. Dilute hydrochloric acid often is needed, and this is generally efficient. Pancreatin, then, is of value only as a predigester of food before it is taken. And again we have cut out a considerable number of Pharmacopeial preparations and a large number of proprietary preparations.

While cod-liver oil is, perhaps, one of the most easily digestible of oils, it is, nevertheless, so likely to cause indigestion that its value has been greatly overestimated. Butter and cream are generally sufficient, with, perhaps, olive oil added in some instances, to increase nutrition. And again we rule out the multiple proprietary emulsions of cod-liver oil.

The large number of glycerophosphate elixirs are probably not needed, neither are the lecithins; and there is practically no difference between a lecithin and a glycerophosphate. We do not need an elixir that contains alcohol or a lot of glycerin, and sodium glycero-

phosphate does not seem to be of value. Calcium glycerophosphate, ordered in dry capsule or in tasteless powder, will do all of the work that the various wonderful elixirs will do. It may supply a need to the body, while calcium is a sedative to the nervous system. This is again a touch of simplicity.

I am convinced that nothing will decrease the perspiration like atropin; therefore I see no reason, except for the local use of alcohol, for using any other drug.

To increase the amount of urine, nothing is better than water; next caffein in some form, digitalis, buchu, broom and perhaps squill.

To render the urine alkaline there is nothing better than potassium citrate; and there is no wonderful action in the A B C mixture. Potassium citrate is the pleasantest, and, in a proper dose, efficient. We do not need the others.

As antiseptics for the genito-urinary tract, hexamethylenamin, methylene-blue, salol and salicylic acid are efficient.

As a stimulant to the genito-urinary tract, the oil of santal is as satisfactory as anything yet discovered, and is as little likely to disturb the digestion, and we can do away, in my opinion, with the nasty copaiba, the unnecessary cubeb and the Pharmacopeial and proprietary legion of genito-urinary stimulants.

Outside of iron and thyroid there are no efficient emmenagogues. For the pains of menstruation, after studying all the various Pharmacopeial, National Formulary and proprietary mixtures, the valuable drug seems to be alcohol. I believe that almost every preparation offered for that purpose contains alcohol. It is generally ordered given in hot water; and the dose is sufficient to make any young girl or woman feel better, or at least be indifferent to her condition. In other words, the dilating effect of the alcohol, its slight anesthetic properties, and the mental indifference which it causes, I believe, give the keynote to the satisfactory action of all of our many and multitudinous dysmenorrhea mixtures. Therefore, let the patient have gin or alcohol, and color it, or fool her as desirable.

As for drugs used to act on the respiratory tract, and first, those used to increase the secretion of mucous membranes, i. e., expectorants proper, when we name ammonium chlorid given in small doses, ipecac and iodids, we have covered all that are of any great value. Ammonium carbonate is too irritant, and is not needed. If we need a cardiac stimulant of the ammonia type, the aromatic spirits of ammonia is better. If we wish to decrease the secretion of the mucous membranes of the upper air-passages, ammonium chlorid in fair-sized doses, atropin, terpin hydrate and opium, or any of its alkaloids, will be efficient. In my opinion all of the old so-called expectorants served up in miserable, bad-tasting syrups are not needed, are useless and are bad for the stomach. Nothing can be done in the expectorant line that cannot be done by the above-named drugs. Ammonium chlorid is best administered in a sour syrup, or given in lemonade.

To relax spasm in the respiratory tract, as in asthma, atropin, bromids, chloral, gelsemium perhaps, morphin, nitroglycerin or other nitrite, and scopolamin (hyoscin) are most efficient. Any combination that is of value for asthma generally contains one or more of these drugs. I cannot find any action of belladonna, stramonium, or hyoscyamus that is not that of either atropin or scopolamin; therefore with these two alkaloids, it seems to me we can do away with all of the other preparations of these three closely allied drugs. There are no activities

of these drugs that are not represented by one or both of the above alkaloids.

The greatest bugaboo in medicine is in the proper use of drugs that act on the circulation. These are probably more misused than most any other potent drugs.

It is well to subdivide the drugs that act on the circulation into those that are stimulants and have immediate activity, and those that are tonic and have prolonged activity. The stimulants are camphor, ammonia, strychnin and caffein. Caffein and strychnin have prolonged activities, and really are stimulo-tonics. Caffein in any form acts positively on the circulatory and nervous systems. Strychnin is very much overused. Camphor is one of the best cardiac stimulants that we possess. Alcohol may be of great value in relaxing the peripheral circulation and the abdominal circulation and thus relieving a laboring heart.

As a cardiac tonic, nothing equals digitalis; and its second is strophanthin, given intramuscularly or hypodermatically. If the dose of digitalis is properly regulated, and the preparation is a good one, there is no need for, as there is no real physiologic value in, any of the other so-called cardiac tonics. They may all be eliminated from the Pharmacopeia.

To contract the blood-vessels, suprarenal active principle, pituitary active principle, ergot, atropin, and the drugs already mentioned may be used in proper manner and at proper times.

To dilate the blood-vessels, nitrites in some form, iodids, thyroid, aconite if needed, and chloral occasionally represent the drugs of value.

The so-called antispasmodics are really cerebral stimulants and excitors. The reason they are antidotes to spasmodic conditions, such as hysteria, is that they probably stimulate the brain to better control. Camphor is perhaps the best. The advantage derived from an asafetida or a valerian is probably either from the alcohol contained in many of their preparations, or else is psychic, from the disagreeableness of the odor. They are really of no positive value, and many other treatments, or no treatment at all, as Christian Science, would be of as much value.

To depress the central nervous system, so-called depressomotors, we have any of the coal-tar products, bromids and chloral and opium, if we must. As to coal-tar products, either for analgesic properties or for antipyretic properties, of all the large list presented we still have no better than acetanilid, antipyrin and acetphenetidin (phenacetin). Acetanilid, on account of the dose being small (and the dose should always be small), is the most valuable. It is a very useful drug when ordered and used by the physician for a particular condition. It is the most misused drug, on account of entering into so many nostrums.

Among drugs to produce sleep — hypnotics — there is still none better than chloral; all hypnotics must be graded from this old drug. Chloralamid may be a little improvement on it in a way, but the dose must be larger, and its action is often not so efficient. Bromids are valuable when they are needed. Paraldehyd in certain cases may be used, and the hypodermatic injection of scopolamin has a powerful activity which we would not like to lose. The idiosyncrasy of some patients to scopolamin and atropin, however, must never be forgotten.

Of the newer hypnotics, veronal-sodium seems to be the best and safest. The dose of veronal is smaller than the dose of sulphonal, trional or other synthetics, and, therefore, it causes less irritation of the kidneys during its excretion. The sodium combination seems to be less

depressant than the veronal itself, and it seems the best of these preparations to use. If this is the best, then we need none of the second- and third-rate drugs of this class in the Pharmacopeia.

There seems to be no reason for the many bromids. The sodium bromid is the best; potassium bromid is distinctly more disagreeable; strontium bromid is expensive, and the reason of its lack of disagreeable stomach-effects is that it is absorbed less rapidly; and zinc bromid is unnecessary. This again simplifies the Pharmacopeia.

Of all the iodids the sodium iodid seems the best. Potassium is always depressant; sodium is rarely so. Therefore, other things being equal, where the drug must be given for a considerable length of time, the sodium salt is the one which should be preferred. All the various new iodids (iodids without their sting) put on the market only mean a smaller dose of iodid; that is all. If the dose administered of the straight sodium iodid is diminished to what the patient would absorb from one of the proprietary preparations, the unpleasant symptoms will be found not to be caused. The sodium iodid should be given either in water or camphor water, or a saturated solution may be given in milk or water.

Of the colchicum preparations we need only the best liquid, which is probably the wine of the root, and the alkaloid, colchicin. We certainly do not need the number of preparations of it in the Pharmacopeia.

Of the very many preparations of mercury in the Pharmacopeia, at least half could be abolished. I will not designate which half or which third I would deem most valuable, because the differences in opinion are so very great I would simply start an unprofitable discussion. But there is no difference in mercurial action. It is only a question of dose and which preparations, and a few, as soon as one learned how to use them, would have the same action as have the many.

Of all the salicylic acid preparations offered, it is simply a question of regulation of the dose. If any of the proprietaries furnish salicylic acid without its sting, this means that the substance is absorbed very slowly, and the dose given is very much smaller. If the dose of the sodium salicylate is made smaller, the absence of unpleasant symptoms would be the same. If, on the other hand, in rheumatism it is necessary to push a salicylic acid preparation, these preparations that are said to not cause symptoms will cause symptoms. It is only a question of dose.

I am not a drug nihilist. I believe thoroughly in the activity of drugs and thoroughly in their value, but I deplore the profession being fooled by promoters of so-called new drugs and new synthetics, when, if the reliable Pharmacopeial drug is properly used, it is perfectly satisfactory.

I do not for one moment wish it understood that I do not believe in looking into and investigating every new single drug (not mixture) that is offered. Every little while we find something that is of great value, such as hexamethylenamin, phenolphthalein, veronal, salvarsan, perhaps the new synthetic suprarenal principle; but I wish to stimulate a criticism, an honest criticism, of every drug or preparation that is presented. If it is a mixture, we should analyze the formula and draw a line through every ingredient that is of no value, and see what is left. It is many times the very drug of the Pharmacopeia that we have all been long using. The rest are veils to befog our discovery that the only active drug of the mixture is such a simple, common, every-day affair.

252 York Street.

THE WORK OF THE COMMITTEE ON USEFUL REMEDIES *

M. I. WILBERT

Secretary of the Committee
WASHINGTON, D. C.

The Council on Pharmacy and Chemistry of the American Medical Association has been repeatedly though erroneously criticized for being destructive rather than constructive in its work, and not a few medical practitioners have pointed out the difficulty of consistently following the efforts that are being made to improve on the conditions now existing in relation to the use of drugs as aids in the prevention or the treatment of disease.

The difficulties that would be encountered by a physician in active practice in any attempt to differentiate between useful and useless articles will suggest themselves to any one who will take the time to look over one or more of the current price-lists of drugs and proprietary medicines. The many thousands of meaningless names found in such a list are disconcerting to even the best-informed medical practitioner, and to one who can give only a limited amount of time and thought to the subject they must be quite as confusing and meaningless as the names of so-called patent medicines are to the ordinary layman; since this is so it need not surprise us that the physician absorbs much of his incentive to use a given drug or preparation in much the same way that the layman does—from the say-so of others in advertisements or the so-called standard works on the subject of materia medica.

The present-day status of the use of medicines has been designated as consisting of series of vicious circles: Patent medicines are used by the laity because they are advertised by manufacturers, and they are advertised by manufacturers because they are used by the laity. The closely related proprietary medicines are prescribed by physicians because they are advertised in medical journals, and they are advertised in medical journals because this leads to their being prescribed by physicians. Official remedies are official because they are endorsed by text-books, and are endorsed by text-books because they are official.

Up to the present time little or no attempt has been made to classify systematically the more useful or more promising medicaments. Even the teachers of materia medica in medical schools are helpless in this respect because of the fact that the several state medical examining and licensing boards are likely to ask questions on all sorts and kinds of medicaments, and teachers of materia medica of necessity feel that they must teach at least something about all of the different official articles and many of the more widely advertised non-official preparations.

In the past the Council has endeavored to exercise its influence with the revisers of the Pharmacopeia and the National Formulary and has striven to induce the compilers of these books to restrict their scope to articles of established value. These efforts have, however, been futile, largely because of the fact that both the U. S. P. and N. F. are accepted by law as the standards for the articles which they contain, and it is felt that physicians who use obsolete or inert drugs have an equal right to

* Read in the Symposium on the Desirability of a More Restricted Materia Medica in the Section on Pharmacology and Therapeutics, of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

standard remedies as physicians who confine themselves to articles of known and recognized value.

With a view of arousing the interest of medical practitioners in the subject the Council more than a year ago appointed a committee to compile an authoritative list of the more important medicaments and then to submit this list as a basis for the teaching of materia medica in medical schools and for the examinations on materia medica subjects by state examining and licensing boards, so as to foster the routine and more extended use of these articles by practicing physicians generally.

The possible restriction of materia medica teaching to articles of acknowledged value has been discussed on various occasions, and several attempts have been made to outline a reliable materia medica list. One of the more recent attempts in this connection was made by the Council on Medical Education of the American Medical Association several years ago. This list, somewhat augmented, was selected by the Committee on Useful Remedies as the basis for its work, and the resulting list then sent to the teachers of pharmacology and therapeutics in medical schools and colleges, the secretaries of state medical examining and licensing boards, members of state boards whose addresses were furnished by the secretary and to a number of general practitioners who had replied to previous inquiries. On the basis of the replies obtained, a second list was compiled and discussed in *THE JOURNAL* for Dec. 9, 1911, with the request that members of the American Medical Association who might be interested send in their opinions regarding it. The list thus secured was reviewed by the members of the council present at the annual meeting in February, 1912, and is now ready to be offered tentatively in the form of a manual for ready reference, with the request that medical practitioners generally make such suggestions for additions and deletions as would tend to make the final list fully representative of the best in the materia medica of American medicine.

Eventually, it is expected to publish a critical review of the actions and uses of the several drugs included in the list, so as to present in as complete a form as practicable the present status of our knowledge regarding the drugs and preparations that are discussed in the book.

The preparation of such a book will necessarily consume considerable time, and the proposed tentative publication of a manual is for the twofold purpose of keeping the subject before American medical men and of securing their cooperation in the final compilation and publication of the more comprehensive work.

Twenty-Fifth and E Streets, N. W.

ABSTRACT OF DISCUSSION

ON PAPERS OF MESSRS. PUCKNER AND HYNSON, AND DRS. LEFEVRE, OSBORNE AND WILBERT

DR. F. E. STEWART, Philadelphia: Dr. Osborne for a long time has been eliminating from the Pharmacopeia. Fortunately, he has still left a small number of drugs to be used by the revision committee. I am in favor of much that he has said. It would be a great advantage to those of us who are teaching materia medica if we could limit the Pharmacopeia to really useful drugs, but, unfortunately, there is such a difference of opinion among therapeutists that it would be difficult to accomplish.

The next question is that of introducing new materia medica products by advertising. All will admit that the demand created by advertising has proved largely fictitious and ephemeral. It is only the secondary demand that really comes from merit. For the introduction of the new products by advertising, an enormous outlay is required. It is neces-

sary to obtain higher prices to pay for this advertising. To protect the investment of capital, monopoly is considered necessary by some manufacturing houses. This is usually obtained by patenting materia medica products. In protecting advertised products from injury to sales sometimes resulting from the original research of scientific men, certain manufacturers deem it necessary to threaten such investigators with lawsuits, if the evidence published is of an unfavorable nature. If members of the profession cannot impartially discuss new materia medica products without danger of lawsuit, how can we expect progress in materia medica science and in the arts of pharmacy and drug therapeutics?

In my paper read before the American Medical Editors' Association, I suggested a plan I have been advocating for the past thirty years, namely, the establishment of a strong central board of control, in which the manufacturing houses, the medical and pharmaceutical journals, and the professions of medicine and pharmacy could be represented. Some of the functions of the proposed board would be the censorship of materia medica advertising and of the literature and labels of manufacturing houses; also the investigation of the therapeutic claims relating to new materia medica products by collective investigation, using the working bulletin system for that purpose. The plan differs from that of the Council on Pharmacy and Chemistry in that it is cooperative rather than judicial. Its work would be supplementary to that of the Council and in harmony with it. I do not believe we fully realize the enormous amount of good accomplished by the Council. The Council ought to have the backing of every manufacturing house in the country. By attacking fraud in pharmacy, it is driving out unfair competition, and making it possible for honest manufacturers and their experts to obtain an honest living.

DR. W. D. CALVIN, Fort Wayne, Ind.: Much of the time spent in studying most of the drugs that we find in our materia medica to-day is wasted.

Sometime ago, I read a paper before our society on the misuse or abuse of drugs and I secured the consensus of opinion of about seventy members of our society concerning the drugs they thought were most misused. We arrived at the following conclusions: First, many drugs are over-used; second, many drugs are misused; third, many drugs should more frequently give place to other and better therapeutic agents. I said, "If I ask you, as members of this society, to write down ten or twelve drugs with which you could conduct 90 or 95 per cent. of your drug therapy, the result would probably be that you would discover that you would not require that number." If I were to ask the same question to-day, you would write two or three rapidly and go more and more slowly as you approached the tenth, if, perchance, you ever reached it. I am free to say that 95 per cent. of my drug therapy is done with fewer than ten drugs and I believe that this is the experience of every man here to-day. I do not believe less in drug therapy than I did when I left college. I have much less confidence in most of the drugs found in the materia medica than I had at that time, but to counterbalance that I have much more confidence in the few I use than I had at that time. Is not that your experience? Why should we all go through this constant weeding out that we must individually do after we leave college?

Shortly after leaving college I passed the State Board of Minnesota, considered a hard board at that time. Three of the questions in materia medica were concerning drugs that I have never used from that time to this. The examination simply tested us out to see if we had gone through the pages. Was that practical? No. Many of our state boards are still asking these questions. Among the state boards of the United States appointed through political pull many a member is not able to answer the questions he asks. That is not true, of course, of the boards that are appointed at the suggestion of our state medical societies and not entirely true of the others. I would not make a sweeping statement of that kind.

DR. HOBART A. HARE, Philadelphia: The statement was made in the report of the committee that certain drugs are

placed in the text-books because they were found in the Pharmacopeia and that they were placed in the Pharmacopeia because they are in the text-books. This is not accurate. The drugs which are official are the drugs which pharmacists and physicians and the laity all over the country call for with sufficient frequency and constancy to make it necessary that both the physician and layman should be protected and should be sure of getting a real drug or a definite compound of a drug. The drugs are not put into the Pharmacopeia because they are in the text-books, but it is true that they are put into the text-books because they are in the Pharmacopeia, although I do not know of any text-book which includes all the drugs that are in the Pharmacopeia because the practicing physician and the man writing a text-book find many drugs in the Pharmacopeia which they cannot endorse and which they believe to be largely inert. I am in accord with the statement that the list of drugs to be taught to students is ridiculously large. The average physician will get along better if he uses ten or twelve drugs, but that some variations of these drugs are unnecessary I do not believe. In medicine one preparation suits the needs of a patient better than another. The one may not be different from the other in its physiologic action when it is absorbed, but it is different in appearance or taste or different in the ability with which it disturbs or agrees with the stomach. There is danger of antagonizing the experience of men in general practice by being too dogmatic in regard to these points.

Half of the number of hours that I devote to lectures could be more advantageously employed if there were no state boards because, like Dr. Calvin, I am forced to teach facts which will not be used in practice merely because they will be used in state board examinations. A few years ago a member of a board asked what the dose of *santonin* was for a babe of 8 months. I have never yet seen a babe of 8 months with roundworms. I would not have known what to answer myself. When I wrote and protested the examiner replied that he did not believe that my criticism needed further consideration. Dr. Councilman told me that he believed that the best form of examination—a practical one—was that used in Massachusetts. This means that the man who can prove to the board that he has practical knowledge will be licensed, whereas most of our boards ask questions, correct answers to which do not prove that the applicant is a competent physician to practice.

DR. S. SOLIS-COHEN, Philadelphia: Potassium citrate may be the only diuretic salt needed at Yale, but some of us have formed the habit of using potassium acetate occasionally. Why should the American Medical Association say, even to Philadelphia barbarians, "You must not use 'tweedledum'; you must accept the dictate of Olympus and employ 'tweedle-dee'?" This question is not so simple as one may deem in looking at it from the purely personal point of view. I have no objection to Yale's restricting itself to twenty drugs, or to Oxford's restricting itself to four, or to Harvard's restricting itself to none; but if the patient happens to be under my care and my judgment tells me that I shall use a remedy which is outside of the twenty or the four that are sacrosanct, or even the nine hundred and forty that are officialized, what is my duty under the circumstances? To bow to some prohibitive restriction imposed in ignorance of the existence of that patient and of the conditions that he presents, perhaps in ignorance of the existence or of the influence of the remedy I propose to use? Maybe so—but I do not see in that light. My patient is entitled to my knowledge unhampered by orthodox, or even official, ignorance. For example, I have had an interesting discussion lately with regard to *aspidospermin*. This potent drug does not find place in the Pharmacopeia of to-day; it probably will not find place in the Pharmacopeia of next year or the year after. *Aspidospermin*, therefore, omitted from the Pharmacopeia to please restrictionists who know nothing whatever about it from personal observation, must not be prescribed by me on account of such omission, although I should not know how to treat certain cases of asthma without it. I

know how asthma is treated without it, of course, but I should not know how I could give my patients the benefit of the knowledge and skill they are entitled to. There is no objection to any physician restricting himself to the tools that he knows how to use; but there is every objection to his attempting to restrict some other physician who has other, and perhaps better, tools and methods. The Pharmacopeia should admit every drug that is known to be of advantage in the treatment of the sick, no matter how seldom it is prescribed and no matter how many other drugs there may be which have similar influence. On the other hand, it is true that we can simplify the teaching of materia medica and improve the practice of therapeutics by confining our work in the schools to a certain number of typical drugs, provided, however, that these drugs are to be taught as types and not as exclusives.

DR. M. CLAYTON THURSH, Philadelphia: The important part that the state medical boards of this country play in the teaching of pharmacology and therapeutics in our medical schools has not been sufficiently emphasized. The young man who is about to enter a medical school, of course, wishes to enter the best. He selects one of the colleges which has most of its graduates pass the state board and the way we decide their respective rank is by the report we find once a year in THE JOURNAL of the American Medical Association. How do we classify medical colleges in their reputation? They are beautifully classified according to the number of men who pass the state boards successfully. The school with the fewest failures is considered the best school. Considering state boards as the best judges of the reliability of medical schools, we must consider what a powerful factor the state board is. A few years ago in Pennsylvania the question was asked: "How much tincture of *pilocarpus* is equivalent to 1/20 of a grain of *pilocarpin hydrochlorid*?" The students could not answer the question and brought it to me. I told them that the question could not be answered because the amount of *pilocarpin* varies in different specimens of the drug, and again we have no standard-strength tincture official. How could you make the comparison to determine how much tincture? That is the kind of questions our state boards ask. The whole solution of this problem is to have men on our state boards who will ask sensible questions. Then our teachers of therapeutics, as Dr. Hare has said, will not have to teach one dose for the state board examination and another dose for actual practice.

DR. L. F. KEBLER, Washington, D. C.: Professor Puckner spoke of restricting the number of drugs and stated that widely used drugs are usually of high quality and of greater purity. My experience bears out that view in so far as chemicals are concerned, but such is not the case with crude plant drugs. Ergot, for example, imported into the United States during the past year, has been very bad, yet large quantities are used. The same thing holds true in regard to *buchu* leaves, so far as foreign material is concerned. Another point that ought to be brought out is this: even though the chemicals are of good quality the preparations containing them frequently vary materially. A worse feature is that they are often not true to claims that appear on the label. For example, you will find a tablet labeled as containing 1/60 of a grain of *strychnin*; investigation often shows that it does not contain that quantity or contains much more. The same is true of *nitroglycerin* tablets. Professor Hynson spoke of 17,000 drugs they have kept watch of. We need to keep watch of a much larger number, probably 25,000 proprietary remedies and probably the same number of ethical mixtures. A pill or tablet made by one manufacturer may be analyzed by a certain method, but when the analyst applies that same method to a tablet of another make and tries to analyze it he is likely to experience trouble. So it is necessary, in order to arrive at the active constituents in some of these tablets, to work out a method for almost every manufacturer's tablet. One argument against the restriction of the number of these drugs is that the Pharmacopeia is the law and the standard. With the present construction of the law I wish there was no Pharmacopeia, because if the Pharmacopeia is made a standard

we are virtually restricted to that standard. We have no discretion in going further. A case we had in New York the other day illustrates this. An importer was allowed to bring in so-called senna siftings, but after getting it in the bale was renamed and shipped into interstate commerce as "broken senna." The court held, under the definition of the law, that the commodity was not considered adulterated because the word "broken" was introduced. If we had not been restricted to the Pharmacopeia we would have been absolutely free to fix a standard, but with the Pharmacopeia as it stands we are apparently helpless. Any standard of the Pharmacopeia can be negated as the situation now stands by introducing some qualifying word such as "broken." Another example is debased male fern, shipped into interstate commerce as "male fern, natural." It is claimed not to be the male fern of the Pharmacopeia, but something else. If the Pharmacopeia did not exist, if it was not under the law, we would not have these difficulties.

DR. OLIVER T. OSBORNE, New Haven, Conn.: You will all realize why Dr. Cohen and I cannot get together on the Pharmacopeia. In other sections the need for accepting the best present standards is recognized, but here advice as to what drugs have positive therapeutic value is called an attempt to take away the personal liberty of the individual. I say we should go in for therapeutics right up to date. Now, we can talk until we are tired of the standardization of the Pharmacopeia and its object. The Pharmacopeia is an advertisement and a recommendation of the drugs it names, and says to the individual, this is the best we can offer you, go and practice it. Therefore, I say that there is an object in limiting our discussions to drugs that are of value and insisting that they are the ones we should use, and the Pharmacopeia should contain only such useful drugs. On the other hand, if we are going to standardize different colored preparations for psychic effects, for the sake of the effect on patients, what will the end be? If bricks and sand are essentials to putting together a house with a spade, and some builders prefer a modified spade called a trowel, is it necessary to standardize the trowels? Let him get it where he can get that particular trowel; not standardize any one trowel and say that is the trowel. Just before I left New Haven, in an examination of our junior class on advanced pharmacology and beginning therapeutics, I asked the question: "Name the ten drugs that have the most value in your opinion and then state why. Also, name the best preparations and doses of these individual drugs." Twenty drugs would cover all these men decided on. Now that is what we are looking for in the advance of the teaching of materia medica, and the medical examining boards have got to come to it. It is only a question of a few years more and schools and examining boards will recognize only active drugs, and why should not we all now aim to have the Pharmacopeia an up-to-date proposition? One word more in regard to substances presented to the Council on Pharmacy and Chemistry. Many times the preparation offered does the work claimed for it. But we find that the active substance is in a mixture. We cannot pick out one of these therapeutic combinations and say "this is what does the work," when any other combination of the active drug would do as well.

The Mental Factor in Functional Diseases.—An intimate relation exists between the functions of the central nervous system on the one hand and the sensory, motor and visceral functions on the other. This vital relation, though unobtrusive in the normal individual, stands out clear and distinct in the whole domain of functional diseases. Clinical and laboratory studies have brought to light the important fact that all those cases that go under the description of nervous disturbances of a functional character, such as hysteria, hystero-epilepsy, the so-called larval epilepsy, psychic epilepsy, neurasthenia, psychasthenia, and all the forms of the neuroses and phobias in regard to external and internal stimulations, are all to be ultimately referred to mental disturbances, whether conscious or subconscious.—Sidis in *Arch. Diagnosis*.

THE TREATMENT OF LEUKEMIA AND PSEUDOLEUKEMIA WITH X-RAYS *

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AND

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Little has been added to our knowledge of the etiology or pathology of leukemia and Hodgkin's disease during the last few years. Some details regarding the diagnosis have been established and in the case of Hodgkin's disease the clinical differentiation from certain conditions presenting superficial resemblances has been made possible. So far as the ultimate causes and nature of these diseases are concerned, we remain in the same ignorance as formerly. The tendency among writers has, it is true, been more and more commonly manifested in the direction of regarding both as close kindred of the new growths, a view which we have held for a long time and on which in a large measure our methods of using the x-rays in the treatment are based. In our former discussion of the subject¹ we called attention to the fact that so far as leukemia is concerned all recent investigations tended to prove that the bone-marrow is the primary seat of the morbid processes, no matter whether the disease is of the so-called myelogenous or of the lymphatic variety. The further contributions of the years intervening since our publications still tend to maintain this proposition. In the case of Hodgkin's disease the evidence is otherwise. Here the initial lesions are of a different sort and localization, the lymphatic glands being the place of origin and remaining the place of chief involvement.

One other feature in the pathology of these diseases that requires brief mention here is the influence of the disease of the bone-marrow on the formation of red blood-corpuscles. The clinical study of the blood in cases of leukemia progressing unfavorably always shows advancing anemia, which is evident from the decreasing number of red corpuscles, their morphologic variation from the normal and in the somewhat less trustworthy diminution of hemoglobin as determined by the ordinary methods. So far as the hemoglobin is concerned, one must remember that increased leukocyte-counts affect the estimations very decidedly. This progressive anemia of advancing leukemia is manifestly hypoplastic. All the evidence of the studies of the blood points to increasing imperfection in blood-making and there are few of the signs of hemolysis. As far as prognosis is concerned we must look to the study of the red cells and of the hemoglobin for the best guides to a determination of the probable course of the case. Enormous numbers of leukocytes may be present for considerable periods without immediate serious significance, but a rapidly falling erythrocytic count is always ominous. On the other hand, reduction of the leukocyte-count alone does not constitute sufficient evidence of improvement. This was plainly shown in some of the early x-ray treatments when applications to the spleen sometimes caused rapid reductions of the leukocyte-count without corresponding improvement in the patient—rather, indeed, with a reverse effect.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

1. Stengel, A., and Pancoast, H. K.: Treatment of Leukemia by the X-Ray, *THE JOURNAL A. M. A.*, April 25, 1908, p. 1317.

A matter of considerable clinical interest is the tendency to spontaneous recessions occasionally seen in leukemia. It is more commonly recognized that such recessions frequently occur in pernicious anemia and that their occurrence must be reckoned with in estimating the probable effects of treatment. Similar recessions occur in leukemia and in Hodgkin's disease. Three distinct instances in leukemia have come under our observation. The most striking was one in which a woman who had presented marked and undoubted evidences of myelogenous leukemia lost all symptoms of this condition after removal to a near-by mountain resort. Practically no medical treatment was used—none which could ordinarily have caused such a result. In two other cases, one of which is still under our observation, there was speedy disappearance of all signs of the disease after brief, and, according to ordinary standards, inadequate *x*-ray treatment. In each case the examination of the blood during the remission by expert hematologists at first showed no evidence of the preexisting trouble and only after the history was furnished did they discover on prolonged search a few abnormal leukocytes of possible myelocytic type. In one of these cases a relapse, a second recession and a third relapse occurred under our observation. In the other there has been no relapse after nearly a year. Previous experience of our own and a study of the literature had convinced us that such remissions are probably not uncommon in the early stages of the disease, but we had had no opportunity of actually observing them.

LEUKEMIA

We have had opportunities to observe the effect of *x*-ray treatment on over forty cases of leukemia. The first two of these were treated throughout by the older method of directing the applications mainly or entirely to the enlarged spleen, before the adoption of our present technic. The results were the usual unsatisfactory and disappointing ones with which we are all familiar. In the other cases, the present technic, that of directing the radiation primarily to the bones, has been employed throughout, with a few exceptions. While most of the patients have been under our direct care during the entire period of treatment, in a few instances we have either started or have simply outlined the treatment, and it has been continued or carried out altogether by others, and we have kept in touch with the patients subsequently as far as this has been possible.

While we are not prepared to present any exact statistical evidence to show the relative merits of the two methods, our experience with both has been so convincing as to leave no doubt as to the superiority of the results derived by the method now employed. It is gratifying to know that this method is shared by many others who have adopted this method in preference to the older one. In a few instances we have been able to compare the results of both in connection with the same cases in which splenic radiation was instituted with either little or no benefit or the patient made worse; but following the change to bone-radiation, the decided improvement that soon became manifest was most gratifying.

So far we have been unable to prove that leukemia can be permanently cured by radiation, but we do know that the *x*-ray will do more toward prolonging life during a period of comparative comfort than any other therapeutic agent yet employed. The important advantages to be derived from directing the treatment primarily to the bones may be summarized as follows:

1. In general, the expectation of life is greater.

2. Patients as a rule regain health and strength more rapidly, owing in part, no doubt, to the avoidance of early toxemia; and the average patient is soon able to resume his or her occupation, even though the leukocyte-count remains high. This state of comparative health and comfort may be maintained for a variable period, but it usually continues up to a short time before death, when this ultimate termination does come. One patient who has been under our observation from the beginning, though not treated by us, has been in comparatively good general health and has been able to attend to his business for four years. This has been accomplished by keeping a close watch over the differential count, and whenever there has been a decided change in the percentages, one or more series of applications have been made by his physician over the entire body. Another patient who stopped treatment and returned home some time before we would have been willing to discontinue remained in relatively good health without any treatment for three and one-half years, when she was said to have died of pneumonia.

3. This method is certainly attended by fewer dangers from toxemia and *x*-ray dermatitis.

In order to derive the greatest possible benefit from the treatment, it must be administered carefully and intelligently. The more careful we are in carrying out the technic thoroughly and systematically, and in adapting it to suit the special features of each individual case, the greater will be the benefit derived, in the long run, and the longer will the patient live.

The general technic that has been previously described in detail is still followed. Experience has proved that it has certain features which require special emphasis:

1. The applications should be made systematically to the bones of the entire body, with the exception of the head, the body being mapped out into definite areas for the purpose.

2. Exactness in dosage is always most important. It should be so regulated as to produce the necessary effect without inducing toxemia, if possible.

3. The frequency of the applications is equally as important. They should be made daily when possible, and prolonged periods of rest should not be permitted. Life has been shortened months or even years in many instances through disobedience of this injunction, or failure to insist on it.

4. Direct exposure of the spleen and other secondary enlargements should be carefully avoided during the earlier part of the treatment; this applies especially to the very large spleens of the myelogenous form of the disease. The first important reason for this is the avoidance of the undesirable toxemia that is likely to follow, especially in advanced toxic cases; and the second is the fact that the more rapid decrease in the leukocytosis that is likely to follow is apt to be misleading because it is not due to the effect of the radiation on the primary seat of the disease entirely. In many instances this will lead to a discontinuance of the treatment long before the greatest possible inhibitory effect on cell-proliferation has been induced. The spleen and other enlargements should receive a share of the applications by all means, but always at a later and safer period, when the leukocytosis has diminished considerably and the general condition improved to such an extent that the additional waste products can be taken care of adequately and eliminated without any danger from toxemia. The spleen should not be treated at the expense of the bones, but should be included as an additional region to receive its share of the applications in its turn. In the case of

enormous spleens it is advisable to begin their radiation at the earliest period consistent with safety, because their reduction requires a long time. Moreover, a large spleen is a source of much discomfort because of its size, weight and effect on other organs, and its presence is a source of occasional dangerous complications, such as perisplenitis or hemorrhage resulting either spontaneously or as a result of traumatism, as from a fall. We recently had the experience of a sudden death in a patient who had been progressing most favorably until she fell and struck heavily over the splenic region. The splenic tumor may remain as the last vestige of the disease, and require radiation for some time after the disappearance of all other manifestations.

5. The duration of the treatment has an important bearing upon the prolongation of life. Applications should not be discontinued or lessened in frequency until normal conditions prevail, if this be possible. By "normal conditions" is meant the disappearance of every manifestation of the disease, including abnormalities in the differential count.

6. The leukocyte count may be an important clinical factor in showing the patient's condition, and is perhaps the most direct single index we have as to the effect of the treatment on the disease, but it is by no means so dependable in the latter application as it is generally regarded. In fact, it should not be relied on to any extent as a direct index, except at practically one stage of the treatment. If we are able to reach the point where the leukocyte-count has subsided to normal or nearly normal figures, the differential count becomes more and more important as the guide for continuing or stopping the applications.

In those cases which exhibit an unusual susceptibility to radiation or arsenic, the rapid disappearance of the abnormal blood-picture suggests or requires a cessation of treatment long before any definite or lasting effect can be exerted, and such cases soon relapse, and do not do well ultimately, as a rule. The usual slow reduction in the leukocytosis that is characteristic of the bone-treatment is to be regarded as an advantage for the reason that it prevents a too early cessation of the applications, and experience has proved that only very prolonged treatment has any decided influence over the disease. If the count remains stationary for some time at a comparatively high figure after it has dropped to a certain extent, as is frequently the case, moderate doses of arsenic will usually lend the necessary assistance to the *x*-ray in lowering the count further. Unless indicated in this way, or by a decided anemia that does not improve, the use of arsenic during radiation does no good, and only causes confusion.

Blood-examinations should be made frequently throughout the treatment, and especially leukocyte-counts. As a rule the leukocytosis is apt to increase to a certain extent for a while after beginning radiation of the bones, but this should never be regarded seriously unless accompanied by increased toxemia, or unless the general condition becomes worse. A normal leukocyte-count is never, in itself, an indication to stop, but treatment should be continued as long as myelocytes are present, or the differential count remains distinctly abnormal. If we are so fortunate as to bring about a restoration to normal percentages, treatment may be discontinued; but a differential count should be made subsequently at least once a month, and, on the return of distinctly abnormal percentages, radiation should be resumed immediately, without waiting for the appearance of any other manifestations of a relapse. This is one of the secrets of pro-

longing life in the most favorable cases. Arsenic should be avoided particularly at such times, as it tends to delay the appearance of the first signs of a relapse and the needed radiation.

7. Arsenic is frequently a valuable adjunct to radiation, as already explained, but it is too often misused. If radiation is to be regarded as the essential therapeutic agent, and there are no special indications for giving arsenic, it should be used with careful reservation, as it is likely to interfere seriously with the proper and adequate administration of the *x*-ray treatment. It should never be given in large doses during radiation. If for any reason the patient is obliged to discontinue the *x*-ray for any considerable period of time, arsenic should, of course, take its place.

8. Particular attention should be paid to the care of the skin from the very beginning, as the ultimate result or the duration of life, at least, may be largely dependent on the tolerance of the integument. A severe *x*-ray dermatitis always demands a cessation of treatment over a portion, or all, of the body, and this may be of sufficient duration to shorten the life of the patient a year or more.

Adequate *x*-ray filters should always be employed, and the applications made through the clothing as an additional precaution. The quality of the output of the *x*-ray tube should also be carefully watched. A dermatitis is far more likely to appear during the summer months. Whenever the skin begins to show a reaction, alcohol bathing should be advised, and talcum or stearate of zinc dusting-powder should be freely used, especially where skin surfaces are in contact or the clothing produces friction. It is well to give additional protection to the hands, which are not covered by clothing, and to protect the hair of the head and the external genitalia of males by lead screens.

Long-continued radiation will ultimately cause an atrophy of the glands of the skin. It has been contended that the resulting loss of the function of sweat-secretion is harmful. If undoubted proof of this should exist, it might be possible to protect the sweat-glands in some portions of the body where they are most numerous or best developed, as those of the axillæ, for example. We have never found any occasion for doing this, however.

9. Radiation is contra-indicated in practically all cases of acute leukemia, as it will only hasten death. The same may be said of many chronic cases during acute stages with associated severe toxemias, although considerable benefit may be derived from the treatment of some of these cases. When we do undertake to treat them, the greatest care is required in handling them. The dosage should be much reduced at the start, and the applications should be limited to the extremities until there are some definite signs of improvement. If the condition appears to become distinctly aggravated by the treatment, this should be discontinued; but if there seems to be any improvement, or even if the case appears to be made a trifle worse, radiation should be continued, and the dosage gradually increased with care, but kept within safe limits. To accomplish any good, this early toxic period must be passed over as soon as possible, and without intermissions unless absolutely necessary. In these grave cases it is a question of life or death, and many such patients have been allowed to die too soon for fear of doing harm before any harm has been done. We have carried several patients safely over such periods, even when others have hesitated or declined to treat them, and some of these patients are now alive and attending to their daily occupations.

10. Of all the patients who have responded in any way favorably to the treatment, it has been our experience that those of lymphatic type give somewhat better ultimate results than those of myelogenous type.

PSEUDOLEUKEMIA

In Hodgkin's disease the radiation must, of course, be directed to the localized enlargements. The more experience one has with the treatment of this disease the more he is inclined to regard it, from the therapeutic standpoint at least, as closely analogous to lymphosarcoma. The majority of cases certainly resemble the latter closely in the manner in which they react.

From the *x*-ray therapeutic point of view we might recognize three distinct groups of cases. To one group belongs a small percentage in which the enlargements are localized to one region, respond rather promptly to treatment, and either do not recur, or if they do, usually because of insufficient radiation, the recurrence is limited to the same area, without metastasis, and readily responds again. One case of this kind was treated four years ago, receiving less than twenty applications, and there has been no sign of a recurrence since.

The second group includes the majority of cases. In them the enlargements may be more or less localized, or general; they respond to treatment slowly, and not only recur invariably, but also give rise to metastases in nearby or even distant structures. These patients ultimately die as a rule, but we can do much toward prolonging life, sometimes for years, by keeping up a constant fight and attacking the metastases as they appear. We have now under treatment two patients with late spinal involvement which in one had appeared after all other demonstrable enlargements had subsided some time ago. Another patient with localized cervical enlargements died following rapid hepatic metastasis, which was not recognized until the autopsy.

In such cases with general enlargements, we can practically never expect a complete disappearance of those within the chest, abdomen or pelvis. With such patients we must pursue a more or less palliative course, and keep up the treatment indefinitely. It has been our custom to go as far as the skin will permit with vigorous treatment, or to keep it up until no further enlargements can be demonstrated, though they no doubt still exist, and then to continue the applications at less frequent intervals indefinitely. One each week may be all that is required to keep the patient alive, and practically well, for years. One of our patients has been kept comparatively well for five years in this way, although the enlargements become manifest in some one area or another if the applications are discontinued for any length of time.

To the third group belong a small percentage of cases which do not seem to respond to radiation, and some of which may be rendered so toxic as to necessitate its discontinuance.

A large percentage of cases of Hodgkin's disease will exhibit toxic phenomena a few hours after each of the earlier applications, and this is just as apt to occur in a case with a small localized group of glands of moderate size as in one with extremely large glands or wide-spread enlargements. The patient may complain only of a headache, but may have a slight chill and moderate rise of temperature. These phenomena follow only the first few treatments as a rule, but they are manifest so frequently that we have made it a rule to begin the treatment of all cases with diminished dosage, increasing it to a maximum gradually.

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ABSTRACT OF DISCUSSION

DR. JAMES TYSON, Philadelphia: I can add one instance to the report of Dr. Stengel and Dr. Pancoast, that of a young farmer who appeared to respond promptly to the application of the *x*-ray to the bone-shafts. After a time, however, he relapsed and a return to the use of the *x*-ray was not followed by a prompt response until the administration of arsenic was associated, when he again improved decidedly, and at last reports was in excellent shape.

DR. WALTER L. BIERING, Des Moines, Iowa: In view of the etiologic significance of bone-marrow changes to leukemia, I am sure we all recognize the logical application of the *x*-rays. While it cannot be considered a curative measure, it evidently has a favorable effect on the comfort of the individual and in prolonging life. In connection with the treatment of leukemia, an interesting observation was made during the past year in connection with a case of chronic myelocytic leukemia, which had been observed during the past three and one-half years. In January, 1912, immediately after a period when the leukocytosis was specially marked, averaging 350,000 leukocytes per cubic millimeter, and the other symptoms of leukemia being specially prominent, the patient developed a large carbuncle in the back. This led to a general septicemia, the predominating organism being the *Staphylococcus pyogenes aureus*. The carbuncle was excised in the surgical service of Dr. Fay, and the patient did not fully recover from this infection before the end of six weeks. During this period the blood-picture underwent a complete change, in that the leukocytes were reduced to 18,000, and the myelocytes from 45 to 3 per cent., while the polymorphonuclear leukocytes predominated to the extent of from 90 to 95 per cent. in the differential count.

The patient passed from observation immediately after his recovery from the infection and did not return to the hospital until two months later, when the leukemic blood-picture was again prominent. The leukemic blood-picture was replaced by that peculiar to a pyogenic infection. In view of the previous experience the patient was treated with staphylococcus vaccine prepared from a laboratory culture, and during the following two months a distinct change was noted in the blood-picture in that the leukocytes were reduced and the other leukemic features became less marked, but the effect was not nearly so striking as that produced by the infection in January. This antagonism between a pyogenic infection and leukemic processes has been observed before, and is rather suggestive of a close relationship between leukemic and sarcomatous processes, because the antagonism between pyogenic infection and sarcoma has been a frequent observation particularly in the older literature. The patient referred to has also undergone distinct remissions of improvement under *x*-ray treatment, but the change was not so marked as that produced by the pyogenic infection.

DR. ELLIOTT P. JOSLIN, Boston: I should like to ask if Dr. Stengel could give any idea regarding the duration of life of those so treated, and also the duration of life in a series of cases of leukemia untreated with the *x*-ray.

DR. ADONIRAM JUDSON QUIMBY, New York: I have treated at least twenty of these cases, more than half clinical patients at the Post-Graduate Hospital. I have not used arsenic in treating any of them. It has not been possible to follow the clinical cases so closely as would be desirable; I can recall only one or two which have terminated fatally and these patients were practically moribund when first seen. In all the others I have noted improvement, although some are still in bad condition. On the other hand, the cases I have in private practice I have been able to follow and have been much gratified by the results obtained, especially after treatment directed to the long bones, which were the only parts treated in several cases. The blood-count has shown considerable variation, but has been quite generally satisfactory. Several patients who have been under observation about two years have now practically a normal picture, and are continuing well.

DR. ALFRED STENGEL, Philadelphia: In answer to Dr. Joslin's question, I would say that the introduction of *x*-ray

treatment in the management of leukemia has been too recent to justify a statement as to whether the final results will be better than those of medical treatment. It is, of course, well known that patients with leukemia frequently survive for several years, sometimes without any treatment whatever. It will require, therefore, several years longer before one can definitely say how lasting a result may be achieved by *x*-rays. Perhaps I can give some answer, though less definite than Dr. Joslin would like. During twelve or fifteen years prior to the use of this treatment, I saw many cases of blood-disease including leukemia, and in all that time I can recall but one case in which under the use of arsenic the blood-picture returned to something approximating the normal. On the other hand, in the few years during which we have been employing the *x*-rays, several such cases have occurred and in a number of others I can state that the general condition of health was materially improved as I had never seen any patients improved by arsenic or other remedies. Dr. Pancoast has stated, and I entirely agree with him, that we have no ground for believing that the use of *x*-rays will cure leukemia, but on the other hand I have many reasons for thinking that it will delay the fatal termination of the disease.

The older literature contains quite a number of references to cases of leukemia apparently terminating favorably on the supervention of some infection. Among others, I recall certain milder infectious diseases of childhood and others in which more serious diseases like tuberculosis occurred. On account of this antagonism I treated several cases of leukemia by vaccination with cow-pox virus, hoping that this might prove effective. The number of cases so treated was small but none of them gave the least sign of encouragement. In several cases in our present series accidental infections occurred and in one of them a huge abscess developed under the muscles of the thigh following a hemorrhage into those tissues. The patient subsequently recovered but the infectious lesion had no effect whatever on the progress of the leukemia.

One feature in certain of the cases that have been under our treatment is that though the blood-picture altered little, if at all, the patient's strength and his capacity for work returned and aside from the blood examination one would have been compelled to regard the result as most satisfactory. Another point regarding this treatment that needs consideration is that the use of *x*-rays especially over the spleen acts in a hemolytic way and the red cell count is reduced. When this reaches a certain point, the treatment should be moderated or discontinued and an effort should be made toward restoring the quality of the blood.

ROENTGEN TREATMENT OF NON-MALIGNANT LESIONS *

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Realizing that Roentgen treatment in non-malignant lesions is too broad a subject to treat in detail in such a paper as this, I shall invite consideration of only a few of the more important phases of the subject. It may be taken for granted, at the outset, that Roentgen therapy has vindicated itself as an essential adjunct in the treatment of superficial non-malignant lesions, the part of the symposium I have been requested to take up, but there is still considerable difference of opinion as to the exact range of usefulness. Some dermatologists undervalue this method because they have seen failures, as well as harm done by injudicious treatment, and also because they are unable to apply this method properly or even to select the cases best suited to this

treatment. On the other hand, many roentgenologists who have observed brilliant results are overenthusiastic and advise Roentgen treatment in many cases which could be treated effectively by more simple methods, and cases in which nothing but failures could be expected. Therefore these enthusiasts treat a greater percentage of cases than is justifiable.

There is need of a definite classification not only by exact diagnosis, but also by the stage of pathologic changes. It can then readily be understood that the controversy as to Roentgen treatment is due to a deficiency in technic among many dermatologists, and a deficiency in diagnostic and pathologic knowledge among many roentgenologists. Incorrect treatment is as potent for harm as the correct is for good. Justice demands that the Roentgen rays be applied with care and skill, not only in cases in which it is the best method of treatment but also in cases in which it is an essential adjunct to other methods. The successful therapist must be master of his technic, whether it be roentgenology or medication. It is well known that the reaction varies from a simple transient erythema to a deep-seated inflammation with sloughing, thus producing all the stages of a burn.

I shall omit the different degrees of Roentgen dermatitis, as they are well known to all at the present time. That the same dosage of *x*-ray effects tissues differently is also generally understood. It has been explained often how frequently glands undergo a fibrous degeneration without injuring the surrounding tissues, and it would be only a waste of time to review this part of the subject.

It has been repeatedly demonstrated that pathologic cells are less resistant to the rays than the normal; thus, diseased cells may be destroyed while at the same time the surrounding healthy tissue may be little affected or may even be stimulated. The therapeutic indications for the Roentgen rays are the removal of hair; the diminution of the functional activity or atrophy of sebaceous glands; the destruction of microorganisms in living tissue; the alteration of metabolism, either general or local; the destruction of pathologic formations, and the analgesic action on pruritus and in malignant tumors. These indications are based on pathologic and clinical findings, and in a general way should be of some assistance to those who have had even no experience in determining diseases in which the rays are applicable. In some instances more than one action of the rays may be indicated and the application of the rays affords rather a wide field of usefulness.

CLASSIFICATION OF CUTANEOUS LESIONS

It would simplify Roentgen therapy if the non-malignant superficial lesions could be classified into: (1) cases in which the rays are the best single method of treatment; (2) cases in which the *x*-ray should be employed in conjunction with other methods; (3) cases in which the rays will cure the lesion, though not so well as other remedies; (4) cases in which the Roentgen rays are contra-indicated. The pathology of the lesions, however, are so diversified in the same disease, that even such classification would necessarily be inaccurate.

Possibly in no field of medicine has there been so much difficulty in determining a classification as in the cutaneous lesions. The problem has been a favorite study of the dermatologist for more than a century, and at present there are over 300 classified diseases of more or less uncertain pathology. The principles in Roentgen treatment differ in no respect from those which govern

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pharmaceutic remedies. Recognition of the correct pathologic stage of the disease is just as essential as the diagnosis itself, in determining and influencing the treatment. Cases in which Roentgen therapy is indicated do not run an acute course, as a rule, and are not self-limited and the patients will not recover in spite of bungling treatment. It is just as inexcusable, as well as inadvisable, to treat a premature alopecia with the *x*-ray, as it is advisable to treat ringworm of the scalp by this method. In premature alopecia there is an early degenerative change and therefore only stimulating treatment is advisable, while in ringworm of the scalp there is a microorganism, and the object is to remove the hair without producing any degeneration. Errors in such cases are fortunately becoming less and, with the proper therapeutic understanding, should entirely disappear. In most cases in which this method is advocated only local measures are required. The proper constitutional management in many diseases is, however, important. It is necessary to build up and maintain the strength of the patient, as this has a potent influence in the permanency of cure. To attain more than the average success in this line of therapy, the physician must have a good foundation of general medicine, as well as a special roentgenologic knowledge.

DISEASES THAT ARE BENEFITED BY ROENTGEN RAYS

Much benefit has been derived from *x*-ray therapy in a number of the inflammatory skin diseases, such as eczema, psoriasis, lichen planus, lupus erythematosus, etc., in all of which the skin is thickened and indurated as the result of a chronic inflammatory process. The proper amount of radiation given at the proper intervals will often produce sufficient stimulation of the tissue to cause absorption of the inflammatory exudate. Since the etiology and pathology of the various inflammatory diseases are different, the amount of treatment and even the length of time vary the same as other therapeutic agents. It is in this class of cases, as a rule, that the roentgenologist depends entirely on the rays to effect a cure, whereas it may be advisable to use other adjuvants.

I was called in consultation recently with a physician who had been applying the rays for a case of eczema in an elderly patient; the tissues were already of low vitality, and he had been giving the same amount of radiation that he had given in a case of epithelioma which he had treated successfully. When treatment is applied over a large area of tissue which is of low vitality, for the purpose of stimulating the absorption of the inflammatory exudate, it must be mild in comparison with that necessary to produce destruction of tissue as in epithelioma. Otherwise harm instead of benefit may be the result. In many such cases the *x*-ray is inadvisable, inasmuch as stimulating medication will often readily effect a cure. We should reserve this form of treatment for the recurrent and the very chronic cases. One is occasionally greatly surprised at the results which can be accomplished in from five to ten treatments in cases of chronic eczema which have resisted all other treatment and have gone the rounds of the various physicians. I have found the application of the *x*-ray beneficial in many cases of chronic eczema of the hands. Many observers have noted the fact that after a few applications of the Roentgen rays the discharge and itching ceased and the desquamation was arrested.

Sehamberg mentions the value of the *x*-ray in recurrent vesicular eczema of the hands and feet. He states that in no other form of the disease is radiotherapy so uniformly successful and that it secures a greater per-

manence of cure than any other method. In scaly eczemas of the palms and soles the results are less certain.

The *x*-ray is a valuable accessory to the treatment of psoriasis. Under moderate exposures at proper intervals, according to the amount of *x*-radiation, psoriasis usually completely disappears. The treatment should be given cautiously in order to avoid the production of a dermatitis, and extreme caution should be exercised if it is given over large surfaces. The treatment is far more agreeable to the patient than any of the other forms of treatment, and is often successful in rebellious and obstinate cases that had practically resisted all other methods of treatment. It is generally conceded that there are fewer recurrences and that the intervals between attacks are prolonged. Besides, the recurrence is usually of a milder type, which will nearly always yield to medication after the patches have once been made to disappear by the *x*-ray.

Authorities have agreed that either the Roentgen rays or Finsen light constitutes the most efficient treatment we have for lupus vulgaris, but the routine application of the *x*-ray in the treatment of lupus erythematosus has been disappointing. A study of the pathology will show why the rays have only a limited use in lupus erythematosus. That the name suggests essential relationship to lupus vulgaris is unfortunate. Except in distribution and in its broadest features, it does not, as a rule, suggest lupus vulgaris, and it is not a form of tuberculosis of the skin. Lupus erythematosus is characterized by well-defined reddish patches, covered with grayish scales, adhering to the surface and tending to atrophy; while lupus vulgaris is a tuberculous, cellular new growth, consisting of papules, nodules and flat infiltrations, usually terminating in ulceration and scarring. In lupus erythematosus there are two distinct types of cases which require entirely different treatment. The superficial type, with red patches and dilated blood-vessels, should be treated with the milder remedies, including sedatives; whereas the interstitial, with infiltrated patches and horny crusts, can be successfully treated only by stimulating and even more heroic measures. This is one of the reasons why it has been frequently stated that the *x*-ray in some cases aggravates the condition and causes spreading of the disease. The cases most benefited by the *x*-ray are those in which the chronic infiltrated patches, with hypertrophy of the sebaceous glands, predominate. Roentgen therapy should be employed with special care in lupus erythematosus. Many authorities are impressed with the results of carbon dioxid in lupus erythematosus, and believe that it is superior to any other method in which the more radical procedures are employed.

There is universal testimony that excellent results from the Roentgen method of lupus vulgaris are just as marked as the Finsen method. The scars are soft, white and flexible, not showing the usual keloid-like character of the scars following removal by other methods. There are also fewer recurrences. On account of the *x*-ray being more easily applied, at present it seems to have the preference over Finsen therapy.

Roentgen therapy is not a satisfactory method for the permanent removal of hair. It is necessary to produce a permanent atrophy of the hair follicles and in so doing there is danger of producing atrophy of the surrounding structures. Results may be secured in a certain percentage of cases, but in my opinion the method should not be undertaken except in extreme conditions and with the full understanding that even if

the exposures are kept within the bounds of safety, improvement is altogether uncertain.

The *x*-ray as an epilating agent, as a rule, should be reserved for favus and ringworm of the scalp, in which we wish both to remove the hair and to destroy the microorganism. The excellent results of Sabraud and others are well known and need no further explanation.

In private practice one only occasionally sees favus and tinea tonsurans, and in this country the majority of the work done has been in institutions. Excellent results in both sycosis vulgaris and tinea sycosis have been obtained. The amount of *x*-radiation here, as in other lesions mentioned, depends on the etiology and pathology of the disease in question. In tinea sycosis it is necessary to epilate the hairs completely in order to remove the organism in the tissue, while in sycosis vulgaris the patients usually recover long before the hairs fall out, and often many times before the slightest erythema is observed. One of the reasons for mentioning the difference in treatment between sycosis vulgaris and tinea sycosis is that one of the recent text-books of roentgenology, which has the ground well covered in roentgenography, covers the subject of Roentgen therapy for sycosis in two lines and one-half. I suppose tinea sycosis is meant, but to any one just taking up Roentgen therapy it certainly would not be clear which form was under discussion. The physician who approaches the study of Roentgen therapy finds the literature full of just such puzzling problems.

In acne vulgaris, I consider that the *x*-ray is the most important single therapeutic measure we possess, but other measures should usually be combined with this form of treatment. The *x*-ray is applicable in all stubborn forms of acne vulgaris and the results are particularly marked in the most severe pustular cases. In acne rosacea we have a different pathologic condition from that of acne vulgaris. Radiation should be carried only to the point of decreasing the activity of the sebaceous glands, which causes absorption of a large amount of the hypertrophic growth of connective tissue. The destruction of the small vessels should be accomplished by other methods, such as electrolysis. In lesions of this type it is never advisable to push radiation to the point of destroying all the small vessels.

It is a fact that the common mistake in the treatment of acne is made by overdosage for a short period or underdosage too long continued. Either produces complete atrophy of the sebaceous glands, while partial or temporary atrophy is all that is necessary to effect a cure. When permanent atrophy is produced acne will not recur; but such condition of the skin is worse than the disease itself.

Lately I have observed amazing results from a few applications of the rays in hyperhidrosis, and results can be accomplished in a few treatments without the production of any noticeable reaction in the skin.

The destruction of new growths by the rays has brought about considerable controversy which is still going on. Because the rays will destroy tissue of low resistance without destruction to the healthy stroma, some have gone to the extreme of applying this method injudiciously, whether it is for the removal of a simple benign wart or mole or for a large malignant tumor. This has brought much discredit to Roentgen therapy. The fact that a physician has an *x*-ray machine or that a wart or mole can be removed by a number of treatments does not justify the selection of this agent. This is what I have repeatedly seen done by many, when a single application of electrolysis, high-frequency spark

or excision under a local anesthetic would have accomplished the same result.

The *x*-ray is indicated for multiple glandular tumors of any size, unless produced by an acute inflammatory process. It is to be particularly noted that the end-results in tuberculous adenitis are better than in any other form of the glandular growths. Glandular enlargements constitute a broad subject and will not be further discussed.

Before the employment of the Roentgen rays for the treatment of keloid, results were very unsatisfactory. Many have been able to convert large keloids into flat, flexible white scars by the application of the *x*-ray. Large hypertrophic scars can be treated with the same result. I have secured several good results in cases in which the keloid was large and somewhat resistant to the *x*-ray by having the growth excised and then giving a few additional radiations.

In conclusion, the distinctions drawn in this paper in which the *x*-ray is indicated and others in which it is contra-indicated, and still others in which the ideal treatment combines the *x*-ray and medication, it follows logically that the roentgenologist must be an expert dermatologist and vice versa. To my mind many unsuccessful results can be expected by roentgenologists applying the rays with little or no dermatologic knowledge or, on the other hand, by dermatologists using an agent about which they know little or absolutely nothing. It is my firm belief that there will be a specialty known under the combined name or title of roentgodermatology or dermatoroentgenology.

ABSTRACT OF DISCUSSION

DR. HENRY K. PANCOAST, Philadelphia: Dr. Boggs' assertion that *x*-ray men should be dermatologists must be more valid if he so modified it as to imply that a roentgenologist should not treat skin diseases unless he is a dermatologist as well. Radiation is the only generally successful method of treating keloid. When used alone, the treatment must be long continued, but experience has shown that excision, when possible, and subsequent postoperative radiation, are just as efficient, and in much shorter time. The results in tuberculous adenitis make this one of the most satisfactory conditions to treat by radiation. A decided skin reaction is essential before sufficient radiation has been applied to exert the necessary degree of stimulation in healthy tissue or cells, and at the same time a destructive effect on those of lowered vitality, in connection with which absorption must be promoted. The destruction of the organism is accomplished indirectly through the reaction induced in the tissues. General systemic measures and the closing of avenues of infection are most essential as adjuncts to the treatment and in the prevention of recurrence. The treatment should be modified in accordance with three types of cases. In the first, with enlargements which formerly would have been regarded as having just reached an operable stage, radiation, if properly applied, should be the only local measure required in all instances. The second group includes cases with one or a few very large glands not yet undergoing perceptible caseation. Conservatively speaking, most of these are primarily operative cases, but only the largest glands need be excised, the smaller ones being left to postoperative radiation, thus simplifying the operation and minimizing the scarring. The third group embraces cases which have passed beyond the stage of beginning caseation, and which are primarily operative. Here again, postoperative radiation will simplify the operation, and in addition, will promote healing of sinuses, and also yield far better cosmetic results by minimizing scar formation or reducing excessive scar tissue.

DR. H. F. PITCHER, Haverhill, Mass.: Psoriasis is certainly incurable in most cases. I had a case when I first started in Roentgen treatment. The patient, a man, 55 years old, had

had psoriasis thirty years. He had been treated by some of the best dermatologists in this country and Europe. His body and head, except his face, were practically covered with scales; he was bald. Every morning he swept up from out the sheets enough scales to fill a dustpan. He was a widower and was to be married within the next six months and wished to have a clean skin. It was the first case I had treated with the Roentgen rays. The patient was recommended to me by a dermatologist of Boston, who had seen the treatment in Germany but had never used it himself and was much interested in the outcome. I began to treat one section of the body at a time, giving ten- or fifteen-minute treatments, but the patient was so impatient that he could not wait for so slow a process, but wanted one to treat the whole body at one time. So I treated different sections for about ten minutes at a time and gave him hourly treatments twice a week. The patches cleared up very rapidly and in about six weeks he was practically clear of the scales. When I came back from my vacation at the end of a month, he was nearly as bad as ever. I omitted proteins from his diet and gave high colonic injections; I also gave him the *x*-ray treatments three times a week. In about three months he was practically well and has remained so for twelve years.

DR. ALFRED L. GRAY, Richmond, Va.: A surgeon on the staff of one of the largest hospitals in America was much surprised to hear me say that I had had good success in the treatment of tuberculous glands. I began the treatment of tuberculous glands with much skepticism. The patient, a young society girl, had a brother who had had a number of glands removed from his neck about twelve months before, leaving a wound that was slow to heal and an ugly scar. This young lady had a large tuberculous mass just in the submastoid region and in seventeen treatments she was apparently cured. She never had a recurrence and I was as much surprised as the physician who sent her to me. There is one thing it might be well to bear in mind. Long-standing cases of tuberculous glands require a series of treatments and often the scar tissue which has necessarily formed will require some time to be absorbed and disappear. The consequence is that while the glands may be greatly reduced during treatment, they may not entirely disappear for six months or a year afterward. If the gland is not suppurating I can probably make it go away, but if it is I will make it break down more quickly, so that it can be incised and drained. The destructive effect of the *x*-ray on the gland tissue that is already breaking down will cause a more complete and rapid disintegration. On the other hand, if it will break down slowly without suppuration the material can be gradually absorbed so that the gland will steadily and painlessly disappear. I believe, after my experience in treating tuberculous glands, that there is perhaps no case in which a surgeon is justified in excising a non-suppurating tuberculous gland if the *x*-ray is available.

DR. GEORGE E. PFAHLER, Philadelphia: The Roentgen treatment of fibroid of the uterus, which comes under these benign tissue growths, has become such an established form of treatment connected with the leading gynecologic clinics in which the treatment is recommended favorably, that we are bound to give it some attention. I have treated twenty-four patients and some of them are well five and six years after treatment. In no line of treatment have my results been so uniformly good, so that I am really enthusiastic in the treatment. The technic is that used in all deep-seated work.

DR. SIDNEY LANGE, Cincinnati: The influence of the *x*-ray on the thymus is not very well known. Its influence is so pronounced and so positive that it seems to me almost a specific form of medication for enlargement of the thymus in very young children, or persistent thymus in older children. The first application of *x*-ray to an enlarged thymus was made in 1903 by Friedlander and Crane. The child made a complete recovery and is now living and well. Since that time but one other case (except my own series) has been recorded by Myers of Minneapolis in which this form of treatment was tried with good results. Several years ago I was asked to make a series of experiments on young animals to prove this action. I selected young rabbits since they have a relatively enlarged thymus and in a careful series of experiments,

all of the experiments being carefully controlled, I found that very few *x*-ray exposures would cause atrophy of the thymus. Since the thymus tissue is a very young tissue more or less embryonal in type and destined to disappear ultimately, the cells are not of the highly differentiated fixed type of the organism and are very susceptible to radiation. I found that the thymus of a young rabbit could be made to disappear in a period of three weeks, without causing Roentgen alopecia of the anterior surface of the chest, showing how susceptible the thymus tissue is to the *x*-ray. These experiments were preceded by several successful cases that we had treated. Following the experiments I was fortunate enough to treat three or four more, in all of which there was a positive improvement at once. The microscope has backed up these experiments showing the influence of the *x*-ray in a very remarkable way and by such a simple experiment anyone can satisfy himself of this action in a few weeks' time. The thymus cells begin to show granules, the nuclei become fragmented, disappear and the thymus cells diminish in number and overgrowth of connective tissue occurs. Some of the rabbits were killed after ten or twelve exposures and just shriveled remains of the thymus were found, whereas the control rabbit had big white plump glands.

I am convinced that this condition is overlooked in many children; some of them die with intercurrent disease or the condition may be diagnosed as enlarged mediastinal glands; some of the cases are passed over as congenital heart disease. A few *x*-ray exposures in case of doubt might clear up the condition and in such doubtful cases the *x*-ray may be applied as a therapeutic test. If the condition is an enlarged thymus improvement should follow. *X*-ray exposures may thus serve to differentiate this condition.

DR. OLIVER T. OSBORNE, New Haven, Conn.: How does the treatment of the enlarged thymus affect the thyroid gland? Is there any inhibition of thyroid secretion? What is the value of Roentgen therapy in Graves' disease?

DR. RUSSELL H. BOGGS, Pittsburgh: The subject is entirely too broad and too important to discuss in a few words. I might state, however, that brilliant results have been obtained in marked exophthalmos, even reduction of the size of the thyroid with entire relief of the symptoms after a few *x*-ray treatments.

ESSENTIAL, OR PRIMARY, LATERAL SCLEROSIS *

JAMES HENDRIE LLOYD, M.D.

AND

S. D. W. LUDLUM, M.D.

PHILADELPHIA

CLINICAL REPORT BY DR. LLOYD

This subject, as I understand it, remains at the present time in much the same state as it was in nearly forty years ago. Even the definition of the term is not more precise; therefore, before the subject itself is discussed, this matter of definition should be considered.

By *primary* lateral sclerosis, as the term is commonly used, seems to be meant a disease of the lateral, or motor, tracts, which is not the result of a secondary degeneration following on an initial lesion cutting off the degenerated tracts from the motor cortex of the brain. The process of wallerian degeneration in the motor tract is well known; it follows on a lesion cutting off the motor fibers from their cell bodies in the brain cortex; it is largely a downward degeneration, although not exclusively so, for upward degeneration is also noted. Such a lesion can be of any kind and anywhere in the course of the upper motor neurons. It may be a hemorrhage or a tumor or a spot of softening in the brain;

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

or it may be a trauma or a meningomyelitis in the spinal cord. All that is required is that it should cut the motor fibers somewhere in their course and thus set up a descending, or wallerian, degeneration. This is such a well-known pathologic picture that it need not be enlarged on. It is seen in hemiplegia, in transverse myelitis, in syphilitic meningomyelitis, in trauma of the spinal cord, in multiple sclerosis, in syringomyelia and in other lesions.

In primary lateral sclerosis, if such a disease really exists, there is no such focal lesion, but the degeneration of the lateral tracts is *sui generis*. It occurs by reason of a disease process which is, in a sense, spontaneous in the lateral tracts themselves. In order, however, that this somewhat ideal state should exist, there are several requirements. In the first place, the process should exist only in the lateral tracts and should not extend to them from surrounding tissue, as for instance, from a myelitis or a meningitis. In the second place, as already said, it should not arise from a focus of disease situated cephalad of the degeneration. In the third place, it should not be associated with any other system disease, as in the posterior columns or in the anterior horns.

There is one disease, which will occur to all, in which in a sense the disease of the lateral tracts is apparently a primary sclerosis. I refer to amyotrophic lateral sclerosis. This is primary in the sense that it does not follow any known focal lesion; the lateral tracts simply become involved, more or less as a whole, in the cord; in other words, it is a system disease. But amyotrophic lateral sclerosis is associated with disease of the anterior horns; consequently it is not a purely lateral tract disease. It is also sometimes associated with bulbar paralysis. Therefore, it seems to me, if we wish to distinguish a purely lateral-tract system disease, of the kind here indicated, a better term for it would be "essential lateral sclerosis." The disease would be primary, of course, but this term, as I have said, applies also to amyotrophic lateral sclerosis. By the term "essential" would be indicated the fact that the disease is a purely system disease confined to the lateral tracts.

The problem involved in this conception has engaged the attention of neurologists for many years. It is not a new subject. Erb is usually credited with having had such a disease in mind when in 1875 he wrote of spastic spinal paralysis, but this term can include much more than the affection here discussed.¹ Charcot about the same time came nearer to hitting on this idea when he wrote of *tabes spasmodique*. This is a happy term, because it points to an essential lateral sclerosis in much the same sense as ordinary tabes is regarded as a system disease of the posterior columns. The two affections might be considered analogous, one in the lateral, the other in the posterior, tracts. Gowers, in his text-book, wrote a rather extensive chapter on primary lateral sclerosis, in which, however, beyond discussing the subject as a pathologic problem, he really contributed little if anything to its solution. It is not my intention to go into an extended discussion of the literature of the subject. In recent years Spiller² has published a paper, based on eight cases, but these cases were mostly

examples of amyotrophic lateral sclerosis. Gordon,³ in 1911, reported a very interesting case, which came as near as any case I have read about to being a true example of essential lateral sclerosis. He also cited a number of examples from other observers.

Dr. Mills' name is identified with the condition known as unilateral, progressive, ascending paralysis, in which the lateral tract of one side is first involved, and the leg is affected before the arm.⁴ In such cases, I think, observation extending over a long period tends to show that the disease in time becomes bilateral. Mills' disease may therefore be a true example of a progressive, essential, lateral sclerosis. It is probably a very rare affection. I think, however, that all cases in which in the course of time the anterior horns become involved, and especially in which bulbar symptoms develop later, should be excluded from the category of primary or essential lateral sclerosis. This exclusion applies equally, of course, to the early stages of multiple sclerosis, in which the lateral tract may be among the first parts involved.

Little's disease has been described by some authors as though it were essentially a lateral sclerosis, but Little's disease is properly a birth-palsy and in the majority of cases is doubtless due to trauma. Besides, the term is a bad one and has probably been made to include various diseases.

The relationship of amyotrophic lateral sclerosis to progressive muscular atrophy is doubtless a close one—in fact, the two may be only different expressions of one and the same pathologic process. But this is a subject which need not be discussed here. It leaves untouched the question whether we have such a disease as essential lateral sclerosis.

From the clinical standpoint something can be said in favor of an essential lateral sclerosis. I have certainly seen cases (although they are not frequent) in which no parts of the cord appeared to be involved except the lateral tracts; in which the disease was apparently not the result of a focal lesion, or of a meningomyelitis; the sphincters were not involved; there was no true muscular atrophy, and the condition was progressive. Only recently I have seen such a case in the Philadelphia Hospital.

CASE 1.—The patient, a man, began two years ago to have a sense of pain or fatigue in his spine. He began to lose power and gradually developed a spastic paralysis in all four limbs. He is now the victim of a hypertonia, with loss of power in his arms and legs, the arms being almost as much involved as the legs. The deep reflexes of the arms and legs are all much exaggerated. The bladder and bowel are not implicated. There is no more atrophy than could be explained by disuse, unless it be in some of the small muscles of the hands. A few very faint fibrillary tremors are sometimes detected in the shoulder muscles. There are no bulbar symptoms. The only doubtful element in the case is the condition of sensation. The patient has been frequently tested by various observers, and the results obtained are not uniform. Sometimes there has been apparently an entire hemianesthesia, but again he has shown a large segmental band of anesthesia involving his whole trunk. But he has been so frequently examined in hospital routine that I suspect that these varying and incongruous phenomena are probably the results of suggestion—in other words, hysterical. When I last examined him a few days ago he maintained that he could distinguish touch in hardly any region of his body, even the face. I know no organic lesion which would cause such a wide-spread loss of sensation. It is difficult for me to see how a meningomyelitis could be so

1. Erb returned to this subject in an address in London in 1902, in which he referred to ten cases gathered from the literature, which he regarded as true examples of primary bilateral sclerosis (Lancet, London, 1902, p. 970).

2. Spiller: Univ. of Pennsylvania Med. Bull., 1905. In another paper, read before the American Neurological Association at Boston a few days before my paper was read at Atlantic City, Dr. Spiller discussed the subject of syphilis as a cause of spinal muscular atrophy, lateral sclerosis and amyotrophic lateral sclerosis. I have not had the opportunity of reading this paper.

3. Gordon: New York Med. Jour., Jan. 6, 1912.

4. Mills: Jour. Nerv. and Ment. Dis., April, 1900; July, 1903; THE JOURNAL A. M. A., Nov. 17, 1906, p. 1638.

extensive as thus to involve both arms and both legs, without involving the sphincters, or the anterior horns, or without giving definite and constant sensory symptoms. The lateral tracts are alone indubitably involved, and in their whole extent. The man denies syphilis, but the Wassermann test is positive. An x-ray picture shows no lesion of the cervical vertebra.

The following case from the same clinic is also suggestive of an essential and ascending primary sclerosis, although syphilis cannot be excluded. Indeed syphilis is doubtless the cause. There is also a history of exposure to lead.

CASE 2.—J. D. White, aged 33, plumber, noticed five years ago that he easily became tired in his legs. For example, he found difficulty in lifting his feet while climbing stairs. The condition very gradually grew worse until the present condition of loss of power was reached. He has been unable to work for three and a half years. While he was still able to work after the weakness started, he experienced pain over the lumbar spine during any manual labor.

Nervous Examination.—Gait: Patient is unable to walk. Station: He can stand on his legs, but only with a great deal of difficulty. He loses balance as soon as his eyes are closed. Legs are spastic to passive movements. There is no spasticity of the arms. Reflexes: All reflexes of the upper extremities and of the shoulder-girdle are exaggerated. There is slight paralysis of the extensor muscles of the forearms. Reflexes of the lower extremities are very markedly exaggerated and the Babinski sign and ankle and patellar clonus are present. Abdominal reflexes are absent; cremasteric reflexes are present. There is no muscular atrophy. Sensation: All modes of sensation are intact. The bowel is not involved. The patient urinates more frequently than usual. He must perform the act as soon as he has the desire. The stream is forced, but dribbles out. Eyes negative.

Laboratory Findings.—X-ray of dorsal lumbar spine negative. Wassermann positive. Blood examined for basophilic degeneration to prove or disprove lead-poisoning, negative. Urine, negative. This case may possibly be an example of spinal syphilis, in which the meninges are involved, but the gradual and late involvement of the upper extremities is rather against this view.

I have but one suggestion to make in reference to this whole subject, and that is on the question of syphilis. Have we a syphilitic disease of the cord in which the whole expression of the disease is manifested in the lateral tracts, but which is not the result of a meningo-myelitis? Is there a true parenchymatous disease of the motor protonuron—a disease which might be called an analog to posterior sclerosis? I am aware of the fact that opinions differ about the initial lesion in tabes, whether it is a meningitis, or a disease of the posterior roots, or, as Ferrier seems to maintain, whether it is merely a degeneration of the neuron itself. These are fine points, but, with reference to the lateral tracts, they seem to take us back to Charcot's idea of a *tabes spasmodique*. The Wassermann test will doubtless have something to do with settling the question of their syphilitic nature, and the pathologists will have to do the rest. It remains to be determined whether such cases as I have had in mind are really the result of a syphilitic process, in which the blood-vessels and the meninges are primarily involved, or whether they represent a purely degenerative disease of the lateral tracts. It is possible that Dr. Ludlum's study of our case may throw some light on this obscure question.

PATHOLOGIC REPORT BY DR. LUDLUM

The object of this paper is to emphasize three points:

1. The exhaustion theory, which has been shown to be applicable to tabes by Edinger, is that biochemical

changes in the blood in cases of syphilis retard the anabolic processes in the cells, of which the catabolic changes due to function overbalance the anabolic ones. Mott has shown in tabes that the distal ends of the neurons degenerate before the portions adjacent to the supposed thickened pia. This, we think, would be more applicable to primary lateral sclerosis than to tabes.

2. Another fact is that the point at which the degeneration is demarcated is, in most cases of lateral sclerosis, exactly at the decussation of the pyramids, which point is also where the basilar artery divides into the two vertebrales and they in turn give off the anterior spinal arteries.

3. In the case here examined, there was a lymphocytic infiltration of the pia which is distinctly suggestive of syphilis.

CASE 3.—The patient was a man of 70 years. He had been on his feet at work until shortly before his admission. His legs first were weak and then quickly became spastic. The arms showed no loss of strength but were unsteady when voluntarily moved; the reflexes slightly increased. The lower limbs were drawn up and so spastic that it was difficult to elicit any reflexes. A sufficient response to stroking the sole of the foot was made to establish a Babinski reflex. There was no deviation from normal sensory phenomena other than could be explained by mental confusion. The sphincters had become paralyzed because of their spastic condition and resulting distention. There was no atrophy of muscle in upper or lower limbs or in cranial distribution. The picture was one of paraplegia. The brain presented no gross lesion other than a small area of softening in the right parieto-occipital region which was in no relation to any motor fibers.

The cord showed no gross lesions; the vessels of brain and cord were sclerotic but not markedly so. The membranes appeared normal. Microscopic sections were normal of internal capsules, peduncles and pons. Just below the decussation of the pyramids, sclerosis of the crossed motor tracts was plainly discernible, perhaps more on one side than on the other. This observation was repeated in the thoracic and lumbar regions. In all levels of the cord, the cells in the gray areas were normal in appearance and number; that is, they were normal for a man the age of this patient, and there was no evidence to make one think that they were diseased. Throughout the length of the cord, the anterior and posterior roots showed no degeneration. The pia about the cord displayed a mild lymphocytic infiltration, not such as we see in acute disturbances, but as is observed in long standing states, notably syphilis.

In three cases recently examined clinically, a positive Wassermann reaction gave positive results. There is a striking resemblance between all tract degenerations, such as amyotrophic lateral sclerosis, essential lateral sclerosis, and tabes, namely, that this infiltration is seen and that syphilis is usually present.

Thus it would appear that the overaction or exhaustion of certain sets of neurons in a serum in which there is a distinct chemical alteration, as when syphilis is present, would result in the degeneration of that system abiotogenetically the weakest.

116 South Twenty-First Street—216 South Fifteenth Street.

ABSTRACT OF DISCUSSION

DR. WILLIAM G. SPILLER, Philadelphia: In the syphilitic systemic diseases of the motor tracts, I include lateral sclerosis, amyotrophic lateral sclerosis and progressive spinal muscular atrophy. I have not come to the conclusion that all such cases are syphilitic in origin, but I think a portion of them are.

For many years the syphilitic origin of tabes was a disputed subject. We find in tabes a systemic degeneration of the

posterior columns. In some of these cases there is a slight infiltration of the pia and little or no thickening of the blood-vessels. I see no reason why we should not have a syphilitic degeneration of the motor system. I am not convinced that muscular atrophy occurring with syphilitic disease of the spinal cord is merely an associated condition. In determining the possible syphilitic origin of spinal cord disease from a pathologic standpoint, independently of the Wassermann reaction, we should depend, I think, on lymphocytic infiltration of the meninges and thickening of the blood-vessels. In some cases we will not find even this infiltration. We ought to find it, however, with a frequency which would suggest a syphilitic origin. I believe that a lymphocytic infiltration is of the greatest value from a pathologic diagnostic standpoint with reference to syphilis. It is not pathognomonic of syphilis but merely one of the links in the chain of evidence. That is the whole trend of modern German thought, as shown in a recent paper by Nonne, who has said that lymphocytosis of the cerebrospinal fluid occurs in the true syphilitic and parasymphilitic diseases of the nervous system, whether they are progressive or have been arrested. The cause of this lymphocytosis is to be found in meningitis. Lymphocytosis of the cerebrospinal fluid occurs in a considerable number of individuals who have been infected with syphilis but have shown no symptoms. Nonne believes that only those syphilitic persons develop nervous syphilis who have a lymphocytosis persisting after antisymphilitic treatment. He believes also that the lymphocytosis may be influenced by antisymphilitic treatment (*Deutsch. Ztschr. f. Nervenhe.*, xliii, Nos. 3-6).

In lymphocytosis, therefore, we have a very valuable sign of syphilis. It is not absolutely pathognomonic, of course. There are very few signs that are pathognomonic. The Wassermann sign is of the greatest value in syphilis but it has been found in measles and scarlet fever, and has been reported as occurring in lead-poisoning, and lymphocytosis occurs in various conditions, poliomyelitis, for example, but usually we can exclude such conditions in judging of the syphilitic origin of a disease.

DR. C. L. DANA, New York: Dr. Spiller has deviated a little from the subject of primary lateral sclerosis, though I agree with his sentiment as to the importance of the syphilitic factor in some types of progressive muscular atrophy. The point Dr. Lloyd brings up for discussion is whether there is not a progressive lateral sclerosis which goes on in just the same way as a progressive posterior spinal sclerosis, i. e., tabes, and due probably in some cases if not in all to syphilis. Now, I am absolutely sure clinically that there is such a disease. I have seen and watched for a number of years patients who have begun with the ordinary symptoms of Erb's spinal paralysis. These patients developed a progressive spinal spastic paraplegia, year after year getting a little worse and worse, and going on in just the same way progressive tabetics do, when we do not get them under control. This so impressed me some years ago that I have taught that syphilitic spinal paraplegia has two types, in one of which the disease becomes arrested or practically recovers, while in the other the disease goes steadily on with perhaps some arrest or temporary remission, forming a progressive spastic paraplegia of luetic origin. I can quite confirm Dr. Lloyd's opinion that there is such a condition. I know there is clinically; and I always expect when I get a case of spinal paralysis of luetic origin to have it either controlled and cured or else to have it go on steadily like a tabes, to which it has absolute analogies.

DR. ALFRED GORDON, Philadelphia: In my work to which Dr. Lloyd has reference I was unable to determine any evidence of involvement of any other tract except the cross pyramidal beginning at the level of decussation. The patient presented a primary paralysis downward. The question is what could be the nature of the trouble. There is no question but that syphilitic infection may produce all varieties of organic affections of the central nervous system. Philadelphians will recall that I exhibited a case of a middle-aged woman who had a number of miscarriages, who developed and

presented on several occasions a strong positive Wassermann reaction, and who developed a progressive muscular atrophy of Aran-Duchenne's type also in the peroneal group of muscles. That case was unquestionably to my mind one of the class to which Dr. Spiller referred, and there is no doubt that syphilis is capable of producing primary lateral sclerosis. But how about those cases in which we do not find lymphocytic infiltration or any evidence of syphilis? It is in such cases that there must be something inherent, something congenital, some defect, some anomaly in construction and development, a primary anomaly in the pyramidal tract. I believe that the cases, beginning with Erb's and Charcot's and those following, including Dr. Lloyd's case and my own, must belong, like amyotrophic lateral sclerosis, syringomyelia and progressive muscular atrophy, to an anomalous non-syphilitic class, to abiotrophies.

DR. W. M. LESZYNSKY, New York: Since the introduction of the study of the cerebrospinal fluid and the serum Wassermann reaction, I have made it a point to have my patients brought to the hospital and carefully studied in that regard. Within the last year, I have had several patients of this type, cases that are familiar to all of you clinically. A woman, aged 25, without any history of syphilis, or traumatism, or previous history of acute spinal cord trouble, gradually develops the usual type of spastic paraplegia with the customary symptomatology. Careful study of the cerebrospinal fluid reveals no lymphocytosis, or any of the different phases, described as indicating syphilitic infection, and the serum Wassermann reaction is negative. In spite of negative laboratory findings, patients of this type have been given a thorough course of antisymphilitic treatment without benefit. Such patients cannot consistently have their disease ascribed to a syphilitic infection, particularly if we are to lay any stress on the present-day methods of study of the cerebrospinal fluid and the blood-serum. We have observed such cases for many years, and with our present knowledge, to call them anything else but primary lateral sclerosis, it seems to me, would be out of the question.

I remember the earlier teachings of Dr. Dana in regard to the matters he just mentioned, and I do not believe that he has any reason to change the views he held twenty-five years ago.

DR. ARTHUR C. BRUSH, Brooklyn: We do not see these cases post mortem until a long time after the disease has begun, and the lymphocytosis and other evidences of syphilis may disappear.

DR. E. E. SOUTHARD, Cambridge, Mass.: No one disputes that lymphocytosis arouses strong suspicion of syphilis. Yet to rely on mononuclear infiltration as a sign of syphilis seems to be harking back to the pathology of a decade ago. We ought to rely on the Wassermann and kindred reactions and on more extended studies of cases that are to come rather than on lymphocytosis exhibited in cases past.

Dr. Wilder Tileston had a case of ankle-clonus in a child that died of pneumonia. The autopsy showed, at the decussation, a lymphocytic infiltration of the artery. There was a certain amount of degeneration of fibers all over the spinal cord. The question arose, was the clonus due to that lesion? What might the case have been? It might have been a case of pneumococcus meningitis in which the coccus had caused the infiltration. It might have been a case of pneumonia complicated by a case of anterior poliomyelitis or pneumonia complicated with syphilis. But I do not see how the suspicion of syphilis is raised in any strong degree. But in this case I think more likely the exudate was produced by the pneumococcus. Is Dr. Spiller dealing with more than a suspicion? It seems to me he is not dealing with proof when he speaks of mononuclear infiltration in these cases. Aside from the acute production of lymphocytosis in the late stage, which can also be shown to occur both in human cases and experimentally, I see no reason for deviating from the attitude adopted about this matter last week.

DR. ALBERT E. STERNE, Indianapolis: Twenty-five or thirty years ago von Leyden showed the relationship between amyotrophic lateral sclerosis, progressive muscular atrophy and progressive bulbar palsy. He made the statement that essential lateral sclerosis was, to his mind, exempt from such rela-

tionship. That attitude I do not see any reason for changing to-day. As a matter of fact, cases of amyotrophic lateral sclerosis, which we are wont so to recognize, bear very different ear marks from those cases which we are wont to see and speak of as *tabes lateralis* or primary lateral sclerosis. It is to my mind unfair, and it is not even altogether scientific, because an individual has suffered and shown typical clinical manifestations for twenty-five years, indicating essential lateral sclerosis, and then just before death manifests certain symptoms of association with the anterior horns, to say that on account of that late association, the former disease, namely, the primary lateral sclerosis, was not a disease *per se*, but simply a long drawn-out manifestation of what we would ordinarily call primary amyotrophic lateral sclerosis. This late association, which we find also in other diseases of the nervous system, such as epilepsy, in which degeneration occurs, ought not, it seems to me, to take from beneath our feet the safe ground, that there is a rare disease which affects the lateral columns of the cord alone; that this disease is essential or primary lateral sclerosis, and that it may be often syphilitic in type. There is no question at least on that subject.

DR. J. H. W. RHEIN, Philadelphia: I have seen and reported cases which showed round-cell infiltration associated with degeneration of the lateral columns without any evidence of a gross lesion in the cerebrum to account for it, cases which I have worked on as instances of cerebrospinal syphilis. I shall report this afternoon a similar case. I have reported cases under the name of double hemiplegia in which there was no gross lesion to account for the degeneration in the lateral columns. I believe that in these cases in which the lesion is microscopic it is essential to make serial sections in order to make a positive pathologic diagnosis. We find in these cases a specific process and associated blood-vessel disease involving not only the white matter and pia of the brain but also the spinal cord. I believe that in Dr. Lloyd's case there was some blood-vessel disease as well as round-cell infiltration, and it occurred to me that this was really not an ordinary case of lateral sclerosis, but perhaps one of syphilitic cord disease.

DR. J. H. LLOYD, Philadelphia: Dr. Spiller has touched on the important point involved, which, of course, as we all recognize, is the question of syphilis. It may be that in reference to these primary lateral tract degenerations we are somewhat in the same position now that we were twenty or twenty-five years ago with reference to posterior sclerosis. At that time we were only gradually coming to the belief that *tabes* was due to a syphilitic infection. I think that, with the Wassermann test and with increased facilities and improved technique for pathologic studies, it may yet be found in these cases of essential lateral sclerosis that we have to deal quite largely with a syphilitic process. If that be true, the mere determination of whether or not the disease process is entirely in the lateral tracts or partly in other tracts, becomes in a sense a matter of secondary importance. I think as a term, however, it would be better that we should call this condition an essential lateral sclerosis. Dr. Southard has very wisely called attention to the fact that we should not allow our minds to dwell too exclusively on syphilis. There are other infections of the central nervous system besides that which is caused by the spirochete of syphilis. I fully agree with the statement that we may possibly have here occasionally the manifestations of some other infection.

DR. S. D. W. LUDLUM, Philadelphia: In answer to Dr. Rhein: there were no hemorrhages, embolisms or anything of that sort which would cause the disturbance.

A New Fish Story.—An American, touring in his automobile in Southern Bavaria, on renewing the carbide charge in his acetylene generator, emptied the old carbide into a small stream—probably out of pure thoughtlessness. The result, however, was a summons from the authorities and a suit for damages for having killed a large number of bass in the river by the gases developed from the carbide residue.

REPORTING OF SUSPICIOUS CASES BY THE LAITY A PREREQUISITE TO THE EFFI- CIENT CONTROL OF COMMUNI- CABLE DISEASES *

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The more or less effective regulations to protect the public from persons afflicted with a contagious disease are naturally enforced only in cases that are reported to the health authorities. The unrecognized case is subjected to no restrictions at all; the recognized but unreported case only to those the family voluntarily observes.

It has been my belief that the spread of contagious disease occurs chiefly through the unreported and particularly the unrecognized cases. Until every case is brought under the control of the health authorities no real progress will be made toward limiting or stamping out communicable disease.

UNREPORTED CASES

For each reported case of notifiable disease there are many unreported. Some physicians even make a practice of not reporting their cases, for which very reason they are employed by families who desire to avoid restrictive measures. A premium is thus placed on dishonesty, the physician who evades the law gaining practice at the expense of the honest practitioner. It is foolish to expect all medical men to report their cases of contagious disease so long as no effort is made to find out and punish those who violate the law.

In many instances, especially when the attack is a mild one, no physician is consulted, lest he report the case. The mother herself treats the patient with home remedies. This is true particularly of secondary cases, in which treatment is carried out according to the directions the physician gave in the primary case. Naturally many mistakes of diagnosis are made, the most serious being the mother's mistaking mild scarlet fever for measles or rubella, or even a stomach rash.

Persons who would not object to have the disease reported often dispense with a physician for financial reasons when the patient is only slightly ill. Such cases without medical attention could be brought to the notice of the health authorities if, in the absence of a physician, the parent or householder were required to report notifiable diseases, as they are now compelled to report a birth.

UNRECOGNIZED CASES

The most potent source of contagion in my opinion is the unrecognized case; for the family usually takes some precautions in regard to a recognized case that is not reported. Even a physician sometimes fails to recognize a contagious disease, especially when it occurs in a mild or atypical form. Without a culture, for example, it is practically impossible to diagnose latent diphtheria. In most instances, however, the fault lies with the parent, who does not regard the condition as sufficiently serious to warrant sending for a doctor.

Thus it is that large numbers of children with mild or latent diphtheria are looked on as suffering from sore throat or tonsillitis and, instead of being isolated, attend school, frequent moving-picture shows and mingle freely with their playmates, inoculating many who thus

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.*

become carriers or who may even have the disease in typical clinical form, and these children never know how they contracted the disease. I have already gone into this subject more fully.¹

In like manner numerous persons with unrecognized scarlet fever walk about the streets and attend school, especially during an epidemic of measles or rubella. Many of these cases are never known; some are discovered merely by accident. To illustrate, I shall recite the accidental discovery by me in one month of eleven cases of scarlet fever during an epidemic of measles.

May 21, 1911, I was sent as medical inspector to examine a child who was reported by the attending physician as having scarlet fever, but whom the ambulance physician had pronounced not to be suffering from the disease. After confirming the attending physician's diagnosis, I inquired if anyone in the house had been sick recently, and was shown two children who were said by the mother to have had measles. Both were desquamating. On asking if there were any cases of rash or measles in the neighborhood, I was referred to two children in a house on the next street, who were supposed to have had measles, but whom I found in active desquamation. Had a third case not developed in the first house, these four cases probably never would have been discovered.

Three weeks later, June 14, I was sent to examine a child reported by the attending physician as having a suspicious case of scarlet fever. The physician had not been summoned for the general illness but for an infected burn produced by a home-made mustard plaster. I made a diagnosis of scarlet fever and, inquiring for other instances of recent illness in the house, found a child of another family in bed on another floor, supposedly suffering from measles but really in the eruptive stage of scarlatina. I also obtained a history of three other children in the house having been successively attacked with measles during the previous two months, but on examining two who had been ill six and eight weeks before, respectively, could find no evidence of desquamation. The third child being in school, I examined her there and found her hands peeling. She was living temporarily with a married sister whose baby she said had had the measles, but whom I found to be convalescing from scarlet fever. These four cases would probably never have been known had one patient not been burned by a home-made plaster. As it was, two additional patients with probable scarlet fever got well without recognition.

How easy it is to miss the mild case that often starts an epidemic may be seen from the following instance, which occurred a few months later: Two children developed a rash but were not very sick and received no medical attention. Half a block away a case of scarlet fever developed, no one knowing how the disease was contracted. Five days later a case of scarlet fever was reported from the house where the two children had been indisposed. While making a report on this latter case, I learned of the illness of the other two children and examined them, finding evidence of desquamation in both.

Measles and rubella, especially when occurring in a mild form, frequently fail of recognition, being called "strawberry rash," "stomach rash," "spring rash," "ivy poisoning," "hives," and the like. Mild attacks of

mumps of short duration, with very slight enlargement of the parotid gland and no distress on eating sour things, are usually overlooked or regarded as "swollen glands," "glandular fever" or an "ulcerated tooth." Sometimes chicken-pox is unrecognized. Until the "whoop" develops, parents as a rule pay little attention to whooping-cough. Seldom in these various instances is a physician consulted.

Is it any wonder that health officers are disappointed at the high incidence of preventable communicable diseases despite the most modern methods of combating them? How can anyone expect that the control of a mere fraction of the total number of cases of contagious diseases will do much toward stamping them out? Be the isolation of the reported cases ever so thorough, infection still proceeds from those who are going about unrestricted with unreported and unrecognized cases. All efforts to stamp out communicable diseases must necessarily fail until the public health authorities gain control of all the cases.

Is there any way by which the unrecognized and unreported cases can be brought under the supervision of the public health authorities? Is such a thing not impossible? I believe it to be not only possible but practicable. Nearly every case of illness is known to a number of persons, who usually also are aware when there is a suspicion of its being contagious.

REPORTING OF SUSPICIOUS CASES

Many of the cases not reported to the health authorities are reported to other public officials. The vast majority occur among school children or in their homes, a large proportion during the school term. In such cases the parent often notifies the school of the child's illness, sometimes giving the name of the disease. When this is not done it is customary for the teacher or principal to send word to the parents asking the reason for the child's absence. In many cities an attendance officer visits the home to learn why the child is not in school. It would be a perfectly easy matter for teacher, principal or attendance officer, on learning of the existence of a contagious disease, to report the case to the health authorities, who thereupon might investigate. Even when such disease is only suspected, the report of a suspicious case might be made, giving the grounds for the suspicion. This would include all cases of rash under any name, rumors brought by the school children, and unexplained or inadequately explained absences, especially during an epidemic. In schools having medical inspection the case might first be referred to the school doctor, who would decide whether the facts warranted the case being reported to the public health authorities as suspicious.

Neighbors as a rule know what is going on in each others' homes. The recognized but unreported cases of which they have no knowledge are, indeed, few. Of the suspicious cases they also usually have cognizance. Most persons, however, dislike telling on their neighbors for fear of incurring annoyance or inciting enmity. Some even side with their friends against the sanitary officials.

It nevertheless is my belief that if the laity were educated to realize the danger to themselves and their families as well as to others of the uncontrolled case, and the insidiousness of the unrecognized case, if they were frankly told that the prevention of communicable disease is possible with their aid and impossible without it, and if, moreover, they were taught to regard it as a civic duty to give this aid in the protection of the public health, their cooperation could be obtained. But then the responsibility would be on the sanitary authorities

1. Solis-Cohen, M.: Latent Diphtheria; a Public Health Problem, *THE JOURNAL A. M. A.*, July 6, 1907, p. 30; Diphtheria Carriers, Their Discovery and Control, *THE JOURNAL A. M. A.*, Jan. 9, 1909, p. 111.

to see to it that the good do not suffer while the evil escape. It would be their duty to enforce the laws against all and to prosecute those who break them. They will know when a physician has failed to report a case and they will be expected to hold that physician strictly to account. And should a law be passed requiring the householder to report contagious and suspicious cases occurring in his house, they must proceed against all who are found violating that law. For the cooperation of the public is not to be hoped for in any unfair administration of the law that subjects those who comply with it to restrictive measures which those who disregard it are permitted with impunity to escape.

Without the aid of the laity I believe it is impossible to stamp out communicable diseases. With their active assistance I have little doubt that it will be possible to prevent most of the contagious diseases which hitherto have not been effectively controlled.

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ABSTRACT OF DISCUSSION

MR. W. A. HOWE, Albany, N. Y.: We are coming more and more to believe and to know that most of our communicable diseases are transmitted by carriers—that it is not so frequently the bedridden patient who is transmitting disease, as the person with unrecognized disease. Here as elsewhere in our work we must conduct an active campaign of education to teach, through the family physician, the parents of these carriers and many dangers incident to the prevalence of such disease. There is but one way to reach them—not through the neighbor, as I do not believe it is either right or neighborly to expect a neighbor to report clandestinely the presence of communicable disease in the next-door family, but through the family physician, who should place in the hands of the mother, proper literature explaining the danger of these diseases, their extensive prevalence in these mild forms, and the imminent danger of spreading fatal infection to others. We must teach them the necessity of giving better attention to the convalescent, and the absolute necessity of proper isolation, however mild the affection may seem to be, until the child ceases to be a carrier.

DR. WALTON FOREST DUTTON, Carnegie, Pa.: It seems to me that the general practitioner receives much more censure than is his due, as regards the report and care of these diseases. The laws should be enforced, but the blame should be placed where it belongs. If local health authorities were prompt in doing their duty, the physician and the state could cooperate with distinct advantage to both. It does not avail anything for the physician to report diphtheria, scarlet fever, etc., unless the sanitary regulations are carried out by the local health authorities. A great many boroughs have an ordinance which is a modification of the state laws. This ordinance does not comply, in full, with the state law. Therefore the physician is not enabled to do his full duty to the state. I concur with what has been said by Dr. Cohen. The reporting of suspected cases is a prime necessity. We can very often detect measles on the mucous membrane of the soft palate and other parts of the buccal cavity one or two days before the eruption appears. The same may be said of diphtheria and scarlet fever.

DR. OTIS B. NESBIT, Valparaiso, Ind.: The health officer too frequently goes and tacks up a card and calls that quarantine, and then asks: "Why don't people report quarantinable diseases?" A good many cases are not reported because the family cannot afford to be quarantined. The wage-earner cannot afford to be shut out of the house and be compelled to pay for board some place else. Or, the regulations may be such that he may be shut up in the house and be compelled to stay there and no one in authority visits the family to provide its needs.

This is the most important question. I have found locally, in enforcing quarantine. First, tell your people what quarantine means; second, a demonstration of this idea of quar-

antine in a humane manner; and when you get your people to understand that that is what you are doing, you will get contagious disease reported. Physicians will not report cases, because they say: "I know the poor devil couldn't afford it; and I would rather call it a strawberry rash; it is mild, and does not amount to anything anyway." If the authorities are properly caring for those quarantined, the physician will report his cases.

We have not been treating them just right, in some localities, and when we stop mistreating the unfortunate citizen we shall not have much trouble about getting reports. Then also our knowledge is so indefinite. We know so little about these diseases; and we have been guessing so much. In Indiana, we asked the state board of health last year to make a uniform quarantine regulation; and now we are sorry we did it, because they went to work and made a minimum quarantine on scarlet fever of twenty-one days, and there are a few towns maintaining a quarantine of six weeks, which I do not think long enough for an arbitrary time limit; and we have neighbors around us that quarantine the minimum of twenty-one. We are reaping the benefits from their short quarantine by their citizens visiting friends in our city immediately after release from quarantine and communicating the disease to the citizens of our city. Quarantine regulations should be the same in all counties, in all states and in all nations.

MR. LEGRAND POWERS, Washington, D. C.: One of my youngest children was taken sick on a Saturday morning. Scarlet fever was not suspected; by Monday the child was fairly well and went back to school. A week later another child was taken sick and we sent for the doctor, who pronounced that second case a case of scarlet fever; by that time the first child was beginning to show signs of having had the disease the week before.

We must recognize the fact that there are multitudes of cases among the less educated that correspond to this case among the fairly well educated family. In some way or other, through our board of health, we must carry home to the average family the knowledge that they could detect these hidden cases and so do their part as citizens in lessening the spread of contagion.

DR. CREIGHTON WELLMAN, New Orleans: It seems to me that a principle which should be recognized in a discussion of this question is that when a disease is to be considered as reported, all suspicious cases of this disease should be reported to the local board of health. A following out of this simple principle will answer many of the objections which have been brought against the thesis presented by Dr. Cohen. In New Orleans, the board of health has a requirement that unreportable diseases and all suspicious cases should be reported along with the actually diagnosed cases; and the physician or the family may call on the board of health to aid in the decision as to whether the given disease which is evidently suspicious is really to be classified as a reportable disease or not.

DR. PAULINE M. TOWNSEND-HANSON, Marshalltown, Iowa: One of the physicians spoke of educating the mothers, by giving literature to the mother who had sick children. The woman who has sick children has no time to read literature—unless possibly in regard to the care of the child—certainly not in regard to the importance of reporting the disease. Most women who have the care of families and households, even though there is no sickness to hinder them will take time to read how to make clothes and to cook and to perform other household duties, but will seldom take time to read dry literature on medical subjects. The mother has not time, unless she belongs to the privileged few of the wealthy class; she has not been trained to an interest in scientific, let alone dry medical, subjects. Comparatively few young American women have the limited amount of scientific education given in our high schools; many of those among the poorer classes, in which more sickness exists because of insanitary conditions, have never even passed through grammar grades, cannot read articles that contain simple medical words. In some talks that I have given to these women I have been simply amazed to find, among those considered fairly educated,

almost absolute ignorance of simple medical terms. People will listen to a talk, whereas they will not read the same thing in printed form; when they do not understand they are so reticent they will not ask someone what this or that word means, because they do not want to show their ignorance. Women who will go to the medical talk are but a very small percentage of the women who have to deal with sick ones. Medical education must be developed long before women have the hindrances of household cares; it must be done in the school-room, when the woman is yet a child. We must devise some method of increasing the scientific knowledge given to children through the public schools on health subjects. In addition, it ought to be possible to educate the public by having public health exhibits in our county and state fairs throughout the United States. In Iowa we have baby health contests at the state fair and various county fairs. This interests the public, and the newspapers are glad to give it a great deal of prominence. In the county that I come from, the county fair board has created a public health division, with a superintendent, on the same footing exactly as the other divisions of the county fair. In this division we will have a baby health contest. There will be three classes of competitors and three first prizes. The prize, \$10, is higher than that for the hog, cattle or the horse.

DR. ARTHUR R. REYNOLDS, Chicago: We have given voice to one sentiment here that I want to commend: that is, the hope that contagious diseases will some day be eradicated. It is going to be difficult to accomplish, but that is what we are here for. If any one doubts, let him look back over the mortality list for contagious diseases in the last twenty years. They are diminishing everywhere. Just where the vanishing-point will be I cannot tell.

MR. W. A. HOWE, Albany, N. Y.: As in many other states, in New York we publish various leaflets of instruction on several communicable diseases. These are published in sets, one intended for circulation among health officers and physicians, the other to be used among families afflicted with these diseases. We likewise have individual cards on which to report the various communicable diseases and during the past year in certain sections of the state we have been sending to the various physicians a package containing such leaflets as are published by our department, together with several complete sets of cards on which to report communicable diseases, as well as other literature bearing on public health. At the same time, a personal letter has been addressed to the physicians advising them of material being sent and urging their cooperation in our endeavor to secure complete registration of all communicable diseases, as well as of births and deaths. In this letter the commissioner has urged the physicians to place in the hands of every family in which a communicable disease exists literature relative thereto with a view of informing such families of the true character of such disease and the necessity of complying strictly with certain rules and regulations so necessary for their control. This plan, where tried, has proved very satisfactory, and Commissioner Porter is seriously considering the advisability of extending its application throughout the state.

DR. M. SOLIS-COHEN, Philadelphia: The speaker who said that these diseases should be reported, not through the neighbors, but through the family physician, failed to explain how this could be done in cases of persons having no physician, which represents probably nine-tenths of the minor and one-half of the major contagious diseases; and how that would help where the physician will not report the case, especially if he is kind-hearted and thinks the family cannot afford to be kept home and so pronounces scarlet fever, "strawberry rash," and allows the patient to go about spreading the disease throughout the neighborhood. Did another speaker mean to leave literature at the houses in which there are unreported cases? How shall we know where such houses are? Most boards of health leave literature where cases are reported.

The best place to educate the people is in the newspapers, as practiced by Dr. Evans in Chicago and Dr. Neff in Philadelphia. The American people read the newspapers and look eagerly for these health articles. A person complained to

me of a rule of which he was in ignorance, saying that he read the papers faithfully and failed to see any reference to it. The people can also be educated by lectures at county fairs and in school buildings. There are plenty of ways to teach them how important it is that all cases of contagious diseases should be known. As soon as they realize that it is their children who are saved by such methods, I think they will be willing to help. There are many ways in which contagious diseases can be discovered. When a child has been absent from school it is very easy to examine him on his return and see if his hands are peeling, and, if he has had a sore throat, to take a culture. It is possible to have a rule that all sore throats must be cultured. The laity usually knows when there are sore throats about. Even when you educate the people there will always be some who are unteachable, or vicious, or who are unwilling or who feel they cannot afford to be subjected to restrictions. These will not report their cases, no matter how much we teach them; and unless we have some other way, through their neighbors or through the school authorities, we shall never hear of their cases. When the laity are taught that peeling hands probably means scarlet fever and that rashes and sore throats may indicate a mild form of a very serious disease, they will be willing, I believe, to bring such cases to the attention of the health authorities.

PATHOLOGIC STUDY OF A CASE OF ACUTE POLIOMYELITIS *

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I wish to present this short discussion with photomicrographs to make record of two distinctive findings in a case of acute poliomyelitis. One of these in particular is the demonstration of all coats of smaller arteries involved in the inflammatory infiltration, and the other an illustration of a hydrops of an anterior horn cell. The case will be outlined briefly, the salient positive facts being stated, and a discussion of the pathologic points that seem striking made more in detail.

The patient furnishing the material for this study was never seen clinically by me. I was asked by Dr. Frank Hall to participate with Dr. Castle at the autopsy and was given charge of the brain and spinal cord.

The patient was a male, aged 19, who died on the sixth day of the illness. The case was initiated with fever and pains in the back of the neck and along the spine. The first evidence of motor paralysis appeared on the third day. The palsy advanced progressively to the lower extremities, left arm, and neck muscles. Finally inability to swallow, partial aphasia and contracted pupils were observed. Death occurred from respiratory failure with paralysis of the diaphragm. The symptomatology and course were characteristic of a severe *foudroyant* case of acute poliomyelitis.

The morbid anatomic study is confined to the brain and spinal cord, consent for an autopsy having limited us to those organs.

Macroscopically the dura appeared normal. The pia and arachnoid presented some edema in plaques over both the cord and the encephalon. A number of congested hyperemic areas were observed over the entire brain, the left hemisphere more than the right. Probably some excess of cerebrospinal fluid existed. Sections through the brain showed nothing abnormal. Cut surfaces from the brain-stem showed some hyperemia, especially in the medulla and pons, but no hemorrhages.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

There were undoubtedly edema and hyperemia in the cord segments, most severe in the cervical and lumbar enlargements.

For microscopic studies I have used the hematoxylin-fuchsine-picric acid and Nissl stained sections. All the segments of the spinal cord and blocks from the medulla, pons, mesencephalon, thalamus and cortical regions were sectioned, and stained preparations made.

The inner meninges over the entire spinal cord showed a round-cell infiltration, which was more or less spotted, much of the pia being entirely free, especially over the dorsal aspect. The meningeal involvement over the medulla, pons and mesencephalon was similar to that of the cord. The degree was less over the hemispheres where the walls of the vessels were comparatively less involved, the larger arteries being entirely free.

An examination of the different spinal cord segments for infiltrations showed an extensive involvement, the gray substance and particularly the anterior horns being especially attacked. All segments showed a marked involvement of the anterior commissural artery. The

presented pathologic changes with a round-cell invasion not only in the adventitia but also in the media and intima. In many the invading cells were seen only in a fraction of the vascular wall, a portion of neighboring intima and media being free. I have selected one of these for the photomicrographic reproduction (Fig. 1), which is a smaller arteriole from the white substance of the medulla at the level of the decussation. It shows the perivascular space quite free from cells, the perivascular tissue heavily invaded with round cells, most of the adventitia involved, a circumferential portion of the media showing an infiltration, and a smaller part of the intima having a few invading round cells.

At this point I might discuss briefly a few prevailing ideas of the vascular infiltrations in acute poliomyelitis and, possibly, some of the misconceptions. It has been suggested that the vascular and perivascular cellular invasion might be a post-mortem state. I do not take much stock in such a belief and do not deem it pertinent for a discussion here. Wickman¹ of Stockholm gives a brief but good account of the vascular infiltration, but states that the intima and media are not involved. Harbitz and Scheel² give the location of the infiltration first

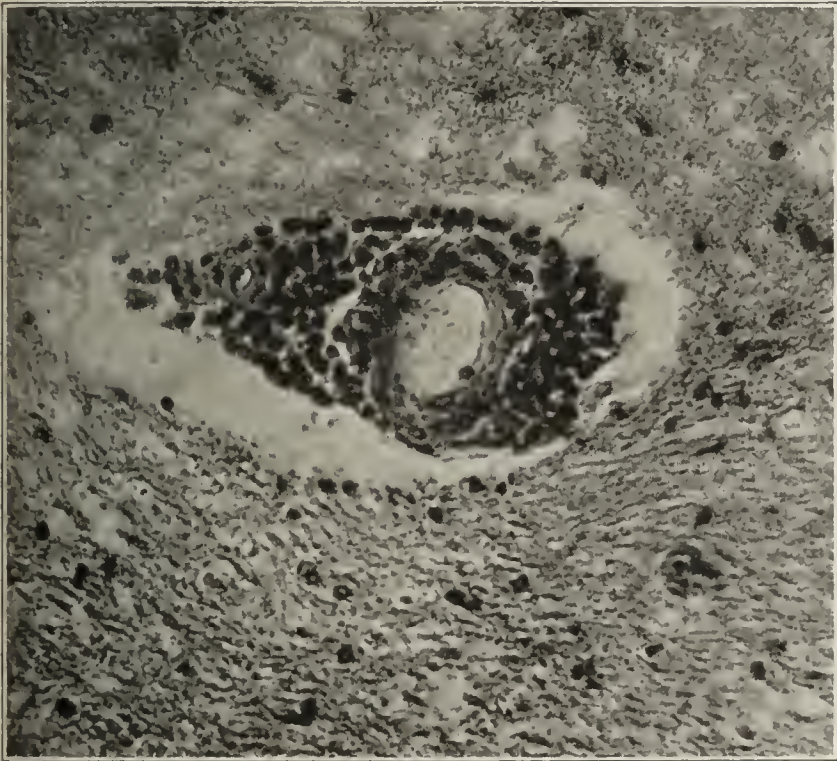


Fig. 1.—Round-cell infiltration of an arteriole.

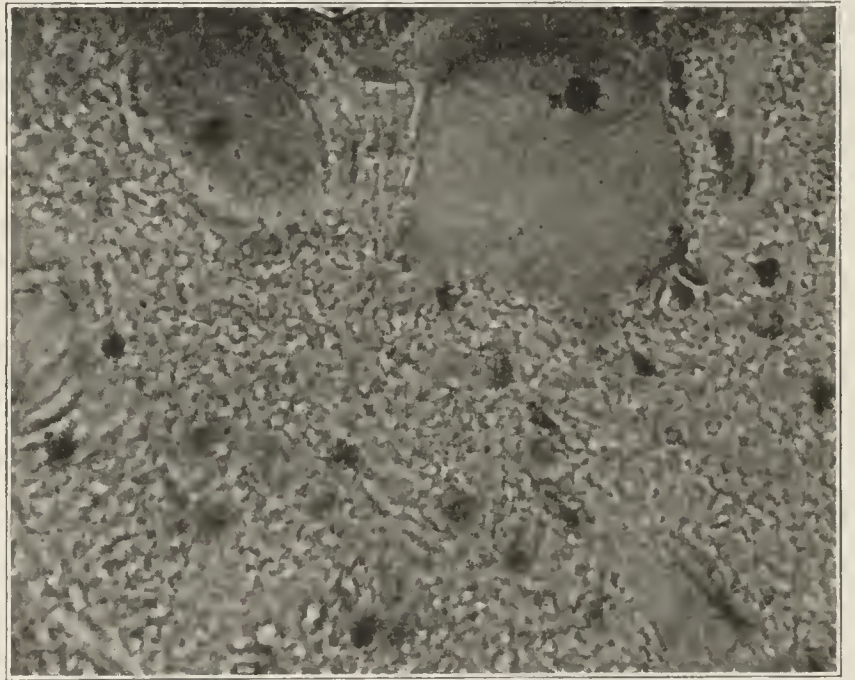


Fig. 2.—Edema of an anterior horn motor nerve cell.

infiltration in the medulla, pons and mesencephalon is similar to that in the cord, but possibly more acute, especially in the medulla. It is greater in the nuclear regions. I found no areas in the cortex involved. In a few places mild infiltration was observed in the pial projections, but exactly delimited.

The vascular tunics involved will be considered now. The larger number of capillaries showed much infiltration of the thin walls and in the immediately surrounding areolar tissue. The veins, especially the smaller ones, showed the greatest amount of infiltration. Many of the veins had all the coats involved, others only the adventitia. The perivascular soft structures were involved heavily as a rule. Some vein walls seemed to be almost disintegrated by the massive invasion of multinuclear cells.

In the arteries a somewhat different invasion was observed. The very largest ones, particularly those of the pia, presented no pathologic changes, the adventitia being quite free. In the surrounding connective tissue, however, a cellular invasion was observed frequently. A number of small arteries or arterioles were found that

and foremost in the adventitial lymph-spaces, veins and capillaries more than arteries, and say nothing about muscularis, elastica and intima. Strauss³ mentions the importance of adventitial and perivascular infiltration but says nothing about muscularis, elastica or intima. I quote from Flexner:⁴ "The infiltration is within the adventitial coat, while the muscularis coat and the intima remain intact, although the lumina of the vessels are often encroached on through compression."

The nerve-cell degenerations, as shown in the Nissl stained specimens, were of an extreme degree in all the segments of the spinal cord. Only a very few of the anterior horn cells remained and all these showed chromatolysis. In lesser degree were Clark's column cells

1. Wickman: Studien über Poliomyelitis acuta, Berlin, 1905, p. 186.

2. Harbitz and Scheel: Pathologisch-anatomische Untersuchungen über akute Poliomyelitis u. verwandte Krankheiten, Christiania, 1907, p. 115.

3. Strauss: Epidemic Poliomyelitis; Report of the Collective Investigation Committee on the New York Epidemic of 1907, New York, 1910, p. 81.

4. Flexner: The Contribution of Experimental to Human Poliomyelitis, THE JOURNAL A. M. A., Sept. 24, 1910, p. 1107.

and posterior horns involved. Various types of tigrolysis were observed in the nerve cells of the motor centers in the medulla and pons. My second photomicrograph (Fig. 2) shows two motor cells with hydrops. Almost complete axonal degeneration, complete tigrolysis and nuclear displacement to the periphery are illustrated. The larger cell, which is much swollen, shows distinctly the nucleus with the nucleolus displaced from the center to the extreme periphery. In addition there is a darkly stained smaller body within the nucleus beside the nucleolus. This may be an invading body or a nuclear extrusion product.

CONCLUSIONS

The vascular nature in the pathology of acute poliomyelitis in its attack on the central nervous system is now quite generally appreciated. Perhaps the same may be said about the infiltrations of the pia and arachnoid with their septal projections and the anterior commissural vessels of the spinal cord, and the much greater attack on the entire anterior horn substance as well as particularly its blood-vessels. I agree with several other workers regarding an absence of inflammatory involvement of the perivascular spaces. The literature is silent, vague or incorrect about the more minute anatomic localization of invading round cells or inflammatory cells. The perivascular tissue, which must not be confused with the adventitia, comes first in the frequency and severity of pathologic changes. The adventitia is a worthy second and its cells and fibers may be completely disintegrated by the thick invasion of cells. All coats of the veins are frequently involved. The large arteries have invaded only their perivascular structures, the moderate-sized ones the adventitia also; and the small arteries or arterioles may have an infiltration of intima, elastica and muscularis as well as the frequently involved adventitia. It is possible that some of these severely involved vessels have necrosing tunics with resulting thromboses or ruptures of the walls. I believe that the infiltrating cells give us evidence of a defensive process, and all indicates the particular quantitative localization of the virus of acute poliomyelitis in the tissues.

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ABSTRACT OF DISCUSSION

DR. E. E. SOUTHARD, Cambridge, Mass.: The question of the atrium of infection in poliomyelitis is separate from that of the principal site or sites of lesion. Whether the pia mater or the central gray matter is the region in which the virus first exerts effect is not necessarily shown by the distribution of exudate. Experimental work indicates that the same virus may produce disease of different type in different animals of an inoculation series. Thus, whereas the majority of experimental animals exhibit the characteristic focal spinal cord hemorrhage with lymphocytosis, a few may show little but meningitis and yet their tissues on inoculation transmit the now usual form of the disease.

In some material of Lucas and Osgood, the late Dr. E. W. Moores and I found nothing but peripheral neuritis of the Gombault-Stransky type in a monkey whose tissues on inoculation transmitted the more usual form of hemorrhagic and lymphocytic poliomyelitis. The occurrence of a true peripheral neuritic form of poliomyelitis may therefore be suspected to occur in man—a form distinct from the results of wallerian degeneration so common in destructive anterior horn lesions and distinct from the neuritic form (Wickman) of poliomyelitis. For there, according to Wickman, we have the simulation of the neuritis due to characteristic distribution of exudate in the spinal cord, possibly, as the later writers have insisted, in the posterior roots, or even in the posterior root ganglia,

but distinct from infiltration and secondary degeneration. There may be, we thought as a result of this work on the monkey material, a form of neuritis of the Gombault-Stransky type in poliomyelitis. Further clinical work may differentiate such cases from the more ordinary forms.

DR. S. LEOPOLD, Philadelphia: I wish to call attention to a case seen with Dr. Pittfield which is rather interesting, because it was one of the neuritic type of poliomyelitis of Wickman. This case is the only one on record, so far as I am aware, in which the opportunity occurred of studying the peripheral nerves. The case presented the ordinary type of poliomyelitis with acute onset, paralysis of the lower limbs, which, however, was unsymmetrical, and tenderness over the nerve-trunks, during the entire period of illness, lasting two months; the knee-jerks were lost, and there was bladder disturbance. The case had been diagnosed as multiple neuritis.

At necropsy I found a true picture of the reparative stage of poliomyelitis, but I found the curious fact that the peripheral nerve, which was examined and placed in osmic acid immediately at necropsy, showed practically no degeneration that could account for the tenderness, while the spinal cord showed an intense meningitis; most significant was the involvement of the posterior roots, the exudate being in the posterior root. The congestion of the vessels was intense; and I believe that the tenderness over the nerve-trunks was of central origin. The case is rather unique in the history of poliomyelitis.

A SIMPLE OPERATION FOR REPAIR OF THE FEMALE PERINEUM, BASED ON THE ANATOMY OF THE PARTS *

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"The female perineum includes all those structures which fill the outlet of the pelvis." This seems to be a sweeping definition, but such it is according to Deaver.¹ Speaking in the broad sense, this may be admitted to be true. Still, when we consider the repair of injuries due to traumatism incident to labor, we speak of the perineum in a more restricted sense. In considering it from the view point ordinarily taken, we confine our attentions rather to injuries involving the structures anterior to the posterior margin of the anus, the exception to this rule being the consideration of tears extending beyond this orifice or encircling the lower end of the rectum or the backward splitting of the coccygeal ligament.

In presenting a description of this operation I am aware of the fact that the literature is teeming with descriptions of many operations which in the hands of those who first brought them forward have yielded good results. It is my belief, however, that in the consideration of the subject of lacerations of the pelvic floor, too little attention has been paid to the complex anatomic structure of the perineum, and as a consequence structures unlike in composition and function are coaptated and a perineum is produced that does not functionate in the manner intended by Nature. The loss of tissue due to denudation, the excision of scar-tissue and the union of unlike tissues are apt to result in haphazard union.

In the presentation of this paper I wish to make the broad statement that the word "denudation" should not

* Read in the Section on Obstetrics and Gynecology of the American Medical Association, at its Sixty-Third Annual Session, held at Atlantic City, June, 1912.

* From the Department of Obstetrics and Gynecology, St. Louis University School of Medicine.

1. Deaver: Surgical Anatomy, ii, 655.

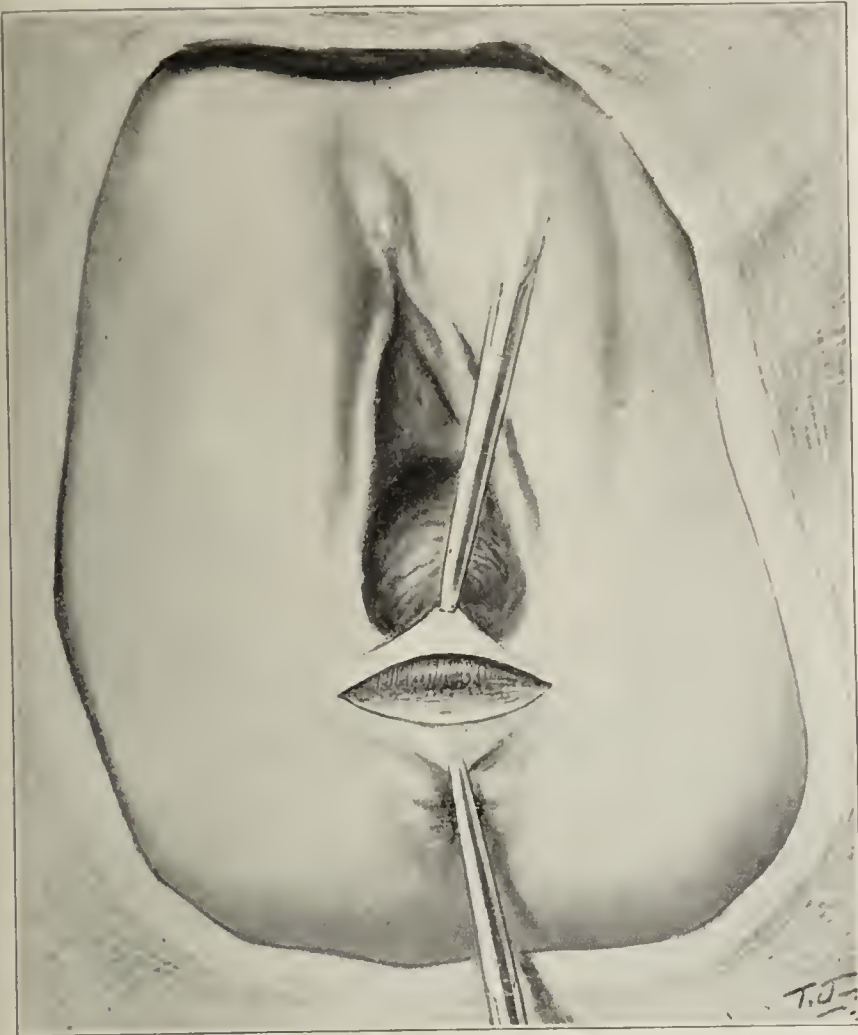


Fig. 1.—Short transverse incision made between two pairs of forceps, one placed at vaginal mucocutaneous junction, the other grasping the skin about one inch from anal margin.

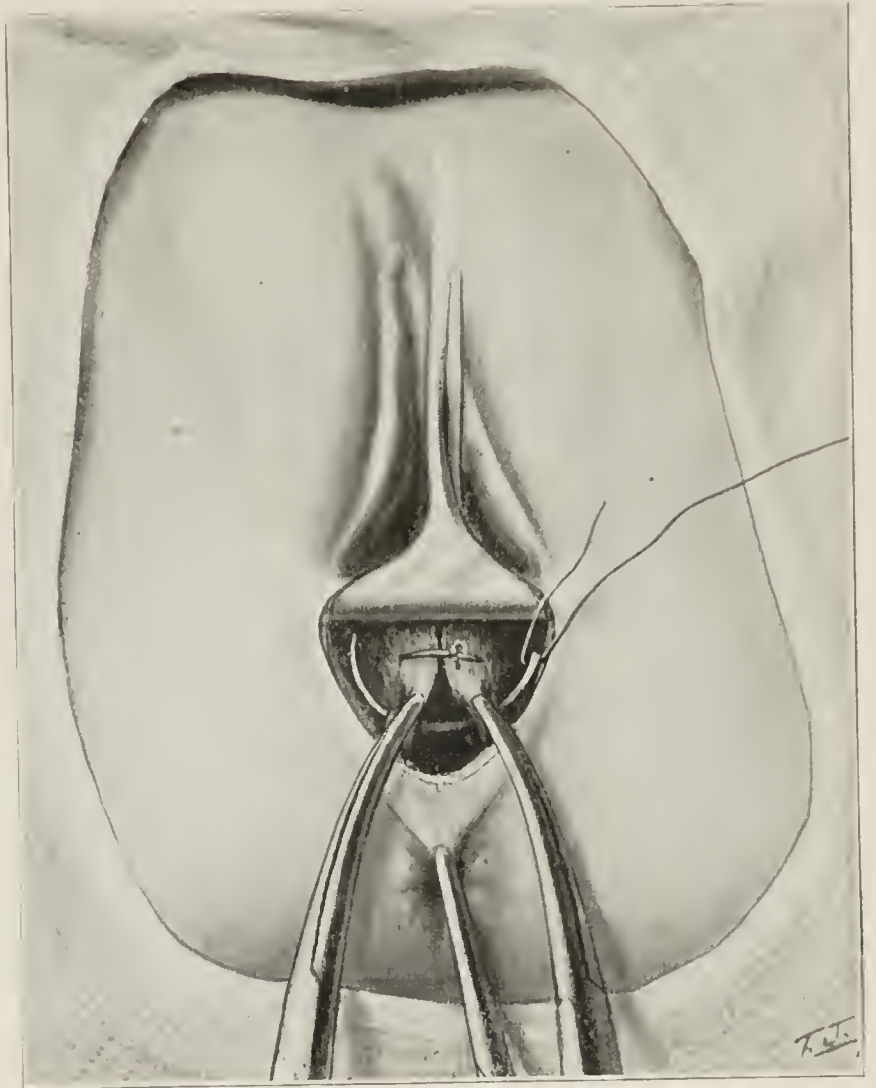


Fig. 3.—Two pairs of curved Mayo forceps grasp edges of levator ani muscles and one suture has been placed. A second stitch is being taken.

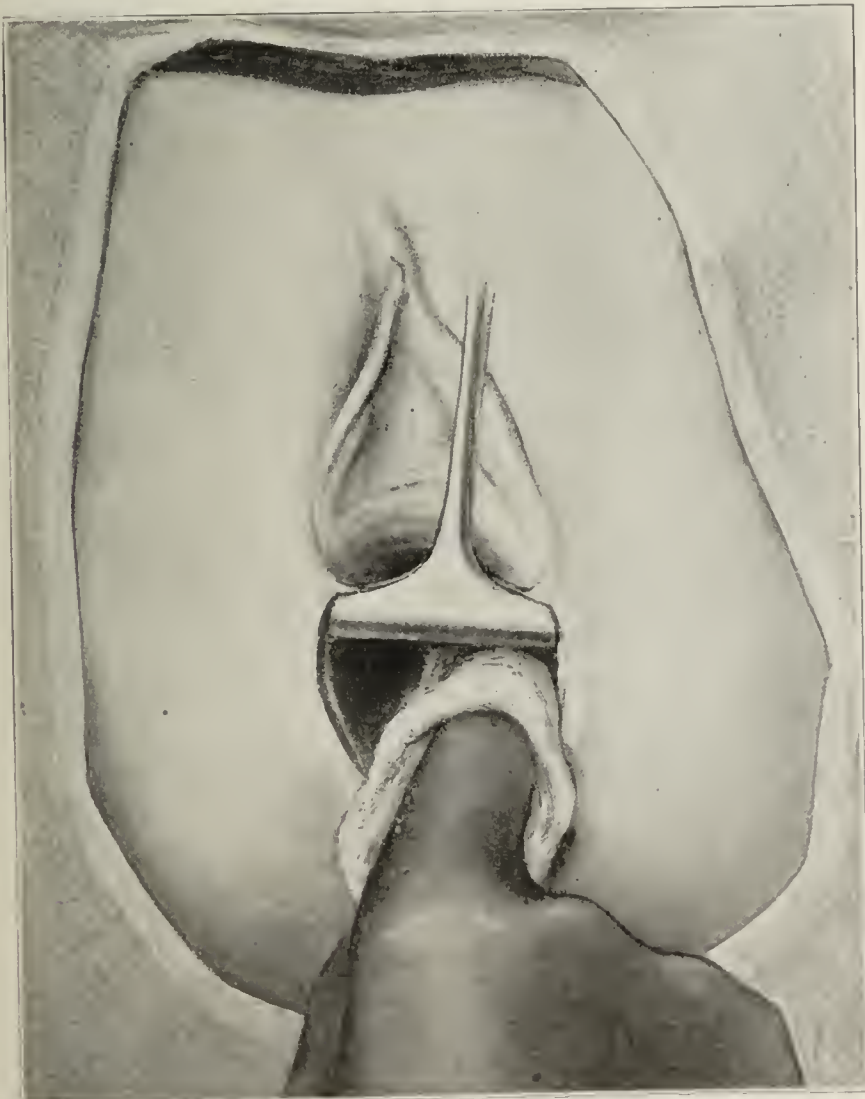


Fig. 2.—"T" forceps grasping upper lip of incision; the gauze-covered finger dissecting vagina from rectum.

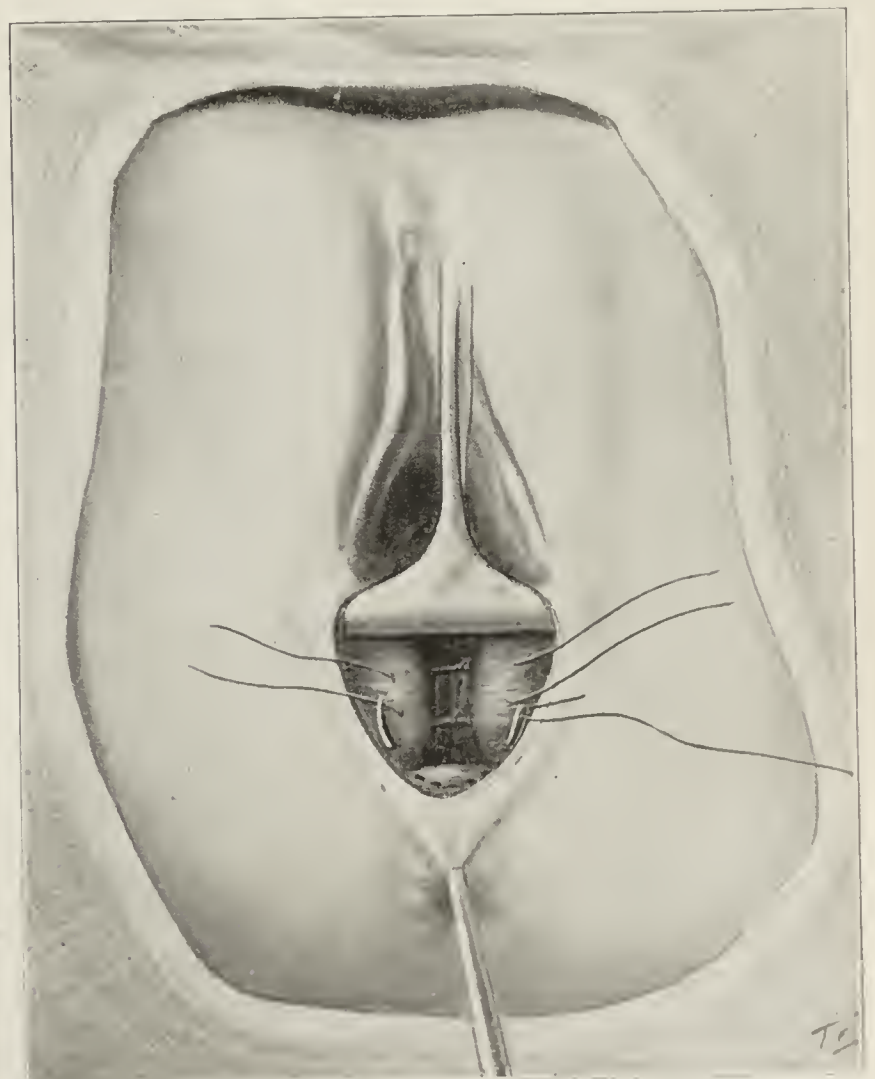


Fig. 4.—The three stitches approximate the superficial fascia and transverse perineal muscles. The upper two are in place; the third stitch also includes a small portion of the levator ani muscle.

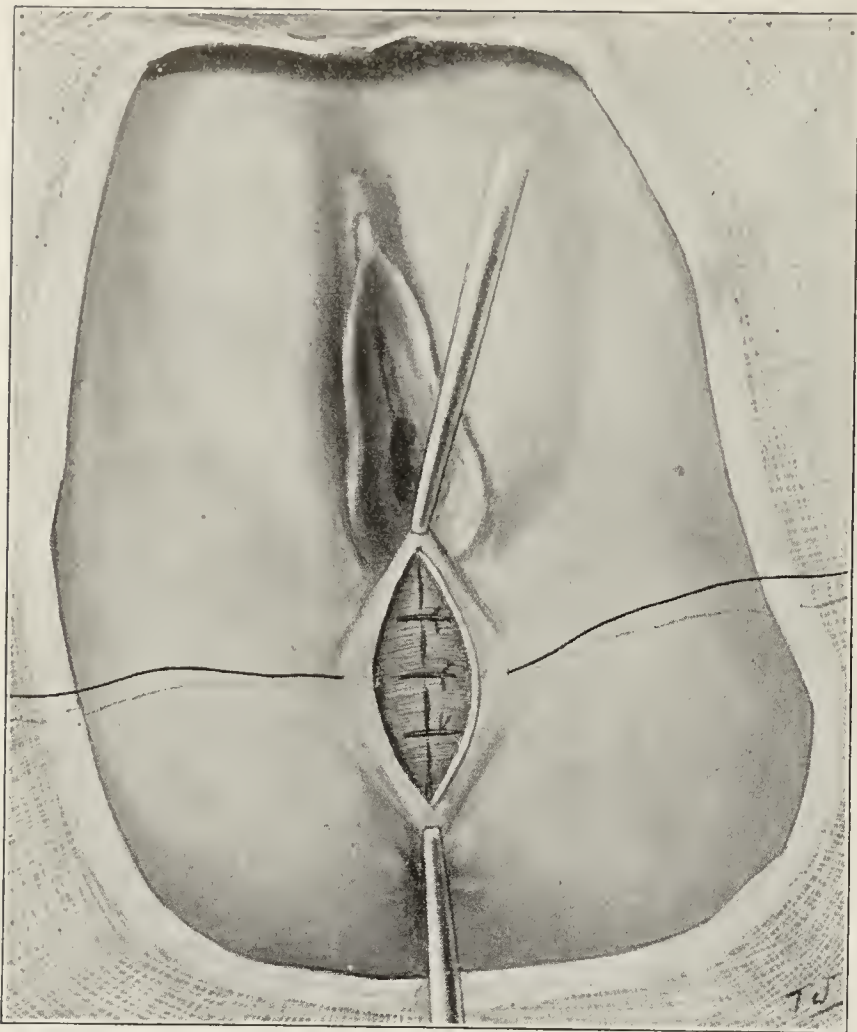


Fig. 5.—Sutures shown in Figure 4 tied and a heavy silkworm-gut ligature passed from one end of the initial transverse incision to the other to close dead spaces. The transverse incision is transformed into a longitudinal incision.

be used in the consideration of the subject for the reason that, when ordinarily used, it means the excision of the vaginal wall and deeper structures. For the same reason I dislike the use of the word "excision" when applied to the removal of scar-tissue. The excision of scar-tissue results only in the formation of new scar-

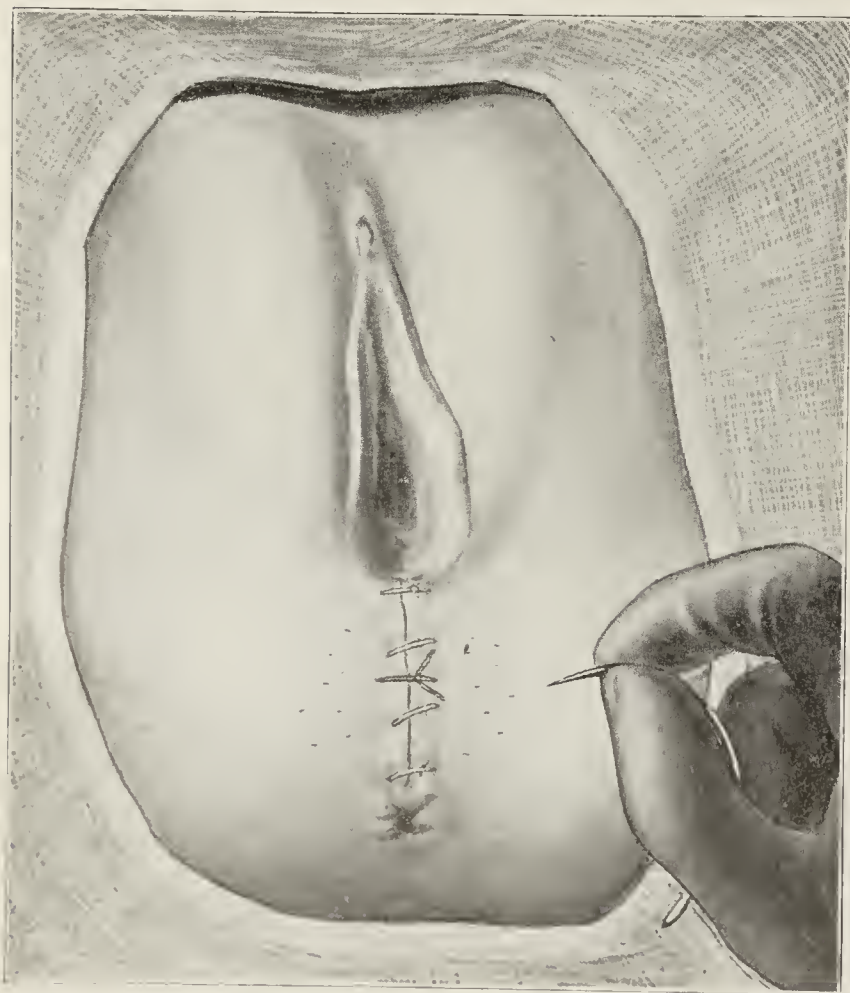


Fig. 6.—Skin wound closed and skin punctured to favor escape of serum.

tissue. It is true that irregular and ragged scars may be modified and rendered less irregular and less jagged by excision; still, when practiced, the union is more or less haphazard.

Dissection, to my mind, seems to express the procedure to be adopted. The limitation of this procedure should be carried out only so far as it will enable the operator to grasp and unite torn structures in a manner looking toward a restoration of function. This should be carried out with the same care as a dissection, preliminary to the union of structures, in any hernia. Its intent, then, is to enable the surgeon to approach the several structures and unite them in accord with their anatomic conformation and function.

The simple operation I here submit does not contemplate the loss of any tissue by denudation and is along anatomic lines; the initial incision is only long enough

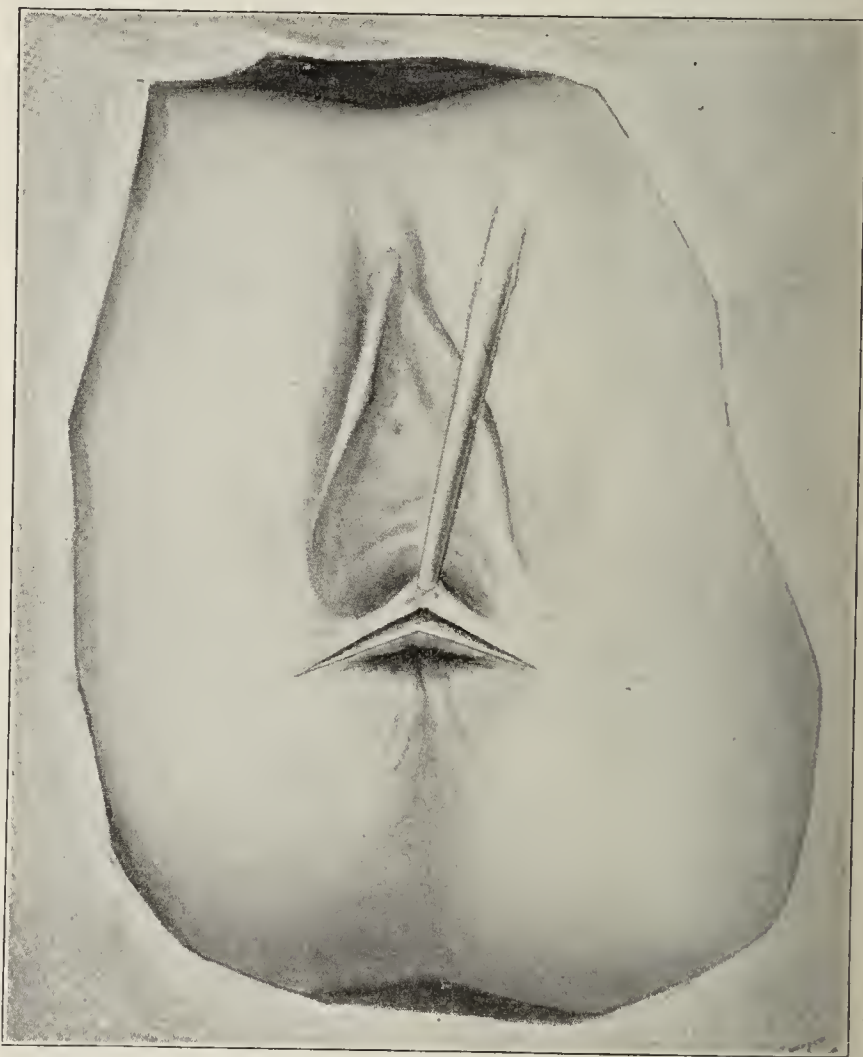


Fig. 7.—Manner of making incision in complete rupture of perineum.

to bring into coaptation the levator ani muscle, the fascia and the transverse perinei muscles, and does not contemplate in any sense the dissection of scar-tissue. It may be described in the following manner: After a thorough preparation, the patient is placed in the dorsal lithotomy position. The forceps is made to grasp the mucocutaneous line (Fig. 1) and another forceps placed a short distance lower, when a knife is carried from left to right making a transverse incision about $1\frac{1}{8}$ inches long. The vagina is then dissected from the rectum with the index finger covered with gauze. As soon as the dissection is carried up far enough, the upper forceps is removed and a small pair of T forceps is applied (Fig. 2) to hold upward the superior flap. The dissection is continued upward to the upper border of the bifurcation of the levator ani muscle to the point where it grasps the vagina. The inner border is then caught by a curved Mayo forceps on the operator's right

side; the same is done on the other side, and the two united with a No. 2 chromicized catgut ligature and tied (Fig. 3). Another suture is placed in the same manner one-fourth inch lower and likewise tied. As soon as the forceps are removed the now united muscle slides upward and often out of sight. Two sutures are all that is needed in most cases to unite the levator ani muscle. No effort is made to dissect off the overlying fascia from the levator for the reason that the fascia, and not muscle, is the most important tissue in the healing of all wounds.

The next step is to secure by suture the more superficial structures, which are the superficial fascia and transverse perinei muscles. This is done by the application of three sutures, of which the last or most posteriorly located grasps a small portion of the sphincter ani muscle (Fig. 4). The skin is then united by plain catgut, so that the wound now is one along the central raphe in direction, and has its long axis in exactly the opposite direction from its initial direction (Fig. 5). At a point which corresponds to the ends of the initial transverse incision, a large perineal needle is introduced. It carries a heavy silkworm-gut ligature through the deeper structures to close all dead spaces, and emerges on the corresponding opposite side. Small punctures are now made in the skin contiguous to the incision, for the

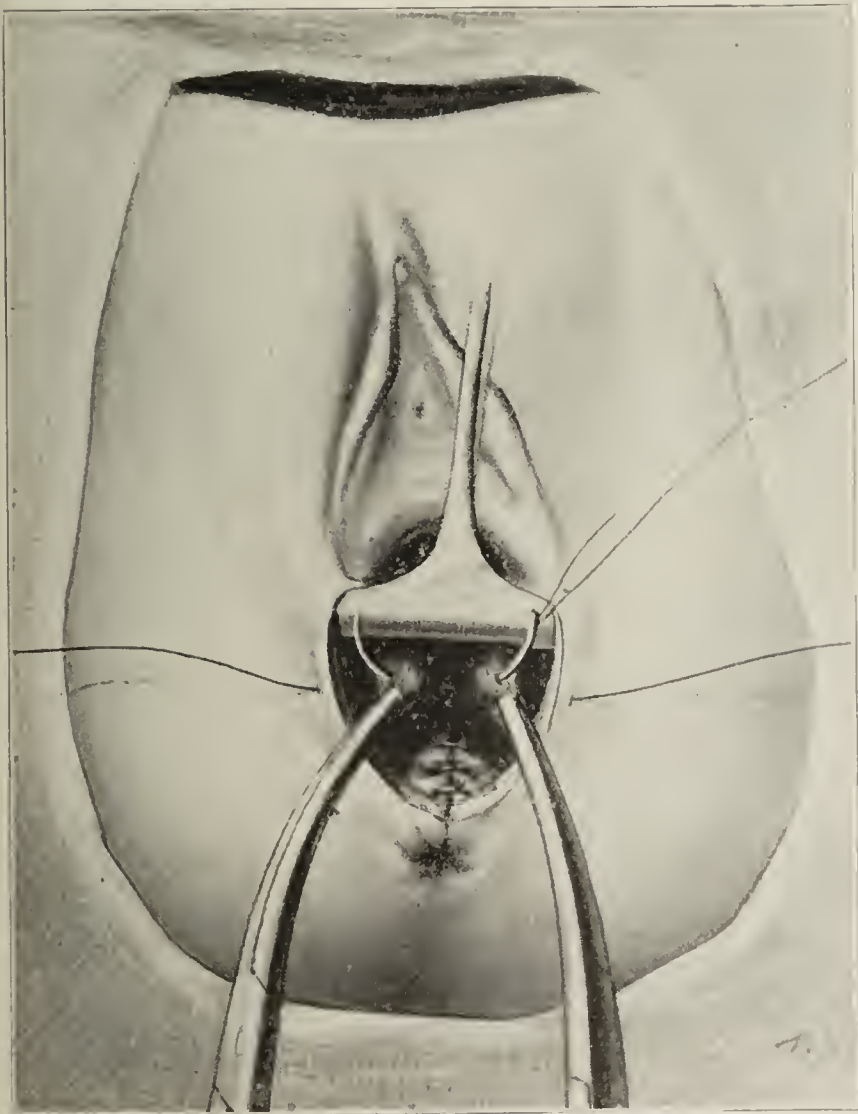


Fig. 8.—Rectum sutured with catgut and first stitch taken in levator ani muscle. The silkworm ligature shown in Figure 5 is also in place.

ready escape of serum and to avoid extravasation. In theory this might be thought to be unnecessary and even ill advised, but experience shows it is beneficial rather than baneful (Fig. 6).

The advantages of this operation are:

1. No loss of tissue.
2. No formation of hard scar-tissue.

3. No danger of soiling the wound, as it is unnecessary even to touch with either finger or instrument the interior of vagina or rectum.

4. The rapidity of execution.

5. The union of like structures and not haphazard union of tissues unlike in structure and function.

6. No effort is made even in irregular cicatrices due to irregular tears to remove them, but only to divide

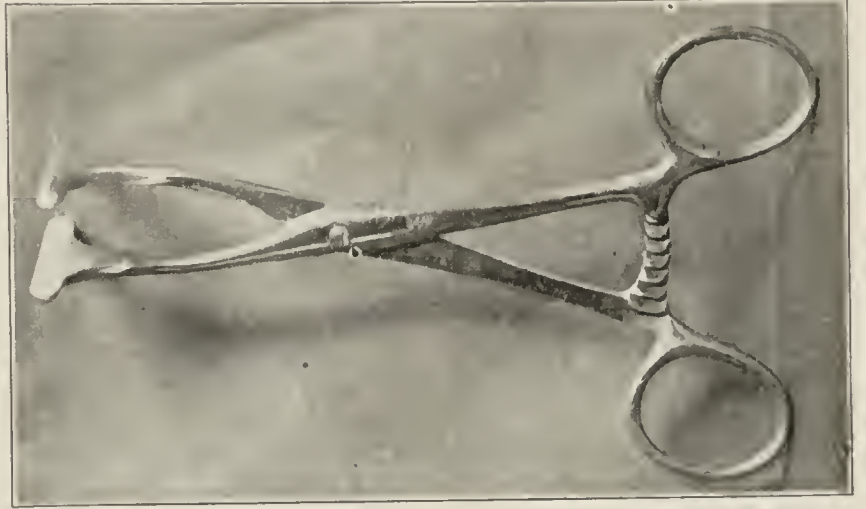


Fig. 9.—"T" forceps used to elevate upper margin of incision.

them at right angles, and to draw together and interpose between their upper and lower segments retracted fascia and muscle. Thus is produced a more natural and better functioning perineum.

534 North Vandeventer Avenue.

ABSTRACT OF DISCUSSION

DR. E. J. ILL, Newark, N. J.: The operation suggested by Dr. Dorsett is the natural outcome of what we have heard twenty-five or more years ago from Tait, Saenger and others. They have advised the flap-splitting operation. There are one or two objections to the operation as practiced by Dr. Dorsett. It is right that we should know what has gone in the past. When Jenks and Saenger first described this operation I performed it a great many times. When later it was suggested to stitch up the muscle separately I did it in conjunction with this operation. One result of that procedure was that in cases in which there was a large amount of vaginal mucous membrane, a subinvolution of the vagina occurred. We have therefore gradually come back to what Emmet described years and years ago, and there is probably no better operation so far as I know. At the same time, Dr. Dorsett deserves the greatest amount of credit for again bringing this matter before us, and no doubt his results have been excellent, for he has done it for a long time. A great many failures of the complete perineorrhaphy are due to the fact that sutures have been introduced into the mucosa of the rectum.

DR. CHARLES P. NOBLE, Philadelphia: It is my judgment that the profession has been at sea on perineal injuries, owing to the fact that the anatomists are all wrong so far as the female perineum is concerned, and the reason is that the description is that of the male perineum.

DR. J. B. DELEE, Chicago: I disagree with Dr. Dorsett when he says that his operation is an anatomic operation and that it restores the anatomy of the parts. The levator ani does not go between the vagina and the rectum. It goes behind the rectum, and the amount of muscular tissue between the vagina and rectum is practically negligible. To prove this put a catheter in the rectum and make a vaginal examination. Ask the woman to contract the levator ani and you will notice that the catheter and the finger are crowded up against the pubis, and that the amount of tissue between the catheter and the finger is not more than a quarter of an inch. Therefore, any operation for the repair of a torn or overstretched levator ani must be done behind the rectum. Such an operation is not a

simple one, and probably the reasons for doing it are not sufficiently strong. We get good enough results with the operation which Dr. Dorsett has shown.

An operation to unite the torn levator ani anatomically may be performed by making a transverse incision between the coccyx and anus, cutting the anococcygeal ligament, reflecting it forward, then by blunt dissection in the ischioanal fossa exposing the levator ani about the region of the distribution of the fourth sacral nerve. A suture placed here and on the opposite side will draw the muscle together behind the rectum and pull the rectum and anus upward toward the pubis where they belong. I have done it on the cadaver and there it works beautifully.

DR. A. GOLDSPOHN, Chicago: This cardinal feature, of dealing with the levator ani muscle and pelvic fascia is the thing for which I have fought during the last twelve years, as will be seen in the June number of the *American Journal of Obstetrics* of 1901, and in the journal named *Medicine* several years earlier, in an article entitled in both instances "Infravaginal Intrapelvic Perineorrhaphy Without Loss of Tissue." The operation I do is substantially the same as that done by Dr. Dorsett, except that I prefer, instead of catching hold of the levator ani muscle with forceps and drawing it down into the median line and then suturing it, to hook into the levator ani, after I have traced with a finger where it and the pelvic fascia lie, with a needle in a holder. I can tell by the pull that I have hold of the right thing. I do that on both sides and unite them. I do not depend on one suture, but place two or three near each other in this the most important part of the procedure.

So far as the operation for complete tear is concerned, Dr. Dorsett has omitted the most important device for closing the sphincter that has been contributed in recent years, first by a German gynecologist and then by Howard Kelly, a couple of years afterward, and it has since then been practiced more generally. It consists in making an inverted V-shaped incision in the superficial surface of the rectovaginal septum, about half an inch above the border of the torn rectum, then carefully dissecting that down as a flap to the border of the rectum, so that you have a membranous curtain of half an inch in width covering the torn anus; and above that you unite the structures by transverse sutures which are protected from contact with the bowel lumen, which cannot be brought about in any other way.

DR. W. B. DORSETT, St. Louis: I was demonstrator of anatomy for five years and I believe I can claim a knowledge of anatomy. I have dissected a great many perinei very carefully, and at the hospital where I was chief surgeon for a number of years I made a special study of this subject. It may be that the anatomy of the women of St. Louis is not the anatomy of the women of Chicago. I did not say in the description of this operation that the levator ani muscle fibers pass around the vagina. We know that the levator ani is a sling in which the vagina and the rectum hang. They come together. These muscle fibers run in the same direction from the coccyx upward into the ramus of the pubis. They come together between the rectum and the vagina. This operation contemplates the union of the split that takes place. To prove that those muscle fibers are continuous place the finger in the rupture of the perineum and you can press out that muscle very plainly. The muscle fiber never tears but splits. You can tell in every case just where this has occurred. Simply take hold of the vagina with the index-finger, pull it downward toward the rectum and you can tell on each side where the tear is by the scar.

Automobile Blaze From Headlight Lens.—An unusual incident is reported from Germany. A motorist stopped and opened the bonnet to attend to a leaky carburetor, when he was surprised to see it take fire. He extinguished the blaze and in perplexity sought the cause. The road was deserted. There was no fire near or in the car; there was no broken insulation. Finally he discovered that the convex lens of the headlight cover had swung around and acted as a burning-glass, focusing the sun's rays on the oily carburetor. This incident is not mentioned as a warning, for such an occurrence is a remote possibility; but it is interesting.

NEGATIVE AIR-PRESSURE IN ACCESSORY SINUS DISEASE

SIMPLE APPARATUS USED IN FRONTAL SINUS EMPYEMA, WITH REPORT OF A CASE

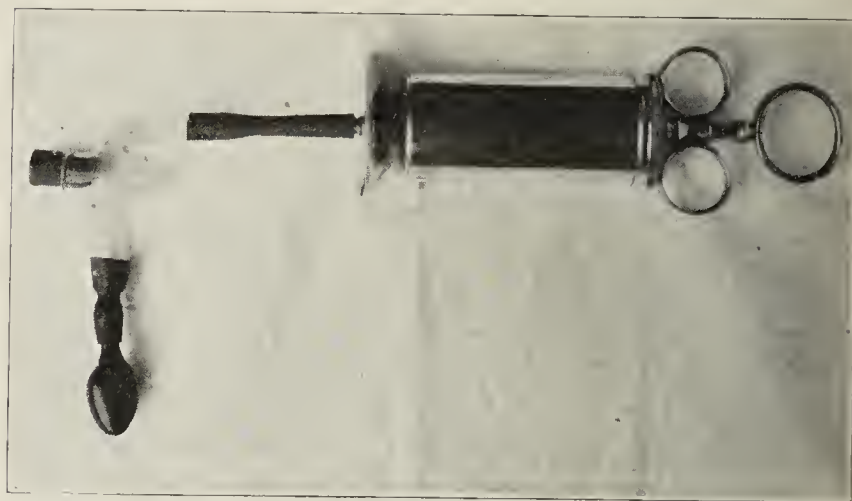
WILLIAM HIBBS TOMLINSON, M.D.

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PHILADELPHIA

Patient.—Mr. J. H. S., aged 40, teacher, presented himself in January, 1911, complaining of severe pain in the right eye and the frontal region. The history was that of nasal discharge with some obstruction to breathing for a number of years, with treatment for "catarrh" at various times. Nasal examination showed pus in the right middle meatus, with polypi obstructing the infundibulum.

Treatment and Course of Disease.—Removal of the polypi and the anterior end of the middle turbinate gave good drainage and relief from the pain. Treatment by applications of contracting solutions followed by argyrol was carried out over a period of several weeks but a slight mucopurulent discharge persisted. Attempts to enter the sinus for purposes of irrigation were not successful. The summer of 1911 was passed with no nasal treatment and with a slight amount of discomfort only, though a small quantity of nasal discharge



Apparatus for negative air-pressure in accessory sinus disease.

was present. In December, 1911, an acute inflammation involving the whole upper respiratory tract caused an exacerbation of the old sinus trouble, with return of violent frontal headache and pain in the eye. The acute symptoms were relieved by treatment along the lines formerly employed, but a profuse purulent discharge was unchecked and there was occasional headache. No improvement was apparent after several weeks and more radical surgical measures were under consideration when treatment by negative air-pressure was instituted. Daily applications of the apparatus were made, and improvement was apparent from the first. The first few days there was sucked down considerable thick foul-smelling pus, but following this the character of the secretion changed and became thin and scanty, until after three weeks the patient considered himself well and passed from observation.

The outfit as used consists of the glass reservoir of a Smith ear suction apparatus, fitted by rubber tubing at one end with a large nasal piece, and at the other with an ordinary ear syringe. The technic of operation is simple: while the patient holds the nasal piece in the nostril he shuts off the entrance of air into the opposite nostril by his thumb and forefinger, at the same time holding his breath, thus elevating the soft palate. Suction made at this time tends to produce a vacuum and the palate is forcibly held up, respiration proceeding through the mouth. When the suction has been applied as long as is desired air is again allowed to enter the

nostrils. This procedure is repeated a number of times during each sitting.

Treatment of accessory sinus disease by negative air-pressure had its inception in the Bier treatment by hyperemia of inflammations in other parts of the body. It was probably first used by Sonderman,¹ though Muck, Spiess, Brawley, Dabney, Pyncheon and others have devised apparatus for its application. That its use has not been general is evidenced by the fact that it is not given as a method of treatment in all of the newer works on rhinology. Phillips,² in his recent book, makes no mention of it. E. R. Lewis,³ in an enthusiastic report of a series of cases treated by this method, directed attention to the difference in the types of hyperemia of Bier, that brought about by constricting bands being in the passive form, with transudation or leakage of serum from the blood-vessels, while that brought about by suction—negative air-pressure—is active with increased cellular activity of the part.

Ballenger, in his latest work,⁴ advises the use of negative air-pressure, tentatively, in sinus disease, and states that "the rationale of the method consists chiefly in the increased hyperemia of the mucous membrane lining the cells. The local nutrition is thereby improved, the cell resistance and leukocytosis increased and the infectious process checked." In addition suction cleanses the sinus of retained secretions, and probably does this as effectually as can be done by irrigation; and it must be borne in mind that a considerable proportion of sinuses cannot be entered for irrigation through their normal openings.

That the method deserves more consideration than it has received seems certain. Its use is painless, and devoid of danger of infecting sinuses not already involved, as is possible in treatment by irrigation. It is my contention, therefore, that it should receive a trial, in conjunction with appropriate intranasal surgery—for obstructions to drainage must be removed—in such cases as offer a chance of cure by the intranasal route.

Frontal sinus disease would seem to offer better hope of success than disease of the antrum, because of the location of natural drainage in the frontal sinus at its most dependent part.

Negative air-pressure as a cure-all in sinus disease no one advocates. That it should be tried tentatively, in selected cases, before advising radical external operations, seems justified both by reason and by performance. This trial it seems not generally to have received.

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COMPLICATIONS IN TABES DORSALIS *

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NEW YORK

The complications of tabes are both numerous and varied. They may involve any of the viscera, the nervous system, or the circulatory apparatus; they may extend into the province of the surgeon or the orthopedist. Many organic diseases, as well as many mental con-

ditions, may occur in conjunction with tabes. These facts will seem neither unusual nor strange if one reflects that tabes extends over a long period of time, during the greater part of which it is progressive. Another and more potent reason still is the fact that tabes is specific in etiology. The complications of tabes, numerous and varied as they are, are yet, preeminently, the complications of syphilis.

The most extensive and all-embracing group of complications are the crises. Of all these the one most frequently encountered is the crisis of pain. It occurs in 88 per cent. of the cases. It may involve trunk, limbs or viscera. It may be of rare or frequent occurrence, of long or short duration.

TREATMENT OF CRISES

The treatment is first the application of local measures, such as plunging the leg into hot water, painting with iodine, bandaging, mustard, chloroform liniment, faradization, and ironing with a hot iron; next the administration of the simpler drugs such as aspirin, pyramidon, salipyrin and codein. The cautery will often prove of great value in those attacks of pain involving the trunk.

The tabetic, subject to the crises of pain, should be instructed in the use of simple applications and simple remedies. He should be in a position to find these remedies and at a moment's notice marshal them to his aid. He should persist in trying first one and then another; it is a curious but none the less undeniable fact that what serves as a relief to one attack fails utterly in the next, and vice versa. If the pains still persist or, as they often do, tend to get worse, the patient should go to bed. A tabetic in a crisis of pain needs rest. To allow him to move about restlessly only invites demoralization and wastes energy. The last resort is the hypodermic of morphin. If all else has failed, it is warranted and indicated. It is, however, warranted and indicated only with this proviso—that it be administered by the physician.

The gastric is the next most common crisis. The treatment of the gastric crisis requires more thought, more skill and more common sense. The most serviceable drugs are cerium oxalate in 5-grain doses every half hour, minute doses of strychnin, antipyrin and bicarbonate of soda. Methylene-blue in 1-grain capsules has been suggested. Nitrate of sodium has been advised. Oppenheim speaks of injections of cocain into the epidural and subarachnoid spaces of the spinal canal. Levy and Pope have added to these alcohol and stovain. The different alkaloids of opium can be tried, as dionin and codein. Vallas Cotte has suggested stretching the solar plexus. These latter methods are, however, far too radical. Again the last resort is the hypodermic of morphin—to be administered by the physician only. There is a point in the management of the gastric crisis which deserves a little more consideration than is usually accorded to it. I refer to the intercurrent treatment. These patients should be treated not only during the attacks, but also between the attacks. Here the object should be to increase the nutrition and to add to the general resistance. Every effort should be made to improve the digestion, to induce the patient to eat fat-producing foods, and in every way to prepare him for the next attack. In this way a gastric crisis, when it comes, will do a minimum amount of damage, and leave behind as little destruction and wreckage as is possible. In the management of all crises in tabes, three great factors should never be lost sight of—rest, super-

1. Sonderman: München. med. Wchnschr., Jan. 3, 1905, p. 17.

2. Phillips, Wendell: Diseases of Ear, Nose and Throat.

3. Lewis, E. R.: Arch. Otol., 1908, xxxvii, 471.

4. Ballenger, W. L.: Diseases of Nose, Throat and Ear.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

vision and nutrition. An old maxim but a good one is that a tabetic who is losing weight is losing ground.

Among the surgical measures essayed for the relief of the gastric crises are the operations of gastro-enterostomy, of stretching the solar plexus, and the one known as Förster's operation. The two former have few followers, and can be dismissed from further consideration. The latter consists of a resection of the posterior spinal nerve roots. Thomas and Nichols reported a case two years ago in which the result had proved satisfactory. Rangi of Vienna has recently reported eleven cases in each of which he divided three or four roots. Five of the patients were helped; in five there was no change. There were no deaths. At the April meeting of the German Surgical Society in Berlin, in speaking of the operation, Förster himself reported that there had been 119 known cases in which, as he said, only thirteen had been followed by death.

The operation is a serious one; the contra-indications are thickened arteries and cardiac complications; the proportion of deaths, according to Förster himself, is over 10 per cent. The results have not been all that could be expected. I have had no experience with this operation, but it seems to me that the tabetic is hardly a fit subject for major surgery. It should be kept as a last resort, and then tried only in the most obstinate and serious cases, with the full comprehension of the dangers and the sometimes vain results. Under such circumstances it may be indicated.

VARIOUS COMPLICATIONS

The vesical complications of tabes are those which may be divided into varying degrees of retention and varying degrees of incontinence. The essential point in their treatment, as Squier says, is attention to detail. Any possible source of peripheral irritation must be investigated. Chronic congestion of the prostate and deep urethra must be treated. A congenital tight meatus should receive attention and an old stricture be dilated. A cold sound will often relieve painful spasm of the bladder; if cystitis has already developed, resort must be had to hexamethylenamin and bladder washings. The catheter should be kept away from the tabetic as long as possible. If at last it has to be used the most careful surgical antisepsis must be followed. The hypodermic needle and the catheter are two instruments which every sufferer from tabes should be kept in ignorance of for as long a time as possible.

The importance of the urinary complications can best be illustrated by the fact that they occur in some form in 90 per cent. of the cases of tabes; in 70 per cent. there is residual urine, and almost one-half of the patients suffer from cystitis. Extending up from the bladder there may follow a host of complications involving the ureter, the pelvis of the kidney and the kidney itself. These complications are not only common but are also extremely serious; Gowers, in speaking of the kidney complications, says that "they are the most common, they develop insidiously and manifest themselves only when life is in peril." There has always been a feeling in my mind that in tabes not sufficient attention is given to the care of the urinary tract. In tabes the reaction of the urine is of far more importance than the reaction of the Wassermann test.

Among the unusual complications which appear in tabes are the so-called spontaneous fractures. These, more common in women than in men, generally occur in the long bones and during the ataxic stage of the dis-

ease. This is partly due to the fact that these bones are more exposed and more liable to be the seat of injury. Trauma, a dangerous occurrence in tabes, may serve as the starting-point of one of these fractures, of a perforating ulcer, or of an arthropathy. These fractures may result from a muscular strain, as the joints are unduly lax, or from certain pathologic changes which may have occurred in the neighboring joints, rendering the bones unduly sensitive and brittle. These spontaneous fractures generally occur in those long bones which are adjacent to diseased joints. In tabes, therefore, a pathologic joint suggests a pathologic extremity.

These joint conditions are more usual than even the fractures. The cardinal clinical features are the sudden and enormous swelling with neither pain nor tenderness, the rapid progress, and the chronic course. They may vary anywhere from a simple effusion to the classic Charcot joint. The latter occurs in two forms, either the atrophic or the hypertrophic. In the former there is an acute disorganization with an erosion of the cartilages and a wasting of the bony surfaces, while in the latter there is an enlargement of the bony ends and a thickening of the ligaments. In both there is an effusion. The atrophic variety is most apt to be seen in the hip and shoulders, the hypertrophic in the knee and elbow. Any of the joints may be involved; most frequently, however, the larger ones. Gowers and Taylor give the proportions as knee forty-five, hip twenty, shoulder eleven, tarsus eight, elbow five, and ankle four. The jaw and spine rarely may be affected. These joint conditions do not respond well to treatment. The simple effusion tends to absorb; later on, however, it is apt to reappear in a more lasting and virulent type. The tendency of most of the Charcot joints is to go on to a considerable and permanent deformity. Church describes the condition very well when he says that "old tabetic joints present merely a bag of bony fragments."

For the treatment of these conditions many measures have been tried. Counter irritation, puncture and mechanical appliances all have their advocates. The best remedies are rest and mechanical appliances. The one important point to bear in mind is that the earlier the affected joint is relieved from use and pressure the more lasting and more satisfactory will be the results.

It may not be out of place here to speak of a scoliosis occurring in the vertebral column. Certain cases have been reported in which such a scoliosis has been found in the neighborhood of the lumbar vertebræ. From this the deduction has been made that in certain cases such an arthropathy might through mechanical means and pressure give rise either to girdle pains or to pains lower down.

The diagnosis of these vertebral arthropathies is difficult—almost impossible—to make. It has therefore been suggested that in every case of tabes in which there is suffering from attacks of pain there should be taken an *x-ray* picture of the vertebral column. I simply mention this for what it is worth.

A curious complication, and one which is frequently passed over, is the perversion of function of the sympathetic system. The tabetic is peculiarly liable to coldness of the extremities and capillary stasis, even going on to the extent of a mild degree of erythromelalgia. Cases have been reported in which the whole body shows a degree of cadaveric lividity. These patients easily get warm when covered in bed and respond too readily and too rapidly to the hot bath.

Many other minor complications affect the extremities and joints, such as rupture of the Achilles tendon and perforating ulcer of the foot. Floating kidney along with tabes has been reported. Its occurrence may be accounted for by the laxness of the ligaments. Several skin conditions are known to complicate tabes, especially those that are herpetic in character. Glycosuria and diabetes should be mentioned as occasional complications.

Among the complications are many organic conditions. Those which may easily be overlooked, but which may have considerable bearing on the immediate future, are the circulatory complications.

Inasmuch as tabes is derived from a specific origin, it is to be expected that the other results of syphilis will accompany it. An insufficiency of the aortic valves, an aneurysm or a general endarteritis is the usual circulatory complication. The heart condition sometimes simply shows an unusual rapidity. These cardiac complications, to my mind, are simply the expected complications which one would be on the lookout for in any specific condition.

To the psychiatrist tabes is interesting. The mental complications are numerous and varied. Meyer has reported the undoubted occurrence of paranoia, of circular insanity, of manic conditions, of simple primary dementia and of dementia præcox in the course of tabes. Starr has spoken of a tabetic who became quite maniacal, only to recover. There can be no question that any of the acute psychoses may occur wholly independent of either the tabes or the specific origin of the tabes. In all of Meyer's cases there was a total absence of any of the cardinal signs which go to distinguish general paresis. There may also be a condition resulting from an active syphilitic exudation, which, by the clinical symptoms of optimism and carelessness, is suggestive of general paresis and yet, quite unlike paresis, yields to mercury and iodid.

General paresis itself may complicate tabes. The two conditions are so similar in origin and in symptoms that it is not an unusual condition to encounter cases which seem at one time to resemble the one and at another the other. It is impossible in these cases to differentiate; it is wisest to defer judgment until the complete picture is presented and then to balance the physical with the mental symptoms. Even the average tabetic, who is having, so far as the mental symptoms are concerned, an uncomplicated and simple course to his disease, is generally admitted to be not quite normal mentally. He is emotional, easily influenced and subject to any and every force with which he comes in contact. He is apt to be optimistic and, fortunately, to look on the steady onward march of his condition with comparative freedom from anxiety. He is unusually susceptible.

It is fairer, then, to assume at the outset that the tabetic is not a normal individual. Kraepelin says that we have a right to assume a psychosis peculiar to tabes. On this point he says: "The distinguishing feature of the tabetic psychosis appears to be an acute hallucinatory excitement, which presents a marked resemblance to the hallucinatory insanity of the alcoholic." The argument which some will make that these cases are not cases of tabes but are incipient cases of general paresis is not a valid one. The autopsy will show distinct lesions of tabes, while the clinical signs, such as defective memory, defective speech or handwriting, will be absent. There will be no facial tremor. If there should

still exist doubt, an examination of the cerebrospinal fluid should be made.

A rarely mentioned but by no means unusual complication is morphinism. It is most apt to occur in cases of long standing and in patients who have been victims of some of the crises. It has the usual tendency to destroy the higher powers and to render the patient selfish and difficult to live with. It is especially apt to be found in patients in homes for the incurable and in almshouses. Morphin, while it alleviates the sufferings of the crises, yet adds to its miseries. Except in extreme cases it is to be avoided in tabes as much as, if not more than, in any other disease.

Of greater interest to the neurologist are the complications with the organic nervous diseases, such as paralysis agitans, acute myelitis, lateral sclerosis, general paresis, exophthalmic goiter, hemiplegia and progressive muscular atrophy.

The complication of hemiplegia with tabes is more constant than is generally believed. This is partly due to the fact that the hemiplegia may be transitory or permanent, functional or organic. The mere recognition of the fact that the vast majority of cases of tabes are syphilitic in origin at once suggests the possibility of the occurrence of a transient syphilitic hemiplegia; the acknowledgment of the fact that tabes is a chronic disease and that its sufferers are prone to exhibit a certain psychic degeneration suggests the possibility of the occurrence of a functional paralysis; and finally the very fact that the tabetic is a sufferer from endarteritis suggests the occurrence of hemorrhage and thrombosis, resulting in a hemiplegia.

A rare combination is that of tabes and progressive muscular atrophy. By this I do not mean the ordinary atrophy which is found in many tabetics. Statistics go to show that from 15 to 20 per cent. of all cases of locomotor ataxia give evidence of some degree of atrophy. This atrophy is known as tabetic atrophy, and differs in many respects from the atrophy which is characteristic of the disease known as progressive muscular atrophy. Dr. Collins describes the tabetic atrophy very aptly when he says: "The clinical characteristic features are (1) slow progression; (2) absence of fibrillary twitchings; and (3) absence of reaction of degeneration." To this description Gowers adds yet a fourth point—the occurrence of the atrophy in the muscles of the tongue.

Apart from this tabetic atrophy there do occur cases in which along with the tabes there are to be found the cardinal signs of a progressive muscular atrophy—the presence of fibrillary twitchings, a diminished reaction to both faradism and galvanism and a distribution to the upper rather than the lower extremities. The number of such cases reported is small; it does not exceed ten or fifteen; therefore I feel justified here in mentioning a case of this type which we had under observation for a number of years at the Vanderbilt Clinic.

CASE REPORT

The patient, aged 44, married, and the father of thirteen children, was by occupation a piano-tuner and maker. In childhood he suffered from measles, scarlet fever and diphtheria; later on from pneumonia and a slight attack of blood-poisoning. The question of a specific lesion is not absolutely definite, but it is more than probable that at the age of 28 he did contract syphilis. The illness for which he came to us dated back about six years. He had been exposed to very cold and very stormy weather, following which he had slept in a room without heat. Immediately after this he noticed that he had no longer any control in

his left foot. Then he began to complain of great muscular weakness in the neck, back and arms; the fingers were numb, and he had great difficulty in using his hands for the fine motions. The patient was poorly nourished and markedly emaciated. There was some wasting of the muscles of the right hand and of the right shoulder. The scapulae were winged. The neck muscles were atrophied, so that the head hung well forward. There was a considerable degree of atrophy of the left hand and arm. Fibrillary twitchings were present over the whole body, but especially in the legs. There was wasting of muscles of the interossei of both hands; the right hypothenar eminence was wasted, and the face showed atrophy. The electric examination displayed a diminished reaction to both faradism and galvanism. In addition to these symptoms of atrophy the patient had Argyll Robertson pupils, lost knee-jerks, the Romberg sign and ataxia in all extremities. He had difficulty in passing urine. As far as his mental symptoms were concerned, he was perfectly clear and quite cognizant of his condition.

Here then was a patient who displayed four of the cardinal signs of tabes dorsalis, and at the same time displayed an atrophy which cannot be classed as being one of the simple tabetic atrophies, but rather an atrophy characteristic of progressive muscular atrophy. Another feature of this patient's condition was that the wasting involved not the legs but the arms, and that it had steadily progressed from the interossei of the hands to the scapular muscles and the face.

In tabes the occurrence of optic nerve atrophy is so common as to deserve mention. It occurs in 5 per cent. of the cases. It is more apt to complicate those cases in which there is already an affection of the eye muscle; it is also a by no means unusual way for the disease to make its first manifestation. A curious but interesting fact in regard to optic nerve atrophy is that it rarely occurs in the ataxic cases. It is true that blind tabetics walk fairly well while ataxic tabetics are those who can see. There is no remedy for the atrophy and it is generally progressive.

I have still left many complications unmentioned; there are those involving the muscles of the eye; there are those involving the cranial nerve; there are the minor digestive disturbances and there are the rectal, the laryngeal and the intestinal crises. It would be quite impossible in a paper of this length and limitations to treat of all. My object has been to consider some of the most important, some of the rarest and some of the most interesting.

54 West Fiftieth Street.

ABSTRACT OF DISCUSSION

DR. L. HARRISON METTLER, Chicago: Dr. Hunt has referred to various conditions as complications of tabes dorsalis, and correctly so according to the older conceptions of this disease. But what is tabes dorsalis but a late form of syphilis with certain prominent localization symptoms? It seems to be the last stage of syphilis. Call it metasymphilis or parasymphilis for clinical purposes, if you like; the fact remains that it is a product of syphilitic infection. It is syphilis that is the disease under discussion and the spinal and cerebral dominance of the clinical manifestations represent merely a stage and localization of this disease process. The complications mentioned by Dr. Hunt are syphilitic manifestations.

If the emphasis is to be laid on syphilis as the essential disease it may be difficult at times to determine whether the so-called complications are really complications of tabes or whether tabes is a complication of these. The question is an important one from the pathologic and therapeutic points of view. It suggests the advancement that neurology is making toward a broader and more scientific conception of

disease than that which formerly used mere clinical syndromes and called them diseases, as witness Ménière's disease, Landry's paralysis, and the whole gamut of the headaches. Mere symptomatic medicine is giving way to the more scientific physiopathologic conception of disease.

Lately, we have seen this advance strikingly illustrated in connection with acute anterior poliomyelitis. Up to the present, a more prominent group of clinical localization signs has established our general conception of the disease. We recognize that the pathogenetic process is something far more extensive than a lesion of the anterior horns of the spinal cord. The disease is a particular variety of generalized infection with possible lesions in all parts of the nervous system, as well as in other organs of the body. Acute anterior poliomyelitis is but a phase and a localization of the disease in certain individuals and is therefore not a disease but a mere clinical syndrome. When we shall have discovered the specific germ that gives rise to this form of infantile palsy and named it, we shall, as we have already done with regard to syphilis, tuberculosis, and other specific forms of infection, name the disease after the infection, and cease calling its mere local manifestations disease entities. One is no more justified in speaking of tabes dorsalis and general paresis as distinct and separate diseases than one would be in speaking of tuberculosis of the hip-joint and tuberculosis of the lungs as separate and distinct diseases.

DR. CHARLES K. MILLS, Philadelphia: From my limited experience with crises, especially the gastric crises, I have no doubt that in specially chosen cases the cutting of the posterior roots is one of the most efficient and relatively permanent methods of getting relief. In Philadelphia we do not think that, even in a tabetic, unless the case is greatly advanced, unilateral laminectomy or even a complete laminectomy is a dangerous procedure. I think Dr. Hunt's statement that tabes occurs in different forms of mental disease should have been turned the other way. Tabes occurs not infrequently in those who are potentially the victims of, or are liable by predisposition to, forms of mental disease; and I can see no reason why a dementia præcox patient or a patient with primary dementia in later years, or one with paranoia or one even with a tendency to or history of manic-depressive insanity may not under the impetus of acquired syphilis have general paralysis. Interesting cases of this kind are seen, and, indeed, the hereditary predisposition to the other form of disease in some cases decreases the resistance in such a way as to lead to metasymphilitic disease. An interesting historical instance of general paresis occurring in paranoia was, in my judgment (and it was the judgment of a few others), that of Guiteau. It is of importance for us to be able to group different phenomena of the same etiology. It is a scientific convenience to do this. Tabes and general paresis are perhaps closely allied, if not identical diseases in their pathology, except for the differences in the site of the lesions, but these diseases are not myelitis, encephalitis or meningitis of syphilitic origin. Each of the latter gives a more or less independent clinical entity.

Our friends, the Freudians, seem also desirous to have us abolish the term "diseases" and substitute "complexes." What does it matter? The complexes are simply groupings of psychic or neuropsychic phenomena. Groupings of phenomena constitute diseases in one of the accepted usages of the designation.

DR. C. R. BALL, St. Paul, Minn.: It seems to me that, if we are to regard tabes as a parasymphilitic disease, Dr. Hunt has failed to mention one of the most important complications, that is, syphilis itself; syphilis may and often does complicate tabes, either as a meningitis, gummatous or arteritic process. This, no doubt, helps to explain the somewhat irregular successes which one obtains sometimes in tabes with antisymphilitic treatment. It may help to explain also some of the mental conditions which Dr. Hunt mentions in his paper. I have found salvarsan extremely valuable in two cases in the treatment of shooting pains. In one case, in particular, in which the pain was hard to relieve and resisted the eustomary.

remedies, an intravenous injection of a full dose of salvarsan stopped the pain. I have found it quite effective, if there is considerable pus formation in the bladder and cystitis, to use the combined staphylococcus vaccine or the staphylococcus and colon bacillus combined. In several cases the cystitis has improved greatly under this vaccine therapy.

DR. A. L. SKOOG, Kansas City, Mo.: In the last few years there has been a vast amount of work done in respect to the study of the cerebrospinal fluid. I believe that in nearly all cases of tabes, especially in the earlier stages, a lumbar puncture should be performed. While the majority of the cases in which I perform lumbar puncture have not resulted in any relief from any of the symptoms or from the progress of the disease, yet there have been a few cases in which benefit has been derived from it. A real estate man, aged 56, formerly a locomotive engineer, who denied ever having had specific disease, consulted me especially for severe pains which had been diagnosed as rheumatism by several physicians. The patient had been unable to perform any labor for a period of about two years. His disease had been present for about five years, as far as he knew. He had numerous severe typical crises, and had never received any marked benefit from treatment. He also had a number of classical symptoms of tabes which I will not mention. I performed a lumbar puncture, as I stated to him frankly, largely for diagnostic purposes. I found that the cerebrospinal fluid was under much pressure, and withdrew about 50 c.c. The patient experienced almost immediate relief from his pains, and continued improved for a period of three weeks, improved in his physical condition and gained in weight, having been quite emaciated. He returned to me for another lumbar puncture, because of the relief experienced as the result of the first puncture. A second one was performed during the third week, and again he received marked relief. I again withdrew a large amount of fluid. In brief, I performed five lumbar punctures in the course of two years, since the case has been under my observation, and each time the period of freedom from pain has been longer. It is now about five or six months since the last puncture was performed, and the patient is able to do some light work. He has marked tabetic symptoms, but his reflexes have improved, and there is a slight improvement in the paralysis.

DR. TOM A. WILLIAMS, Washington, D. C.: Before adhering to the classical doctrine that the tabes is essentially different from syphilis, we have to take into account certain considerations as to the establishment of immunity in an individual, and certain considerations concerning the accessibility of syphilitic lesions to remedies, which are set forth by Nichols of the Army and are available to everybody.

In the second place, the constancy of lymphocytosis in tabes is a circumstance against which strong argument must be brought before one denies that the process of tabes is a specific meningitis, and that dorsal tabes is not merely a secondary effect of a luetic radiculitis extending from this, because of the anatomic structure of the spinal roots and their meningeal envelopes.

There may be a degree of central irritation which, though insufficient in itself to cause lightning pains of crises, is capable, when augmented by peripheral excitations, of giving rise to the phenomena which we know as crises. In those cases the removal of peripheral irritation will remove the symptom temporarily. A concrete illustration is a case I saw recently. The patient had been seen by Osler and many eastern neurologists without benefit. The last neurologist in New York gave salvarsan, but the pains grew much worse. It was one of the benign slow cases of tabes. There was a history of syphilis thirty years ago, lightning pains sixteen years ago, no bladder symptoms, loss of knee-jerks and ankle-jerks, no ataxia; Wassermann test positive. Instead of deep pain sensibility being absent, it was vastly increased. I argued, therefore, that there was definite irritation of the nerve, that we might by eliminating other irritants, without attacking the syphilis, which was at the origin of the trouble, relieve the patient; and it proved to be so. I discovered a factor in the case which had not been taken into therapeutic

consideration. The patient had been in the habit of taking three drinks a day and five cigars a day all his life. My theory was that the added peripheral irritation from the toxins of these was sufficient to cause the lightning pains. By diminishing the peripheral irritation I thought I could decrease the lightning pains. I began a process of elimination by baths and diet and cut down the alcohol and tobacco, whereupon the pains disappeared, and the man is comparatively well. Hence, even though peripheral measures themselves when applied to the limbs may not interfere with the lightning pains of tabes, yet one must consider other factors than the causal syphilis in planning treatment.

DR. ALBERT E. STERNE, Indianapolis: It is not very remarkable that we should find complicating conditions in a constitutional disease like tabes. We are entirely too prone to limit our conception of the entity of tabes to the nervous system, and that holds similarly true for paresis. Neither the one nor the other is a disease confined to the nervous system, either central or peripheral. The pathology of paresis and the pathology of tabes extend beyond the confines of the central and peripheral nervous systems. We find pathologic changes in many regions of the body outside of the nervous system. Therefore, it is not astonishing that now and again we should find real complicating conditions arising from those organs which are themselves involved. We should look on tabes and paresis as being closely allied as constitutional diseases, and not as diseases merely of the nervous system.

Dr. Hunt alludes to arthropathies and spontaneous fractures as being peculiar to the ataxic stage. My experience in my own research, especially between 1890 and 1892 in the examination of the records at the hospitals of Berlin, shows the arthropathies in the preataxic stage rather than in the ataxic stage, and, moreover, that the arthropathies are in their incidence actually intracapsular fractures. The most trivial exterior traumatism serve to provoke such fractures. You will some of you recall the case of Madame Corteret, who on being lifted from bed broke her right femur; and, then, while she was being put back to bed the left was fractured. This brittleness of bone is characteristic in tabes, running as high as 10 per cent., perhaps, or at any rate, appreciably high. Neither the arthropathies, the perforating ulcers, nor the various crises are complications. They are essentially tabetic.

I believe the greatest commendation should be given to Dr. Hunt for the reason that he has strongly emphasized the dangers of the hypodermic needle. Physicians are naturally too prone to allow the control of the situation in chronic disease, whether of this type or any other, to get out of their hands; and this they have no right to do, where morphin and other opiates are used.

DR. HUGH T. PATRICK, Chicago: In the therapeutics of the pains of crises or crises of pain, I think I have used one or two things that Dr. Hunt did not mention as he was going through the category. One of these is exceedingly simple and sometimes exceedingly effective; namely, very large and very hot colonic flushings, in the knee-chest position, coincident with rest in bed. I think any crises should be treated first and foremost by rest in bed.

Another thing which is undoubtedly effective in some of the crises of pain is injections of sodium cacodylate into the spinal canal. Many of the members may not know of it. Dr. Heym, of Chicago, first proposed it. I cannot follow Dr. Heym in his various theoretical considerations, but the injection of sodium cacodylate into the spinal canal is very helpful in some cases. One manifestation of tabes which may be considered a complication is the acute exacerbation. In the books we read about acute tabes. I think in the vast majority of cases these are instances of acute exacerbation. In these acute exacerbations generally there is well-marked weakness in the legs. Since spinal puncture has become common, I have found coincident with the exacerbations, increase in the lymphocytosis. For this condition, together with rest in bed which is absolutely essential, I give active mercurial treatment.

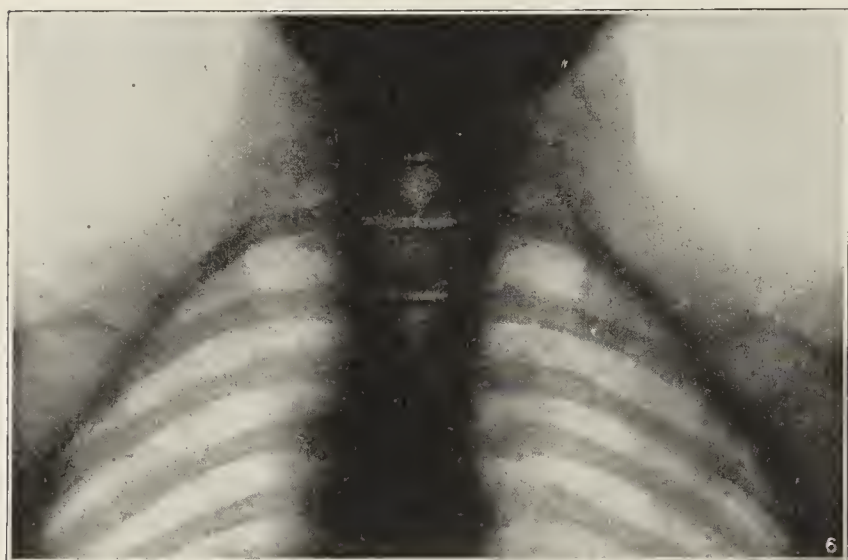
CONGENITAL ABSENCE OF BOTH CLAVICLES

MAX REICHMANN, M.D., CHICAGO

Among the congenital defects the absence of both clavicles is one of the rarest findings. In the available literature, I could find only twenty-two cases recorded in a paper by Hultkranz.¹ According to this author, usually both clavicles are found missing (in only three cases was the defect found to be one-sided) and Hultkranz also states that except in two cases the defect was incomplete.

Through the kindness of Dr. C. R. Forrester, I am able to add another case to the two of complete absence of both clavicles.

The patient, W. M., aged 32, merchant, is of a normally developed family. His father died from an affection of the heart; his mother and one sister are living and, as far as his knowledge goes, do not show any abnormalities in the development of their skeleton. The patient is of small size with well-developed muscles. Neither clavicle can be palpated; in the place of the clavicles, however, one can feel a strong cord. The two shoulders can easily be brought together in the midline of the body. The roentgenologic examination shows a complete absence of both clavicles; the palpable cord must therefore be of fibrous nature. Hultkranz emphasizes the fact that the sternal portion of the bone in these cases is always developed as a rudimentary clavicle having one-third or one-half of the length of the normal bone, while such a rudimen-



Radiograph showing complete absence of both clavicles.

tary development of the acromial part is an extremely rare occurrence. My plate, however, did not show any evidence of such rudimentary development. The quite frequent malformation of the skull which Hultkranz found in thirteen of the twenty-two cases mentioned, was also absent in the man examined by me. The coincidence of this malformation with absence of the clavicle is explained by the fact that the ossification of the skull and the clavicle sets in at the same time (second month).

1606 Mallers Building.

A NEW SPHYGMOMANOMETER

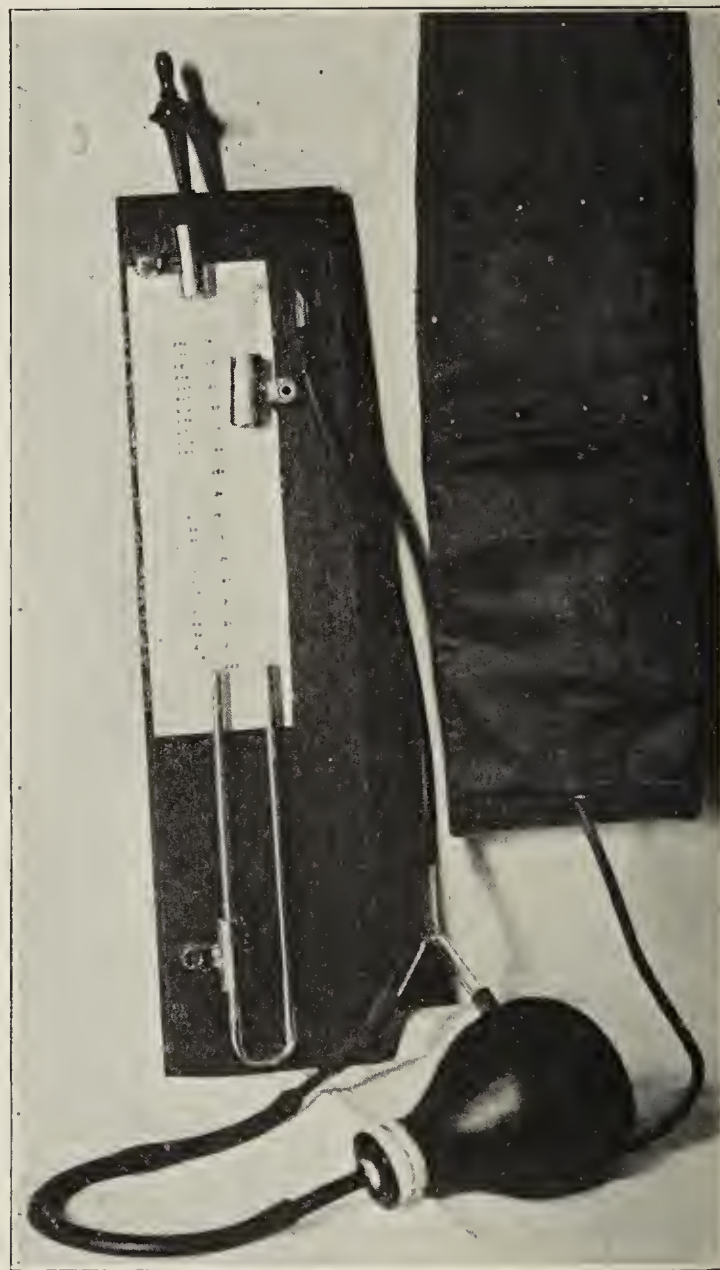
EDWARD J. BROWN, M.D., MINNEAPOLIS

"A new sphygmomanometer" is getting to be almost as much of a joke as a new tonsil-knife or forceps, either of which latter generally means that the man behind the gun is not equal to the instruments previously in use. There is nothing new about the mercury manometer; it is simple enough, and so are the others, whether depending on a column of mercury and compressed air or water and air or a long column of water in a rubber tube, provided they are standardized by comparison with the mercury column. The U tube

mercury manometer is better than the straight tube, chiefly because the instrument may be shorter and less cumbersome and also because it is easier to determine the difference of the height in the two arms of the U tube than in the straight tube and the reservoir. Probably, however, the personal elements which attach to the observer are far greater sources of error than those inherent in any kind of manometer.

After using for some time one of those water-bag manometers which require either a very high ceiling or a liberty pole, I did a little experimenting with glass tubing. As a result, I became convinced that any man with even a minimum of mechanical skill might provide himself with a satisfactory and reliable instrument at small expense.

Three feet each of glass and rubber tubing, a piece of board and a few double-pointed tacks are sufficient for the



A new sphygmomanometer.

construction of an entirely reliable and satisfactory manometer, altogether costing less than one dollar, the mercury included. An inexpensive cuff and a Politzer bag complete the outfit for office use. If the physician cannot bend the glass tubing his druggist will do it for him in half a minute. The only new thing about my instrument is the escape-valve and perhaps a thousand men have invented it before me. Tie off tightly one end of a soft rubber tube of smaller caliber than the rest of the tubing and 2 or more inches long, and insert a piece of hard rubber tubing 2 or 3 inches long into the other end. Cut a short longitudinal slit in this tube which will admit of the air being freely pumped through from the inside and place this tube inside the larger tube; it will give a very satisfactory release valve, better than the screw-valves, since it is automatic, and if it plays out a new one can be made in five minutes. This valve, with the use of the Politzer bag, affords a method of inflation much superior to the jerky muscular action involved in the use of the double

1. Hultkranz, J. Wilhelm: Ueber kongenitalen Schlüsselbeindefect und damit verbundene Schädelanomalien, Anat. Anz., 1899, p. 237.

bulb or any other kind of pump, since the pulse can be accurately gauged while it is being obliterated, as well as on the decline of the mercury column.

Sixteen and 12 inches are convenient lengths for the two arms of the U tube so that 18 or 19 inches is ample length for a case for a portable instrument.

This may not interest physicians who have thousands of dollars a year for the luxuries and elegances of professional life, but it may possibly interest a number of men who earn their income by hard work and are more interested in the support of their families than of instrument-makers.

524 Syndicate Building.

A SUGGESTION FOR REMOVING SUTURES

J. R. PENNINGTON, M.D., CHICAGO

The suggestion I offer may not be new; in any event, I submit it for what it is worth. The illustration is sufficient



Method for removing sutures.

without description. I find it less painful and more satisfactory than the usual forceps-and-scissor process.

31 North State Street.

A CLINICAL NOTE ON HYPERHIDROSIS CIRCUMSCRIPTA

RICHARD L. SUTTON, M.D., KANSAS CITY, MO.

Instances of localized hyperhidrosis are rather infrequent, if one is to judge from the published case reports. The etiology is more or less problematic, although, according to the conclusions of Biedl,¹ hyperexcitability of the so-called "sweat fibers" of the peripheral nerves and of the parenchymatous cells of the coil glands plays an important part in the phenomena of excessive sweat production.

The following case of hyperhidrosis is of interest chiefly because of the location and slight extent of the area involved, the early, or possibly congenital, development of the condition, and the excellent general physical appearance of the patient.

Patient.—C. S., a boy, aged 6, was referred to me by Dr. W. T. Reynolds, of this city. He is an only child, and the cutaneous history of the family is negative. The birth was a normal one, and the patient's health has always been good. There is no history of an injury of any kind. Ever since early babyhood, there has been present, near the inner extremity

of the left eyebrow, an area in which sweat production is very greatly increased. At times secretion is so rapid that a teaspoonful (4 c.c.) of liquid collects on the skin during a period of fifteen minutes. The hypersecretion is most noticeable in winter. The sweat is normal in odor and color. The patient has never complained of headaches or other subjective symptoms. Following the administration of pilocarpin, the flow of perspiration all over the body is considerably increased, and particularly in the affected region. Small doses of atropin (0.0002 gm.) are sufficient to check entirely the action of the coil glands in the affected area. Reflex stimulation by galvanization, slight sparking with the ordinary coil, or with a high-frequency electrode, and sudden changes of temperature will cause an exacerbation at any time, although the hypersecretion is more or less constant under ordinary conditions.

The patient is large for his age, and is a well-nourished and exceptionally intelligent boy, with brown hair and eyes. There is present no suggestion of hydrocephalus. Superficially, the skin is apparently normal in every way, and a careful physical examination (including blood and urine analyses, blood-pressure estimation, and huetin and von Pirquet tuberculin tests) disclosed nothing of interest. The pupillary reflexes are unaffected, and there are no errors of refraction. The extrinsic ocular muscles apparently are normal. About 4 c.c. above the inner canthus of the left eye, the skin is constantly covered with perspiration. The affected area is irregularly oval in outline, and measures 3 by 4 cm. in extent. Ordinarily the spot is covered with large beads of moisture, the amount being greatly increased during periods of mental excitement, and



Hyperhidrosis circumscripta near the inner extremity of the left eyebrow.

following electric and temperatural stimulation. Permission to perform a biopsy was repeatedly requested, but absolutely refused by the boy's father.

Treatment.—In view of the very satisfactory results that may be secured by the intelligent application of the Roentgen rays in hyperhidrosis of the feet and hands, the affected region was treated with this agent. A tube of medium hardness was employed, and biweekly exposures of from four to six minutes' duration, at 15 cm. distance, were given (my experience with the Sabourand-Noire pastilles and the various other instruments for measuring dosage has never been encouraging in this climate). Improvement was noted at the end of the second week, and the part was apparently normal after the seventh treatment. No erythema was produced, and, up to this time, eight weeks having elapsed, there is no loss of hair. It is very probable that the procedure will have to be repeated from time to time, until a considerable degree of permanent atrophy of the coil glands is obtained.

The beneficial effect of Roentgen therapy in this instance may be due to the action of the rays directly on the terminal filaments of the "sweat fibers" of the sensory nerves (as in the treatment of pruritus), but I consider Pusey's² explanation of their action (as exemplified in acne vulgaris) a more acceptable one. He considers it probable that the rays stimulate the endothelium of the capillaries, and that proliferation, with the development of an obliterative endarteritis, succeeded by atrophy of the contiguous glandular structures, results.

It is exceedingly unfortunate that a biopsy was not permitted, as a careful study of the affected tissue by the aid of the more modern staining methods would have been of great interest. The exact nature of the histopathologic changes in these cases is still in doubt, as the careful work of Robinson failed to confirm the earlier findings of Virchow.

1. Biedl: Wien. med. Presse, 1899, No. 14.

2. Pusey, William Allen: Berl. klin. Wehnschr., 1908, p. 1146.

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[For other information see second page following reading matter]

SATURDAY, SEPTEMBER 28, 1912

UNSUSPECTED LOSSES OF WATER FROM THE BODY

A recent contribution on the cause of death in experimental intestinal obstruction, published by Hartwell and Hoguet in *THE JOURNAL*,¹ deserves more than passing notice because of the useful therapeutic indications contained in the communication. These authors had earlier been able to exclude an invasion of the blood and organs by bacteria as causal factors in the marked toxic action which follows an obstruction of the bowel.² They were accordingly at first inclined to adopt an explanation which has been a refuge from various perplexing problems in the past. This attributes death and the accompanying pathologic phenomena to the absorption of products of alimentary origin which gain entrance into the circulation in a poisonous form through the destruction of the normal defense of the mucosa against such absorption. It remains to be seen whether or not toxins are elaborated when secondary factors, such as strangulation of the intestine and interference with its circulation occur. In the particular experiments under consideration great care was exercised not to obstruct the venous return or to impair the blood-supply in any way, so that the experiments cannot be regarded as excluding the possible influence of bacteria and their toxic products or even endogenous poisonous compounds under conditions in which necrosis of the tissues enters into the situation.

Hartwell and Hoguet noted in their earlier experience that the longest life of their animals, after the production of the simple obstruction, was under ten days. The vomiting which is a conspicuous symptom of the occlusion of the bowel not only deprived the animals of nutrient materials and water, but also led to an actual direct loss of water in the ejected matter. This suggested the desirability of counteracting the enforced thirst by subcutaneous administration of physiologic saline solution. The outcome of this was a surprising prolongation in the postoperative length of life. The abnormal metabolism in the experimental dogs prior to the saline injections was now changed to the characteristic metabolism of starvation, which such animals are able to survive for weeks and even months, when water is allowed to them.

The actual loss of water in the vomitus may far exceed the most liberal estimates that one might be inclined to make in the absence of precise determinations. In some of Hartwell and Hoguet's animals it averaged about 5 per cent. of the body weight each day and was more than ten times the amount which left the body simultaneously in the urine. The fact that the immediate serious consequences of intestinal obstruction were promptly delayed when desiccation of the tissues was prevented by the saline infusions emphasizes most strikingly the importance of the thirst factor in metabolism. There are manifold situations in human clinical experience in which uncompensated water losses may occur in similar ways. Doubtless these have not been recognized so frequently as they deserve to be; or when they have been foreseen, the attempted restitution of body fluid has been far from adequate. Protracted periods of intermittent vomiting need to be considered from these points of view, especially when the ingestion of water by mouth cannot be comfortably carried out in sufficient quantity. The organism can endure inanition far more successfully than thirst.

Another consideration is suggested by the experiments to which reference has been made. The vomitus was noted to contain not inconsiderable quantities of chlorin derived from the bile and gastric secretion which it represented. The depletion of the store of chlorids, which is probably accomplished more readily by loss of gastric secretion to the exterior than by any other means, is also of moment to the body. These factors—loss of water and loss of chlorin—are remediable by simple measures; and it is helpful to be reminded of causes and consequences which the clinician is liable to overlook despite the fact that they almost seem obvious.

THE THYMUS AND THYROID IN RELATION TO DEVELOPMENT

The directive influence which some of the glands with so-called internal secretion exercise on the phenomena of growth and development can no longer be overlooked in the light that various pathologic manifestations have thrown on the subject. Certain types of infantilism are unquestionably associated with perverted functions of some of the ductless glands. In most cases all that we can at present regard as definitely established is a physiologic upset or an anatomic abnormality of the organism on the one hand, and a visible or tangible pathologic manifestation in some gland or tissue, on the other. The real significance of the essential interrelationship remains as obscure as it is probable.

The customary method of attacking the problems of these functional interactions has been to investigate the effects induced by administration of extracts or preparations of various glands on either normal or defective individuals. Dr. J. F. Gudernatsch¹ of New York has

1. Hartwell and Hoguet: Experimental Intestinal Obstruction in Dogs, *THE JOURNAL A. M. A.*, July 13, p. 82.

2. Hartwell and Hoguet: *Am. Jour. Med. Sc.*, March, 1912.

1. Gudernatsch, J. F.: Fütterungsversuche an Amphibienlarven, *Zentralbl. f. Physiol.*, 1912, xxvi, 323.

recently reported the results of experiments in which fresh glands were fed to rapidly growing animal forms, notably frog tadpoles. The precise significance of these trials is still far from apparent; but the outcome was so specific and characteristic that the observations deserve wider notice because of the suggestions inherent in them. The effects of feeding thymus and thyroid, respectively, two glands undoubtedly involved in the processes of development and tissue differentiation, were diametrically unlike. Whenever thyroid was fed all growth ceased, and the young tadpoles speedily exhibited symptoms of metamorphosis into adult forms. The tail became reduced in size prematurely and the missing limbs at once began to be evolved. The result of this inhibitory influence of the administered thyroid was the production of small dwarf frogs. The stage of transformation in which the tadpoles happened to be when the thyroid feeding was undertaken was apparently without moment. If they were large, the metamorphosed frogs derived from them were large; if small specimens were used in the experiments, diminutive, stunted forms could be produced by the thyroid feeding.

Quite different was the story with the thymus diet. Here early growth was markedly prolonged and the subsequent transformation of the tadpole stage into the adult form distinctly delayed. This evolution, which was unduly hastened by feeding thyroid, was decidedly inhibited under the influence of the thymus gland in the diet. Expressing the findings in terms of related phenomena, a method has apparently been devised by which infantile characters can be suppressed or perpetuated at will beyond the periods peculiar to them in the normal development of the species. Other distinctions, such as differences in the types of pigmentation, could also be made out. These details need not concern us here. The marked antithesis of the two glands under discussion in relation to the phenomena of growth adds new features for speculation to the other physiologic mysteries in which the thymus and thyroid still abound.

IMAGINATION IN SCIENCE AND MEDICINE

It has been said that every successful investigator must be endowed with a certain modicum of imagination without which most research is likely to be mediocre and devoid of genuine interest. Imagination — whether we call it by that name or designate it as tentative hypothesis or a working plan — is the incentive that spurs to the highest scientific effort. The ideas which stimulate to useful work are sometimes allowed to find expression in words before they are tested in reality by a crucial experiment. Sometimes they “work out,” as we say; not infrequently they remain a tentative figment of the mind.

Prof. D. Fraser Harris of Dalhousie University has brought together in print¹ some instances in which an

idea first represented by a metaphorical expression has in time become clothed with reality. Oxygen was merely a principle to Lavoisier in 1777; and when, a century later, it was produced in liquefied form, “the metaphor had become an actuality.” When in writing of the blood Harvey wondered whether there might not be motion, as it were, in a circle, he expressed in metaphorical language what only later became the fact of the “circulation” through the visible demonstration of Malpighi. Willis penned the metaphor as to the impression of an object driving the animal spirits inward, thus giving rise to sensation, whereupon they rebound outward “in a reflected wave as it were” to call forth local movement. This mental picture portrays those reflex actions of which physiology to-day can demonstrate the actual phenomena and modern histology unfold their material paths to the eye. In physiologic chemistry the synthesis of the active principle of the suprarenal glands represents “the crystallization of a notion; the thing of the mind has become a thing of the laboratory; the thought has been captured and bottled.”

When implicit foreshadowings form in the mind there develop a desire and a manifest tendency to realize an explicit embodiment. We search for the physical basis of nerve-force and fatigue — and even of thought. Modern science is trying to render tangible and visible the seats and causes of functions. Nervous exhaustion, for example, must become correlated with the substantial exhaustion of Nissl granules or the like. Vague forces no longer suffice to satisfy the inquiring mind; the substance itself — toxin, antitoxin, enzyme, carrier — must be discovered. As Harris remarks, it is largely in the sphere of the healing art that this modern tendency toward concreteness is to be seen in its highest perfection. Paludism and the mystery of night air, “telluric influences,” malaria in its original significance of “bad air,” have been robbed of their primitive vagueness by the discovery of an actual, living organism responsible for the diverse manifestations with which the imagination had previously endowed them. Thus it is sometimes given to the man of science “to touch, to taste, to handle what was once only a notion, a suggestion, a forecast either in his own day or that of a less fortunate predecessor.” The fabric of medical progress — indeed, of all progress — is woven from legitimate dreams to a greater extent than the “practical” man is wont to realize or willing to admit.

PUBLIC HEALTH SERVICE TUBERCULOSIS SANATORIUM

It is not widely known that, in addition to its twenty-three marine hospitals for American merchant seamen located in the larger ports, the Public Health Service maintains a tuberculosis sanatorium at Fort Stanton, N. Mex. This institution is conducted for the benefit of tuberculous seamen and other beneficiaries of the federal marine hospitals. From its foundation in 1899

1. Harris, D. F.: *The Metaphor in Science*, Science, Aug. 30, 1912, p. 263.

to June 30, 1912, a total of 1,937 patients had been discharged. The institution was described in an illustrated article by Dr. P. M. Carrington in *THE JOURNAL A. M. A.*, Dec. 6, 1902.

The report of the director, F. C. Smith,¹ for the fiscal year ending June 30, 1912, shows that 178 patients were discharged during the year, of whom twenty were cured, twenty-five were distinctly improved, and in fifty-seven the disease was arrested. At the end of the year 176 patients were under treatment. There were fifty-eight deaths, of which ten were due to pulmonary hemorrhage complicating tuberculosis. The large percentage of deaths from pulmonary hemorrhage is further shown by the fact that in 673 deaths at the sanatorium since its foundation, seventy-two, or 10.7 per cent., were due to this cause. Smith states that no records are available of any other institution in this country reporting so high a death-rate from pulmonary hemorrhage as this, although several are at equal or greater altitudes. He believes that the accurate system of clinical records required in the Public Health Service hospitals has revealed facts not peculiar to Fort Stanton, but not so far generally noted elsewhere.

It is to be noted that Fort Stanton admits both early and late cases of tuberculosis. While Smith does not discuss the relative usefulness of institutions following this plan as compared with those admitting only early cases, it is true that the former serve a double function in that not only are tuberculous patients in all stages afforded the care and treatment they require, but by segregating particularly the advanced cases, dangerous foci of infection are removed from the community. Especially is this important in the class of patients received at Fort Stanton. The sailor with advanced tuberculosis is a sanitary menace above the ordinary, because of his habits of life and his associations. To segregate such a man is an evident safeguard to the community.

In treating active tuberculosis, the only curative measures employed are rest, fresh air and good food. Drugs are used, however, as indicated by acute symptoms. The use of tuberculin has been entirely discontinued, as its effect is believed to be limited chiefly to the results of its administration on the mental condition of the patient. Eighty-seven tent-houses, each accommodating two persons, are in use. The average number of patients in the infirmary is thirty-five. The experience of thirteen years at Fort Stanton confirms the fast-growing belief that climate in itself is not of first importance in the treatment of pulmonary tuberculosis, but that hygienic living, rest both mental and physical, abundant food and fresh air are the best curative agents so far available. These can be obtained better at home in most cases than by an arduous and expensive journey to a supposedly more propitious climate.

CAN LIFE BE MADE?

Within the past few days the public press has furnished much comment on the nature, origin and maintenance of life, which formed the topic for the annual address before the British Association for the Advancement of Science by its president, the eminent Edinburgh physiologist, Prof. E. A. Schäfer.¹ It is an interesting, if not surprising, sign of the times, that such questions, which were regarded not long ago as outside the sphere of scientific discussion, should be given calm and critical analysis by wide circles of interested laymen and biologists alike. It requires no great stretch of the imagination to picture days when all this would have been both heretical and hazardous before a British audience.

The keynote to Professor Schäfer's address is the conclusion that the possibility of the production of life — that is, of living material — is not so remote as has generally been assumed. It is, perhaps, worth while to dwell for a moment on some of the considerations which seem to justify this view. The line of demarcation between inorganic and organic chemistry has now largely disappeared; and biochemistry has won a place for the treatment of the chemical functions of living organisms in immediate relation to these older branches. The study of what were once called "vital processes" is passing more and more out of the hands of the pure biologist into those of the pure chemist. Again, in the modern development of physical chemistry, the newly recognized properties of nitrogenous and other colloids are furnishing the key for the solution of numerous phenomena which earlier escaped a tenable interpretation on the basis of chemistry and physics. Living substance or protoplasm takes the form of a colloidal solution; and many of the manifestations characteristic of changes in living substance find an exemplification in the behavior of such solutions.

A search for properties hitherto assumed to differentiate specifically between the living and the non-living shows that they are by no means confined to what is designated as animate creation. In the aggregation and growth of crystal structures out of a suitable pabulum are found striking analogies with the growth and multiplication of organic forms. The functions of enzymes, which are commonly regarded as agents peculiar to protoplasm, can be duplicated by catalytic substances and methods of purely chemical and physical nature. Even so distinctive a manifestation as the division of the ovum and multiplication of cells by the subsequent processes can be initiated when simple chemical agents are substituted for the spermatozoon in the process of fertilization.

Again, Professor Schäfer has pointed out that in some respects the living substances — the substratum for our vital activities — have been resolved by modern chemical investigations so as to disclose a constitution of no over-

1. Public Health Reports, Aug. 30, 1912.

1. Schäfer, E. A.: *Science*, September 6, p. 289; briefly abstracted in *London Letter*, *THE JOURNAL A. M. A.*, Sept. 21, p. 953.

whelming complexity. Here he must have had in mind the nucleus and nucleoprotein whose composition is succumbing to the attacks of the organic chemist. He reminds us that the elements composing living matter are, after all, few. "The combination of these elements into a colloidal compound represents the chemical basis of life; and when the chemist succeeds in building up this compound it will without doubt be found to exhibit the phenomena which we are in the habit of associating with the term 'life.'"

Here, then, is a refreshing optimism in regard to the production of living substance. It must not be assumed that this is the equivalent of the long-since discarded doctrine of spontaneous generation. Far from it. We are taught by Schäfer to reject any idea of supernatural intervention or any of the various cosmic theories of the origin of life on this globe. The true explanation is to be found in a gradual process of evolution, the same cause as that which has been instrumental in producing all other forms of matter in the universe. It is not necessary to assume that the evolution of life occurred but once in the past: it may be going on now; it may go on in the future. Neither are we forced to assume that because living matter always contains water as its most abundant constituent, life must have made its first appearance in the depths of the ocean.

For the contention that the destruction of life can be eliminated—a view approached by Metchnikoff in his assumption that the condition of senescence is itself abnormal and that old age is a manifestation of disease—Schäfer finds no support. "It is only in the sense of its propagation from one generation to another," he says, "that we can speak of the indefinite continuance of life; we can be immortal only through our descendants." The lesson in this consists in the desirability of insuring that inevitable death may occur in a natural way—death unattended or unaccelerated by disease. If man can anticipate this quiet change without apprehension—if he can learn to regard the approach of a simple physiologic process as a natural consequence, death, according to Schäfer, will be robbed of its terrors and the dread of the final passing dispersed.

Whether or not one agrees with the essence or the details of Professor Schäfer's inspiring contribution to the literature of an inviting question, his frankness and originality must be admired. The storm of contradiction which it has already awakened need not dispel the belief that "the sunshine which science irradiates" will yet put to flight many of our ultravitalistic conceptions.

Current Comment

HARD WATER AND URINARY CALCULI

The general or repeated occurrence of a malady in a restricted area offers a suitable opportunity for the investigation of its etiology. There are regions in Asia

where urinary calculi are said to be a frequent finding among the most diverse classes of the population. The calculi are apparently not restricted to persons of any special age or race, if one may judge by the patients who come to the physician for relief. Abderhalden and Hanslian¹ have lately had the opportunity of making a chemical examination of a considerable number of these Asiatic calculi of which the clinical history was known. They were found to consist, in the main, of inorganic components. Calcium was invariably present. Magnesium and phosphoric acid were commonly found. Some also contained oxalates and carbonates; occasionally a urate calculus appeared. In seeking for local conditions which might serve to explain the formation of concretions of which lime and magnesium are the conspicuous components, an examination of the most common article of diet and of the waters of the region was made. A preparation termed "birghul," made from wheat, forms the staple food, which is consumed in large amounts. This was, however, not found to be richer in calcium and magnesium than the corresponding wheat products in European countries. On the other hand, the investigation of both surface and underground waters from the region disclosed an unexpected hardness of the temporary type. Abderhalden regards it as quite probable, accordingly, that the easily precipitable carbonates of calcium and magnesium play a conspicuous part in the production of the prevalent calculi.

REVIVAL OF THE THEORY OF MIASMAS

An attempt to reconcile the old theories of miasmas with the present conception of the bacterial origin of diseases has been made by Dr. A. Trillat.² In some experiments conducted by him to test the vitality and fecundity of bacteria he found that the bacilli of diphtheria and plague were remarkably stimulated in their growth by exposure to air containing small traces of putrid gases. The experiments were first conducted under laboratory conditions, and later by exposing similar bacteria to the products of natural putrefaction out of doors, in the neighborhood of marshes, sewers, etc. If the results of these experiments are confirmed, the present methods of disinfection by direct destruction of infective bacteria may have to be modified again to conform more nearly to the old miasmatic theory of the production of disease, and we shall condemn leaky sewer-pipes and other sources of bad smells not only for esthetic reasons, but on account of their effect in promoting the infections. We assume that the experiments apply only to the aerobic bacteria. Trillat similarly attempts to account for the souring of milk and the putrefaction of meat during thunder storms, not by the effect of the electricity on these substances, or by the production of nitric acid in the air, but on the principle that storms promote the release of putrid gases from the soil and these gases stimulate the development of putrefactive bacteria. The theory is interesting and should be capable of demonstration.

1. Abderhalden and Hanslian: Beiträge zur Kenntnis der Zusammensetzung der Blasensteine von Bewohnern Kleinasiens: Versuch die Ursache ihrer Entstehung zu ergründen, Ztschr. f. physiol. Chem., 1912, lxxx, 113.

2. Trillat, A.: Arch. d. sc. phys. et nat., June 15, 1912.

A MISGUIDED SWINDLER

An enterprising swindler in England has recently been arrested for selling dried peas as "Little Liver Pills." They were sold on the assurance that they were "excellent medicine." Of course, dried peas are not an "excellent medicine" neither will they cure "liver trouble," but the same may be said of the many "liver pills" which contain drugs and are sold under claims even more fraudulent. The British swindler should have been better informed. When he desires to sell "liver pills" he should put some drugs in them — poisonous or otherwise, the kind doesn't matter. Then he can lie about his product to his heart's content and he will be immune from arrest. In fact, if he can sell enough of them he may look forward to a peerage. In Great Britain, as in the United States, it is not the mere act of swindling, but the method, that proves dangerous.

THE HYGIENE CONGRESS

This week the Fifteenth International Congress on Hygiene and Demography has been in session in Washington, D. C., and has proved a notable achievement among congresses. We commence in this issue a report of the scientific proceedings, which will be continued in next week's issue. The exhibit in connection with the congress is reported as a great success. All manner of displays and demonstrations in the various ramifications of the subject of hygiene are being presented to the public, and will have great influence in the way of education. The American Medical Association has an exhibit, giving particular attention to some of the most striking features of that department of THE JOURNAL called The Propaganda for Reform. This congress is a milestone in the advance toward better health and sanitation in this country.

Medical News

CALIFORNIA

Sanitation Car to Washington.—The California State Board of Health sanitation car was sent to Washington under charge of Dr. J. F. Leinen, assistant to the secretary of the board, to be exhibited at the International Congress on Hygiene.

The New Home Project in Los Angeles.—The bulletin of the Los Angeles County Medical Association for September 14 devotes considerable space to the proposition of the medical building. The plan has made excellent progress and many space reservations have already been made, justifying the expectation that the building will be a financial success.

Personal.—Dr. George H. Kress has returned from abroad. —Dr. and Mrs. A. T. Newcomb, Pasadena, have gone abroad. —Dr. R. L. Richards, M.C., U. S. Army, San Francisco, has been appointed medical superintendent of the Mendocino State Hospital, Talmage, vice Dr. E. Warren King, resigned. —Dr. T. Orde Smith, South Berkeley, was seriously injured in a collision with an automobile, September 13. —Dr. Ernest B. Hoag, health officer of Berkeley, has been appointed State Health Officer of Minnesota. —Dr. A. P. O'Brien, San Francisco, suffered a compound fracture of the leg by a fall while on a fishing excursion, recently. —Dr. and Mrs. John Gallway, San Francisco, have returned from Europe. —Dr. Ellis Harbert, Stockton, has been appointed a member of the Board of Managers of the Stockton State Hospital.

ILLINOIS

Personal.—Drs. Anna Weld and W. R. Fringer, Rockford, have returned from abroad. —Dr. Harry R. Carson, Princeton, has been appointed assistant superintendent of the Steuben Sanatorium, Hornell, N. Y. —Dr. P. N. Bowman, Gilles-

pie, was seriously injured in a trolley car accident at Worden, September 14.

Chicago

Commerz for Visiting Scientists.—In addition to other events already mentioned in these columns, the German Medical Society and Association of Old German Students will hold a Commers at the Germania Club House, September 29, in honor of the delegation of foreign scientists.

Personal.—Dr. H. G. W. Reinhardt has been appointed chief coroner's physician, vice Dr. Warren E. Hunter, deceased. —Dr. and Mrs. Frederick H. England have returned from Europe. —Dr. Peter J. Christenson was found unconscious beside his overturned automobile, September 20. His injuries are slight. —Dr. W. A. Evans has been elected vice-president of the National Mouth Hygiene Association. —Dr. Adolfo Luria has returned and resumed practice after four years' study in Europe.

KENTUCKY

Infirmery Opened.—The Hopkinsville Infirmery, located in a large residence on Clay Street, which has been remodeled for hospital purposes, was opened last week. Dr. J. E. Stone is president of the institution and Dr. J. Paul Keith secretary-treasurer.

Personal.—Dr. Lewis S. McMurtry, Louisville, has returned after a summer abroad. —Dr. and Mrs. Joseph M. Mathews, Louisville, have returned after several months on the Pacific Coast. —Dr. Frank E. Corrigan, Louisville, who has been seriously ill, is reported to be much improved. —Dr. Amos G. Browning, Maysville, is ill in a sanitarium in Chicago.

The Work of the Health Department.—The Louisville Health Department, in a recent monthly bulletin, gives credit to the Babies' Milk Fund Association for decreasing the mortality of infants almost 50 per cent. —The mortality from tuberculosis has been considerably decreased owing to a campaign of education conducted by the Antituberculosis Association. Six nurses have made 9,149 visits to the poor during the year, giving advice as to the prevention of tuberculosis by proper living. —The Health Department urges the passage of the ordinance introduced in the General Council last year, providing for the screening of manure piles to do away with breeding-places for flies and mosquitoes.

LOUISIANA

Sanitarium Reopened.—The Ruston Sanitarium, closed several months ago, has reopened in charge of a trained nurse.

Health Train for Washington.—Exhibition cars Numbers 1 and 2 of the State Board of Health left for Washington, September 15, to be exhibited at the National Congress on Hygiene and Demography. Drs. Oscar Dowling and Meyer Neuhauser accompanied the train, which will make stops going and returning at Meridian, Miss.; Birmingham, Ala.; Atlanta, Ga.; Greensboro, N. C.; Lynchburg, Va.; Montgomery, Ala., and Mobile, Ala.

Personal.—Dr. Oscar Dowling, New Orleans, has been elected third vice-president of the National Mouth Hygiene Association. —Dr. Willis P. Butler, Nashville, Tenn., has succeeded Dr. A. P. Crain as bacteriologist and chemist of the Shreveport Board of Health. —Drs. E. L. Henry, Lecompte, and L. E. Litton, Tioga, have been appointed members of the board of administration of the Louisiana Hospital for the Insane, Pineville. —The office and residence of Dr. Maurice Bateman, Franklinton, was destroyed by fire, September 8, with a loss of \$1,000.

MARYLAND

Sanatorium Incorporated.—The Springer Sanatorium Company has been incorporated with the object to institute and maintain a private institution at Govanstown.

Common Drinking-Cup Law Enforced.—The State Board of Health has enforced the act recently passed by the legislature prohibiting the use of the common drinking-cup in places and vehicles.

Baltimore

Harriett Lane Home Soon to be Opened.—It is announced that the Harriett Lane Home for Children, Johns Hopkins Hospital, will be opened October 1. The building has been erected at a cost of \$300,000 and has accommodation for 100 children. It will be in charge of Dr. John Howland.

Personal.—Dr. Edwin V. Whittaker has been appointed assistant superintendent of the Sydenham Hospital for Infectious Diseases, vice Dr. Sidney Wallenstein, resigned. —Dr. John T. McCarthy is reported to be ill—nervous breakdown.

—Dr. J. T. Sample and R. H. Major have sailed for Europe.—Dr. Lewis R. Palmer is reported to be seriously ill in a hospital in Philadelphia.

MASSACHUSETTS

Hospital Notes.—The Boston Floating Hospital has made its last trip for the season. During the summer the hospital has cared for 5,784 day patients.—The Glover Home and Hospital, Needham, formerly the home of the late Fred P. Glover, with accommodation for seven patients, has been opened to the public.

Personal.—Dr. and Mrs. Charles F. K. Bean, West Medford, have sailed for Europe.—Dr. H. H. Cleveland, Boston, was badly cut and shaken in a collision between his automobile and a large touring car in Newton, September 18.—Dr. Mary Katherine Couch, Somerville, has been appointed a member of the medical staff of the Northampton State Hospital.—Dr. George R. Fessenden, Ashfield, has been reappointed medical examiner of Franklin County.—A petition has been sent to the governor signed by nearly 1,000 physicians, headed by ten past presidents of the Massachusetts Medical Society, urging the reappointment of Dr. Herbert B. Howard, superintendent of the new Peter Brent Brigham Hospital, as a member of the State Board of Insanity.

NEW YORK

New Officers.—Saratoga County Medical Society: president, Dr. J. B. Ledlie, Saratoga Springs; secretary, Dr. James T. Sweetman, Jr., Ballston Spa.

Personal.—Dr. and Mrs. Amos T. Baker, Riverdale, sailed for Europe, September 10.—Dr. Jacob W. Bayliss, Buffalo, was seriously injured in a collision between his automobile and a taxicab, September 10.

Protest Against Tuberculosis Hospital.—There is a movement on foot among the residents in the vicinity to make a protest to the State Board of Health against the establishment of the proposed \$250,000 tuberculosis hospital at Croton Lake in the heart of the New York watershed. Property owners object to such an institution as they claim that it would decrease the value of property in that locality.

Plan Fall Campaign Against Tuberculosis.—The State Department of Health and the State Charities Aid Association held a conference in New York City September 18 to plan their work for the fall. They intend to conduct an intensive campaign for county tuberculosis hospitals. Already twenty-one counties have decided to build tuberculosis hospitals, and it is hoped to bring the number up to thirty before the holidays.

New York City

German Scientist Dies in New York City.—Prof. Dr. H. Wiebe, a member of the Imperial Chemical Institute, Charlottenburg, Germany; a delegate to the Chemical Congress; died suddenly while dining at the Hotel Netherland, September 11.

Personal.—Dr. Albert Brundage, Brooklyn, is reported to be critically ill in Maine.—Dr. John Livingston, ambulance surgeon of the Hudson Street Hospital, was seriously injured in a collision between the ambulance on which he was riding and an automobile, September 15.

Middleton Goldsmith Lectures.—These lectures of the New York Pathological Society will be delivered at the New York Academy of Medicine, 17 West Forty-Third Street, October 2 and 4, at 8:30 p. m., by Dr. E. F. Bashford, director of the Imperial Cancer Research Fund of London, England, the subject being, "A Review of Recent Cancer Research." All interested are invited.

The German Travel Party.—The physicians of this city entertained the foreign physicians last week. Sight-seeing trips and entertainments were provided for every day of the week. Dr. Abraham Jacobi was chairman of the reception committee. A dinner was given in honor of these visitors on the evening of September 18 at the Hotel Astor at which Dr. Wolff Freudenthal acted as toastmaster. The Post-Graduate Medical School and Hospital gave a reception on the 19th and the Liederkrantz Society also entertained.

Preparing to Aid Babies in Winter.—The Babies' Welfare Association report for the week ended September 14 shows a further decrease in the mortality among children under 1 year of age. There were only 312 deaths during the week as compared with 322 for the corresponding week of last year. The report would have been much better had Brooklyn not nearly doubled its record of deaths from intestinal diseases. In every other borough there was a decrease as compared with

previous years. The association is making preparations to continue its work among the children of congested districts during the winter months.

PENNSYLVANIA

Sanatorium Notes.—Work on the State Sanatorium near Hamburg was started last week. It is the intention of the contractors to complete the foundation before cold weather, so that the work of construction may not be impeded through the winter.—Dr. W. W. Richardson, Norristown, has purchased the Mercer Sanatorium.

Personal.—Dr. T. C. Fitzsimmons, Waymart, has been elected permanent superintendent of the Fairview Hospital for the Criminal Insane.—Dr. William Davis, Scranton, has resigned as a member of the staff of the Moses Taylor Hospital to accept a position with American National Red Cross.—Dr. Ralph W. Montelius, Mount Carmel, has been elected president of the board of trustees of the State Hospital for the Trevelton, Shamokin and Mount Carmel coal fields of Pennsylvania.—Dr. William S. Middleton, Norristown, has moved to Madison, Wis.—The home of Dr. E. H. Sloan, Ben Avon, was burglarized, September 6.

Small-Pox Epidemic in Pittsburgh.—As the small-pox, which has been raging in Pittsburgh for several weeks, shows no abatement, the board of health ordered the vaccination of all messengers in the employ of the telegraph and telephone companies, of employees of delivery firms, street car conductors and motormen, bank clerks, department-store clerks and others who come in contact with the public daily. The city has been placarded with pictures of stricken victims in all stages of the disease for the benefit of those who are not able to recognize the disease in its first stages. Up to September 18, the total number of cases had reached 100, with nineteen deaths. The disease, which at first was confined to the Penn Avenue district, has now spread to other parts of the city. The hospitals and all public institutions are refusing visitors for the present.

Small-Pox in Carbondale.—Because of the seriousness of the small-pox epidemic in Carbondale, Dr. C. J. Hunt, associate chief medical director of the State Department of Health, has ordered the immediate cessation of all public weddings and funerals and the state police are maintaining a strict quarantine of all infected districts. The spread of small-pox in Carbondale is attributed to the carelessness of the local health authorities and physicians in failing to differentiate between chickenpox and small-pox. C. W. Webbert, chief inspector of the State Department of Health, has caused the arrest of five physicians who were arraigned September 20, pleaded guilty, and each was fined \$20 and costs.—The State Department of Health has sent out letters to the physicians of Pennsylvania, excepting those of Philadelphia and Pittsburgh, stating that as Carbondale has no active board of health and as an epidemic of small-pox is menacing the health and lives of the people of the state, Dr. C. J. Hunt has been directed to take full charge of public health regulations in Carbondale, to enforce quarantine restrictions and such other measures as may be necessary for the suppression of the epidemic. Physicians are furthermore directed to report the different forms of cases of communicable diseases coming under their observation, until further notice is received from the department.

Philadelphia

Steamship Held in Quarantine.—The steamship *Graf Waldersee*, with 1,382 passengers, was detained at Reedy Island Quarantine Station, September 21, because of a suspected case of small-pox in the steerage.

Philadelphia Entertains Foreign Physicians.—Under the auspices of the German Central Committee for Physicians' Study Travels, about 250 physicians of Germany and Austria, a list of whom was given in THE JOURNAL, August 24, arrived in Philadelphia, September 20, and were met at the station by a reception committee headed by Dr. J. M. Anders. They were taken in automobiles to the city hall where they were formally welcomed by the mayor. In the evening they were given a reception at the Hotel Walton by the Philadelphia County Medical Society. On the next day they visited the different medical colleges and hospitals of the city, and in the evening were entertained at a banquet given by the city on the roof garden of the Continental Hotel. Dr. James M. Anders presided as toastmaster. Hon. Rudolph Blankenburg, mayor of Philadelphia, responded to the toast, "My City;" Dr. Arthur Mudra, Imperial German consul, to the toast "Foreign Countries;" Prof. August Hoffman, Düsseldorf, Germany, to the toast "Internal Medicine;" Hon. Charlemagne Tower, formerly ambassador to Germany, to the toast "International

Friendship;" the State Commissioner of Health, Dr. Samuel G. Dixon, to the toast "The Health Department of Pennsylvania;" Geheimrath Dr. August Gaertner, professor of bacteriology and sanitary science in the University of Jena, to the toast, "The Hygiene Laboratory;" Dr. Joseph S. Neff, director of Public Health and Charities, Philadelphia, to the toast, "Municipal Hygiene;" Geheimrath Prof. Dr. Fr. Leoffler, Berlin, to the toast, "Scientific Discoveries;" Charles J. Hexamer, president of the German-American Alliance, to the toast, "The German-American," and Dr. Solomon Solis-Cohen, to the toast, "Former Great Clinicians of Philadelphia."

GENERAL AND FOREIGN

International Congress on Infantile Hygiene.—The International Congress for the Study of Infantile Hygiene and Pathology will be held in Paris, October 7.

Red Cross Prizes Awarded.—For their inventions for the alleviation of human suffering, Major Paul S. Halloran and Capt. Henry L. Brown, M. C., U. S. Army, received \$505.05 each on September 7, as prizes awarded by the Ninth International Red Cross Conference recently in session in Washington. These prizes are from the fund donated for this purpose by the Empress Marie Feodorovna of Russia.

Prize for Work on Criminal Anthropology.—The Lombroso prize of \$200 (1,000 lire) is to be awarded at the eighth international congress on criminal anthropology, to be held at Budapest in 1914. Competition is open to the world; the prize is to be given for the best work or most important discovery in this field between 1911 and 1914. The committee in charge of the congress and awarding of the prize includes Prof. G. Aschaffenburg, Cologne, Germany, and Prof. J. von Balogh, Budapest, Hungary.

Obstetricians and Gynecologists Elect Officers.—At the twenty-fifth annual meeting of the Association of Obstetricians and Gynecologists held in Toledo, Ohio, September 17-19, the following officers were elected: president, Dr. Miles F. Porter, Fort Wayne, Ind.; vice-presidents, Drs. Charles N. Smith, Toledo, Ohio, and James E. Sadlier, Poughkeepsie; secretary, Dr. E. Gustav Zinke, Cincinnati (reelected) and treasurer, Dr. Herman E. Hayd, Buffalo, N. Y. Providence was selected as the next place of meeting.

Health Association Meeting.—At the fortieth annual meeting of the American Public Health Association held in Washington, September 18 to 20, the following officers were elected: president, Dr. Rudolph Haring, New York City; vice-presidents, Drs. W. R. Batt, Harrisburg, Pa., James Roberts, Hamilton, Ont., and J. E. Monjaras, Mexico; secretary, Dr. Selskar H. Gunn, and treasurer, Dr. Livingston Farrand, New York City. It was decided to hold the next meeting of the association in Colorado Springs, Colo.

Study of Infant Mortality.—The third annual meeting of the Association for Study and Prevention of Infant Mortality will be held in Cleveland, October 2-5, under the presidency of Dr. Cressy L. Wilbur, Washington, D. C. The work of the association is divided into sections on educational prevention of infant mortality, eugenics, nursing and social work and prevention of municipal infant mortality. The headquarters of the association are at the Hotel Hollenden and the general sessions and section meetings will be held at the Engineers' Auditorium.

Pensions for Physicians in Spain.—The *Siglo Medico* of July 20 gives the details of the law which provides for an annual pension of from 800 to 1,500 pesetas for physicians connected with the public health service who have become incapacitated in fighting some declared epidemic. Physicians in private practice who lend their services in the epidemic are also included among the beneficiaries of the law. The pension is also to be paid to the widows and orphans of those who have died at their post. A retiring pension of 1,000 pesetas is also available for public health officials who have been thirty years in the service. A peseta is 20 cents.

Another Insurance Agent Fooling Physicians.—A physician in Ogden, Utah, sends his opinion that the physician continues to head the sucker list. He reports that all along the line from Seattle to Salt Lake City physicians have been worked by a polished agent representing the "Royal Order of the Lyons," who appoints a physician exclusive medical examiner for his soon-to-be-organized lodge, allowing him to enter as a charter member for \$5.00, promising several hundred examinations at \$1.00 a head. The \$5.00 and the agent depart, to be seen no more. THE JOURNAL receives word of some such scheme every little while, and all the schemes are similar in that they show the physician is too ready to part with money to perfect strangers.

Investigation of Health Conditions Among Indians.—The Surgeon-General of the U. S. Public Health Service has begun an extensive investigation of health conditions among the Indians, particularly with reference to tuberculosis, trachoma and small-pox. For the carrying-out of this plan, \$10,000 has been appropriated by Congress. The commission consists of Passed Assistant Surgeons B. J. Lloyd, Washington and Idaho; W. C. Billings, Colorado, Oregon and Nevada; F. C. Smith, New Mexico; R. A. Herring, Utah, Colorado, Wyoming, Kansas and Nebraska; L. D. Fricks, Arizona; M. C. Guthrie, Oklahoma; Mark J. White, Montana; J. W. Scherschewsky, North Dakota and South Dakota, and Surgeon Taliaferro Clark, Minnesota and Iowa.

Infectious Diseases.—A case of plague was reported from the municipality of San Juan, P. R., September 12. It is believed that the focus from which this case originated has been destroyed. During the week ending August 31, two plague-infected ground-squirrels were found in Alameda County, Cal. A plague infected rat was found at Olaa, Hawaii, September 9, which was the first infected rat found since April 24, 1912. A rat-catcher at Pepeekeo died September 13 of plague, which was the first case of human plague reported in Hawaii since March 14. Two deaths from plague in schoolboys are reported in Manila, August 4. This makes a total of four cases in Manila since June 19, 1912. No plague-infected rats have been found in the vicinity where these cases occurred.—Two cases of plague, one resulting fatally, are reported from Hamburg, arriving at that port, September 17, from Rosario, Argentina, on a British steamer.—Cases of poliomyelitis continue to be reported in small numbers from a large number of places widely distributed throughout the country. The two foci having the largest number of cases are in Los Angeles, and in western New York with its center in Buffalo. Sixty-one cases of poliomyelitis occurred in Chicago during the first eight months of 1912. It has been made a quarantinable disease in that city.—Many cases of small-pox continue to occur in Pittsburgh. The disease is of the virulent type and the mortality is high.

Harvey Society Lectures.—The Harvey Society, New York City, announces the following provisional program of lectures, subjects and dates for the season 1912-13:

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| 1912 | |
| Oct. 5 | Prof. Max Rubner:
University of Berlin.
"Modern Steam Sterilization." |
| Nov. 9 | Prof. Joseph Erlanger:
George Washington University.
"The Localization of Impulse Initiation and Conduction in the Heart." |
| Nov. 23 | Prof. G. N. Stewart:
Western Reserve University.
"The Rate of the Blood-Flow and the Vasomotor Reflexes in Disease." |
| Dec. 14 | Prof. F. B. Mallory:
Harvard University.
"The Infectious Lesions of Blood-Vessels." |
| 1913 | |
| Jan. 18 | Maj. J. J. Russell, U. S. Army.
"The Prevention of Typhoid Fever." |
| Feb. 15 | Prof. Theodore C. Janeway:
Columbia University.
"Nephritic Hypertension: Clinical and Experimental Studies." |
| Mch. 1 | Prof. Edward G. Conklin:
Princeton University.
"The Size of Organisms and Their Constituent Parts in Relation to Longevity, Senescence and Rejuvenescence." |
| Mch. 22 | Prof. John Howland:
Johns Hopkins University.
"The Scientific Basis for the Artificial Feeding of Infants." |

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Sept. 14, 1912.

Steps in Human Ancestry

At the annual meeting of the British Association for the Advancement of Science, Prof. G. Elliot Smith, president of the Section on Anthropology, delivered an interesting address on steps in human ancestry. He said that in spite of all the precise knowledge concerning the bodily structure and functions of apes and men, and their "blood relationships," using the term in its literal as well as its metaphorical sense, it was surprising that there should be so little agreement among leading authorities as to the precise line of man's ancestry. Some zoologists maintained that man was not closely related to the old-world apes and sought for closer affinities with the new-world apes, or even with the lemurs. The advance of brain structure more than anything else determined the evolution of mammals as it alone had given

them their dominant position, their world-wide distribution and their marvelous adaptability to many modes of life. The new feature in the brain of mammals which had made possible all their achievements was the cortical area, to which eleven years ago he gave the name "neopallium." In the lower vertebrates each of the avenues of the senses led to a special part of the brain, and although there were free communications between the regions allotted to the olfactory, visual, auditory, tactile and other senses, there was no instrument for the adequate blending of impressions reaching the brain through these different portals or for the storing of impressions, so as to awaken in consciousness the different properties of an object which appealed to several different senses. The lower vertebrates do not see, hear or feel an object in the sense that we associate with these terms. The neopallium of the mammal provided a receptive organ for impressions through all the senses and for their unification and record, so that they could be revived in associative memory. Moreover, it was the instrument by which all perceptions, past and present, could be freely blended in consciousness, so that the animal could appreciate all the properties of any object to whatever sense they might appeal, and could benefit and so be educated by experience.

INFLUENCES OF ARBOREAL LIFE

In the forerunners of the mammalia the cerebral hemisphere was predominantly olfactory. Even when the mammal emerged and all the other senses received due representation in the neopallium, the animal was still influenced to a much greater extent by smell than by other senses. The adoption of arboreal life by some small insectivore-like creature, shortly before the dawn of the Tertiary Period, and the subsequent cultivation of the sense of vision enabled man's remotest primate ancestor to escape from the domination of the sense of smell and to cultivate other senses, immensely widening the sensory avenues. The demands of arboreal life led to the cultivation of skilled movements of the limbs, which was facilitated by visual control. Such skill necessitated increased perfection of the tactile and other sensory areas of the brain. The coordination of large groups of muscles for performing some precise action, which must be controlled during the stage of learning by tactile, kinesthetic and visual impressions and memories—the fruits of experience—necessitated the formation of some cortical apparatus which would control and harmonize the activities of the various centers, regulating the muscular actions and bringing the total sum of consciousness at any moment to bear on the performance of a given act. Out of this necessity, in the early ancestry of man and in much less degree in other animals, sprang an outgrowth of the motor cortex which became the mechanism for attention and the orderly regulation of the psychic processes. Thus, at the very dawn of the Tertiary Period there was developed the germ of all the psychic greatness, which, in the million or so of years that followed, culminated in the human mind. The Primates found in the branches of trees the asylum and protection necessary for the cultivation of brain and limbs during the period of their insecurity as an insignificant tribe, but, when they became able to hold their own and waxed great both in size and power, they had maintained sufficient of their primitive character of plasticity to be able gradually to give up arboreal life and to reestablish themselves once more as dwellers on the solid earth, competent to hold their own against all comers.

MAN AND THE ERECT ATTITUDE

Professor Smith was inclined to look on the orang, the chimpanzee and the gorilla, not as ancestors of man, but as the more unenterprising members of man's family who were not able to maintain the high level of cerebral development of the feeble-bodied human being, but saved themselves from extinction by acquisition of great strength and a certain specialization of structure. The feebler man was able to overcome his enemies and maintain himself in the struggle for existence by his nimbleness of wit and superior adaptability to varying circumstances. The erect attitude was brought about when the development of the brain made skilled movements of the hands possible. The liberation of the hands for the performance of more delicate movements opened the way for a further advance in brain development to make the most of the more favorable conditions. If the earliest gibbons were already able to walk upright, how was it that they did not begin to use their hands for skilled work, and at once, before men did so? The obvious reason was that the brain had not yet attained a sufficiently high state of development to suggest appropriate occupation to the exclusion of their function in climbing. The gibbon and other

anthropoids were "strictly bound down to experience" and had not learned "to anticipate to any extent what is going to happen," because their prefrontal brain areas were still small and relatively undeveloped. In the simian brain the sensory areas predominated and the behavior of the animal was to be looked on as the response to immediate sensory impressions of the moment. In the human brain the great association areas had grown far beyond the dimensions of the sensory areas. As soon as the evolution of the brain made it possible for the ape-man to appreciate its ability to perform and anticipate the results of skilled actions, he began to avail himself of the larger life opened to him. The erect attitude became stereotyped and the limbs specialized.

THE ACQUISITION OF SPEECH

To the memories of the sounds of other animals and of the noises that occurred in Nature the primitive ape-man added a collection of records of the expressive sounds emitted by his fellows. In course of time the consciousness of these sounds was recorded with the memories of his gestures, associating each with some meaning, which became a new way of communicating with his fellows. The perfection of the cortical mechanism for appreciating sounds and detecting a wide range of qualities was associated in the human brain with a remarkable growth and differentiation of the auditory area of the cortex. As intercommunication between members of a social group became vitally important, this acuity in recognizing sounds of different pitch, tone and timbre and in detecting their precise emotional significance, would grow *pari passu* with the acquisition of speech. The latter gave a tremendous impetus to human progress by enabling the knowledge acquired by each individual to become the property of the community to be handed on to future generations. This heritage was now so great that for the vast majority of men almost the total of their mental activities consisted in acquiring the common stock of knowledge.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Sept. 6, 1912.

Vertical and Slanting Handwriting

At the last session of the Association française pour l'avancement des sciences, the section of pedagogy took up the question of the style of handwriting to be taught in the schools and recommended slanting in preference to vertical handwriting. The latter, which has been adopted in some public schools in recent years, is condemned by hygienists as inevitably inducing incorrect posture in children and tending to produce curvature of the spine. Our old slanting handwriting, in use since the end of the sixteenth century, permits the most natural position.

Foot-and-Mouth Disease

Foot-and-mouth disease is making rapid and alarming progress, in some departments assuming proportions of a scourge. Cattle-owners steadily resist the law of July 21, 1881, which requires reports of the appearance of the disease. Such reports are seldom made. The municipal authorities do not aid the administration in its efforts to suppress all foci of disease for fear of disturbing local commerce. The appearance of the disease is carefully hidden in some places in order that these places may not lose the military maneuvers which would be held there otherwise. All these considerations render measures of hygiene and isolation difficult and facilitate the spread of the disease.

A Doctor of Medicine Convicted of Complicity in the Illegal Practice of Medicine

A court condemned a doctor of medicine attached to a fake institute to pay \$40 (200 francs) fine for illegal practice of medicine. Since October, 1910, this physician has been employed by the establishment in question for \$50 (250 francs) a month. The doctor testified that he did not sign the letters in regard to treatment and that his part was limited to indicating to patients by letter whether or not the treatment was indicated in their cases, and sometimes giving an opinion on the diagnosis. The court declared that it was evident that a physician under such conditions could only recommend the treatment when consulted. He did not practice medicine freely according to proper examination and control. He renounced his character of physician in order to recommend the treatment which was the object of the establishment to which he was attached. In short, he was there merely to facilitate the illegal practice of medicine.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Sept. 7, 1912.

Death of Professor Cramer

Professor Cramer, the director of the Göttingen clinic for neurology and psychiatry, died unexpectedly September 6 at the early age of 51. He was one of the most important of the younger psychiatrists. He particularly devoted himself with success to the questions of attenuated criminal responsibility and also the incidence of mental diseases among children in asylums. It was at his suggestion that at Göttingen the child wards of the state were submitted to psychiatric examinations; it was also through his efforts that an institute for nervous diseases was established near Göttingen by the authorities of the province of Hanover. Cramer joined the faculty at Göttingen as a psychiatrist in 1895 and was appointed in 1897 as extraordinary and in 1901 as regular professor. Last year he declined a call as successor of Ziehen at Berlin. His literary works are very numerous; they deal especially with clinical psychiatry. His text-book of legal psychiatry for physicians and lawyers has a wide circulation.

Prize Offered by the Berlin Society for Racial Hygiene

The Berlin Gesellschaft für Rassenhygiene announces a prize for the discussion of the question: Do material and social advancement bring dangers to families in relation to racial hygiene? In this discussion special attention shall be given to the fact that previous experience among the well-to-do, educated classes of the cities, as well as among the better situated classes of working people, indicates a marked reduction of the birth-rate, which leads to the extinction of worthy families and to the exclusion of valuable hereditary forces from our racial life. It is left to the authors whether they shall investigate the extent and cause of this phenomena and determine the conditions which influence unconsciously the fertility and quality of the families, as well as whether they shall consider the physical, genealogic, statistic or other viewpoints of the question. For the two best essays prizes of 400 marks (\$100) and 200 marks (\$50) are offered. Prof. von Gruber, of Munich, is one of the judges.

Limitation of Advertising of Specialists

The court of honor for the kingdom of Saxony has decided that the advertisements "specialists for external and internal tuberculosis" and "massage of nerves" are not in accordance with the principles of ethics, and therefore not permissible.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Sept. 5, 1912.

The Average Age of Marriage for Women and Men

The constant decrease in the number of births and marriages in many countries has caused much comment and speculation as to how to combat this evil. Among the results of the investigations the following figures have been ascertained for the population in the south of this country where a mixed nation is living—Italians, Slavs and a few Germans. Thirteen per cent. of the women marry before they reach their twentieth year; 36 per cent. marry from 20 to 25 years of age, a more popular age. The next lustrum or five-year period (25 to 30 years) shows only 25 per cent. of marriages, and a constant decrease is now the rule for each lustrum; 12 per cent. are from 30 to 35 years old; 6 per cent. are from 35 to 40 years; 5 per cent. marry between the ages of 40 and 45, and 1 per cent. between 45 and 50 and over. After 50 years the percentage is very low, 0.33⅓ per cent. For men a similar statistical study has been worked out but it comprises a much smaller number of investigated couples. Less than 1 per cent. of men marry below 20 years. Military regulations, apart from other reasons, prevent early marriage, for no man fit for military service may marry without special consent before having served his term, that is, before the twenty-fourth year. Men marry usually between 25 and 35 years of age. Of all married couples, the husbands in 14 per cent. of the cases founded a family between the twentieth and twenty-fifth years; in 26 per cent. between 25 and 30 years; in 24 per cent. they were between 30 and 35 years old at the time of marriage. Quite a large number, 40 per cent., marry between 35 and 40, mostly in towns; 10 per cent. are over 40 years but less than 45, while the remaining 7 per cent. are over 45 years of age when they marry. Of course, only the first marriage is taken into account.

Capital Punishment

The problem of capital punishment was the subject of debate at the German Lawyers' Congress (Deutscher Juristentag) recently held in Vienna. While some declared that capital punishment was absolutely necessary, others absolutely denied its justification. Those in favor of inflicting the death sentence held that this was the only means of saving the community from criminals like murderers, and they expected a wholesome terror to be exerted by the threatening punishment on would-be murderers. But they admitted that the chief drawback was the irreparability of an execution which might be the result of an error of justice. No religious or sentimental ideas or ideas of vengeance were admissible in the consideration, but simply the conscience of justice demanded the right to pass the death sentence in extreme cases. The opposers of capital punishment pointed out that the deterrent effect of this *ultima ratio* had not been proved. In countries where capital punishment was abolished (altogether twelve) one could not find an excess or increase of crime in comparison with other countries. They contended that the community could rid itself of dangerous criminals by lifelong imprisonment just as dangerous lunatics are made innocuous. The idea of cruelty has been abolished from modern judicature. If capital punishment should act as a deterrent it would have to be made more cruel and bloody, while on the contrary all modern punishments are governed by humanitarian ideas. Therefore the state could do without capital punishment. In special instances, as in the case of assassins of rulers, the threatening death sentence acts as an incentive for martyrdom. After a heated discussion the motion to abolish capital punishment was rejected by 150 against 158 votes and the following resolution was accepted: "The continuance of capital punishment is an expression of popular sentiment of jurisdiction. But it shall be stipulated only for the gravest cases of murder and high treason and even then its application shall be considered gravely by the judge." As the resolutions of this congress are in high degree influencing the new penal code just now in preparation in this country, the significance of the above-mentioned result of the discussion is obvious. It is strange that no medical men were asked to take part in the proceedings of the congress.

Marriages

AMOS TREVALEE BAKER, M.D., Riverdale, N. Y., to Mrs. Edna M. Pelkie of Matteawan, N. Y., in New York City, September 10.

CHARLES O. JOHNSTON, M.D., Claysburg, Pa., to Miss Margaret Della Beegle of Bedford, Pa., at Billings, Mont., September 5.

CHARLES BUSHFIELD SCHILDECKER, M.D., to Miss Edna May Wightman, both of Pittsburgh, at Corry, Pa., September 11.

ELMER E. LENHARDT, M.D., Minorsville, Pa., to Miss Anna Louise Erricson of West Pittston, Pa., September 10.

ROY CLYDE FRAVEL, M.D., Richmond, Va., to Miss Emma Calhoun Peyton of New Castle, Del., September 18.

LEON GILBERT WOODFORD, M.D., Canon City, Colo., to Miss Myrtle C. Sharpless of Everett, Wash., August 30.

GEORGE F. SAVAGE, M.D., Port Washington, Wis., to Miss Mary King of Spring Green, Wis., September 10.

CHARLES F. K. BEAN, M.D., West Medford, Mass., to Miss Amy Rider of Malden, Mass., September 16.

ELMER ANDREW MINER, M.D., Independence, Kan., to Miss Eugenia Mason of Chicago, September 19.

FLAVEL B. TIFFANY, M.D., Kansas City, Mo., to Miss Zoe Clark, at Kansas City, September 12.

MARTIN OSCAR STAUCH, M.D., Solon, Iowa, to Miss Lida Simons of Clinton, Iowa, September 3.

THOMAS DYER HENDERSON, M.D., to Miss Emma G. Housel, both of Philadelphia, September 11.

CHENEY METCALFE STIMSON, M.D., to Miss Ellen D. Dresher, both of Philadelphia, September 9.

WILLIAM SHERMAN BOUGHER, M.D., to MARION S. WALLACE, M.D., both of Chicago, August 28.

JAMES EDWARD HUBBARD, M.D., to Miss Lillian E. Godwin, both of Easton, Md., July 17.

LYLE GILLET MCNEILE, M.D., to OLGA MURRAY, M.D., both of Los Angeles, September 7.

Deaths

Guido Bell, M.D. University of Freiberg, Germany, 1865; formerly a member of the American Medical Association; a member of the Indiana State Medical Association and Mississippi Valley Medical Association; for forty-five years a practitioner of Indianapolis; for several years corresponding editor of *Memorabilien*, a medical journal published in Heilbronn, Germany; prominent in the German charities of Indianapolis; by common consent of his confrères "the most learned physician in arts, sciences and humanities as well as in the special knowledge of his profession who had practiced in Indianapolis;" died at his home, September 13, from cerebral hemorrhage, aged 73.

Abel Huston Thayer, M.D. University of Maryland, 1876; a member of the American Medical Association and the American Association of Railway Surgeons; a veteran of the Civil War; for several years president of the Taylor County (W. Va.) Board of Health; local surgeon for the Baltimore & Ohio Railroad; for two terms a representative in the West Virginia legislature; died at his home in Grafton, September 8, aged 70.

George W. Butts, M.D. Medical College of Virginia, Richmond, 1868; of Chuckatuck, Va.; for many years a member of the board of supervisors of Nansemond County and at one time county treasurer; for eighteen years president of the board of visitors of the Deaf, Dumb and Blind Institute, Staunton; a Confederate veteran; died at the home of his daughter, in Port Norfolk, Va., September 6, from heart disease, aged 69.

Seymour David Carpenter, M.D. University of Pennsylvania, Philadelphia, 1849; a practitioner of Cedar Rapids, Iowa, from 1849 to 1862; surgeon in the United States Army and medical director of the Department of Missouri in 1864 and 1865; who, after the war, engaged in business enterprises until 1892, and was for a number of years a resident of Chicago; died in the Royal Hospital, Montreal, Que., August 29, aged 87.

George Frost, M.D. Dearborn Medical College, Chicago, 1906; of Chicago; a member of the Illinois State Medical Society; instructor in clinical surgery in his alma mater and an employee of the health department of Chicago; died in the Chicago Avenue Hospital, September 9, after an operation for malignant disease of the throat, aged 51.

Lewis Marshall McLendon, M.D. University of Mobile, Ala., 1874; a member of the Medical Association of the State of Alabama; representative from Escambia County in the last legislature, and chairman of the house committee on public health; formerly of Brewton; died at his home in Canoe, about September 9.

Francis L. Frost, M.D. Medical College of the State of South Carolina, Charleston, 1861; brigade surgeon in the Confederate service throughout the Civil War; later a member of the common council and city registrar of Charleston, S. C.; died at his home in Charleston, about September 5, from senile debility, aged 81.

James Harry Barbour, M.D. Medical College of Ohio, Cincinnati, 1852; a member of the Kentucky State Medical Association; at one time mayor of Falmouth, Ky.; surgeon of volunteers during the Civil War; died at his home in Falmouth, September 8, from senile debility, aged 88.

Adam M. Beers, M.D. University of Pennsylvania, Philadelphia, 1863; a member of the American Medical Association and American Association of Railway Surgeons; local surgeon of the Pennsylvania System at Newcomerstown, Ohio; died at his home, September 10, from heart disease, aged 71.

Leon M. Nugent, M.D. Marquette University, Milwaukee, Wis., 1908; of Wauwatosa; a member of the State Medical Society of Wisconsin; while attempting to cross the Wells street viaduct, September 7, was run down by a trolley car and killed, aged 25.

Milton Anthony Turner, M.D. Medical College of Georgia, Augusta, 1871; a Confederate veteran; for thirty-five years a practitioner of Dumbarton, S. C.; died in the City Hospital, Augusta, Ga., September 12, aged 64.

Robert M. Dawson, M.D. University of Maryland, Baltimore, 1869; died at his home in Sherwood, Md., September 8, aged 73.

John W. Nance, M.D. Medical College of the State of South Carolina, Charleston, 1900; a member of the Florida Medical Association; sheriff of Columbia County in 1908; died at his office in Lake City, September 11, from the effects of morphia, self-administered, it is believed, with suicidal intent, aged 41.

Augustine Perkins, M.D. Rush Medical College, 1876; a pioneer oculist and aurist of Colorado, and one of the charter members of the Colorado Physicians' Society; died at the home of his daughter in Denver, September 10, from senile debility, aged 72.

William R. Osborn, M.D. Cincinnati College of Medicine and Surgery, 1874; for several years surveyor of Dubois County, Ind.; a veteran of the Civil War; a practitioner of Spurgeon; died at the home of his daughter in Petersburg, Ind., September 8, aged 73.

William H. Loughhead, Jr., M.D. University of Buffalo, N. Y., 1891; a member of the Medical Society of the State of New York; of Andover; died in St. James Mercy Hospital, Hornell, N. Y., September 12, after an operation for appendicitis, aged 52.

Frederick W. Davis, M.D. Western Reserve Medical College, Cleveland, 1882; a member of the American Medical Association; secretary of the Cleveland Academy of Medicine; died suddenly at his home, September 13, from acute gastritis, aged 59.

Stillman J. Quinby, M.D. New York University, New York City, 1860; of Omaha; major and surgeon of volunteers throughout the Civil War; died at the home of his sister in Lynn, Mass., September 7, from senile debility, aged 79.

Felix A. Bryan, M.D. Meharry Medical College, Nashville, Tenn., 1902; president of the Lone Star State Medical Association and a prominent colored physician of Texas; died at his home in Dallas, September 11.

Charles Glen Criser, M.D. University College of Medicine, Richmond, Va., 1899; a member of the Medical Society of Virginia; died in his home in Warm Springs, August 18, from cerebral hemorrhage, aged 41.

George Burton Andrews, M.D. University of Vermont, Burlington, 1886; at one time a member of the staff of the Central Maine General Hospital; died at his home in Auburn, Me., August 31, aged 50.

Raleigh H. Hightower, M.D. Southern College of Eclectic Medicine and Surgery, Atlanta, Ga., 1890; a Confederate veteran; died at his home in White House, near McDonough, Ga., September 8, aged 73.

Charles W. Allen, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1868; surgeon in the Confederate service during the Civil War; died at his home in Bedford, Mo., September 1, aged 76.

Charles Henry Brueckner, M.D. College of Physicians and Surgeons, Baltimore, 1901; died at his home in Newark, N. J., June 24, from peritonitis following a rupture of the gall-bladder, aged 36.

Robert O. Wozencraft (license, Arkansas, 1903); of Princeton, Ark.; a member of the American Medical Association; died in a hospital in Little Rock, September 1, aged 30.

S. P. Jones (license, exemption certificate, Minnesota, 1883); of Eagle Lake; died in Immanuel Hospital, Mankato, September 14, from cerebral hemorrhage, aged 82.

George D. Fitch, M.D. New York University, New York City, 1860; formerly of Philadelphia; died at the home of his sister in South Jersey, August 20.

Bennett Eli Bean, M.D. Bellevue Hospital Medical College, 1872; died at his home in North Middletown, Ky., September 11, from heart disease, aged 70.

Clarence Stanley Hunter Darlington, M.D. University of Buffalo, N. Y., 1902; of Oklahoma, Okla.; died in Buffalo, N. Y., August 18, aged 33.

George David Rich, M.D. American Medical College, Eclectic, St. Louis, 1897; formerly of Imperial, Cal.; died in Petaluma, Cal., August 15, aged 41.

Edouard Napoleon Fugere, M.D. Laval University, Quebec, 1890; of Manchester, N. H.; died in McGregorsville, N. H., August 29, aged 47.

Alfred L. Rizer, M.D. Detroit (Mich.) Medical College, 1876; died at his home in Canton, Ohio, September 6, aged 68.

S. C. Franks (license, Iowa, 1887); of Farmington, Iowa; died at his home, September 5, aged 74.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

PERUNA REDIVIVUS

Old Style Peruna Now Sold as Ka-tar-no

Six years ago Peruna was sold by car-load lots where it is now sold by the case. The reason is that, as now manufactured, it cannot be used as an alcoholic beverage. In 1906, the Peruna company was notified that it either must put some medicine in its "booze" or it could be sold only in saloons or other places carrying liquor licenses. The company thus found itself between the devil and the deep blue sea. If it left its nostrum as it was, it could only be sold by one who held a retail liquor dealer's license; this, of course, would at once make its real character evident to the purchaser. If, on the other hand, appreciable quantities of drugs were put into the stuff it would spoil its sale as a beverage. Evidently believing that the preparation was so popular that nothing could hurt its sale materially, the company chose the latter course. A laxative was added and Peruna was still permitted to be sold as a medicine.

Incidentally, the public was not given the real reason for the change in Peruna's make-up. The excuse offered by Hartman—who is the Peruna company—was:

"For a number of years requests have come to me from a multitude of grateful friends, urging that Peruna be given a slight laxative quality."

The results of the change were what might have been expected. Those who had been taking their toddy in the form of old-style Peruna found themselves in for a bad quarter of an hour when they attempted to obtain the accustomed stimulation from the modified Peruna, to which a laxative had been added. The sale of Peruna diminished enormously. Now we learn from the newspaper advertisements that the old-time Peruna is again on the market under the name Ka-tar-no. A booklet is issued giving some of the alleged reasons for the resurrection of the old Peruna. With the "patent-medicine" makers' belief that the public soon forgets and is easily fooled it is now frankly admitted that the reason for the change in the Peruna formula was, to use the company's own words, because "the government decided that Peruna contained too great a percentage of alcohol and too small a percentage of other drugs to protect it from misuse among people inclined to use alcoholic beverages." To quote further from Hartman's interesting and amusing booklet:

"Dr. Hartman has always been a strict temperance man himself, and when the government proposition was made to him that he must either manufacture and sell Peruna as an alcoholic beverage or change the formula he was shocked beyond all measure. He could not bring himself to engage in anything that looked like liquor traffic."

In spite of the fact, however, that "a multitude" of Dr. Hartman's "grateful friends" had desired the change in the Peruna formula it seems that there was even a greater multitude that objected to it, for we learn:

"Ever since the new Peruna was offered thousands of people who had used Peruna as a family medicine for many years began to complain of the change. . . . The new taste acquired by additional drugs, the new effect that the drugs produced, was all strange and caused them to hesitate and some of them to be actually afraid to use it. Thus it was that the sale of the new Peruna fell below the sale of the old Peruna."

The many requests for the old-style Peruna—combined doubtless with the diminishing sales of the new Peruna—have had their effect on Dr. Hartman even though he is "a strict temperance man" and "was shocked beyond measure" by the government's demand that he put medicine in his preparation

"The continuous requests of such a multitude of people have caused him to relinquish in so far that he allows the old Peruna (now called Ka-tar-no) to be manufactured and sold as an alcoholic beverage."

If the idea is to recuperate the failing fortunes of Peruna, we predict that it will fail. In the first place, Ka-tar-no

cannot be sold except by those who hold a liquor dealer's license. This means that those who, in the past, honestly believed that Peruna had a physiologic action other than that due to alcohol will now know better. Those, on the other hand, who used to purchase Peruna because they wanted alcohol but preferred it in the form of "patent medicine" rather than whisky, will be unwilling to go to the saloon or retail liquor dealer for their toddy. The attempt to resurrect the old Peruna is foredoomed to failure. Those who are honestly opposed to the use of alcohol will not purchase it; those who use alcohol surreptitiously will hesitate to go into a saloon for their "medicine;" those who want alcohol and frankly admit it can buy, for less money, a better grade of whisky than Ka-tar-no.

Correspondence

Look Out for Dr. Ludwig Braun

To the Editor:—About the middle of August a man representing himself to be Dr. Ludwig Braun came to Galveston. He said that he had been demonstrator of pathology in McGill University, which Dr. Adami denies; that he was in the employ of the U. S. Navy, which Surgeon-General Stokes denies; and he was guilty of misrepresenting facts in a number of other instances. After mutilating a valuable book in our medical library, he disappeared, leaving some unpaid bills. If you think best this information might be published for the protection of others. He said he was on the way to Buenos Aires. He is a short, heavy-set, round-faced, smooth-shaven German who talks a great deal. If you should learn of his whereabouts we would be glad to know of it.

JAMES J. TERRILL, Galveston, Texas,

Professor of Pathology, Medical Department, University of Texas.

[COMMENT.—In 1910 a Dr. Ludwig Braun was tried and convicted of stealing microscopes and other instruments from physicians of Vancouver, B. C., and was sent to prison for one year. The man said that he had done work in McGill University and that he was a graduate of a medical school in Vienna. The name and the similarity of the assertions and actions make it seem probable that the Dr. Ludwig Braun of both reports is one and the same person. The chances are that Ludwig may turn up almost anywhere and indulge in some of his little eccentricities. Therefore it might be well for physicians to be on the lookout for him.

Later: Since the above went on the press, information is received that a Dr. Ludovic Braun, said to be a Russian doctor, but doubtless the same man referred to above, has been arrested at Corpus Christi, Texas, on a charge of stealing medical instruments from Dr. W. N. Wardlow. Braun was reported to be in the county jail, having acknowledged the charge. It was further stated that the government wants him on the charge that he impersonated a U. S. government officer.—EDITOR.]

Harrar's Views on Puerperal Infection

To the Editor:—In the article on "Puerperal Infection" by me in THE JOURNAL (Aug. 31, p. 703), I misquote James A. Harrar. The quotation should read: "Harrar does not advocate intra-uterine douches in puerperal infections with streptococci or the colon bacillus. In cases of infection with other organisms he believes douches may have some value."

THOMAS J. WATKINS, Chicago.

Fatigue and Sleep.—Athletes find that repose without sleep best relieves fatigue after prolonged strain. The reason for this is that the internal secretion antidote to fatigue-products is more rapidly formed during waking hours and more freely supplied to the muscles when the blood is not accumulated in the splanchnic area.—*St. Louis Med. Rev.*

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

LITERATURE ON PELLAGRA AND HOOKWORM

To the Editor:—I wish to obtain a few articles on the etiology, symptoms and treatment of (1) pellagra and (2) hookworm disease.
E. S. COSTER, M.D., Solomons, Md.

ANSWER.—The literature on pellagra is extensive. A full bibliography of the subject was published in *THE JOURNAL*, Nov. 13, 1909, p. 1657. To this may be added the following recent articles:

- Silver, D. R.: Corn and Pellagra, *THE JOURNAL*, Feb. 5, 1910, p. 452.
King, H. D.: The Etiologic Controversy Regarding Pellagra, *THE JOURNAL*, March 12, 1910, p. 859.
Delcourt, A. J.: Pellagra, *THE JOURNAL*, April 2, 1910, p. 1121.
Cole, H. P., and Winthrop, G. J.: Pellagra: Transfusion in Eleven Cases, *THE JOURNAL*, April 23, 1910, p. 1354.
Long, J. D.: Pellagra, *THE JOURNAL*, Aug. 27, 1910, p. 734.
Bass, C. C.: Climatic Treatment of Pellagra, *THE JOURNAL*, Sept. 10, 1910, p. 940.
Discussion on Pellagra, St. Louis Session of the A. M. A., *THE JOURNAL*, Jan. 28, 1911, p. 251.
Cole, H. P.: Transfusion in Pellagra: A Review of Twenty Cases, *THE JOURNAL*, Feb. 25, 1911, p. 584.
Niles, C. M.: Pellagra Treated with Salvarsan, *THE JOURNAL*, March 25, 1911, p. 896.
Roberts, S. R.: Sambon's New Theory of Pellagra and Its Application to Conditions in Georgia, *THE JOURNAL*, June 10, 1911, p. 1713.
Cole, H. P.: Status of Salvarsan in Pellagra, Based on Twenty-One Cases, *THE JOURNAL*, June 17, 1911, p. 1794.
Niles, G. M.: The Dietetic Management of Pellagra, *THE JOURNAL*, Oct. 28, 1911, p. 1430.
King, P. M., and Crowell, A. J.: Pellagra Treated with Salvarsan: Report of Nineteen Cases, *THE JOURNAL*, Nov. 18, 1911, p. 1687.
Bass, C. C.: Pellagrous Symptoms Produced Experimentally in Fowls by Feeding Maize Spoiled by Inoculation with a Specific Bacterium, *THE JOURNAL*, Nov. 18, 1911, p. 1684.
Beall, K. H.: Etiology of Pellagra, *THE JOURNAL*, Nov. 18, 1911, p. 1683.
Pellagra, *THE JOURNAL*, Dec. 9, 1911, p. 1940.
Cranston, W. J.: Salvarsan in Pellagra, *THE JOURNAL*, May 18, 1912, p. 1509.
Knight, I. E.: Ten Pellagrics in One Family, *THE JOURNAL*, June 22, 1912, p. 1940.

Two valuable books have been published on this subject:

- Marie, A.: Pellagra, The State Company, Columbia, S. C.; price, \$2.50.
Niles, G. M.: Pellagra, W. B. Saunders Company, Philadelphia; price, \$3.

2. Like pellagra, the subject of hookworm disease is treated in an extensive literature. We give below a list of original articles appearing in *THE JOURNAL* from 1903 to the present time:

- Leidy, J.: *Ascaris* Duodenale, *THE JOURNAL*, June 5, 1909, p. 1832.
Ashford, B. K., and Igaravidez, P. G.: Summary of a Ten Years' Campaign Against Hookworm Disease in Porto Rico, *THE JOURNAL*, May 28, 1910, p. 1757.
Lindeman, E. E.: Treatment of Hookworm Disease, *THE JOURNAL*, May 28, 1910, p. 1765.
Litterer, W.: The Non-Oviparous Female Hookworm, *THE JOURNAL*, Oct. 15, 1910, p. 1378.
Gunn, H.: Hookworm Disease in Mines of California, *THE JOURNAL*, Jan. 28, 1911, p. 259.
Stroosnider, C. F.: Hookworm Disease, *THE JOURNAL*, April 8, 1911, p. 1024.
Ankylostomiasis, Uncinariasis or Hookworm Disease, Therapeutics in *THE JOURNAL*, April 15, 1911, p. 1107.
Endicott, E. E.: My Experience with Hookworm Infection in the Deep Gold Mines of California, *THE JOURNAL*, Sept. 30, 1911, p. 1106.
Schultz, W. H.: Eucalyptus and Chloroform in Hookworm Disease, *THE JOURNAL*, Sept. 30, 1911, p. 1104.
Gunn, H.: Hookworm Disease in California; Its Importation, Dissemination and Prevention, *THE JOURNAL*, Sept. 30, 1911, p. 1107.
Frazer, T.: Mild Cases of Hookworm Disease in Children, *THE JOURNAL*, Sept. 2, 1911, p. 791.
Bozzolo, C.: Treatment of Hookworm Disease with Thymol, *THE JOURNAL*, June 8, 1912, p. 1744.
Report on Hookworm Eradication, Editorial, *THE JOURNAL*, June 22, 1912, p. 1946.
Dorsett, T. W.: Syphilis Complicated with Uncinariasis, *THE JOURNAL*, Aug. 10, 1912, p. 445.

Good books on the subject are as follows:

- Dock, George, and Bass, Charles C.: Hookworm Disease, C. V. Mosby Company, St. Louis; price \$2.
Hookworm Disease, prepared under the direction of the State Board of Health of Florida, by Dr. Hiram Byrd, Assistant State Health Officer.
See also Public Health Bulletin No. 32, Public Health Service of the United States.

SIGNED NEWSPAPER ARTICLES INEXPEDIENT FOR A PRACTITIONER

To the Editor:—The editor of a local newspaper in a city of about 20,000 urged me to write some popular articles on the more common diseases for publication in his paper. I prepared a few articles and they appeared as written "by a well-known physician of the town." The editor insists that I sign the articles, but I hesitate to do this because of the danger of being accused of notoriety-seeking. What shall I do? Sign them or not?
T. S.

ANSWER.—A practicing physician signing his name to popular articles on medical subjects published in his local newspapers would subject himself to criticism. Our correspondent answers his question in acknowledging that a signature would make the author liable to the charge of seeking notoriety, and of using a "special privilege" for the purpose of soliciting patients. Whatever added value, in the judgment of the editor, a signature may give the communication is more than balanced by the possible misunderstanding of the author's motive on the part of the public, as well as of his professional confrères. Under these conditions, the physician-author pays too much for a whistle for the newspaper editor to blow.

When the author is "not in practice" and when the article is published in a paper distributed over a large territory, a signature and a list of degrees may be used with the article, as they do not rouse the suspicion they engender when one whose living is obtained from the practice of medicine signs the article.

THE VON PIRQUET TEST

To the Editor:—The statement was made that the von Pirquet test for tuberculosis is unreliable and has been abandoned. In a case in which the cause of a continued fever is very obscure, and the reaction is positive, would it be consistent to base the diagnosis on a positive reaction?
H. L. WILDER, M.D., Glen Rose, Texas.

ANSWER.—The reason for the unreliability of the von Pirquet test is that it does not distinguish between active and latent tuberculosis. Therefore, when applied to adults, the majority of whom have survived an infection with tuberculosis of some sort, it fails to indicate an active disease. A latent focus of tuberculosis anywhere in the body may cause a positive reaction, although this focus may have no relation to the disease that is causing the symptoms from which the patient may be suffering. Consequently, while the von Pirquet test in a positive reaction may be said always to indicate the presence of tuberculosis, it gives us in many cases no information which can be used in determining the cause of the present condition. In the case referred to by our correspondent it would not be safe to base a diagnosis of active tuberculosis on a positive reaction.

THYMUS SUBSTANCE IN RHEUMATISM

To the Editor:—Can you tell me anything about the efficacy of thymus substance in rheumatoid arthritis?
WALTER E. VEST, M.D., Meherrin, Va.

ANSWER.—The use of thymus gland is still in the experimental stage. The latest expression of pharmacologists regarding it is that its employment has not yet been sufficient to justify any positive statement as to its therapeutic value.

To the Editor:—Has any literature appeared recently on the use of thymus gland in chronic rheumatism or arthritis deformans?
M. K. HENRY, M.D., Philadelphia.

ANSWER.—The following articles may be referred to:

- Gwyer, F.: Thymus Gland Treatment of Certain Diseases, *New York Med. Jour.*, Feb. 19, 1910; abstr. in *THE JOURNAL*, March 5, 1910, p. 816.
Nathan, P. W.: A New and Apparently Successful Method of Treating Metabolic Osteo-Arthritis, *THE JOURNAL*, June 17, 1911, p. 1779.

POSLAM

To the Editor:—I have been asked to give the formula or contents of Poslam. Can you enlighten me?
E. W. A.

ANSWER.—Poslam was discussed in *THE JOURNAL* (May 22, 1909, p. 1678), and the matter has been reprinted in "Nos-trums and Quackery." From an examination made in the Association's laboratory, it was concluded that the composition of Poslam was essentially:

Zinc oxid	12.01 parts
Sulphur	6.67 parts
Corn-starch	22.00 parts
Tar-oil	15.18 parts
Menthol }	
Salicylic acid }	Small quantity of each.
Fatty base q.s.....	100.00 parts

LITERATURE ON TRACHOMA

To the Editor:—Kindly give me references to any recent literature on trachoma.
POLK RICHARDS, White Earth, Minn.

ANSWER.—By consulting THE JOURNAL indexes for the last three years our correspondent will find the following articles:

- Stuart, C. C.: Trachoma in its Sociologic Aspect, *Ohio State Med. Jour.*, December, 1908.
Franklin, C. P.: Trachoma and the Public Weal, *Pennsylvania Med. Jour.*, February, 1909; abstr. in THE JOURNAL, Oct. 17, 1908, p. 1357.
Coover, D. H.: New Operative Procedure in Treatment of Trachoma, *Ophth. Rec.*, February, 1909; abstr. in THE JOURNAL, March 27, 1909, p. 1064.
Greeff: Germ Causing Trachoma, *Deutsch. med. Wchnschr.*, March 28, 1909, No. 12; abstr. in THE JOURNAL, May 1, 1909, p. 1466.
Tull, F. H.: Trachoma, *Jour. New Mexico Med. Soc.*, July, 1909.
Pusey, B.: "Trachoma Bodies" Possibly the Etiologic Factor of Trachoma, *Quart. Bull. Northwestern Med. School*, June, 1909; abstr. in THE JOURNAL, Aug. 7, 1909, p. 488.
Sisson, E. O.: Etiology of Trachoma, *Denver Med. Times and Utah Med. Jour.*, October, 1909.
White, D. W.: Trachoma, *South. California Pract.*, November, 1909.
Joyes, C.: Trachoma, *Texas State Jour. Med.*, November, 1909.
Woodson, J. M.: Treatment of Chronic Trachoma, *Texas State Jour. Med.*, November, 1909.
Goldbach, L. J.: Trachoma, *New York Med. Jour.*, Dec. 25, 1909.
Benson, A. H.: Trachoma, *Dublin Jour. Med. Sc.*, January, 1910.
Wylie, C. B.: Trachoma, *Jour. Tenn. State Med. Assn.*, February, 1910.
Wootton, H. W.: Surgical Treatment of Trachoma by the Combined Excision of Heisrath and the Tarsal Resection of Kuhnt, *Arch. Ophthalm.*, March, 1910.
Franklin, C. P.: What Shall We Do About Trachoma? *Penn. Med. Jour.*, June, 1910; abstr. in THE JOURNAL, Oct. 23, 1909, p. 1424.
Hornback, E. T.: Treatment of Trachoma, *St. Louis Med. Rev.*, June, 1910.
Martin, H. H.: Trachoma Treated After the Coover Method, *Ophthalmology*, January, 1911; abstr. in THE JOURNAL, Jan. 28, 1911, p. 305.
Brav, A.: Are We in Danger of Trachoma? *New York Med. Jour.*, March 4, 1911; abstr. in THE JOURNAL, March 18, 1911, p. 847.
Harrison, W. H. and White, D. W.: Management and Treatment of Trachoma Among Indians, *Jour. Ophth. and Oto-Laryngol.*, April, 1911.
Sattler, C. H.: Etiology of Trachoma, *Med. Klin.*, April 9, 1911.
Green, J.: Menace to Eyesight From Trachoma, *Jour. Missouri Med. Assn.*, October, 1911, No. 4.
Caldwell, R.: Surgical Treatment in Trachoma, *Jour. Ark. Med. Soc.*, September, 1911, No. 4; abstr. in THE JOURNAL, July 8, 1911, pp. 156-157.
Safford, M. V.: Trachoma, *Med. Rec.*, Nov. 11, 1911.
Williams, A. W.: Significance of Group of Hemophilic Bacilli in Conjunctivitis, Especially in Trachoma, *New York Med. Jour.*, March 16, 1912; abstr. in THE JOURNAL, March 30, 1912, p. 975.
Stewart, J. H.: Trachoma, *St. Paul Med. Jour.*, May, 1912, No. 5.
Causative Organism of Trachoma, Editorial, THE JOURNAL, June 22, 1912, p. 1947.

Miscellany

Outdoor Classes for Tuberculous Children

The nation-wide campaign against tuberculosis has perhaps put undue emphasis on the treatment and cure of the disease at the expense of its prevention. None the less, prevention of tuberculosis is now receiving its merited attention. F. C. Smith ("Relation of Climate to Treatment of Pulmonary Tuberculosis," Public Health Bulletin No. 35, 1910) has summarized the important factors in promoting recovery from tuberculosis under the heads of (1) adequate and intelligent rest, (2) proper and sufficient food, (3) abundance of pure air, which, taken all together under skilled medical direction, constitute a well-ordered hygiene. These factors are equally applicable to the prevention of tuberculosis, and serve to demonstrate that the therapeutic and prophylactic measures are the same. The difference arises in the individual to whom the measures indicated are applied.

Probably no more important application of the principles outlined in the prevention of tuberculosis can be made than in the case of children, especially children from tenement districts. Here it is most difficult to secure even one of the essential desiderata of good food, rest and pure air. From the eugenic point of view such work is of the highest value, not alone with reference to tuberculosis of the skin, glands, bone, lungs, etc., but also in developing strong, sturdy adults. The anemic, stunted child of the tenements is predisposed to many diseases beside tuberculosis, and if he reaches maturity his offspring will receive a serious hereditary handicap.

Recognizing the truth of these considerations, and the pressing necessity of the problem involved, the Committee on the Prevention of Tuberculosis of the Charity Organization Society of New York City (as described in its bulletin "Fresh-Air Classes," New York, April, 1912), has organized and assisted in the maintenance of fresh-air classes in the public schools in cooperation with the Department of Education. As a result of the activity of this committee there are now eight fresh-air classes in the public schools of Manhattan and the Bronx. In some of these the roof is utilized, in others an adjoining park pavilion; the rest making use of class-rooms in the school buildings, which have been suitably altered.

The Board of Education provides the meeting-place for each class and an equipment of movable desks and seats. In addition it furnishes each child a "sitting-out bag," a sweater, cap, a pair of mittens, a pair of felt shoes and a reclining chair. This individual equipment costs \$8.39 for each child. It belongs to the school and is passed from one child to another, of course after proper disinfection. Each outfit is numbered so that each child has his own articles as long as he is in the class. These outfits when not in use are kept in sanitary lockers in the class-room. The Board of Education also supplies an anthropometric scale costing \$19 for each class.

The Committee on the Prevention of Tuberculosis assumes the responsibility for feeding the children. It has been sought to determine whether the remarkable results obtained were due to the fresh air or the feeding or to both. To this end two classes were conducted under each of the following plans:

1. A hot lunch is furnished at noon, and in addition milk and crackers both morning and afternoon.
2. Lunch only but no milk either morning or afternoon.
3. Milk only both morning and afternoon, the children bringing their own lunch or going home for it.

In addition one class received no food at all, the children bringing their lunch or going home for it. The comparative results of these plans will be tabulated shortly.

The cost of feeding is 17 cents a day per child for a hot lunch, and milk both morning and afternoon. The hot lunch alone costs about 10 cents a day per child. After the midday lunch, a rest of three-fourths of an hour is required, during which most of the children sleep.

The following plan is followed in selecting the children for the fresh-air classes. The physician of the committee picks out all the anemic-looking children from the entire school. Of these about forty are selected who show the greatest percentage below proper weight for height. Twenty-five of these are chosen for the fresh-air classes on the basis of a hemoglobin test. After securing special permission, the selected children are carefully examined for carious teeth, enlarged tonsils or lymphatic glands and adenoids. A record is also made of the blood-pressure and an accurate weekly weight chart is kept.

Striking results have been obtained in the first year of the system. Physical and mental improvement was the rule. In one class over half the children advanced in their school work faster than the normal rate. Control examinations showed marked physical gains of the fresh-air children as compared with children of apparently the same type in the regular classes.

The successful management of fresh-air classes as outlined is an excellent illustration of the beneficent results of the application of modern medical science to practical hygiene and eugenic problems.

Brevity in Medical Writing.—It is wonderful what an effect on medical science a few pages of sound medical observation has had. Goulard's little volume consists of not more than thirty duodecimo pages; Kane's account of substitution products, which initiated the whole industry of synthetic products, is a short paper; Bodington's pamphlet on the treatment of consumption is of 100 pages; M'Keever described his removal of 21 inches of the ileum in an equal number of octavo pages; Waller's description of diapedesis is told in a few pages; and the brevity of Erb's great pamphlet on "Traumatic Peripheral Paralysis" is a surprise to almost every reader who indulges in the luxury of reading monographs.—*Dublin Journal of Medical Sciences.*

Society Proceedings

COMING MEETINGS

Amer. Assn. for Study, etc., of Infant Mortality, Cleveland, Oct. 2-5.
American Association of Railway Surgeons, Chicago, Oct. 16-18.
Assn. of Military Surgeons of the United States, Baltimore, Oct. 1-4.
Clinical Cong. of Surgeons of North America, New York, Nov. 11-16.
Delaware State Medical Society, Wilmington, Oct. 8.
Indiana State Medical Association, Indianapolis, Oct. 9-11.
Kentucky State Medical Association, Louisville, Oct. 29-31.
Medical Association of the Southwest, Hot Springs, Ark., Oct. 8-10.
Mississippi Valley Medical Association, Chicago, Oct. 22-24.
National Association for Study of Peliagra, Columbus, S. C., Oct. 3-4.
Nevada State Medical Association, Reno, Oct. 8-10.
Southern Medical Association, Jacksonville, Fla., Nov. 12-14.
Vermont State Medical Society, Montpelier, Oct. 10-11.
Virginia Medical Society, Norfolk, Oct. 22-25.

INTERNATIONAL CONGRESS ON HYGIENE AND DEMOGRAPHY

Fifteenth Meeting, held at Washington, D. C., Sept. 23-28, 1912

The President, DR. HENRY P. WALCOTT, Massachusetts, in the Chair

SEPTEMBER 23, 1912—GENERAL MEETING

The congress met in general session in the Continental Memorial Hall at 11:10 a. m. Notwithstanding the inclement weather, the hall, which has a seating capacity of approximately 2,000, was filled.

The official representatives of many foreign countries occupied seats on the platform.

President Walcott delivered the opening address, which will appear in THE JOURNAL, October 12.

Address of President Taft

In introducing the Hon. William H. Taft, President of the United States, President Walcott stated that, for the first time in the history of these congresses, the chief magistrate of the nation that is host is himself a member and is willing to assume a part of the responsibility of this great gathering.

When President Taft arose to speak he received an enthusiastic ovation, the audience standing and cheering him for some minutes. When quiet was restored, he spoke as follows:

Mr. President and Members of the Fifteenth International Congress on Hygiene and Demography, Ladies and Gentlemen:

It is my pleasant and honorable duty, on behalf of the people and Government of the United States and by the direction of Congress, to welcome this great convention to Washington. Prevention is better than cure. The science of medicine and surgery has made wonderful growth in the last forty years, but in that time it would seem as if the science of sanitation, hygiene and preventive medicine had come into being from nothing. Now, all prevention and cure comes from the intense energy, industry, application, keen discrimination, and the high enthusiastic aims of the benefactors of human kind who are now devoting their lives to research and to the investigation of the causes of disease, its transmission, and its antidotes and who are proceeding *pari passu* with such rapidity and success, that we must expect to find the fountain of youth and perpetual life which was sought for in this country by some of the earlier discoverers.

A NATIONAL DEPARTMENT OF HEALTH NEEDED

We need to develop under governmental auspices a bureau or a department in which the funds of the government shall be expended for research of every kind useful in the practice and enforcement of hygiene and preventive medicine. That something of this sort may grow out of the present United States Public Health Service there is reason to believe, but it will need far greater appropriations and a widening of its scope of duties before it shall have filled the place that the medical profession of this country has a right to expect the general government to create in the progress of hygiene and demography.

Our responsibilities in Cuba, Porto Rico and the Philippines, and now on the Isthmus of Panama, have so enlarged our

knowledge of the possibilities of successful sanitation under the most burdensome conditions, and have so impressed both professional men and the laymen, at all familiar with the conditions, with the necessity for more rigid and comprehensive health laws and a stricter enforcement of them for the general good, that if the Spanish War resulted in nothing else, it was worth a great deal more than its cost in this useful development of one of the most important functions that modern government has to discharge, as well as making clear the need of an additional branch of general education in the matter of hygiene of the home and the individual.

It would seem as if the tropics were the proper place for beginning a crusade on this subject. Nature is more rapid in its growth, not only in vegetable and animal life, but in the diseases of that zone. When we first went into the Tropics, our purpose was to make that region habitable for white people. We have demonstrated that as a possibility. Now we have gone beyond the mere provision for those who come from the Temperate Zone, and we are engaged in developing the tropical races into a strength of body and freedom from disease that they have never had before.

I speak of this with considerable emphasis because I have had personal experience. I have traveled through the Philippines and drank the water which seemed so sweet and cold, and then came out and found myself a perfect zoologic garden in the number of various animals described by Latin names of which I was the custodian. (Laughter.)

THE PROBLEM OF EDUCATING DEPENDENT PEOPLES

Of course, the problem of enforcing health regulations against the will of ignorant people, whose natural laziness and resentment makes enforcement most difficult, requires a strong government, and the reason is found in taxation to maintain an adequate health police service. These are problems in the Tropics that our governments must meet. There is no difficulty in running a government if you limit its functions to the mere matter of preserving peace and the administration of justice, but if you propose to add to this adequate systems of education, government hygiene and other internal improvements, you must look about for sources of revenue which are not always forthcoming, and the absence of which retards progress in the interest of the people.

If the government is to be more or less popular, the people themselves must be educated, they must understand the importance of hygienic restrictions, to accept them and to impose on themselves the burden of taxation which is essential in order that progress shall be made at all.

GREAT STEPS FORWARD IN TROPICAL HYGIENE

I consider it a proud record of the American Army that, through its medical corps engaged in hygienic work in the Tropics, so many important discoveries as to the transmission of disease and the methods of stopping its spread have been given to the world, and all of this has dated chiefly from the time of the Spanish War. (Applause.)

The elimination of small-pox by thorough vaccination; the study of bubonic plague, its mode of transmission, suppression, its cause and method of treatment; the study of cholera and its method of treatment; the study of beriberi and its method of prevention, which has not been satisfactory; the learning of the cause of yellow fever and its transmission by the mosquito, and its method of treatment; the minimizing of the bad effects of malaria by the destruction of the mosquito, which carries its poison; the ridding of the race of hookworm, which demoralizes and tends to physical degeneration, and the prevention of typhoid fever by inoculation—all constitute great steps forward in the treatment of diseases, though most of them are especially formidable in the Tropics, and also in the Temperate Zone, but in the discoveries that have been made it is satisfactory that our American physicians have taken and are taking a most important and honorable part. (Applause.)

It is very certain that but for those discoveries the construction of the Panama Canal, which now since 1904 has been going on with giant strides, and which will be completed within a year, would have been impossible. The French government, I believe, would doubtless have been successful in

building the canal but for the problems of hygiene which the science of that day had not enabled them to do. The chief health officer of that strip of ten miles has enabled 50,000 people to live healthy lives and to carry on the work of building this great canal, and he should share with the chief engineer the honors that shall crown this great achievement. (Applause.) The possibilities of improvement of tropical countries through governmental hygiene are so great that it makes one who has any conception of what they are grow enthusiastic in the contemplation of what centuries may bring forth in this regard.

VALUE OF THIS CONGRESS

I cannot conceive of any congress of more useful character than the one which it is my honor to welcome. It is useful, because a comparison of the ideas and the discoveries and the theories of men engaged in the same hunt for the truth, and in the same delving into the mysteries of Nature, with a view to detecting her secrets in the matter of the cause and cure of disease, must result in a general benefit to all who partake in such a congress. The science of hygiene and sanitation and demography must be given an impetus the world over by the temporary concentration in close quarters of men from all the world, who have been giving their lives to the same problems.

It is delightful to contemplate this phase of the congress, because it is one of those shining instances of world-wide organization for the promotion of the peaceful arts, of which I am glad to say the number is growing every year, and in which the common interest of humanity is made conspicuous by contrast with the selfishness of each nation in the conflict of interests that are typified by our burdensome and ever increasing preparations for war. (Loud applause.)

Such congresses cannot but make for the permanence of peace. They must create a deeper love in man for man. They do stir up in the membership of such a congress, having representation from all the world, a greater human sympathy, and offer to the scientific student who is willing to devote his life to the development of a truth that shall add to the health and comfort and happiness of his fellows, a reward that cannot be measured in money, but is to be found only in the consciousness of the highest duty well done. But while these things are true with respect to the world effect of such a congress, its local influence on a country like the United States is much more marked and important in the impetus that it gives to all who are responsible for the health of the community, either in their professional or by reason of their official and governmental responsibility. They must have in such a meeting as this their ideas and their knowledge, and they must derive inspiration for better and more enthusiastic work from the commingling of the greatest scientists of the world here, and their exchange of views and from the very energizing atmosphere of the congregation. I should think such a congress as this would increase the number of novitiates for the profession of medicine and surgery.

Within the last decade or so no profession has shown greater improvement; no profession has done more for the improvement and for the promotion of health and the comfort of mankind than the medical profession.

I congratulate the medical profession of the United States on this great congress which is meeting here.

Ladies and Gentlemen of the Fifteenth International Congress on Hygiene and Demography, I welcome you to America; I welcome you to Washington, and I sincerely hope that your stay here may be as pleasant and agreeable as I am sure it will be useful to this country and to the world. (Loud applause.)

The Foreign Official Delegates

At the conclusion of President Taft's address, the secretary-general, Dr. John S. Fulton, called the roll, and the following official delegates responded for their respective countries:

- ARGENTINA—Dr. Juan G. del Castillo.
- AUSTRIA-HUNGARY—Dr. Arthur Schattenfroh, Vienna; Prof. Francis Tangl, University of Budapest.
- BELGIUM—M. Velghe, Director-General of the Administration of the Service of Health and Hygiene.
- BRAZIL—Dr. Alfredo da Graca Couto, Rio de Janeiro.

- CANADA—Dr. Frederick Montizambert, Director-General of Public Health.
- CHILE—Fleet-Surgeon Major Alberto Adriasola.
- COSTA RICA—Dr. Calvo.
- CUBA—Dr. F. Torralbas, Havana.
- DENMARK—Dr. A. C. J. Bornemann.
- DOMINICAN REPUBLIC—Dr. M. Francisco J. Peynado, Envoy Extraordinary and Minister Plenipotentiary.
- FRANCE—M. Emile Kern.
- GERMANY—Dr. Rubner, Director of the Physiologic Institute, University of Berlin.
- GREAT BRITAIN—Dr. Theodore Thomson, Local Government Board, London.
- GREECE—Dr. L. L. Caftanzoglu.
- GUATEMALA—Senor don Joaquin Mendez.
- HAITI—Don Solon Menos, Envoy Extraordinary and Minister Plenipotentiary.
- HOLLAND—Dr. M. W. Pynappel, Chief Inspector of Public Hygiene.
- ITALY—Prof. L. Pagliani, University of Turin.
- JAPAN—Mr. Selji Tsukamoto, Counsellor of the Department of the Interior.
- MEXICO—Dr. Eduardo Liceaga, Mexico City.
- NORWAY—Prof. Axel Holst, University of Christiania.
- RUSSIA—M. Zort, Councillor of the State and Physician of the General Staff of the Chief of Brigade of Ships of the Line of the Baltic Sea Squadron.
- SIAM—Prof. Paul G. Woolley, Miami College of Medicine, University of Cincinnati, Ohio.
- SPAIN—Dr. Llonerto, Envoy to the King of Spain.

After the announcement of honorary vice-presidents, the congress was declared open for the transaction of its scientific work.

The Opening Social Event

A reception to the delegates, their wives and daughters, was given by President Taft at the White House at 3 p. m., the garden party being perforce abandoned on account of rain.

THE SCIENTIFIC PROGRAM

The Relation of Anaphylaxis to the Infectious Diseases

DR. VICTOR C. VAUGHAN, Ann Arbor, Mich.: The theory of vaccination may be traced by comparing its effects to the action of the gastric juice in destroying the protein poisons which are carried into the body in all food substances, such as meat, milk, eggs, vegetables and corn meal. We eat proteins from most diverse sources, still all of them contain a most potent poison. The poison is to some extent set free in the stomach but it does not diffuse through the wall of the alimentary canal. A man may drink water containing typhoid bacilli and he is not immediately ill. There is a period of incubation of about ten days' duration, during which time the bacillus is multiplying in the body in great numbers. Suddenly the period of incubation stops and the onset of the disease manifests itself. This marks the time when the body cells have been sensitized, beginning to elaborate in active form a secretion which splits up and destroys the typhoid bacilli. This continues during the course of the disease. In splitting up the invading organism the protein poison is set free and this is accountable for the symptoms and lesions of the disease. If the poison is set free too rapidly the temperature falls and death results. This is practically what occurs in every infectious disease whether it be of bacterial or protozoal origin.

By the introduction into the body of very minute doses of foreign protein the body cells may be trained, as it were, to split up any bacterial or protozoal cell. This is the fundamental principle of vaccination.

After small-pox, typhoid fever and tuberculosis, the immunity secured is always specific; it protects against the one disease and no other. For some years I have recommended and practiced vaccination of the uninfected members of families in which one or more cases of tuberculosis are developed. The non-poisonous residue of tubercle bacillus supplies a perfectly safe and efficient vaccine and in my opinion it should be generally used. With vaccination and the other means now employed, I feel confident that success will crown the efforts to eradicate this disease. The most hopeful outlook for the control of cancer lies along the direction of anaphylactic study and treatment.

Typhus Fever

DRS. JOSEPH GOLDBERGER and JOHN F. ANDERSON, Hygienic Laboratory, United States Public Health Service, Washington: We have traced typhus fever to an insect—the louse—

as a carrier, and our investigations have disclosed nearly 300 cases of the disease in New York City, as well as a number in Chicago, Philadelphia, Baltimore and Washington, although it is thought that typhus fever has not visited America for some years.

The disease, however, is found to be in a mild form, but mild forms of disease have a bad habit of becoming malignant on the least provocation and the only safe way is to keep away from them altogether. This can easily be done by keeping clean and avoiding the deadly louse.

Typhus fever is one of the six diseases that the United States government considers so dangerous that special quarantine regulations have been issued to keep them from our shores. The malady usually visits those who live in crowded and insanitary habitations and is the poor man's disease.

We have been experimenting with typhus for three years with the result that we find that the germs of infection are carried by lice. The insect is not the ordinary kind found on plants or animals but those that are carried in the clothes or on the head. Why the louse should be the only insect that carries typhus we have been unable to determine. One of these insects which bites a patient during the fever period will be able in about four days afterward to give the disease to any unfortunate victim he may chance to fasten on.

Experiments have shown also that monkeys may contract the disease through the bites of lice.

(To be continued)

AMERICAN ROENTGEN RAY SOCIETY

Thirteenth Annual Meeting, held at Niagara Falls, N. Y., Sept. 11-14, 1912

The President, DR. FREDERICK H. BAETJER, Baltimore, in the Chair

Officers Elected

The following officers were elected for the ensuing year: president, Dr. Henry K. Pancoast, Philadelphia; vice-presidents, Drs. A. W. Crane, Kalamazoo, Mich., and Chas. F. Bowen, Columbus, O.; secretary, Dr. Sidney Lange, Cincinnati; treasurer, Dr. Leonard Reu, Buffalo, N. Y.; librarian, Mr. H. W. Daehler, Toledo, O.; member executive committee, Dr. George C. Johnston, Pittsburgh, Pa.

Boston, Mass., was selected for the place of holding the next annual meeting, some time in September, 1913.

Roentgen Diagnostics of Internal Medicine

DR. A. W. CRANE, Kalamazoo, Mich.: I wish to emphasize the interdependence of the Roentgen ray, the laboratory and clinical examination. I maintain that the roentgenologist should interpret his own plates and screen observations. His findings should be interpreted always in conjunction with the laboratory and clinical findings; therefore, it is desirable that the roentgenologist consider himself a consulting diagnostician, and that he maintain a clinical laboratory in addition to his roentgenologic equipment. Furthermore, a clinical laboratory is necessary to control the treatment, and not only to aid in making a diagnosis. I have invariably pursued this plan in my own work and can cite a large number of cases in which I would have been unable to make a diagnosis based on the roentgenogram alone. Recourse to the clinical laboratory at once solved the problem.

The Demand for Roentgen Diagnosis

DR. SIDNEY LANGE, Cincinnati: The roentgenologist is really a consultant, and not a maker of pretty pictures. Patients are sent to him for the same purpose that they are sent to the clinical laboratory, to get additional light on an obscure case. The pathologist does not content himself with examining the urine; he also examines the blood, stomach contents, sputum, and even pieces of tissue. The roentgenologist should, therefore, make a very thorough and complete examination of every patient, and not only examine one certain region, such as the gall-bladder. The appendix, the ovary, the intestine, especially the colon, may be the seat of the

disease, the symptoms of which are referred to the gall-bladder region. Therefore, an examination to be of any value should include all of these regions.

DISCUSSION

DR. HENRY HULST, Grand Rapids, Mich.: Roentgenologists must either be all-around diagnosticians and act in the capacity of consultants, or they must be photographers and be employed by diagnosticians. We occupy a peculiar position. The Roentgen ray is diagnostic and therapeutic. There is nothing else like it in medicine. As a diagnosticum, we can hardly make it a specialty, any more than one would be a specialist in the use of the cystoscope. I think we make too many pictures and rely too much on what we find in them. Instead of being content with making pictures and giving them to patients and doctors, we should interpret pictures and give our opinion on the case just as any other consultant does. When we are using the Roentgen ray for diagnostic purposes, we are consultants. Patients are sent to us to get our advice and opinion. They are not sent to us to have pretty pictures made.

DR. PERCY BROWN, Boston: The roentgenologist should be a well-trained medical man. He must be a physiologist and an anatomist as well as an internist, because the Roentgen ray will disclose anomalies in development as well as errors in physiology, such, for instance, as the anti-peristaltic action of the large bowel.

DR. ALFRED L. GRAY, Richmond, Va.: There is danger in a purely roentgenographic specialty. We ought to be general practitioners first and then specialists. It is especially important that the roentgenologist have a thorough training in clinical diagnosis and pathology. The Roentgen ray may enable us to make a diagnosis; on the other hand, the clinical and laboratory findings may be necessary to make it possible to make a diagnosis from the roentgenogram. I have often had a patient referred to me for examination and found conditions present which led me to refer the patient to some other specialist who was able to make the diagnosis. We should not content ourselves with the roentgenologic examination. We must know when further examination is necessary.

DR. PAUL EISEN, Milwaukee: If we want to merit the name of diagnosticians, we must keep up with all the latest methods of examination.

DR. GEORGE E. PFAHLER, Philadelphia: The subject of roentgenology is too broad for any one man to know it all; therefore, we must not forget to attend to our own business first, and not try to take charge of the entire examination of every patient sent to us. It is well enough to know when further examination is necessary without being able to make it oneself.

DR. GEORGE C. JOHNSTON, Pittsburgh: What we should know first of all is the full and complete history of every patient sent to us. When an up-to-date internist or surgeon refers a case to me I always expect to get such a history. The necessary clinical examination should be made; laboratory examination should be made, and the reports from all of these are furnished me. I expect to get them and I get them. There is no reason why I should make these examinations. We should not go into these things unless we can do as good work there as we can in our own field.

Post-Operative Treatment of Cancer

DR. ARTHUR F. HOLDING, New York City: At the request of certain scientists and philanthropists there has been appointed the Huntington Cancer Commission of New York, consisting of members of the faculty of Cornell University Medical College, whose duty it is to investigate thoroughly the treatment of all forms of cancer by the Roentgen ray, radium, sera, vaccines, electrolysis, etc. There is such wide variance of opinion as to the value of the non-surgical treatment of cancer and in the reports made as to its efficacy, that it has been deemed advisable to make a thorough investigation and report thereon publicly. The committee will endeavor to standardize apparatus and technic and to make a complete study of as many cases as possible. The assistance of all those interested in this line of work is sought.

Treatment of Malignant Growths

DR. RUSSELL H. BOGGS, Pittsburgh, Pa.: The degree of malignancy varies with the lymph supply of that part of the body in which a cancer is situated. The richer the lymph supply, the greater the degree of malignancy. When properly applied, Roentgen irradiation diminishes the permeability of the lymph vessels, and reduces the possibility of metastasis occurring as well as preventing, in large measure, a recurrence. If the treatment is given before operation, an inoperable case may be converted into an operable one. Every malignant growth presents a separate and distinct problem which demands for its solution consistent team work on the part of the patient and the operator. The improvements in surgical technic have done much to reduce the number of recurrences of cancer, but expert surgeons are not satisfied with the results obtained from surgery.

Roentgen irradiation of malignant growths must be powerful enough to destroy the neoplastic cells and to stimulate the healthy cells to resist the invasion. A small dose is useless. Small doses given for a long time really favor the development of the growth, because they stimulate, whereas they should destroy. I have treated quite a number of cases of lymphosarcoma of the neck both before and after operation. The experience gained from treatment without operation has convinced me that these tumors will usually disappear under heavy Roentgen treatment, and that the results are more permanent, if the treatment is given first without operation. In nearly every case the mass can be made to disappear, if the treatment is begun before the glandular involvement is too extensive. After the growth has entirely disappeared, a second series of radiations should be begun as soon as the skin reaction has disappeared. It may be necessary to give a third or even a fourth series of treatments. I have patients apparently well for over four years, the diagnosis having been made microscopically.

My most successful results in sarcoma have been confined chiefly to the lymph nodes. The cancer cases in which Roentgen treatment has been of the greatest service were those of involvement of the breast, cervical lymph nodes, and other external parts when internal metastasis had not taken place. Roentgen therapy should be applied to deeply seated growths, not with the idea of effecting a cure, but to check the progress of the growth and to make the patient more comfortable. Post-operative treatment should be begun immediately after the operation. The treatment must be given according to the best judgment of the roentgenologist, and not of the physician or surgeon referring the patient for treatment. Some unfavorable cases can be made favorable for operation by anteoperative treatment, and hopeless cases may be treated palliatively with great relief to the patient.

DISCUSSION

DR. GEORGE E. PFAHLER, Philadelphia: I saw a case of lymphosarcoma involving the side of the neck which was considered hopeless from every point of view. I treated the patient with the Roentgen ray in the hope that I could give some relief. Within three months the tumor had undergone cystic degeneration. I referred the patient to a surgeon, who opened the cyst and drained it of a large amount of yellowish, pus-like fluid. It was assumed that my diagnosis was wrong, that the case was one of tuberculosis. Pathologic and clinical examination, including the inoculation of guinea-pigs, failed to substantiate that assumption. In about six weeks recurrence was noted and the patient finally died of sarcoma. I merely cite the case to show what the Roentgen ray can do in these cases.

I have had cases of carcinoma in which the course was similar to that cited in the case of sarcoma. I agree with Dr. Boggs that the first treatment we have for these cases is Roentgen therapy. We must give as large a dose as possible, without producing a burn, and persist in the treatment for a long period of time. There are a large number of cases on record in which an apparent cure was obtained by Roentgen treatment, so that a cure under such conditions is by no means to be regarded as an accident.

MR. H. W. DACHTLER, Toledo: A few years ago I refused to treat any case with the Roentgen ray when I was convinced that it was perfectly useless. I find now, however, that some patients treated two years ago are apparently well, patients whom I would not have given any treatment at all had I seen them three years ago. Some surgeons now refer every case of malignant growth for Roentgen treatment immediately after the operation.

DR. P. M. HICKEY, Detroit: The results obtained by me in several cases of malignant growth have convinced me that the combined treatment of surgery and Roentgen irradiation is the proper one, and that it should be carried out whenever possible. We can now hold out more hope to the patient than was possible a few years ago.

(To be continued)

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

Twenty-Fifth Annual Meeting Held at Toledo, Ohio, Sept. 17-19, 1912

The President, DR. X. O. WERDER, Pittsburgh, Pa., in the Chair

Cesarean Section in Double Uterus and Double Vagina

DR. N. STONE SCOTT, Cleveland, reported the case of Mrs. A., aged 32 years, primipara, who had always had a moderate dysmenorrhea, was never very regular, never ahead of time, usually late a week or more; the menstrual period was preceded by a week of pain. She had no idea that there was an abnormality of development such as was discovered by her physician at the time of the confinement. After labor lasting three days, the attending physician discovered a septum in the vagina, with a cervix on each side of the septum, the pregnancy being on the left side. No progress was made in labor. The os was found undilated, although it easily admitted the finger. The head was high, but firmly impacted in the pelvis. The pelvic measurements were those of an *equilibrio justo minor* with a *conjugata vera* of about 9 cm.

A high cesarean section was now carried out. After the placenta and membranes had been removed, examination proved that the uterus was double, with a rupture of the septum between the two cavities. This rupture occurred at the thinnest place, in the middle of the septum, but even here it was a quarter of an inch thick. Through this rupture the false decidua were removed from the right uterine cavity, the fetus occupying the cavity on the left. The tubes were normally implanted, one at either side of the fundus. There was no cleft in the uterus itself, but a raphe running the entire length of the uterus was plainly seen at the surface.

Prior to the patient's leaving the hospital, careful examination was made to ascertain postoperative conditions. The cervix on the right side presented the features of an unimpregnated cervix; the one on the left corresponding to an ordinary cervix two weeks after delivery; it was considerably larger than the cervix on the right side, somewhat dilated, and in it was a very small lateral tear. The left vagina was possibly a trifle larger than the right, though not much. Both cervixes lay comparatively close to the median partition. On the fourteenth day following the laparotomy, mother and child went home in the best of condition.

Acute Dilatation of the Stomach

DR. CHARLES EDWARD ZIEGLER, Pittsburgh, Pa.: I report a case of acute dilatation of the stomach following cesarean section. Postural treatment and hypodermic medication appeared useless in the case. The supply of fluid was kept up by rectal and subcutaneous infusion of salt solution. Gastric lavage was the only treatment that caused any amelioration in the symptoms so far as we were able to judge. If there is one thing to be learned in the treatment of this condition from my case, it is that gastric lavage in acute dilatation of the stomach should be repeated at intervals of not less than two hours. My own feeling is that gastrostomy, with continuous irrigation of the stomach, ought to be the ideal treatment, and should be given a trial in cases which do not respond to two-hour lavage.

DISCUSSION

DR. HERMAN E. HAYD, Buffalo, N. Y.: I do not think we can put the case reported by Dr. Davis in the category of acute gastric dilatation. Unfortunately he did not have a post-mortem examination. It is possible that this woman had a dilated stomach previous to her pregnancy, and that this dilatation was in a measure hastened by the advancing or growing uterine contents, and just as soon as he emptied the uterus of its contents, the patient had an acute dilatation of the stomach from the large amounts of ether and air that were taken in. It is unfortunate that we are compelled to accept the services of untrained anesthetists. One of the most important duties the physician is called on to perform is the administration of the anesthetic in an operative case. We are going to get into trouble before long if we delegate this to a nurse. The laws of New York state prescribe that no one but a regular medical graduate may give an anesthetic.

DR. FRANCIS REDER, St. Louis: I think that dilatation of the stomach in these cases is due in many instances to the toxic elements of the anesthetic that has been administered during a long period. There are other toxic elements which will bring about the same condition.

DR. SYLVESTER J. GOODMAN, Columbus, reported a case in which the skull of the fetus had been crushed by the attending physician some hours before he saw the woman. The uterus was full of small fibroids. He advised hysterectomy, which was refused on the ground that the child was dead. This woman was again pregnant and he expected to do a second cesarean section the following month.

DR. WILLIAM H. HUMISTON, Cleveland: Cesarean section in an uncontaminated case is so far safer and surer in its results than the high forceps operation, that I believe the time is coming when the high forceps operation will not be resorted to by the general practitioner, but only by the thoroughly trained man in obstetrics.

DR. WILLIAM S. BAINBRIDGE, New York: A woman was brought to me from Bridgeport, Conn., about four years ago, with a history of having had six pregnancies, with attempts at delivery each time, most of them instrumental, with death of the child in each case. She had a justo minor pelvis and came to me for repair. The entire pelvic floor was torn away and the bladder opened. There was a vesicovaginal fistula as well as a rectovaginal fistula. I repaired these injuries, and told her she must not become pregnant again, although she was very desirous of having a living child. She came back to me a year following or a little later pregnant. I told her we should have to do a cesarean section, explained to her what was to be done, and two years ago a child was delivered by cesarean section.

DR. A. S. HOTALING, Syracuse, N. Y.: Two years ago I did a cesarean section for eclampsia on a girl aged 17. She was seven and a half months pregnant, with undilated, mobilized cervix. About a month ago she came into the hospital as a private patient, having been brought there by her physician, who thought she was in labor. I saw her at 9 o'clock in the morning. She died shortly after 1 o'clock from hemorrhage. Autopsy the next morning disclosed rupture of the uterus. The organs were all transposed. The rupture was directly through the old scar.

DR. HUGO O. PANTZER, Indianapolis: Bearing on the multiple etiology of gastric dilatation, I wish to report a case that recently came under my observation in support of the supposition of Dr. Davis that in his case acute pressure applied to the stomach may have been a factor in producing gastric dilatation. The patient put on a snugly fitting corset to attend an automobile race, and was brought away from there in convulsions. Examination disclosed that she had gastric dilatation which was brought on by constricting her abdomen too tightly by means of this corset.

Mechanism and Treatment of Placenta Prævia

DR. HENRY SCHWARZ, St. Louis: 1. No form of placenta prævia, as such, ever offers a justifiable indication for cesarean section. 2. Version after Braxton-Hicks in the presence of a viable child deliberately sacrifices the life of that child, and

has no place in modern obstetrics. 3. The cervical and vaginal tampon and the interuterine use of rubber bags are safe and efficient means for controlling hemorrhage and for securing sufficient dilatation for delivery through the natural passages.

DISCUSSION

DR. E. GUSTAVE ZINKE, Cincinnati: It is just as wrong to say that cesarean section is never indicated in placenta prævia as it would be to say that the only operation for placenta prævia is cesarean section. When I read a paper on placenta prævia eleven years ago advocating cesarean section for that condition, I did not find a single supporter. I was not the first to recommend it for placenta prævia. That credit belongs to Lawson Tait. I performed my first cesarean section for placenta prævia about two months ago. A case of placenta prævia centralis in a normal uterus, in which the placenta has been formed in the normal way, in which the placental tissues do not penetrate the uterine musculature and in which the thickness of the uterine wall is uniform throughout, even at the placental site, will admit of dilatation, in many instances, without serious hemorrhages from the hands of a skilful obstetrician. The situation is entirely different when we have a diseased musculature and a normal implantation of the placenta into the muscle of the uterus. Then there is not the separation that there is in the other case, and hemorrhage is uncontrollable in spite of the best means of handling the case, whether the position be vertex, breech, transverse or what not. Then in cases of rigid os, when there are hyperplasia and possibly incipient malignancy which is not recognized at the time, dilatation does not take place until the patient continues to bleed, and the moment the obstetrician introduces his hand for the purpose of dilatation, the patient is likely to be brought to the verge of death before the child comes out of the uterus. These are the cases for which I have recommended cesarean section.

DR. MILES F. PORTER, Fort Wayne, Ind.: If a woman is in good health and is known to be the possessor of a viable child at term, with a placenta prævia centralis, she can be given a better chance for her own life and that of her child by a cesarean section at the hands of a good man than she can by any so-called obstetric procedure at the hands of the best obstetrician ever created.

DR. JOHN NORVAL BELL, Detroit: I would take exception to the remark made by Dr. Schwarz that cesarean section is not indicated in any form of placenta prævia. My remarks were directed entirely to placenta prævia centralis.

DR. MAGNUS A. TATE, Cincinnati: In a case of malignancy of a fibroid tumor complicating pregnancy, I would make a cesarean section for the malignant condition or for the fibroid tumor, and not for a case simply of placenta prævia centralis. One of the crying needs at present is for more trained obstetricians and fewer skilled surgeons.

DR. CHANNING W. BARRETT, Chicago: I believe cesarean section for placenta prævia is much overdone in the hands of general surgically trained men. I believe, further, that if more of these cases fell into the hands of trained obstetricians, more would be treated through the natural route and fewer cesarean sections would be done.

DR. CHARLES L. BONIFIELD, Cincinnati: There is no branch of medicine more neglected in the medical schools of to-day than obstetrics, and if there were more trained obstetricians cesarean section would not be performed as frequently as it is. There are certain cases, however, in which a skilled surgeon is better than a skilled obstetrician.

Rapid Dilatation and Accouchement Forcé

DR. HENRY S. LORR, Winston-Salem, N. C.: Delivery should be made in all cases of puerperal convulsions, if the patient is at all near full term, on the appearance of even initial labor pains. With strict asepsis and forcible, rapid dilatation, preferably manual, the application of forceps and delivery by the natural outlet are safest and will give the best results. Delivery should be effected under ether, and with care and deliberation. In the two cases of tear of the sphincter which I report in my paper, I firmly believe that greater deliberation in delivery would have lessened the extent of the injury.

Puerperal Thrombophlebitis

DR. PALMER FINDLEY, Omaha: Ligation of the pelvic veins in this condition is correct in theory, but is yet in the experimental stage. After reporting four cases, I submit the following propositions for consideration: 1. Trendelenburg's operation is correct in theory, but is yet in the experimental stage. 2. It is contrary to my practice and to modern teaching to open the abdomen in the course of puerperal infection unless for drainage in general peritonitis, and I therefore view Trendelenburg's suggestion with misgivings. 3. We are as yet unable to demonstrate clinically the extent to which the infection has traveled, and hence it follows that an exploratory incision must be the final resort in determining the extent of the infection, though even this may fail to give the desired information. 4. The pelvic veins, including the iliaes, may not be thrombosed, yet the infection may attack the veins higher in the abdomen and beyond control, and even beyond inspection through an exploratory incision. Furthermore, bacterial emboli may lodge in the lungs and elsewhere without the formation of thrombosed veins. 5. The thrombosed veins may be secured and the infection later travel by other avenues and lead to a fatal issue. 6. It is not always possible to demonstrate the presence of infected emboli which, when found, are viewed as contra-indications to operative interference. 7. I believe that the Trendelenburg operation will find a limited field of usefulness in obstetric surgery, but that the procedure is worthy of an extended trial.

DR. K. ISADORE SANES, Pittsburgh, Pa., read a paper in which he reviewed the literature on thrombophlebitis.

DISCUSSION

DR. R. R. HUGGINS, Pittsburgh, Pa.: I believe that recovery occurs without operation or under palliative treatment in many cases of thrombophlebitis; but my experience shows six cases of the severe form of thrombophlebitis in the last twenty years, with five deaths, with palliative treatment. I resolved two years ago that in my next case of septic thrombophlebitis I would explore the abdomen and see what the matter was. I did this, and the patient recovered. Since that time I have had three other cases, a total of four, with three recoveries. The abdomen should be opened in the midline, which will give a good view of the veins in the pelvis and abdomen. In my experience the operation does these patients no harm. They stand it very well. Even when there is an accompanying lymphangitis, I do not see any objection to operating, especially when the condition has extended along the ovarian veins under the retroperitoneal space, a position or place in the body which is most dangerous if the condition is allowed to progress. If the veins are tied from within, it is easy to make an extramedian incision, push the peritoneum forward and drain behind the veins, or excise the ovarian veins down deep in the pelvis, and the operator will not only have ligated the source of infection, but will have drained the infected spaces, and the patient is much more likely to recover.

Ectopic Gestation

DR. SAMUEL W. BANDLER, New York: It is difficult to make a positive diagnosis in many cases before the stage of hematocele, in some cases unless the hematocele is organized. Vaginal incision is of value in making the diagnosis, and "blue shimmer" in the vesico-uterine fold is important.

The specimen shows an exceedingly small ovum not sufficiently large to fill the normally narrow lumen of the isthmic portion of the tube. At this point the tube shows some anomalous features. A muscular spur formation is present, causing a diverticulum to form with its blind end buried in the mesosalpinx, and on the mesial aspect of the point of nidation. The ovum rests on and is imbedded in a muscular eminence to the distal side of the muscular spur, and is nowhere in connection with the diverticulum on the proximal side. It projects into the lumen of the tube but is covered by tubal epithelium. This covering is complete in the half nearest the uterus, but only partially in the half nearest the fimbria, where it may be assumed to suggest a beginning intracapsular rupture, and a very early intratubal rupture.

The embryo as such is not present. It is represented by several large masses and streaks of trophoderm which lie near the trophoblast, and contains fresh blood in contrast to the rest of the coagulum. There is as yet no true chorion formation. Leukocytes are present underneath the base of the ovum between the loose muscle fibers, and nowhere else in the serosa, musculature or mucosa of the tube. In view of the total absence of evidence of salpingitis this leukocyte infiltration can be assumed to indicate a secondary local reaction and not a primary inflammation.

DISCUSSION

DR. J. HENRY CARSTENS, Detroit, reported a case of pregnancy which simulated extra-uterine fetation or pus-tube.

Injuries of the Pelvic Floor Resulting From Labor

DR. FREDERICK BLUME, Pittsburgh, Pa.: The public ought to be informed that injuries of the pelvic floor are unavoidable in the vast majority of cases, and that their repair is the end-act of labor. Careful examination and immediate repair should be the rule in ordinary cases. If the tear extends into the bowel or through the sphincter, the operation may be done on the day following labor, with better light, assistance, etc. It is strange that even at the present time some obstetricians do not deem it necessary to repair the laceration, but leave the restoration of the pelvic floor to Nature.

The Complete Absence of Milk in the Primipara

DR. FRANCIS REDER, St. Louis: The causes that may bring about in the healthy woman a primitive agalactia in its extreme degree can be found in a very youthful motherhood, when normally a deficient development in the secreting cells may be expected. It can be found in the motherhood of advanced age, in which normal atrophic conditions of the gland have caused extensive cell destruction. A tendency to fatness sometimes completely inhibits the functional activity of the gland. Furthermore, a tendency toward the masculine may seriously affect milk secretion and in rare instances be the cause of agalactia. Physical influences, such as emotions of sudden onset, fright, shock, etc., are prone to bring on by their depressing reflex action on the sympathetic nervous system injurious influences that may inhibit cell activity in the organ. In my paper I report three cases of agalactia in three primiparas. In these the cause must be attributed to psychic influences inasmuch as there is no other discoverable factor to which the condition could be assigned. It cannot be disputed that the nervous system exerts some influence on milk secretion. It remains to be demonstrated whether or not such an influence is direct or indirect. As the method of control for the action of hormones is also through the sympathetic ganglia, the shock which these primiparas suffered during their severe labor must be looked on as a potent factor in causing the agalactia.

Moral and Ethical Aspects of Feticide

DR. E. A. WEISS, Pittsburgh, Pa.: A careful consideration of the moral aspect of feticide brings prominently to our attention several facts. 1. The large number of abortions performed is becoming a serious menace to the health and welfare of our people. 2. Such termination of human life is a most serious matter and every possible safeguard should be taken to restrict it. 3. There seems to be a gradually increasing tendency on the part of the laity as well as the profession to take advantage of the law and teaching which permits and sanctions the induction of abortion. 4. In most medical colleges a student has not positive teaching on the moral aspects of abortion, and he is allowed to work out his own ideas with regard to its ethical aspects. 5. There is a gradual loss of respect for religious teachings which have always condemned the taking of the life of an unborn and unbaptized child as a sin and murder. 6. Many, if not all the members of this Association, are teachers and leaders in obstetrics and gynecology in their respective communities, and the responsibility of this teaching rests with us. I plead for a more humane view and consideration of the rights of the innocent unborn child.

(To be continued)

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

OUR NATIONAL HEALTH GUARDIANS

"Far from being taken by surprise by the approach of the plague, the officials of the Public Health Service have been expecting it for the past two or three years. Knowing that it traveled the great commercial highways, they have followed its progress from what is apparently its permanent reservoir in China to port after port, tracing its course around South America and across the Spanish Main to Porto Rico. Its appearance in San Juan and Havana was the signal for the adoption of exceptionally strict protective measures on account of the great volume of trade and the frequency of communication between these cities and the United States. To meet and repel a threatened invasion by infectious disease is one of the every-day achievements of modern medical knowledge working through the efficient organization of the Public Health Service."

This tribute in the *Outlook* is a terse summary of a prodigious amount of work on the part of our efficient guardians of the national health. The public is recognizing these facts. The more closely this work touches commerce the more appreciation will be given to it. For example, the ending of the *Outlook* editorial is as follows:

"An occasion like the outbreak of bubonic plague close at hand serves to call attention, however, to the great economic value of this work as well as to its service in protecting the public health and affording mental security to the people of the country. It shows also in a striking way the tremendous dollars-and-cents value of medical research, which is sometimes decried as of small practical importance. Without the knowledge gained by experiments on animals to determine the cause of bubonic plague and the methods of its transmission, the entire Atlantic and Gulf seaboard would be cut off from communication with Porto Rico and Cuba at the present moment, with a consequent heavy loss to commercial interests from this suspension of business. More than likely, indeed, our coast cities in such case would be grappling with serious outbreaks of the plague, and their terror-stricken inhabitants would be isolated from the rest of the country as well as from the outside world. Medical science has thus not only warded off a source of fear, but also contributed to the steadiness and prosperity of commerce."

The *Outlook* is right in regard to the importance of public health, and yet it here emphasizes the commercial side. This is one indication among others that commerce is still more

important in the national eye than is national health. The day is coming when this will be changed—the physical welfare of the people will be placed first.

THE CENTURY ON THE "MEDICAL TRUST"

Numerous newspaper comments have been quoted in this department during the last two years, indicating the trend of public opinion regarding national health legislation, and showing especially that the American people have not been particularly impressed by the cry of "Medical Trust," raised against those physicians who have advocated better methods for health conservation. The source of these attempted shurs on the sincerity of the medical profession has been apparent. An overwhelming majority of the American people is not yet

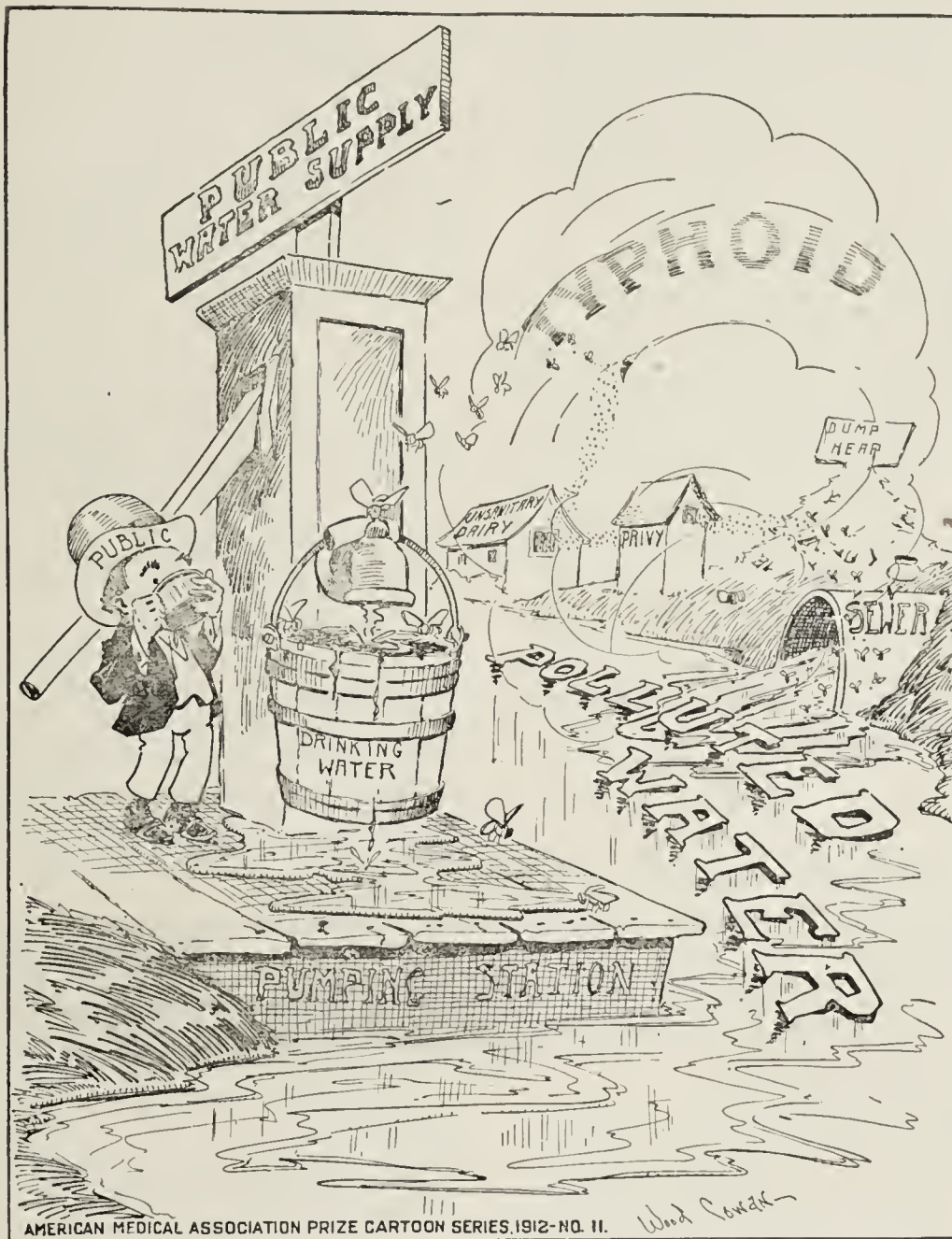
ready to believe that the profession, in whose hands rest the lives and health of the people, is attempting to establish any selfish monopoly, or to influence the public for anything except for the public good. Probably the *Century Magazine* can be accepted as one of the most dignified and conservative representatives of periodical literature in the United States. In its September issue under the heading of "In Appreciation of the Doctor," the editor of the "Topics of the Time" department expresses what may well stand as the conservative, deliberate judgment of the intelligent public on issues which have now been before it for over two years:

"As one cannot draw an indictment against a community, so one cannot reasonably give sweeping approval of a profession; but now and then,—perhaps in the lifting shadow of some dread illness happily surmounted,—one is moved to a new sense of the obligations under which we all rest to the physician. Some-

times this is obscured by the conduct of those who 'don the livery of heaven to serve the devil in'—a class against whom the profession wages persistent warfare; but on the whole not even 'the cloth' presents a higher standard of service to humanity. Sordid and base, indeed, must be the man who can deliberately violate the solemn dedication of the Hippocratic oath, to which he must subscribe before he is accorded his degree."

After quoting the oath, the editor continues:

"And there is need of this vow, if society is not to go to pieces, for little as we know of the physician, it is little of us that he does not know—our foibles and weaknesses, our sins and sorrows—and rare is the man or woman who is not debtor to his skill, his sympathy, his cheer, and his loyal devotion. It is always with a pang that we read of the death of such a doctor, trusting that he may have received in his last days some repayment in kind for all that he has given of service to others."



AMERICAN MEDICAL ASSOCIATION PRIZE CARTOON SERIES, 1912-NO. 11. DO YOU KNOW WHERE YOUR DRINKING WATER IS COMING FROM?

"In the memory of many such experiences it is with indignation that one hears the rank and file of this noble profession pilloried as 'the doctors' trust' by those opposed to the bill of Senator Owen for a national department of health. It is not necessary to probe for the motives of those who are fighting this admirable measure. Doubtless many, especially those of them who profess the faith of Christian Science, are conscientious, but nevertheless, under the banner of 'medical freedom' they are playing into the hands of patent-medicine manufacturers, adulterators of food, and medical charlatans, to the peril of the public health. The Owen bill will merely extend to the whole country and make more effective the kind of sanitary guardianship which in the city of New York is accomplishing a progressive and astonishing reduction of the rate of mortality. Imagine for a moment the department of health of this city and port discontinued: it would not be forty-eight hours before we should be exposed to physical dangers comparable only to the brood of Pandora's box.

"The fact is that in the practical application of preventive medicine American physicians are acknowledged to be the leaders of the world. They have not lost the primacy in this respect which twenty years ago led their confrères in Vienna to say: 'We are astonished at your achievements: over here we wait with impatience for the publication of your volumes.' Twenty-five years ago Mr. Bryce in his great book, 'The American Commonwealth,' quoted the appreciation of 'competent authorities' of our contributions to biology and medical science. 'Indeed, it is remarkable,' he said, 'how far from showy and sensational is the bulk of the work [in general science] now done in America.' What must he say now of the great proportions which medical and surgical research have since attained! The pursuit of medicine in America fairly seethes with progress and interest. It has all the zest of exploration. Millions of dollars are invested in the study of diseases once thought incurable; unrelenting warfare is waged on contagions, infections, and heredity; the education of the public on matters of health is systematic and thorough, and back of the professional honor which impels it all is a spirit of quiet altruism which is a better substitute for the knight-hood of the Middle Ages. Once more we say, gratitude and honor to the good physician!"

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, October 7-8. Sec., Dr. John Wix Thomas.
 COLORADO: Denver, October 1. Sec., Dr. David A. Strickler, 612 Empire Building.
 GEORGIA: Regular, Atlanta, October 8-10. Sec., Dr. C. T. Nolan, Marietta; Homeopathic, Atlanta, October 3. Sec., Dr. R. E. Hinman, 106½ Whitehall St., Atlanta.
 IDAHO: Idaho Falls, October 1-2. Sec., Dr. O. J. Allen, Bellevue.
 KANSAS: National Hotel, Topeka, October 8. Sec., Dr. H. A. Dykes, Lebanon.
 MICHIGAN: Capitol Bldg., Lansing, October 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
 MINNESOTA: State University, Minneapolis October 1. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.
 MISSISSIPPI: Capitol, Jackson, October 22-23. Sec., Dr. W. W. Smithson.
 MISSOURI: Coates House, Kansas City, October 1-3. Sec., Dr. Frank B. Miller, Jefferson City.
 MONTANA: The Capitol, Helena, October 1, 1912. Sec., Dr. William C. Riddell.
 NEW JERSEY: Capitol Bldg., Trenton, October 15-16. Sec., Dr. H. G. Norton.
 NEW MEXICO: Santa Fe, October 14. Sec., Dr. W. E. Kaser, East Las Vegas.
 OKLAHOMA: Muskogee, October 7-9. Sec., Dr. John W. Duke, Guthrie.
 RHODE ISLAND: State House, Providence, October 3. Sec., Dr. Gardner T. Swarts.
 UTAH: Salt Lake City, October 7-8. Sec., Dr. G. F. Harding, 310 Templeton Building.
 WYOMING: Riverton, October 9-11. Sec., Dr. A. B. Tonkin.

Class C Colleges Not Recognized

Dr. H. A. Barbee, secretary of the West Virginia State Board of Health, reports that at a meeting of that board held in July, 1912, a resolution was adopted that candidates be not recognized for examination for license to practice medicine in West Virginia who have graduated after July, 1913, from any medical college, school or university whose standards are less than those recognized for Classes A and B by

the Council on Medical Education of the American Medical Association. Action to the same purpose has previously been taken by the licensing boards of Alabama, Louisiana, Minnesota, North Dakota, New Jersey and Rhode Island. In the two states last named only colleges rated in Class A are recognized.

Failures at the Michigan May Examination

Dr. B. D. Harison, secretary of the Michigan Board of Registration in Medicine, says that through a misunderstanding two failures were omitted from his report of the May, 1912, examination, published in THE JOURNAL, August 31, p. 740. Instead of only 44 being examined, all of whom passed, there were 46 examined of whom 44 passed and 2 failed. The failures were as follows:

College	FAILED	Year Grad.	Per Cent.
Detroit Homeopathic College	(1910)	67.6
Laval University, Quebec	(1902)	*

* Fell below 50 per cent. in three subjects.

Michigan is one of the states which eliminates prior to the examination graduates from medical colleges which are not recognized by the board. Others are also refused the right to take the examinations because of inadequate preliminary education. Thus many candidates are rejected prior to the examinations who otherwise would doubtless swell the percentage of failures.

Iowa June Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examinations held at Iowa City, June 6-8, and at Des Moines, June 13-15, 1912. The total number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. At the examination held at Iowa City, the total number of candidates examined was 47 all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago	(1912)	87.5, 88.7, 92.5	
Northwestern University Medical School	.....	(1912)	91
Chicago College of Medicine and Surgery	.....	(1910)	79.4
State University of Iowa, College of Medicine	(1912)	80, 84, 84, 86, 87, 87, 87.5, 88, 88, 88.1, 88.5, 88.7, 89, 89, 89.5, 89.9, 90, 90, 90, 90, 90.7, 91, 91.5, 91.6, 91.7, 91.9, 92, 92, 92.4, 93, 93.5, 94.4, 95	
State University of Iowa, Homeopathic College	(1912)	88.1, 87.9, 91.2, 92.5	
Jefferson Medical College	.....	(1912)	88.6, 91, 91, 93.1

At the examination held at Des Moines, the total number of candidates examined was 55 of whom 50 passed and 5 failed. Five candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University Medical School	(1910)	89.4; (1911) 83.2, 83.4, 83.6	
Hahnemann Medical College and Hospital, Chicago	(1912)	89, 91	
Bennett Medical College	.....	(1912)	93.1
Chicago Coll. of Med and Surg.	.....	(1908)	91; (1911) 91.4
College of Physicians and Surgeons, Chicago	(1912)	84.1, 86.4, 88.6, 92.1, 93.4	
Rush Medical College	(1899)	80.4; (1903) 89.5; (1911) 83.2, 88, 89	
Drake University	(1912)	84.6, 84.7, 85, 86.6, 86.7, 88.6, 88.6, 88.9, 89, 89.4, 89.7, 89.9, 91.7, 92, 95	
Kentucky University	.....	(1903)	88.9
Barnes Medical College	.....	(1911)	75.4
St. Louis College of Physicians and Surgeons	.....	(1910)	79
St. Louis University	.....	(1911)	81.2; (1912) 93.4
University Medical College, Kansas City	.....	(1912)	93.6
Washington University, St. Louis	.....	(1912)	92.1
University of Nebraska	.....	(1912)	91.1
Jefferson Medical College	.....	(1912)	87.9, 89.9, 91.5, 91.9, 93.2
Woman's Medical College of Pennsylvania	.....	(1908)	91.2
Milwaukee Medical College	.....	(1912)	78.6, 80.4

FAILED

College of Physicians and Surgeons, Chicago	.....	(1912)	73.2
Hahnemann Medical College and Hospital, Chicago	.....	(1911)	69.9
State University of Iowa, College of Medicine	.....	(1897)	72.6
Keokuk Medical College	.....	(1892)	39.3
St. Louis College of Physicians and Surgeons	.....	(1910)	57

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Rush Medical College	(1897) Minnesota
University of Michigan, Dept. of Med. and Surg.	(1908) Michigan
St. Louis University	(1911) Missouri; (1911) Nebraska
Woman's Medical College of Pennsylvania	(1898) Ohio

Virginia June Report

Dr. Herbert Old, secretary of the Medical Examining Board of Virginia, reports the written examination held at Richmond, June 18-21, 1912. The total number of candidates examined was 17; total number of questions asked, 101; percentage required to pass, 75. The total number of candidates examined was 116 of whom 89 passed including 3 osteopaths and 27 failed including 1 osteopath. Four candidates withdrew from the examination. Six candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University	(1910)	80	
George Washington University	(1912)	83, 85	
Howard University	(1911) 77; (1912)	75, 78	
University of Louisville	(1911) 75; (1912)	75	
Hospital College of Medicine, Louisville	(1903)	78	
Johns Hopkins University	(1912)	83, 91	
Maryland Medical College	(1910) 76; (1912)	75	
University of Maryland	(1912)	77	
Baltimore Medical College	(1900) 75; (1912)	75, 77	
Leonard Medical School	(1911) 75; (1912)	77, 79, 80	
University of Pennsylvania	(1911) 77, 79; (1912)	82	
University of the South	(1908)	75	
McHarry Medical College	(1911) 75, 76; (1912)	78	
Lincoln Memorial University	(1911) 75; (1912)	77	
University College of Medicine, Richmond	(1911) 79; (1912)	75, 75, 75, 77, 78, 78, 78, 80, 80, 80, 81, 81, 81, 81.5, 82, 83, 84, 86, 87.	
Medical College of Virginia	(1911) 75, 76, 78; (1912)	75, 75, 75, 75, 76, 76, 76, 77, 77, 77, 78, 79, 79, 80, 80, 80, 81, 81, 81, 82, 82, 83, 84, 86.	
University of Virginia	(1908) 81; (1910) 75; (1912)	75, 79, 83, 84, 85, 88.	
College	FAILED	Year Grad.	Per Cent.
Georgia College of Eclectic Medicine and Surgery	(1912)	59	
Louisville and Hospital Medical College	(1908)	46	
Maryland Medical College	(1909) 66, 71; (1911)	72.8	
Leonard Medical School	(1910) 71; (1911) 60, 61.6, 73.3; (1912)	47, 60, 63, 64, 70, 73.3.	
Jefferson Medical College	(1895)	68	
University of West Tennessee	(1910) 60; (1911)	58	
McHarry Medical College	(1911)	50	
Chattanooga Medical College	(1908)	46	
University of the South	(1909)	73	
Medical College of Virginia	(1911) 72.7; (1912)	66, 69, 73.6	
University College of Medicine, Richmond	(1912)	70	
College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Louisville	(1908)	W. Virginia	
University of Maryland	(1910)	Maryland	
College of Physicians and Surgeons, Baltimore	(1911)	Maryland	
University of Michigan, Dept. of Med. and Surg.	(1894)	Michigan	
Albany Medical College	(1895)	New York	
Woman's Medical College of Pennsylvania	(1909)	Kentucky	

Colorado July Report

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written and oral examination held at Denver, July 2, 1912. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 27, of whom 24 passed and 3 failed, including 2 osteopaths. Sixteen candidates were registered on presentation of satisfactory credentials, including state licenses. The following colleges were represented.

College	PASSED	Year Grad.	Per Cent.
University of Colorado	(1911) 75.2, 81.7; (1912)	78.9, 79.7, 80.4, 81.4, 83, 83.1, 84.1, 84.3, 84.4, 84.9, 85.2, 85.1, 86.1, 86.9, 87.6, 87.7, 88.2, 92.2.	
Rush Medical College	(1912)	83.1	
Chicago College of Medicine and Surgery	(1912)	86.1	
Northwestern University Medical School	(1912)	92.8	
Undergraduate		78.9	
College	FAILED	Year Grad.	Per Cent.
Howard University, Washington, D. C.	(1906)	62	
College	LICENSED ON PRESENTATION OF SATISFACTORY CREDENTIALS	Year Grad.	State Licenses
University of Colorado	(1911)	Wyoming	
Northwestern University Medical School	(1906)	Penna.	
Rush Medical College	(1893)	Illinois	
University of Louisville	(1911)	Kentucky	
Baltimore Medical College	(1907)	Wyoming	
University of Maryland	(1897)	Maryland	
Harvard Medical School	(1910)	Maine	
Barnes Medical College	(1902)	Missouri	
Washington University, St. Louis	(1896)	Illinois	
Albany Medical College	(1900)	Illinois	
Miami Medical College	(1903)	U. S. Army	
Western Reserve University	(1908)	New Mexico	

Medical College of Ohio	(1889)	Iowa
Hahnemann Med. Coll. and Hosp., Philadelphia	(1898)	Penna.
University of Vermont	(1902)	Vermont
McGill University, Quebec	(1885)	Iowa

The following questions were asked:

ANATOMY

1. Describe in detail the lower end of the humerus. 2. Describe the radius, including muscular and ligamentous attachments. 3. Give the origin, insertion and nerve-supply of the following muscles: flexor profundus digitorum, adductor longus, tensor vaginae femoris, tensor tympani and external rectus (of eye). 4. Name the muscles which extend the thigh. 5. Name the branches of the axillary artery. 6. Describe the arteries which supply the muscular tissue of the heart. 7. Name the branches of the internal cord of the brachial plexus and describe one of them in detail. 8. Name the vessels supplying the large intestine. 9. Give a short description of the floor of the fourth ventricle. 10. Describe the pelvic floor.

PATHOLOGY

1. Describe the pathology of arteriosclerosis. 2. Locate and describe the changes in locomotor ataxia. 3. Discuss *Spirocheta pallida*. 4. Describe the most common tumor found in bone. 5. Locate and describe the organic changes liable to arise from long-continued suppuration. 6. Describe simple atrophy. Give examples. 7. What pathologic changes are found in diabetes mellitus? 8. Discuss (not over one page) the post-mortem findings, macroscopically and microscopically, of a case of diphtheria. 9. Locate and describe the changes occurring in Bell's palsy (peripheral facial paralysis). 10. Discuss the pathology of gastric carcinoma.

CHEMISTRY

1. Give the comparative significance of the following suffixes: -ous, -ic, -ite, -ate. 2. Define the terms, "atomic weight," "atomic volume," "molecular weight" and "molecular volume." 3. Name and differentiate the three classes of sugars. 4. Define peptones and tell how produced. 5. Define chemical action, physical action. Give examples of each. 6. Discuss methods and principles of disinfection after contagious diseases. 7. How may the presence and the amount of urea be determined? 8. Name the metals whose salts are often taken as poisons. 9. Give the chemical differences between chloral and chloroform. 10. Give the chemistry of alcohols and ethers.

PHYSIOLOGY

1. (a) Name and describe two kinds of blood-corpuscles. (b) What is hemoglobin? (c) Mention four functions of blood. 2. Describe in detail the fate of a molecule of sugar after ingestion. 3. (a) State action of the sympathetic and vagus nerves on the heart. (b) Name two classes of vasomotor nerves. (c) Differentiate between arterial and venous flow. 4. Describe the act of respiration and give its function. 5. Name five digestive ferments and give function of each. 6. (a) Describe and give function of the lymphatic system. (b) In what two ways does absorption take place in the alimentary canal? 7. Name five secreting organs and state what each secretes. 8. (a) State function of the kidneys. (b) Give chemical and physical composition of normal urine. (c) How much is normally passed in twenty-four hours? 9. Name the twelve cranial nerves and give their functions. 10. Tell how voice is produced and varied.

SRGERY

1. Discuss acute osteomyelitis. 2. What are the symptoms and diagnosis of intestinal obstruction? 3. Give the symptoms and diagnosis of cerebral abscess. 4. Describe a tuberculous abscess. 5. Give the symptoms, diagnosis and prognosis of fracture of the surgical neck of the humerus. 6. What are the symptoms produced by gall-stones? 7. What are the clinical characteristics of a malignant tumor? 8. Give the symptoms and diagnosis of tuberculosis of the shoulder-joint. 9. Discuss fractures of the upper third of the femur. 10. Discuss congenital club-foot.

OBSTETRICS

1. Describe mechanism in vertex presentation. 2. Describe mechanism in left occipito-anterior presentation. 3. Describe mechanism in face presentation. 4. Briefly describe (a) breech presentation; (b) transverse positions. 5. Mention the varieties of hemorrhage that may affect the pregnant woman, the parturient woman and the puerperal woman. 6. What is placenta previa? Give its causes, varieties, symptoms and treatment. 7. Name indications for high forceps, and (b) low forceps, and briefly describe the conditions necessary for their use. 8. How would you diagnose the position of the child (outline form)? 9. Give indications and describe in detail manual aid. 10. (a) Give the indications and conditions requiring cesarean section. (b) Describe Sanger's modification.

TOXICOLOGY

1. Give symptoms of an overdose of conium maculatum. 2. Give treatment of an overdose of conium maculatum. 3. Give post-mortem appearance of an overdose of conium maculatum. 4. Give symptoms of poisoning by aconite. 5. Give treatment of poisoning by aconite. 6. Give post-mortem appearance of poisoning by aconite. 7. Give symptoms of an overdose of nitric acid. 8. Give treatment of an overdose of nitric acid. 9. Give post-mortem appearance of an overdose of nitric acid. 10. From a medical standpoint define toxicology.

SYMPTOMATOLOGY

1. Give the causes and symptoms (including the character of the urine) of acute nephritis. 2. What are the symptoms of rheumatic fever? 3. Describe a case of erysipelas. 4. What are the symptoms and commonest complications of diphtheria? 5. Give the symptoms and signs in a case of incipient pulmonary tuberculosis. 6. Describe a case of croupous pneumonia. 7. If an embolus arises from the saphenous vein, where will it lodge and what symptoms will it cause? 8. If an embolus arises from the mitral valve, where may it lodge, and what symptoms will it cause? 9. Describe a case of acute poliomyelitis. 10. Describe a case of paralysis agitans.

Book Notices

DEFORMITIES INCLUDING DISEASES OF THE BONES AND JOINTS. A Text-Book of Orthopedic Surgery. By A. H. Tubby, M.S. (Lond.), F.R.C.S. (Eng.), Surgeon to and in Charge of the Orthopedic Department, Westminster Hospital. Second Edition. Two Volumes. Cloth. Price, \$6 net. Illustrated. New York: Macmillan Company, 1912.

This edition of Tubby's work is issued in two volumes. The section on deformities is especially comprehensive and complete. In the chapter on torticollis the theories of the pathogenesis are considered in detail, and the treatment suggested is based on a careful analysis of the conditions. The deductions drawn from comparative results following the various methods for the treatment of congenital dislocation of the hip are moderate but convincing. The chapter on club-foot contains a good classification of this condition. The subject of sclerosis of the spine is not so well treated. Coxa vara and coxa valga are considered at some length and the *x*-ray plates used for illustration are excellent. In considering the etiology of tuberculosis of bones and joints reference is frequently made to the report of the Royal Commission on Tuberculosis. The treatment of sinuses by the use of Beck's paste is referred to. The section devoted to a consideration of tuberculosis of bones and joints is very complete. In the discussion of arthritis deformans nothing is said of the newer theories that the condition may be due to some local focus of infection such as tonsils, cholecystitis, etc. Many very clear *x*-ray plates are used to illustrate cases of malignant tumors of bone. The full bibliography at the end of the chapters makes the work a valuable one for reference and this plan should be commended. As a whole the edition recommends itself to the students of orthopedic surgery. Mechanically the work is well done, the numerous *x*-ray plates being extremely clear and illustrative.

FRANKLIN'S CONTRIBUTION TO MEDICINE. Being a Collection of Letters Written by Benjamin Franklin Bearing on the Science and Art of Medicine and Exhibiting His Social and Professional Inter-course with Various Physicians of Europe and America. By Theodore Diller. Cloth. Price, \$2. Pp. 89. Brooklyn: Albert T. Luntington, 1912.

This little book contains an essay which was read in abstract before the Pittsburgh Academy of Medicine, which requested the author to publish it in full. We are given a brief but succinct account of Franklin's life. His close relationship to medicine and to the medical profession is clearly outlined by extracts of his correspondence and by accounts of his participation in the foundation of the Pennsylvania Hospital and the birth of the first medical school in this country. His discovery of Franklinic electricity, his invention of bifocal spectacles, his valuable hygienic teachings, his views as to the contagiousness of colds, and the substantial character of his discussions of various medical topics are set forth largely in his own words by extracts of his correspondence and writings. Though he was not a physician Franklin's contributions to medicine are hardly equaled by any American medical contemporary, and Dr. Diller's book is a valuable addition to our literature because it gives us an adequate idea of the medical services of this great man. The book should have been provided with a title on the back of the cover.

DIE LUNGENSAUGMASKE IN THEORIE UND PRAXIS. Physikalische Behandlung von Lungenkrankheiten, Blutarmut, Keuchhusten, Asthma, Kreislaufstörungen und Schlaflosigkeit. Zusammenfassende Ergebnisse aus Literatur und Praxis. Von Dr. E. Kuhn. Paper. Price, 1 mark. Pp. 25, with 24 illustrations. Berlin: Julius Springer, 1911.

This is a monograph of about thirty pages on the use of a mask, the object of which is to produce a hyperemia of the lungs. The author believes that the hyperemia thus produced acts favorably on a variety of conditions, from tuberculosis to whooping-cough and from auto-intoxication to heart disease. Directions for using the mask are not given, but the author says that such directions will be found accompanying each mask, which reminds one somewhat of the directions found around a bottle of patent medicine. A little more evidence than that presented will be necessary to establish for the mask a prominent place as a therapeutic agent.

Medicolegal

Special Liability of Sellers of Morphin to Married Persons (*Flandermeyer vs. Cooper (Ohio)*, 98 N. E. R. 102)

The Supreme Court of Ohio holds that one who with knowledge that a husband by the constant and continued use of morphin has become so weakened in body and mind that he is unable to resist his cravings for the drug, and who after the repeated protests of the wife continues to sell morphin to the husband until by the use thereof his mind becomes so impaired and destroyed that it is necessary to confine him in an insane asylum, is liable to the wife for damages for her loss of consortium. And in this case a judgment for \$500 in favor of the plaintiff, Mrs. Cooper, is affirmed.

The court says that there can be no reasonable contention but that the wife suffers the same injury from the loss of consortium as the husband suffers from that cause. His right is not greater than hers. Each is entitled to the society and affection of the other. This right is invaded whenever a third person, through machination, enticement, seduction or other wrongful, intentional and malicious interference with the marriage relation, deprives the husband or wife of the consortium of the other. The remedy for an invasion of these rights is not in the nature of the action for damages to means of support provided by the statutes relating to the sale of intoxicating liquors. No enabling statute is necessary to authorize the maintenance of an action for the loss of consortium. Moreover, the plaintiff's rights under the facts and circumstances of this case rested on a broader foundation than the violation of the state statutes regulating the sale of this and kindred poisons, for if in the making of the sales in question these statutes had been observed to the very letter, the sale might nevertheless be unlawful, and the defendant responsible to the plaintiff for the injuries complained of.

Mr. Cooper had been a victim of the morphin habit for many years, and if it be conceded that after he became cured of the habit of using morphin he possessed sufficient intelligence and discretion to control his own actions and safeguard his own welfare, and that under these conditions the defendant had a legal right to disregard the appeal of the wife and to sell morphin to the husband on the theory that the independent act of the husband of injecting it into his veins was the proximate cause of the injury complained of, yet the evidence was very clear that there came a time in the history of these sales when he was no longer a free agent capable of controlling his own conduct and capable of exercising an independent judgment in reference to the use of the drug, but, on the contrary, his intellect had become so weakened and infirm that his power of resisting his craving was entirely destroyed, and he became merely the instrument, or the conduit through which this treacherous poison was transferred from the druggist's hands into his own system. It would be just as reasonable to say that due regard for the rights of others would not require the individual in the ordering of his own affair to take into account the force of gravity, as to say that one, who sells morphin to a person known by the seller to be a helpless victim of this drug, is not required to contemplate the natural and probable result of the use the unfortunate purchaser is sure to make of it.

What Courts Will Not Require of Expert Witnesses Nor Compensate Them For

(*People vs. Conte (Cal.)*, 122 Pac. R. 450)

The District Court of Appeal, Third District, of California says that in this homicide case counsel for the defendant called a physician to the witness stand and asked him to examine a certain rock and say, by a mere inspection and without a microscopic examination or other scientific analysis of some spots on the rock, whether they were blood stains thereon. The physician refused to testify as an expert unless he was guaranteed the usual fee for such services, and counsel for the defendant requested the court to make an order for the payment of such fee out of the county treasury,

declaring that his client was without the means to defray that expense. This the court refused to do. After considerable colloquy between court and counsel, the latter was ordered by the court to put the questions to the witness that he desired to ask, but counsel seemed to insist that some arrangement be first made for the payment of the physician for his services as an expert witness, and that thereupon the latter be given possession of the rock for the purpose of making such an examination thereof as would enable him to determine and say whether the marks which a woman declared were blood stains were or were not caused by human blood. The court denied this request. The court of appeal thinks that the court's action in this matter could not be made the predicate of prejudicial error.

The court of appeals says that at the trial the woman referred to testified that the marks which she took for blood stains had undergone such a change in appearance that she could not then say that they were the result of blood stains, and it was highly probable that, under such circumstances, the physician could not have determined any more than could a lay witness, in the absence of an appropriate chemical analysis of the marks, whether they were caused by blood or produced by some other cause. This court is familiar with no law requiring the court under such circumstances to order the services of an expert witness in behalf of a defendant to be compensated for out of the public funds. The court has no doubt that the physician, having been sworn as a witness, could have been required to answer such pertinent questions as might have been put to him, notwithstanding that they might call for expert testimony, and the physician not recompensed or guaranteed compensation for his services as an expert, but the court knows of no rule of law which would have authorized the court to compel him to go to the trouble and perhaps some expense of scientifically investigating the cause of the marks on the rock for the purpose of qualifying himself to give expert testimony on that subject.

A rehearing in the Supreme Court of California was denied by the latter.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Illinois Medical Journal, Springfield

September, XXII, No. 3, pp. 277-316

- 1 Life and Work of Dr. Daniel Brainard. E. F. Ingals, Chicago.
- 2 Menace to Public by Feeble-Minded Persons Living Outside Institutions. T. Diller, Pittsburgh.
- 3 Border-Line Inferiority. C. F. Read, Kankakee.
- 4 Segregation and Treatment of Feeble-Minded. J. Punton, Kansas City, Mo.
- 5 Feeble-Minded and Epileptic. H. M. Cary, Pennhurst, Pa.
- 6 Criminal Insanity. C. H. Anderson, Menard, Ill.
- 7 Research in Psychiatry. B. Holmes, Chicago.
- 8 Tonsillectomy in Children. G. W. Boot, Chicago.
- 9 Relation of General Practitioner to Fight Against Tuberculosis. O. W. McMichael, Chicago.
- 10 *Tuberculosis of Patella. J. B. Murphy, Chicago.
- 11 Antiformin-Sedimentation Method of Sputum Examination for Tubercle Bacilli. A. I. Murphy and J. B. Rogers, Naperville.
- 12 Nystagmus. L. H. Mettler, Chicago.
- 13 Acute Inflammation of Thyroid. O. J. Stein, Chicago.
- 14 Anterior Polymyositis. J. H. Bacon, Peoria.
- 15 Treatment of Cancer High in Rectum. C. B. Davis, Chicago.
- 16 Importance of Early Recognition and Treatment of Pathologic Conditions of Adenoids and Tonsils. C. J. Whalen, Chicago.

10. **Tuberculosis of Patella.**—Murphy says that there is about one case of tuberculosis of the patella to twenty or twenty-five cases of tuberculosis of the knee-joint. When tuberculosis is present in the patella, it takes one of two courses. It may extend to the surface and rupture through the skin, forming a sinus leading outward from the tuberculous focus in the patella. The greatest tendency, however, is for the disease to pass inward and attack the joint. The patella is separated from the joint by a thin cartilage, and that cartilage readily yields as the tuberculosis approaches the joint. The tubercular focus ruptures into the knee-joint and causes a greater or lesser degree of synovial tuberculosis. It may involve the other bones secondarily. In one of the

two cases reported by Murphy, the patella was almost completely destroyed by the disease. In the other case there was a pathologic fracture, with considerable separation of the fragments.

In figuring out the treatment of these cases Murphy adopted the plan of making an incision along the outer side of the patella up into the vastus externus, removing the entire patella from beneath the aponeurosis patellæ, then dividing the quadriceps tendon by two parallel incisions extending upward from the two parallel incisions above and swinging this flap down over the site of the patella and attaching it by suture to the ligamentum patellæ. In investigating why better results were obtained by treating these fractures ten or twelve days after the initial trauma, the explanation given originally was that the tissues, which had been recently traumatized, were not in a condition to withstand infection; that they were not in as good condition to withstand infection as in the case of a primary operation on the knee-joint, or not in as good condition to withstand an operation as after the occurrence of the traumatic inflammation. Why? Because following a traumatic inflammation, there occurs an intense infiltration; the bone is thickened, with colliedammed lymphatics. The tissues have reacted to the traumatic inflammation, and offer the greatest resistance against microbic invasion. That, Murphy believes, is the explanation.

Primary wiring of the patella has been abandoned, and secondary wiring of it has been considered a proper and legitimate operation. In his cases Murphy prepared the knee-joint by aspiration, and injected 3 drams of a 2 per cent. solution of liquor formaldehyd in glycerin which produced a severe reaction in the joint. Shortly after this the effusion and pain subsided, and a week from that time he opened the joint and operated. There was no effusion into the joint after the operation. There was no filling of the joint. There was no elevation of temperature; no inflammatory reaction, and he succeeded in getting a good result in both cases.

Military Surgeon, Washington, D. C.

September, XXXI, No. 3, pp. 239-356

- 17 What Are Best Available Measures to Diminish Venereal Diseases Among Soldiers and Sailors, and Along What Lines Should We Seek the Cooperation of Federal, State and Municipal Authorities? F. M. Bogan, U. S. Navy.
- 18 Dementia Præcox and Chronic Alcoholism. L. L. Smith, U. S. Army.
- 19 Bedding As Carrier of Typhoid. R. E. Riggs, U. S. Navy.
- 20 Ocular Diseases Incidental to Advanced Life Considered in Connection With Claims for Pensions. L. W. Fox, U. S. Army.
- 21 Six Hundred Cases of Measles Occurring at Columbus Barracks, Ohio. E. D. Kilbourne, U. S. Army.
- 22 Fevers of Undetermined Causation. E. R. Whitmore, U. S. Army.
- 23 Gunshot Fracture of Both Bones of Forearm. Recovery. G. A. Skinner, U. S. Army.
- 24 Purification of Water by Means of Darnall Filter. L. H. Reichelderfer, U. S. Army.
- 25 Simple Marker Set for Solution of Medical Field Problems. M. A. W. Shockley, U. S. Army.
- 26 Ants Destroying Larvæ of Flies. G. P. Stallman, U. S. Army.

West Virginia Medical Journal, Wheeling

September, VII, No. 3, pp. 71-108

- 27 Obligation of Public to Medical Research Laboratories. F. L. Hupp, Wheeling.
- 28 Diagnosis and Treatment of Some of Commoner Forms of Kidney Disease. L. F. Barker, Baltimore.
- 29 Microscope as Aid to Diagnosis. J. W. Lyons, Huntington.
- 30 Drug Addiction; Cell Destruction; Its Pathology. J. W. Williams, Richmond, Va.
- 31 *Improved Maxillary Splint. W. P. Megrail, Wheeling.

31. **Improved Maxillary Splint.**—About 1¼ inches from each end of the Levis maxillary splint drill two crescentric holes, about 1 inch long and ⅜ of an inch wide, are punched ⅜ of an inch apart, parallel with each other and with axis of the splint. The end of a half-yard strip of bandage is passed through one of these holes and out through the adjacent one, and another strip of bandage placed similarly in the other end of splint; then after the splint is applied to the fracture the end of one strip of bandage is tied behind the neck to its fellow of the opposite side and the other two loose ends are tied over the top of the head, as is usual with the "four-tailed" bandage. Secured by this very easy and simple method, the splint is held firmly in place, with no danger of it becoming loose; neither is any additional bandaging required.

Ohio State Medical Journal, Columbus

September, VIII, No. 9, pp. 459-502

- 32 Complement Fixation Test for Obscure Gonococcal Infections. E. O. Smith, Cincinnati.
- 33 Mesenteric Ileus. W. J. Gillette, Toledo.
- 34 Office Treatment of More Common Ano-Rectal Diseases. W. Teachnor, Columbus.
- 35 Sewage Purification. W. C. Folsom, Cincinnati.
- 36 Present Status of Feeding Young Children. E. S. Everhard and G. Folker, Dayton.
- 37 Choice of Anesthetics from Standpoint of Surgeon With Special Reference to Nitrous Oxid and Oxygen. R. E. Skeel, Cleveland.

Journal of Experimental Medicine, Lancaster, Pa.

September, XVI, No. 3, pp. 249-394

- 38 *Nature of Bactericidal Substance in Leukocytic Extract. W. H. Manwaring, New York.
- 39 *Pure Cultivation of *Spirochaeta Phagedenis* (New Species), Spiral Organism Found in Phagedenic Lesions on Human External Genitalia. H. Noguchi, New York.
- 40 *Studies in Ferment Action. II. Extent of Leukocytic Proteolysis. J. W. Jobling and S. Strouse, Chicago.
- 41 *Comparison of Simultaneous Polygraph and Micrograph Tracings. F. S. Meara, H. Coffen and A. C. Crehore, New York.
- 42 Study With Electrocardiograph of Mode of Death of Human Heart. G. C. Robinson, New York.
- 43 *Nitrogen and Nuclein Metabolism in Gout. P. A. Levene and L. Kristeller, New York.
- 44 *Duration of Immune Bodies in Blood After Antityphoid Inoculation. M. Wollstein, New York.
- 45 Post-Hemorrhagic Anemia. L. S. Milne, New York.
- 46 Complement Fixation in Syphilis With *Spirochete Culture* Antigens. C. F. Craig and H. J. Nichols, U. S. Army.
- 47 Retention of Foreign Protein by Kidney. R. M. Pearce, Philadelphia.
- 48 Relation of Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice. R. M. Pearce, J. H. Austin and E. B. Krumphaar, Philadelphia.
- 49 *Idem. R. M. Pearce, J. H. Austin and A. B. Eisenbrey, Philadelphia.

38. **Bactericidal Substance in Leukocytic Extract.**—The bactericidal agent extracted from horse leukocytes, Manwaring found, is apparently precipitated quantitatively by full saturation with ammonium sulphate. The bactericidal agent is apparently precipitated by absolute alcohol, and is not rendered insoluble by a short contact with alcohol. The agent resembled in this feature certain enzymes which can be isolated and purified by alcoholic precipitation.

39. **Pure Cultivation of *Spirochaeta Phagedenis*.**—A hitherto undescribed spiral organism has been isolated by Noguchi in pure culture from a case of mild phagedenic ulcer on the external genitalia of a woman. For this organism the name *Spirochaeta phagedenis* is proposed. *Spirochaeta phagedenis* is a strict anaerobe and grows in the presence of fresh tissue in ascitic agar. It produces no apparent change in the media, but a somewhat offensive odor develops in the culture tube. *Spirochaeta phagedenis* incites a slight inflammatory reaction in the skin of a *Macacus rhesus* monkey and in the skin and testicles of rabbits. Its etiologic relation to the phagedenic lesions on the external genitalia has not yet been determined.

40. **Studies in Ferment Action.**—The authors believe that their work proves that the proteolytic action of leukocytes is not a simple cleavage by one ferment. There are present two proteases, one acting in an alkaline medium and the other in an acid medium. This confirms Opie's work. In the leukocytes there was found in addition an ereptic ferment which is capable of acting in an acid or alkaline medium. Since this action is lost by heating to 70 C., and by drying and keeping the leukocytes, it probably represents a ferment which acts on the digestion products of the two proteases. Analogy with other ferments in the body confirms this opinion.

41. **Polygraph and Micrograph Tracings.**—From a study of a considerable number of tracings the authors conclude that the delicate mechanism of the micrograph registers the movements in the heart and blood-vessels more accurately than does the polygraph. The inertia of the polygraph lever and diaphragm distorts the tracing. The difference between the results obtained with the two instruments is shown by the records made simultaneously with the micrograph and the polygraph. The micrograph is particularly useful for recording heart sounds. Some records illustrating this are shown. The authors are directing special attention to this and will report the results in a subsequent paper. While the micrograph will not supersede the polygraph or electrocardiograph,

they feel that it has distinct possibilities as a clinical instrument.

43. **Nitrogen and Nuclein Metabolism in Gout.**—The observations recorded by Levene and Kristeller were made on a patient in a very advanced stage of gout. Very large gouty deposits in nearly all joints prevented him from any active movements. The patient was at first placed on a daily diet containing about 6 grams of nitrogen. When the daily output became fairly constant (about 5½ grams), the experiments were begun. These consisted in the addition of urea to the normal diet. The urea was added to the first morning meal and the nitrogen output was followed in twenty-four hour periods, day by day. In a similar manner experiments were carried out with asparagin, plasmon, uric acid and nucleic acid. It was observed that after the administration of very simple nitrogenous substances, such as urea and asparagin, the patient did not remove the surplus nitrogen in the same manner as a normal individual, or even as the patient with granular nephritis who was placed on a low nitrogen intake. The increase in the nitrogen output was comparatively low during the first twenty-four hour period, and this slightly increased excretion usually continued for several days.

This suggested a comparison of the character of nitrogen elimination when the patient was placed on a daily diet containing about 13 grams of nitrogen. On this diet, after administration of urea, the rise in the nitrogen output took place with greater rapidity and with greater intensity than on the low protein diet. Also the nitrogen output in the intervals between the experiments appeared to be more uniform than when the patient had been on a low protein intake. For this reason it was decided to perform a new series of experiments, placing the patient on a diet abundant in nitrogen. But even under these conditions the increase in the output of nitrogen, after the administration of additional nitrogenous substances, was very low and protracted. This made it difficult to detect the differences in the output during the intervals between experiments and during the days of the experiments.

A new series of experiments was then performed, in the course of which the additional nitrogenous products were added, not during one day, but during three or four consecutive days, and the output of nitrogen was followed in twenty-four hour periods for a number of days. But this change in daily nitrogen intake brought little change in the results of the experiments, for the increase in nitrogen output after the administration of nitrogenous substances was rather insignificant, and the excretion was very often protracted. For the sake of convenience, therefore, it was decided to estimate the increase in the nitrogen output during the days of the experiment and during the two days following the experiment.

While the patient was under observation, which was for three winter terms, it was noticed that after the administration of purin bodies, the nitrogen output in animals had a more regular course if they received simultaneously considerable quantities of sodium bicarbonate. It was, therefore, decided to repeat the experiment on the patient, administering to him daily 15 grams of this salt. It seemed that under these conditions the patient removed the surplus nitrogen intake with greater rapidity than without the bicarbonate of soda.

44. **Duration of Immune Bodies in Blood.**—In a series of twenty-four persons inoculated by Wollstein with antityphoid vaccine, the immune bodies in the blood reached their height within two months after the first inoculation, or one month after the third, then fell rapidly within the next two months. Only nineteen of the cases could be followed longer, and eight of these were negative for bactericidins within ten months after inoculation, and fifteen were negative after thirteen months. Only one serum reacted in a dilution of 1 to 1,200 at the end of thirteen months. The addition of lecithin to the vaccine did not influence the local reaction after inoculation, nor did it appreciably affect the formation of immune bodies to the typhoid bacillus.

49. **Blood Destruction and Regeneration.**—The results of this study are stated as follows: Rapid injection of more

than 0.06 of a gram per kilo of hemoglobin intravenously into a normal animal is followed by the appearance of hemoglobin in the urine (pelvis of kidney) within eight to ten minutes. After rapid injection of more than 0.012 of a gram per kilo per minute of hemoglobin, 16 to 36 per cent. of the total amount, if this equals 0.25 of a gram per kilo, is eliminated in the urine and is accompanied by choluria. If the injection of not more than 0.35 gram per kilo is made slowly (less than 0.01 gram per kilo per minute), the amount eliminated in the urine is only 2.33 to 9.5 per cent. of the total amount injected, and choluria does not occur. The concentration of free hemoglobin in the blood which constitutes the threshold value of the kidneys for hemoglobin is approximately 0.06 gram of hemoglobin per kilo of body weight. When about this concentration is reached, hemoglobin appears in the urine. The amount of hemoglobin per kilo of body weight which, after rapid injection, may be retained without jaundice, is approximately 0.18 gram. When 0.22 or 0.23 gram is retained bile pigments appear in the urine. The threshold of the liver for jaundice in point of hemoglobin saturation lies, therefore, between 0.18 and 0.22 gram per kilo of body weight. With slow injections a greater amount may be retained without choluria.

The absence of the spleen does not alter greatly the percentage of hemoglobin eliminated by the kidney, nor does it raise the threshold of the liver for jaundice. In the presence of jaundice, either hemolytic or obstructive, the amount of hemoglobin retained by splenectomized animals is slightly diminished and that eliminated by the kidneys is correspondingly increased.

On these data the authors base the following explanation of the mechanism by which free hemoglobin is removed from the blood-serum. Hemoglobin is not removed by the kidney until its concentration in the blood-serum reaches a certain level (0.06 gram of free hemoglobin per kilo of body weight). This constitutes the threshold value of the kidneys for hemoglobin and when it is reached hemoglobin appears in the urine. When the concentration is lower, hemoglobinuria ceases; at the same time, however, the liver, and possibly other tissues, take up hemoglobin as soon as mere traces are present in the serum and they continue this removal whether the renal threshold is exceeded or not. The two processes go on simultaneously, the rate of removal, when the renal threshold is exceeded, being for the kidneys 17 to 36 per cent., and for the liver and other tissues 64 to 83 per cent. of the total amount introduced. The hemoglobin which is removed by the liver is transformed into bile pigments. If the amount reaching the liver is small and is received slowly, the amount of bile formed is not increased above the excretory capacity of the liver, and it is removed by the bile passages without the occurrence of choluria. This is shown in their experiments in which injections of hemoglobin were made more slowly than 0.01 gram per kilo per minute. On the other hand, if the hemoglobin is taken up by the liver rapidly and in large amounts, the bile capillaries are overtaxed and the bile cannot be rapidly removed, but is reabsorbed into the blood, and choluria develops.

If this theory is correct it affords an explanation of those instances of blood destruction in man characterized by jaundice, but not accompanied by hemoglobinuria. In a slow, gradual destruction of red blood-cells, the liver removes the hemoglobin from the serum so rapidly that the concentration of hemoglobin in the serum does not reach the threshold value of the kidneys and hemoglobinuria, therefore, cannot occur. The constant absorption of large amounts of hemoglobin by the liver and the increase in bile formation which results does, however, overtax the bile passages and jaundice occurs. In the same way may be explained the continuance of jaundice after the disappearance of a transient hemoglobinuria.

Northwest Medicine, Seattle

September, IV, No. 9, pp. 261-292

- 50 Workmen's Compensation. C. A. Pratt, Tacoma, Wash.
- 51 Diagnosis of Surgical Lesions from Standpoint of General Practitioner. R. H. Fowler, Brooklyn.
- 52 Disinfectants and Disinfection. E. P. Fick, Seattle.
- 53 Bubonic Plague. B. J. Lloyd, Seattle.
- 54 Uncinariasis. S. C. Slocum, Portland, Ore.

- 55 Convergent Strabismus in Children and Its Treatment. J. L. McCool, Portland, Ore.
- 56 Bacteriology of Diphtheria. R. W. Ashley, Salt Lake City, Utah.
- 57 Anatomy of Anal Canal and Its Bearing on Etiology and Treatment of Some Common Rectal Diseases. A. C. Crookall, Seattle.

American Journal of Urology, New York

September, VIII, No. 9, pp. 455-510

- 58 *Conclusions Drawn from One Hundred Prostatectomies. O. C. Smith, Hartford, Conn.
- 59 Phimosis: Its Relation to Some of More Frequent Genito-Urinary Diseases. W. S. Reynolds, New York.
- 60 *Sigmoido-Vesical Fistula: Report of Two Cases. J. L. Boehm and J. M. Dean, St. Louis.
- 61 Dilatation, Irrigation and Medication of Urethra With a New Sound. A. L. Soresi, New York.
- 62 Two Cases of Chronic Cystitis of Unusual Origin. (Cystitis Cystitica and Leukoplakia Vesicae). J. E. Zipser, New York.

58. One Hundred Prostatectomies.—In relation to the etiology of the senile prostate, Smith concludes from the histories in this series of 100 cases that Neisserian infection and chronic urethritis are factors of comparatively rare incidence, rather than predominating, as earlier literature would lead us to believe. As to spheres of life and occupational incidence, he feels that no definite conclusions can be drawn. His patients have come, as a rule, from the upper walks of life, have included a number of professional men of comparatively sedentary habits, and a number of farmers, a few mechanics, but no laborers in the usual acceptance of the term. This may be largely due to the fact that this class do not live to the age incidence of prostatic disease. The pathology of the prostates removed shows at least 16 per cent. to have been malignant, this series including one sarcoma; and 2 per cent. to have been tubercular. The balance, or 82 per cent. have been benign growths, the increase in glandular, muscular and fibrous tissue varying greatly in different specimens. A few of the earlier cases, which looked benign, escaped critical microscopic examination. Undoubtedly more thorough pathologic work would have given a somewhat higher percentage of malignancies.

This series of cases is divided into four sub-series of twenty-five each, these divisions marking changes in the technic and advances in preliminary preparations and post-operative treatment, and the wiser selection of operative risks. The first twenty-five cases were performed through a median perineal incision, the prostate being drawn down by the rubber tractor of Parker Sims. Practically all the cases were in the third stage of the disease; that is, either suffering from complete obstruction and sepsis, or from the terminal conditions of hemorrhage, urinary extravasation, pyelitis, cardiovascular changes, emaciation and failing health. For this series of twenty-five, the fatalities attributable to operation were four, three of the four deaths being due to post-operative pneumonia, and one to intestinal infection. The operations were frequently performed in emergency at the homes of the patients, in some instances in remote regions. The rectum was injured twice during this series, an accident which has not occurred during the following seventy-five cases. Stones were left in the bladder or formed soon after operation in two cases. Epididymitis occurred in 15 per cent. Of these twenty-five patients operated on between eight and ten years ago, 50 per cent. are still living, a number of them over 80 years of age.

The second series of twenty-five was performed by the perineal route, by the dissecting method of Young. The mortality attributable to operation for this series was six, one death being from pneumonia, one from cerebral effusion, one from cardiac failure, one from septicemia from urinary infiltration, one from shock and hemorrhage and one from anuria. To the after-treatment was added forced water drinking, the earlier removal of the drainage tube, continuous irrigations for a varying period in the cases of badly infected bladders, and the patients out of bed at an earlier date. The third series of twenty-five were performed by the perineal route without the use of a bladder tractor, and by the median perineal incision and digital enucleation with the ungloved finger. But one death occurred, and that was due to a remote cause.

60. Sigmoidovesical Fistula.—For two years the authors' patient complained of pain in the left lumbar region and had passed blood from the bowels at times, attributing this to hemorrhoids. Soon after this she noticed some pus passing with her stool. Pain was never constant. Since passing pus from the bowels she had more distress in the lumbar region. Three weeks preceding her first visit she passed about a pint of blood from her urethra. This was about a week after menstruation had ceased. From that time on the pains were constant and severe, and excruciating when the bowels moved, especially in the bladder and urethra. She took frequent laxatives, as magnesium sulphate and citrate; these would increase the urethra pain on urination.

The clinical history reads: Frequent desire to urinate, with no relief after micturition. Passes an ounce or less each time and arises at least three times each night to micturate. Feels as if bowels want to move very frequently. Straining at stool constantly, she says she feels as if some obstruction is near the anus. She passes fecal matter per urethram, molded in a shape conforming to urethra. Severe pains radiating to lumbar region starting in left iliac fossa, and also down the thigh to the knee. One of these attacks was like a renal colic. Hot and local applications gave no relief. Eating of foods rich in cellulose, such as beans, etc., produced more distress.

Vaginal examination showed a rectocele and vesicocele, no fistulous communication between the vagina and bladder or bowel. Bladder catheterized showed thick purulent urine mixed with fecal matter. After washing bladder a long time they succeeded in getting a return flow fairly clear, and then cystoscoped, showing a most severe cystitis diffused throughout the bladder, with large areas of denudation. In the extreme upper left angle of the fundus was noticed a dark area, thought to be a pocket, and on moving the cystoscope up near it the beak of the instrument entered this space. Realizing that they had a hole in the bladder wall, an assistant was asked to insert a rectal tube and inject methylene blue solution into the bowel which showed that the blue solution quickly trickled into the bladder. Abdominal section disclosed adhesion between the sigmoid flexure, left fallopian tube and bladder. A large sinus existed between the bladder and sigmoid, through which the tip of the little finger would pass, and fecal matter was escaping into bladder. The sinus was resected by removing the sigmoid and portion of the bladder. The upper end of the colon was united to the rectum. The opening of the bladder was difficult to close on account of the wall being so indurated. The defect in the bladder was closed by suturing the fundus of uterus to the bladder. Bladder was drained by catheter. Patient succumbed to peritonitis three days after operation.

Journal of Maine Medical Association, Portland

September, III, No. 2, pp. 931-974

- C3 Conservation of Cardiovascular System. H. A. Milliken, Hallowell.
- C4 Leukemia. G. A. Coombs, Augusta.
- C5 Contagious Diseases. G. H. Coombs, Waldoboro.
- C6 Worry. W. F. Hart, Camden.

American Journal of Public Health, New York

September, II, No. 9, pp. 664-752

- C7 Quantitative Study of Bacteria in City Dust With Special Reference to Intestinal and Buccal Forms. C. E. A. Winslow and I. J. Kligler, New York.
- C8 Successful Efforts of a Small City to Secure a Milk Supply from Tuberculin Tested Cows. C. H. Wells, Montclair, N. J.
- C9 *Use of Fish as Sanitary Measure to Eliminate Mosquitoes. M. McMillan, New York.
- C10 Legislation Proposed To and Enacted By General Court of 1912. M. W. Richardson, Boston.
- C11 Municipal Hospitals for Contagious Diseases. S. S. Woody, Philadelphia.

69. Fish as Sanitary Measure to Eliminate Mosquitoes.—McMillan's observation as regards the destruction of mosquito larvæ in deposits where fish had been introduced, was that fish from one month old on, destroy the larvæ when found by them, without regard to the class of larvæ. They will destroy the larvæ of the "Culex Pipiens" or the "Anopheles," as well as that of the "Stegomyia." She provided a 500-gallon deposit with six fish, and allowed the deposit to remain uncovered and open to the air, giving free access for

mosquito propagation in it. The jar contained numerous larvæ on the introduction of the fish; but McMillan could demonstrate no larvæ after four days, and no further propagation occurred while the fish were present, the water in the jar remaining clear and palatable, and free from algæ, as well as larvæ. These fish will live on algæ and infusoria when larvæ are not present.

Albany (N. Y.) Medical Annals

August, XXXIII, No. 8, pp. 439-500

- 72 Mineral Springs of Saratoga. G. H. Fish, Saratoga Springs, N. Y.
- 73 Anti-Typhoid Inoculation. P. P. Gregory, Albany.
- 74 Lord Lister and Era of Modern Surgery. W. H. Seward, Albany.
- 75 Medical Work in State Hospitals. C. W. Pilgrim, Poughkeepsie, N. Y.
- 76 Toxic Deliria: Report of Cases. N. A. Pashayan, Schenectady, N. Y.
- 77 Small-Pox and Vaccination. F. C. Curtis, Albany.
- 78 Treatment of Summer Diarrhea in Infants. H. Rulison, Albany, N. Y.
- 79 Plea for Early Diagnosis in Surgical Affections. A. H. Traver, Albany, N. Y.

Colorado Medicine, Denver

September, IX, No. 9, pp. 249-281

- 80 Anaphylaxis. P. Hilkowitz, Denver.
- 81 Spontaneous Rupture of Uterus. S. D. Van Meter, Denver.
- 82 *Suprapubic Prostatectomy; With Method for Control of Post-operative Hemorrhage. L. Freeman, Denver.
- 83 Sacro-Iliac Joint. H. W. Wilcox, Denver.
- 84 Normal and Diseased Singing Voice. Z. von Dworzak.
- 85 Rocky Mountain Spotted Fever. C. E. Walbrach, Denver.
- 86 Nitrous Oxid Oxygen Anesthesia in Major Surgery. C. G. Parsons, Denver.
- 87 So-Called Arthritis Deformans With Special Reference to Its Pathology. L. W. Ely, Denver.
- 88 Method of Localizing Long Saphenous Vein in Thigh. F. W. Cochems, Salida.

82. Suprapubic Prostatectomy.—The weak point in the suprapubic operation according to Freeman has been the control of hemorrhage. The simplest and most reliable way is to pack the bleeding cavity with a long strip of iodoform gauze, or gauze soaked in some styptic material. The end last inserted is retained in the grasp of a pair of large clamp-forceps, preferably with a square, blunt end. The handles of these forceps project through the hole in the bladder, and for some distance beyond the abdominal wound. It is evident that properly graduated pressure on the gauze packing by means of these forceps will control the hemorrhage. This pressure is readily obtained by passing an ordinary rubber bandage around the patient's body beneath the pelvis and over the notch between the locked handles of the instrument. Gauze pads are now adjusted about the handles in such a way as to incline them at any desired angle, thus regulating the direction of the pressure, which should not be greater than necessary, and the whole is held in place by adhesive strips and an ordinary bandage. It is obvious that this method of controlling hemorrhage may sometimes be useful under other circumstances; for instance, in hepatic and pancreatic surgery.

New Mexico Medical Journal, Las Cruces

September, VIII, No. 6, pp. 353-376

- C9 Cholelithiasis, With Case Reports. F. W. Noble, Las Vegas.
- C10 Significance of Leukocytosis in Surgery. J. S. Mason, Albuquerque.

Boston Medical and Surgical Journal

September 12, CLXVII, No. 11, pp. 347-382

- 91 *Operative Treatment of Gastro-Enteroptosis. J. Ransohoff, Cincinnati.
- 92 Medical Aspect of Intestinal Adhesions and Ptoses. J. M. Jackson, Boston.
- 93 Dangers Incurred As Result of Non-Recognition of Acute Aural Infections, With Statistical Data. F. E. Kittredge, Nashua, N. H.
- 94 Inversion of Uterus. H. F. Day, Boston.

91. Treatment of Gastro-Enteroptosis.—The following theses summarize Ransohoff's views on the operative treatment of gastro-enteroptosis:

1. Every case of visceral sagging should be studied individually, and should not be treated in a routine way, whether conservatively or by operation.
2. If after the removal of the normal or nearly normal appendix the patient continues to suffer, he should not be lightly classed among the hopeless neurotics. It is probable that the surgeon has overlooked some visceral displacements or adhesions which are the cause of the suffering.
3. A small incision in abdominal work of the kind under consideration has signal disadvantages.

4. The conclusion of the internists based on laboratory findings as, for example, after ingestion of a test-meal, cannot be made the basis of the functional capacity of the stomach under every-day conditions.

5. In many seemingly hopeless cases of gastro-enteroptosis with marked neurasthenic symptoms operation promises relief. If this is the result of suggestion it is none the less valuable if the relief is permanent.

6. While, of course, internal treatment, abdominal supports and postural treatment should be tried, operative interference should not be unnecessarily delayed lest the habitus nervosus becomes too deep-rooted to be eradicated.

7. No gastropototic patient should be operated on unless some actual functional disturbance can be demonstrated. To relieve this must be the aim of the operation.

8. Given a visceroptosis in which we can demonstrate distinct functional incompetence or deviations, the existence of nervous phenomena does not militate against operation but may be the chief reason for performing it.

Journal of Ophthalmology and Oto-Laryngology, Chicago

August, VI, No. 8, pp. 253-286

95 Systemic Infection Through Pharyngeal Lymphoid Ring Calling for Surgical Intervention. C. B. Wylie, Chattanooga, Tenn.

96 Importance of Accurate Refraction. W. H. Crisp, Denver.

97 Eustachian Bougies of Fuse Wire. J. S. Weaver, Kansas City, Mo.

Medical Record, New York

September 14, LXXVII, No. 11, pp. 461-506

98 *Sanatorium Treatment of Tuberculosis. L. S. Peters and E. S. Bullock, Silver City, N. M.

99 *Three Hundred Patients Treated by Autogenous Bacterial Vaccines. H. A. Craig, New Brighton, N. Y.

100 Institutional Treatment of Arthritis Deformans. S. W. Boorstein, New York.

101 *Keratitis Neuroparalytica After Removal of Gasserian Ganglion. W. B. Weidler, New York.

102 Diagnosis of Gall-Stones. W. D. Hamilton, Columbus, O.

103 Abortion: Its Social and Ethical Aspects. C. E. Nammack, York.

98. **Treatment of Tuberculosis.**—For the past three years the authors have continually used autogenous vaccines in all cases of tuberculosis showing a daily range of fever above 101 F. Lately they have been giving them in all cases with a temperature curve over 100 F. It is a matter of routine with them first to employ an autogenous vaccine in all patients with a fever above 100 F. Then if they get no appreciable result they begin the administration of tuberculin, using the one in conjunction with the other. So far their results have been such as to justify them in a continuation of this form of treatment, and, clinically speaking, they feel that there is much of good to be derived from the application of Wright's theories of vaccine therapy. They make the vaccines in their own laboratory; give the injections at weekly intervals, starting with an average dose of one hundred million dead bacteria and gradually increase the dose unless contraindicated. The length of time of treatment is guided entirely by results, some patients taking injections for as long as eighteen months.

In the fever cases showing a temperature curve from 99 to 101 F. tuberculin is the most efficient measure at their command and often succeeds when complete immobilization has failed. Although reactions should be guarded against, at times they occur and everyone no doubt recalls the marked improvement and sometimes cure following such overdosage.

The procedure which they have practiced for the past three years may be described as maintenance of an effective dose in either febrile or afebrile cases, and raising the dose when it has become enfeebled by repetition as confirmed by absence of clinical effect. A patient exhibits a persistent maximum temperature of 99.3 F. The dose is gradually raised until an effective point is reached, one which reduces the temperature. This dose is then repeated until a rise again occurs, when the dose is not lowered but raised, following the temperature up as it were in an attempt to again reach an effective dose until gradually the temperature drops to and is maintained at normal. This fortunate result having been observed they are guided in the dosage by principles which obtain in normal temperature cases in which general clinical effect is the guide for repeating or raising the dose.

99. **Autogenous Bacterial Vaccines.**—In a personal administration of over one thousand doses of autogenous vaccines, Craig cannot recall a single instance where any evident harm resulted. There were no cases of hypersusceptibility or anaphylaxis, and no evidence of bad effects due to the so-called negative phase. He says that the treatment cannot take the

place of surgery, but in many instances it is a very useful adjunct to surgical procedures. It does not interfere with old established methods of treatment, as they can be carried out in conjunction with the treatment, if thought advisable. It is simply a great addition to our armamentarium in the treatment of bacterial infections.

101. **Keratitis Neuroparalytica.**—Weidler is of the opinion that paralysis of the trigeminus or removal of the Gasserian ganglion with trophic disturbances should be regarded as the cause, and the absence of the lachrymal secretion, the presence of a foreign body, anesthesia of the cornea, and the presence of some bacteria of suppuration should all be considered as contributing causes or factors. It is not necessary for all of these last named to be present to have this form of keratitis develop, but one or more of these factors are usually present in every case of neuroparalytic keratitis. The two cases that are reported in this paper are examples of this form of keratitis after the removal of the Gasserian ganglion.

New York Medical Journal

September 14, XCVI, No. 11, pp. 513-568

104 Inheritance of Acquired Characters. J. Wright, New York.

105 *Polymyositis With Radicular and Spinal Cord Involvement. W. M. Leszynsky, New York.

106 Pathologic Changes of Pharyngeal Mucosa an Early Symptom Pathognomonic of Poliomyelitis. M. Neustaetter, New York.

107 *Crotalin Treatment of Epilepsy. R. H. Spangler, Philadelphia.

108 Drainage of Acute Infectious Lesions of Abdominal Cavity. J. W. Kennedy, Philadelphia.

109 Community and Health. M. S. Macy, New York.

110 Medical Corps and Medical Reserve Corps of United States Army. A. W. Williams, Philadelphia.

111 Some Phenomena of Modern Practice of Medicine. G. W. McGregor, Littleton, N. H.

112 Rheumatic Fever. A. M. Nodine, New York.

105. **Polymyositis.**—In the case reported by Leszynsky, that of a young man, 21 years of age, there was a slowly progressive development of atrophy and paralysis beginning in the ulnar distribution of the left hand until claw hand resulted; some atrophy in both shoulder girdles; a lesser involvement of the ulnar group in the right hand; vasomotor paresis in both hands; absence of subjective sensory symptoms; no pupillary disturbance. Several months after the onset the lower extremities became implicated, the paralysis being limited to the peroneal group on both sides. An area became evident of sensory disturbance over the trunk on the left side affecting all forms of sensibility, and an area of incomplete thermo-anesthesia over the inner aspect of the left arm. At the end of a year there was a rapid exacerbation of the symptoms in the lower extremities, at which time there was complete bilateral foot drop, hypotonia, ataxia, absence of all reflexes, and slow urination. This continued for a few months, when rapid improvement began and gradually terminated in complete recovery. It will be noted that the left side was principally affected, the sensory symptoms being confined to that side. The duration of the disease was one year and eight months.

107. **Crotalin in Epilepsy.**—The crotalin solution which Spangler has used in eight typical cases of idiopathic epilepsy was made from the dried, yellowish, crystallike scales of the evaporated venom of *Crotalus horridus*. The venom is obtained from the living reptile and dried between glass plates, under a bell jar, in the sun. A solution is then made by dissolving the crystals in glycerin and sterile water, to which a few drops of trikresol is added as a preservative. The solution is then put in sterilized ampules containing 1 c.c. of whatever strength is desired. The dose given ranged from 1/200 to 1/25 of a grain.

He found that not only are the virulence and number of epileptic fits favorably influenced by the crotalin treatment, but the excitability of the nervous system is modified and the general health of the patients, their mental faculties, and metabolism in every respect are considerably improved. The quality of the blood, and possibly its chemical composition, seem to be affected by the injection of the venom. As to the exact effect it has on the coagulability of the blood, further observation is necessary. There is no danger in the use of crotalin as long as the necessary aseptic precautions are taken in its administration, and the treatment is carried out with careful observation of its effect on the patient.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Indian Medical Gazette, Calcutta

August, XLVII, No. 8, pp. 301-310

- 1 Nastic Treatment of Leprosy. L. B. Scott.
- 2 *Mongolian Birth Marks. An Anthropologic Study. L. G. Fink.
- 3 Insanity in Andamans. J. M. Woolley.
- 4 *Cases of Hydatid Cyst. T. Jackson.
- 5 *Multiple Echinococcal Infection of Abdominal Viscera. T. S. Tirumurti.
- 6 Peculiar Fever Met with on Northwestern Frontier. J. Husband and H. V. Hodge.
- 7 Observations on Three Hundred Cases of Guinea Worm. P. K. Chitale.
- 8 Large Renal Calculus. H. B. Steen.

2. **Mongolian Birth-Marks.**—In Fink's opinion the spots do not in any way point to an abortive spina bifida. The spots and patches occur not merely in the region of the spine, but in other parts of the back, sides, abdomen, etc. He says that by no stretch of the imagination could these be regarded as abortive cases of spina bifida. During eighteen years' service in Burma he does not recollect ever seeing a single case of that disease. In the Myaungmya district the patches are found on at least 90 per cent. of infants, and yet not a single case of spina bifida has been seen. The condition appears to be equally rare in China. The blue marks first described by Beal appear to be merely a hereditary Mongolian characteristic and are a valuable test in anthropology.

4. **Cases of Hydatid Cyst.**—During the past fifteen months Jackson has come across five cases of hydatid cyst. (1) A cyst in Tenon's capsule; (2) cyst of liver; (3) two large hydatid cysts of the liver, one in the left lobe and the other in the right lobe; (4) hydatid cyst of the liver, affecting its right lobe; (5) cyst attached by pedicles to the small intestines and bladder. The tumor was opened and another white sac was seen inside which was somewhat jelly-like.

5. **Multiple Echinococcal Infection of Abdominal Viscera.**—On opening what looked at first sight to be the abdominal cavity, Tirumurti found a very thick-walled hydatid cyst containing a large number of daughter and granddaughter cysts with large flakes of a pultaceous, greenish material which was the granular layer of the cyst wall, but none of the abdominal viscera could be seen. The thickness of the cyst wall was nearly half an inch. On continuing to open the cyst, it was found to be in front of the peritoneum to which it was firmly adherent throughout. Into this large main cyst, projecting from the left side to the middle line and filling up the left upper half and more of the abdomen, there was a large smooth, firm tumor covered with a dense white capsule. This, on examination, was found to be the spleen, which was greatly enlarged, and which had a big hydatid cyst, about the size of an average man's head, occupying its upper and outer part and being tightly packed with a large number of daughter and granddaughter cysts with large flakes of the soft greenish granular layer of the cyst detached from its wall. The cyst appeared to have originated outside the parenchyma of the spleen, but under its capsule. As the main cyst was completely extraperitoneal and filled nearly the whole abdomen, the stomach and intestines were enclosed in a comparatively small bag of peritoneum beneath the liver and in the right half of the abdomen. The liver was enlarged; the right lobe was indented above by the pressure of a cyst, about the size of a hen's egg, situated beneath the diaphragm; four smaller cysts were found in the substance of the liver. The thick white walls of the liver cysts collapsed as soon as they were opened, and were very easily detachable from the liver parenchyma. The mesentery and omentum contained a large number of very small intraperitoneal cysts. The kidneys were markedly cirrhotic, but had no cysts in them. Stomach, intestines, lungs and heart were free from them. As the patient presented no cerebral symptoms, the brain was not examined.

Medical Press and Circular, London

August 7, XCIV, No. 3822, pp. 125-148

- 9 Digestive Uremia Simulating Cancer of Pylorus. M. Castaigne.
- 10 Surgery of Large Bowel. F. T. Paul.
- 11 Necessity for Necropsy in Every Case of Death. J. C. McWalter.

- 12 Deep Petrissage of Abdomen as Aid to Diagnosis of Tape-worm. R. J. Cyriax.
- 13 Some Medical Aspects of Eugenics. A. F. Tredgold.
August 14, XCIV, No. 3823, pp. 149-174
- 14 Other Disorders of Impeded Respiration. M. Collier.
- 15 Epidemic Gastro-Enteritis. H. L. MacCarthy.
- 16 Influence of Segregation on Prostitution and on the Public. H. A. Kelly.

- 17 Suppression of Tuberculosis in Ireland. S. Agnew.
- 18 Formation of State Medical Service. R. R. Rentoul.

August 21, XCIV, No. 3824, pp. 175-198

- 19 Treatment of Biliary Vesicular Colic. P. Lelebourlet.
- 20 Epidemic Diarrhea. J. Allan.
- 21 *Effect of Certain Cardiac Remedies on Arterial Pressure. J. Burnet.
- 22 Prevention of Cancer. J. F. Little.
- 23 Material Obligations of Spiritualism and Allied Phenomena. T. C. Shaw.
- 24 Proposed Public Dental Service. R. R. Rentoul.

21. **Effect of Cardiac Remedies on Arterial Pressure.**—The drugs Burnet experimented with were digitalis, strophanthus, squills, strychnin and caffeine. He tested the effect of tincture of digitalis on the arterial pressure in twenty-five cases of disease, including such conditions as mitral incompetence, aortic incompetence, anemia with palpitation, arteriosclerosis, tachycardia after influenza, and exophthalmic goiter. In none of these cases was there any effect whatever observed on the blood-pressure even when the drug was given in doses of 15 minims every four hours. In some cases the blood-pressure registered 160 or over, but even here there was no tendency to its increase. On the contrary, in one case of chronic interstitial nephritis with marked arteriosclerosis and emphysema the patient's condition greatly improved after the administration of tincture of digitalis in 10-minim doses three times a day for several weeks with intermissions of three or four days. Incidentally he observed that greater benefit usually resulted when the drug was given in large doses (i. e., 10 to 15 minims) than when it was administered more sparingly. He also tested the action of digitalis on a few healthy individuals, or at least healthy so far as their cardiovascular condition was concerned, himself included. His own arterial pressure was found to vary little from 120 mm., and even when he took as much as 15 minims of tincture digitalis every four hours the mercury column did not alter, nor did he experience any diuretic effect from the drug. He carried out seven sets of observations with strophanthus. All the patients suffered from valvular lesions. In all cases it produced diuresis, but only in four of the cases was any rise of blood-pressure observed, and in all of these there was marked arteriosclerosis present, so that he is not certain whether the rise is to be attributed merely to the effect of the drug, especially as in the other three cases there was no rise recorded, although the tincture was steadily pushed to the most extreme limit of toleration. Squill, Burnet found, in three cases observed, varied greatly in its effects. In one of the cases Burnet found no alteration in arterial pressure after the exhibition of 15 minims of tincture scillæ every four hours for ten days. In another case the pressure, which was 150 mm. at the start, rose to 160 mm.; while in the third case the sphygmomanometer hardly ever gave the same record twice in succession. The patient, however, was a very nervous youth with marked mitral regurgitation, and the application of the instrument invariably excited him. He studied the action of caffeine on himself. Three grains of the citrate produced no change. With 5 grains he observed at first a rise (?) which amounted to only 5 mm. Within a quarter of an hour, the pressure, which was 120 mm. to start with, rose to 130 mm. and in half an hour to 135 mm. The headache from which he was suffering was definitely increased. Not until an hour and ten minutes after he had taken the drug did he find the pressure return to normal. On another occasion he took 10 grains. In ten minutes there was 15 mm. increase in the blood-pressure, and in half an hour 140 mm. was reached. Only in two hours afterward did he obtain the normal reading. Burnet experienced considerable inconvenience from copious diuresis. Strychnin he regards as a most valuable stimulant to the circulation in cases in which the latter threatens to fail, as in pneumonia. Its effects on arterial pressure are very definite. He has carefully observed these in several cases, and has come to the conclusion that when the blood-pressure has fallen below the normal, strychnin is the drug to

administer. Within a very short time after its hypodermic administration a rise of as much as 40 mm. has been obtained. When given by the mouth the rise is never so rapid or so great but still it can be recorded. Nor is it necessary to administer large doses in order to produce a definite rise in the arterial pressure. This may be readily obtained by giving 5 minims of the liquor strychnine hydrochloridi (B. P.) by the mouth or by injecting 2 or 3 minims hypodermically.

Clinical Journal, London

August, 7, XL, No. 18, pp. 273-288

- 25 Abscess of Brain. C. A. Ballance.
26 Treatment of Pleural Effusion. O. Grunbaum.
August 14, XL, No. 19, pp. 289-304
27 Diagnosis of Phthisis and Its Treatment with Tuberculin. C. Riviere.
28 *Infantile Spastic Paralysis and Its Treatment. E. M. Little.
August 21, XL, No. 20, pp. 305-320
29 Some Cases of Enlarged Spleen. W. H. Willcox.
30 Electrocardiogram in Complete Heart-Block. C. C. Gibbes and J. F. H. Dally.

28. Infantile Spastic Paralysis.—Little is of the opinion that all cases of infantile spastic paralysis except the hopelessly idiotic are amenable to surgical treatment. This in the first place should consist of tenotomy or tenectomy and the application of splints, or plaster-of-Paris. Accompanying and following this the assiduous and patient training of the child is indispensable. Retaining apparatus can be worn at night, and in those patients able to walk, ambulatory instruments by day. The method of alcohol injection may be given a trial. But in very severe cases which do not improve under other treatment Forrester's operation is indicated. It should not be performed indiscriminately, but only after careful study of the conditions of the individual case. If paralysis of voluntary impulses is complete, operation is useless. Athetosis is a contra-indication because it connotes profound degeneration in the brain centers.

Lancet, London

August 31, II, No. 4644, pp. 569-674

- 31 Student's Number, Session 1912-1913.

British Medical Journal, London

August 31, II, No. 2696, pp. 465-532

- 32 *Functional and Histologic Effects of Intraneural and Intragan-
glionic Injections of Alcohol. O. May.
33 Gray Hair Associated with Nerve Lesions. G. L. Cheate.
34 Frenkel Treatment of Tabetic Ataxia. J. G. Garson.
35 Morphology of a Strain of Trypanosoma Equiperdum. W.
Yorke and B. Blacklock.
36 Roentgen-Ray Treatment of Uterine Fibroids. G. F. Haenisch.
37 Results of Treating Exophthalmic Goiter with Roentgen Rays.
F. A. Stoney.
38 Treatment of Hypertrichosis with Roentgen Rays. A. E.
Rayner.
39 Roentgen-Ray Diagnosis in Some Forms of Arthritis. R.
Morton.
40 Cervical Ribs. G. Scott.
41 Peribronchial Philisitis. A. C. Jordan.
42 Ionic Medication. H. L. Jones.
43 Physics of Ionic Medication. S. Sloan.
44 *Control of Heart Beat by Means of Contractions of Muscles
Electrically Stimulated. W. Hampson.

32. Intraneural Injections of Alcohol.—May ascertained experimentally that alcohol, injected into the trunk of a peripheral nerve, produces a more or less complete local necrosis of the nerve at the point of injection. The change is not an "ascending" one, the nerve above the point of injection remaining normal; the cells of origin of the fibers may show some degree of chromatolysis, but do not exhibit signs of permanent injury. The conditions produced by such injection are more favorable to regeneration than those resulting from simple section without suture. The anatomic continuity of the nerve trunk favors rapid regeneration, though this is to some extent retarded by the fibrosis which occurs to a greater or less extent in every case of alcohol injection. It is apparently impossible by a single injection of alcohol to produce complete necrosis of the Gasserian ganglion, its dense texture preventing complete infiltration. The alcohol tends to find its way under the sheath of the ganglion toward the proximal root, which is affected to a greater degree than the actual ganglionic cells.

44. Control of Heart Beat.—Involuntary exercise of muscles under the stimulus of the electric current, Hampson says, can be made to yield some special advantages of great value which are not obtainable by voluntary exercise.

Briefly, the treatment is a special modification in several directions of the use of the Bergonie apparatus for repeated simultaneous stimulation of the large muscles of the body. Electrodes of large surface are held in firm contact with the front and back of the thigh, with the calves, the two sides of the abdomen and the back. A faradic current of moderate tension is passed through all the electrodes simultaneously at short intervals, so that all the muscles treated make intermittent contractions which, in consequence of the nature of the current and the conducting surfaces, are moderate and painless. Not only is the stimulation general, being applied to as many of the large muscles as can conveniently be stimulated together, but a special arrangement is made for the timing of the stimuli, the makes and breaks being governed by a metronome, which can be set at any desired speed.

When it is wished to make the patient's heart beat more slowly the metronome is set so that the muscle stimulations occur at a slightly slower rate than the pulsations of the patient's heart, and the latter in a few minutes begin to synchronize with the former. When synchronization is well established the metronome speed is further lowered a few beats per minute, and before long the heart picks up the reduced rate. By persevering in this way the operator brings down the pulsation of an over-rapid heart to a rate that is at or near the normal.

The pulse is at the same time made stronger and more regular, the patient experiences a sense of well-being, rest and relief from distress, which lasts for several hours after the treatment is over, and, in particular, difficulty of breathing is diminished or removed.

After a course of treatment the heart acquires a better habit of its own when not under treatment, and a heart which was dilated not only acquires a pulse which is stronger and slower, but also undergoes appreciable contraction.

The rationale of the treatment is said to be briefly this: The heart is assisted in its work of making the blood circulate by a temporary conversion of the large muscles of the body into subsidiary hearts. Its work is thereby better done, while it is itself doing less work. The circulation of the whole body is improved, while the heart is in a partially resting state.

Annales de Gynécologie et d'Obstétrique, Paris

August, XXIX, No. 8, pp. 449-512

- 45 *Retention of Menstrual Blood in Case of Malformation of Uterus and Vagina. (De l'hématocolpos latéral dans les cas de malformation utéro-vaginale.) Vantrien.
46 Retroplacental Hemorrhage with Infiltration of Wall of the Uterus. (2 nouvelles observations d'apoplexie utéro-placentaire.) Convelaire.
47 Pathogenesis and Prophylaxis of Lesions in the Placenta with Albuminuria and Eclampsia. V. Wallich.
48 *Therapeutic Acidity of the Vaginal Mucus. R. Labusquière.

45. Malformations in Uterus and Vagina Mechanically Interfering with Menstruation.—Vantrien remarks that this subject has been singularly neglected and especially the accumulation of the menstrual discharge in a double uterovaginal canal, of which he has encountered two cases. Gross found only four cases without hematometra in ninety cases. If there is no menstruation or if the second vagina is not open at either end the malformation may be only an accidental discovery, as in a case in which he removed the uterus for pains in the pelvis ascribed to old sclerosis of the internal genitals. All disturbances ceased after the double hysterectomy operation. The open vagina was drained and the second one was sutured above, thus leaving it completely closed. The long shape and fixity of the tumor caused by accumulation of blood in a supernumerary vagina are characteristic, as also the first development at puberty or later. The malformations are generally multiple and menstruation abnormal in these cases. In treatment it might be advisable to excise the wall between the two vaginas or remove all trouble by panhysterectomy or by excision alone of the second uterus and vagina.

48. Sugar Sterilization of Vagina.—Labusquière summarizes Kuhn's recent work on sterilization of the uterus and vagina with solutions of sugar. The acidity thus generated seems to reduce imported germs to the rôle of harmless saprophytes. An argument in favor of this assumed protecting action from

the acids generated by the fermentation of a sugar solution is that diabetic women seem to escape puerperal fever more than others.

Archives Générales de Chirurgie, Paris

July, VI, No. 7, pp. 749-876

- 49 *Aneurysm of the Splenic Artery. E. Villard and J. Murard.
50 Experimental Research on Ulceration of Large Arteries in Contact with Drains. R. J. Weissenbach and H. Bertier.
51 *Operative Treatment of Genital Tuberculosis in Men. Lapeyre.

49. **Aneurysm of Splenic Artery.**—Villard and Murard report a case with necropsy but they have been able to find only one similar case on record. Both patients were healthy; one was a woman of 25 and the other a man of 33; both had suffered from rare occasional acute attacks of intense pain in the abdomen, without change in the pulse or temperature, and during the intervals they felt entirely well. These symptoms had been observed for two years in the man's case and for six years in the other before an extremely long attack of the pain brought the patients to the surgeon. The woman was cured by splenectomy, but in the man's case the viscera were inoperably welded together.

57. **Genital Tuberculosis in the Male.**—Lapeyre reviews what has been written on this subject, epitomizing his conclusions in the statement that genital tuberculosis in male adults, in the frequent primary form, is a mild local affection, essentially amenable to surgical measures. The lesions should be removed far into sound tissue but the testicle should be left undisturbed, as in fully 50 per cent. of the cases it is intact. Slight involvement of the prostate or seminal vesicles generally heals spontaneously after removal of the focus below. Vasopididymectomy is the preferable technic, and the sexual functions are not impaired even by a bilateral operation. The sound vas should be resected to protect the second testicle. Removal of the seminal vesicles may be necessary to supplement the vasopididymectomy, and access by the inguinal or perineal routes should be determined by individual conditions. Bilateral castration should never be done except from urgent necessity.

Archives des Maladies de l'App. Digestif, Paris

June, VI, No. 6, pp. 302-360

- 52 Catheterizing Pylorus and Duodenum. (La dilatation du pylore sans opération.) M. Einhorn.
53 Diagnosis of Gastric Cancer. (Un renseignement de plus pour le diagnostic du cancer gastrique.) A. Medina.
54 Hemorrhagic Ulcerative Colitis. Bret and Blanc-Perduet.
55 Volatile Acids in Stools. (L'acidité volatile des matières fécales.) H. Labbé and E. Larue.
56 Diagnosis of Hour-Glass Stomach. (A propos du diagnostic radiologique de l'estomac biloculaire.) Cerné and Delaforge.

Bulletins de la Société de Pédiatrie, Paris

June, XIV, No. 6, pp. 249-323

- 57 Disadvantages of Condensed Milk in Infant Feeding. (L'emploi des laits condensés chez le nourrisson.) E. Ausset.
58 *Osteomalacia in Boy of 9. (Déformations ostéomalaciques du squelette chez un garçon de 9 ans.) L. Tixier and C. Roederer.
59 Congenital Stenosis of the Pylorus from Muscular Hypertrophy; Death the Sixth Week. (Rétrécissement congénital du pylore chez un nourrisson.) A. B. Marfan.
60 Experimental Heat Stroke. (Influence de la chaleur chez les jeunes chiens.) Schreiber and Dorlencourt.
61 Adrenal Insufficiency in Erysipelas in Infants. (De quelques particularités de l'érysipèle du nouveau-né. Forme clinique avec signes d'insuffisance surrénale.) Lesné and Francon.
62 Auscultation of Tracheobronchial Enlarged Glands. (La recherche de la transsonance sterno-vertébrale chez les enfants. Sa valeur pour le diagnostic de l'adénopathie trachéo-bronchique.) D'Oelsnitz.

58. **Osteomalacia in Children.**—The little patient in the case reported was a boy of 9, but the first signs of trouble had been noted at the age of 4. The child had previously been healthy. The blood-pressure was low and there was marked weakness, both suggesting disturbances in the ductless glands as factors in the osteomalacia. This assumption was sustained by a tendency to pigmentation and discovery of Sergeant's adrenal white line. The child is taking now a tentative course of epinephrin.

Lyon Surgical, Lyons

August, VIII, No. 2, pp. 121-244

- 63 *Early Treatment of Talipes. (Résultats éloignés et valeur de la méthode de Finck dans le traitement précoce des pieds bots congénitaux.) G. Nové-Josserand and A. Rendu.
64 Vaginal Operation for Fistula After Abdominal Hysterectomy. (Le traitement par le colpectomie élevé des fistules urinaires vaginales consécutives à l'hystérectomie abdominale avec évidement pelvien pour cancer utérin.) H. Violet and J. Murard.
65 Ossification in Mammals. G. Dubreuil.

63. **Early Treatment of Club-Foot.**—Nové-Josserand and Rendu have applied Finck's method in the treatment of talipes in thirty cases and extol it as extremely effectual. The results were perfect in 50 per cent.; in 37 per cent. simple tenotomy was required besides, and in 12 per cent. internal or posterior arthrotomy proved necessary, but the second operation was much facilitated by the preceding treatment. Finck commences the correction of the talipes the very day of birth, keeping up the massage in a progressive and a continuous manner and maintaining the correction obtained by a flannel bandage wound over a hard sole with thick felt lining. The bandage is removed each time for the massage. By the age of two months the tissues are too firm to commence effectual massage. The best results were obtained by first correcting the adduction of the front part of the foot, correcting also to a slight extent the supination, but not acting on the equinus position. In the second sitting, next day, the supination and equinus position are combated and so on until hypercorrection is realized so that the foot retains the normal position after the bandage has been removed. This result is generally obtained with twelve sittings or less. Twelve illustrations show the various maneuvers and dressing, and the appliance worn afterward for elastic traction. The whole procedure is complete by the end of six months.

Presse Médicale, Paris

August 3, XX, No. 63, pp. 649-656

- 66 Auscultation of the Apex in Adults. (Valeur séméiologique chez l'adulte de la diminution du murmure vésiculaire limitée au sommet.) F. Bezançon.
67 Connection Between Tuberculosis and Chronic Mediastinitis. (La médiastinite chronique considérée dans ses rapports avec la tuberculose.) E. Sergent.

August 7, No. 64, pp. 657-664

- 68 Traumatic Separation of the Epiphyses. (Les traumatismes osseux chez l'enfant.) Kirmisson.
69 *Local Subarachnoid Anesthesia in Treatment of Gastric Crises in Tabes. (Thérapeutique intra-archidienne des crises gastriques du tabes. Ponction lombaire et injections sous-arachnoïdiennes.) H. Roger and Baumel.

August 10, No. 65, pp. 665-676

- 70 Present Status of Tuberculin Treatment of Pulmonary Tuberculosis. L. Rénou.
71 Screws in Treatment of Fracture of the Olecranon. (Le visage simple appliqué aux fractures fermées de l'olécrane.) P. Alglave.
72 To Remove Stain of Iodin from Hands. (De l'emploi de corps permettant de décolorer les téguments lors de la désinfection des mains par la teinture d'iode.) H. and E. Chabanier.

August 14, No. 66, pp. 677-684

- 73 *Butterfly Net as Mosquito Catcher. (Sur la destruction des moustiques à l'aide du filet.) J. Legendre.
74 *Treatment of Anthrax. L. Boidin, Vignaud and L. Fortineau.

August 17, No. 67, pp. 685-692

- 75 *Local Anesthesia and Surgeons Who Operate on Themselves. (L'anesthésie localisée et les chirurgiens qui s'opèrent eux-mêmes.) P. Reclus.

August 21, No. 68, pp. 693-700

- 76 Cultivation of Tissues Outside of the Organism. (La vie manifestée des tissus "in vitro.") A. Carrel.
77 The "Physiologic" Jugular Venous Pulse. C. Lian.

69. **Spinal Anesthesia in Treatment of Gastric Crises.**—Roger and Baumel explain the benefit from subarachnoid injection of a drug as the result of the "leukocyte shower" which follows the chemical irritation. Thus is induced a therapeutic serous meningitis, and this favors the absorption of the products of the chronic process in the spinal roots which seems to be the main factor in the attacks of pain. This assumption throws light on the permanent benefit derived from injection by lumbar puncture of an anesthetic or other drug, especially subarachnoid injection of cocaine or magnesium sulphate. In a case of recurring gastric crises in a man of 32, the intervals had become shorter and shorter in the course of two years but there were scarcely any other signs of tabes. Withdrawal of 10, 20 or 30 c.c. of cerebrospinal fluid had no influence on the crises, but they did not recur for months after injection of a small amount of an anesthetic. Two repetitions later of the injection failed to influence the crises, which even increased in intensity. Then 4.5 c.c. of a 25 per cent. solution of magnesium sulphate was injected by lumbar puncture and this arrested the gastric crises and there were no further attacks for four months, when they recurred in such intensity that the patient clamored for repetition of the injection. The benefit was as pronounced as before, and the patient was free from all disturbances at date of writing, a few days later. There were no appreciable by-effects after injection of the mag-

nesium sulphate except intense general hyperesthesia for a few hours. The cerebrospinal fluid showed signs of a pronounced polymuclear reaction two days after the injection. Each of the drugs used in spinal injection in tubes has some successful cases to its credit, as well as failures. Further experience in this line is needed.

73. Butterfly Net as Mosquito Catcher.—Legendre called attention two years ago to the advantages of a conical butterfly net as an easy means to catch mosquitoes. His experience in the tropics with it since has shown that it is even more effectual for the purpose than he had dreamed. The opening of his net pocket is 19 by 13 inches, the deep pocket tapering to a point, and here the mosquitoes congregate. Estimating 900 mosquitoes to the gram, with a few of these nets from 50,000 to 80,000 mosquitoes have sometimes been taken in one building. In a sick room and in caring for children, the attendant can thus easily, silently and without haste, capture the casual invaders, day or night, without disturbing anyone.

74. Treatment of Anthrax.—The experiences on record to date are reviewed in regard to serotherapy, salvarsan and preparations of the *Bacillus pyocyaneus*. The results to date are not conclusive, but several cases of recovery under serotherapy, even after invasion of the blood, have been reported. In Boidin's one case it failed. The antagonism between the anthrax bacillus and the pyocyaneus has been utilized in treatment, and Vignand reports three recoveries under it. He has had sixty cases of anthrax in his practice and never knew a patient to recover who had the symptoms presented by one of the patients who recovered under the pyocyanin. Fortineau reports extensive experimental research in this line and the cure of four cows given this treatment. He has applied it also in eighteen clinical cases with recovery of all the patients. Boidin urges bacteriologic examination of the blood in all cases of anthrax, as this alone affords a basis for comparison of the effects of different methods of treatment.

75. Local Anesthesia and Operating on One's Self.—Reclus was one of the pioneers in the application of local anesthesia, and for many years has operated extensively with it, a total of 12,000 minor and major operations in twenty-six years. He says that whenever it is possible, it should always be given the preference as it avoids not only the immediate dangers from the general anesthesia but the insidious damage to the kidneys and liver and the inhibition of phagocytosis the clinical importance of which we are only beginning to appreciate. The objection that it would shock patients to watch an operation on their own tissues has not proved tenable; when permitted, they follow the surgeon's work with great interest. The advantages of the method are peculiarly evident when a surgeon by this means is able to perform an operation on himself with as much skill and sangfroid as when another is the victim. Reclus reports four cases of this kind. The first was the excision of a tuberculous process in the right forefinger, a cadaver infection. The young surgeon's consultant advised amputation of the finger, but he did not wish to lose it and consequently excised the lesion himself, holding the knife firm in the left hand and scooping out the lesion by manipulating the finger on the knife and curet. The lesion healed with only a minimal scar left now, twenty years later. In the second case a surgeon made an extensive resection of an ingrowing nail under local anesthesia, with equally good results. In the third case a Turkish army surgeon, studying in France, was operated on under local anesthesia for bilateral inguinal hernia. He was so impressed with the local anesthesia that soon after he proceeded to resect his own serotum to cure varicocele, and with entire success. The fourth case is more recent and has been written up lately in the daily papers. The surgeon in question is Dr. J. Regnaud, formerly professor of anatomy at Toulon. He thus operated on himself for a left inguinal hernia without the slightest disturbance or pain except from the first prick of the preliminary injection in the thigh of 0.005 gm. of morphin. He then injected 3 c.c. of a 0.5 per cent. solution of cocain into the various layers of soft tissue and 2 c.c. into the fibers on each side of the ring. During the course of the operation he injected another 2 c.c. around the spermatic cord and neck of the hernial sac. About 15

drops of epinephrin had been added to 40 c.c. of the solution. Before and during the operation he drank a little coffee. The operation was done leisurely, in about an hour and a quarter, and the superior advantages of the local over spinal anesthesia for this "autotomy" were abundantly demonstrated. Two auto-operations under spinal anesthesia are on record, but Reclus knows of only the above four under direct local anesthesia.

Revue de Chirurgie, Paris

August, XXXII, No. 8, pp. 117-348

- 78 *Ulceration of Iliac Artery. (Ulcération spontanée des branches de l'iliaque externe dans les abcès appendiculaires.) M. Patel and J. Murard.
79 Dyspepsia of Biliary Origin. (Des troubles dyspeptiques d'origine biliaire.) G. Cotte and E. Bressot.
80 Stenosis of the Esophagus. (Le traitement actuel des sténoses œsophagiennes graves de l'œsophage. Méthodes endoscopiques et interventions chirurgicales combinées.) L. Sargnon and H. Alamartine.
81 Surgical Anatomy of Horseshoe Kidney. (Chirurgie du rein en fer à cheval.) V. Carlier and M. Gerard. Commenced in No. 7.

78. Ulceration of the Iliac Artery.—Patel and Murard refer to involvement of the external iliac artery in an appendicitic abscess. They recently encountered a case of the kind and report a second one from Bérard's service; both patients succumbed to the hemorrhage from the ulcerated external iliac. The appendix region had been drained after appendectomy in both cases.

Semaine Médicale, Paris

August 14, XXXII, No. 33, pp. 385-396

- 82 Hysterectomy for Uncontrollable Post-Partum Hemorrhage. R. de Bovis.
August 21, No. 34, pp. 397-408
83 *Adsorption and Its Utilization in Therapeutics. L. Cheinisse.
August 28, No. 35, pp. 409-420
84 *Treatment of Diarrhea by Sedative Medication. (Nouveau traitement médicamenteux des diarrhées.) E. Fuld.

83. Adsorption and Its Utilization in Therapeutics.—Cheinisse defines adsorption as the fixation of a substance primarily at liberty in a fluid medium, for example, on the surface of another substance—a molecular adhesion and not a chemical combination. Adsorption may be reversible or not, but it is the explanation for the action of charcoal and bolus alba as an antidote to poisons and in treatment of auto-intoxication, cholera, typhoid, chronic enteritis, etc., and bacillus-carriers. The favorable action of bismuth in gastric ulcer is probably due to its adsorbing property as well as the mechanical protection it affords. Cheinisse thinks that the principle of adsorption has not been utilized to the full in internal medicine and prophylaxis to date.

84. Treatment of Diarrhea.—Fuld became convinced that diarrhea occurring soon after meals is merely an exaggeration of the physiologic process owing to abnormal irritability of the stomach nerves. Treatment of the diarrhea based on this assumption has given unexpectedly good results. He ordered the patient to take, ten minutes before each meal, 10 drops of a solution containing 3 per cent. cocain and an equal amount of codein in peppermint water. For children he prescribes a 1 per cent. solution, as many drops as the child has years. No by-effects were observed, but the diarrhea, recent or chronic, rebellious to all other measures and dieting, stopped after ingestion of the first dose. He usually kept up the treatment for a few days up to a week. No tendency to constipation followed if the patients had not been subject to it previously. He regards this treatment as ideal from all points of view, and cites two cases from his experience with fifty. It is possible that cocain suppositories might answer the same purpose. The only failure in his series was in a diabetic with hyperchlorhydria, and administration of the lacking hydrochloric acid finally cured the diarrhea. The sedative medication was promptly successful in his two cases of diarrhea in tuberculosis. In another case the diarrhea was really incontinence following an operation on the rectum, but the sedative medication proved equally effectual, the gastric reflex acting apparently on the sphincter trouble.

Archiv für Verdauungs-Krankheiten, Berlin

XVIII, No. 4, pp. 441-570

- 85 *Mechanical Support with Gastropexia. (Die Wirkungen einer Blinde bei der Gastropexie. Eine klinisch-röntgenologische Studie.) A. Borghjürg and J. F. Fischer

- 86 Catheterizing the Pylorus. (Dehnung des Pylorus ohne Operation.) M. Einhorn.
- 87 Hormonal. (Weitere Erfahrungen mit dem Peristaltikhormon—Zülzer.) R. Glitsch.
- 88 *Influence of Mastication and Emotions on Gastric Acidity. (Einfluss des Kauaktes und Wirkung psychischer Faktoren auf die Beschaffenheit des Mageninhalts nach Probefrühstück.) G. Skray.
- 89 Neuenahr Waters with Peptic Gastric Ulcer. (Neuenahrer "Grosser Sprudel" bei Ulcus pepticum und irritativen Zuständen des Magens.) E. Rosenberg.
- 90 *Primary Gastric Myxosarcoma. E. Fricker.
- 91 *Gastritis with Gastric Ulcer. (Zur Frage der Gastritis bei Ulcus ventriculi.) B. Chessin.
- 92 *Importance of Starch-Iodin Stomach Content Test for Retention and Atony. (Bedeutung der Amylaceenretention im nüchtern ausgeheberten Mageninhalt.) T. Hausmann.
- 93 Early Diagnosis of Cancer. (Frühdiagnose der Krebse des Verdauungskanales.) J. Wolff and G. Kelling.

85. Support for Sagging Stomach.—Borgbjärg and Fischer extol the advantages of combining a supporting band with an elastic pad to relieve the disturbances from gastropnoia. Their skiagrams show that this actually lifts the stomach and sustains the abdominal walls. (Their conclusions have already been summarized in these columns, May 25, 1912, p. 1652.) They use Vermehren's corset with an Enriquez air pad.

88. Influence of Mastication and Psychic Factors on Stomach Secretion.—Skay found in his investigation of 118 patients given a test breakfast that mastication and emotional factors had a decided influence on the acidity of the stomach content. With defective mastication the total acidity of the stomach content was higher, while emotional factors reduced the production of acid, but this influence was far less marked than that of mastication. When the test breakfast was not well chewed, the chymification was defective. This was evident even in cases of pronounced hyperacidity, and it imposes the necessity for thorough chewing of the food in a test meal.

90. Gastric Myxosarcoma.—Fricker's case is the fourth one on record, he believes; it was distinguished by the fact that the stomach content seemed to be normal, although a tumor could be palpated and there was some retention. There had been symptoms of mild gastric disturbance for nearly two years when they increased in intensity and the tumor was excised.

91. Gastritis With Gastric Ulcer.—Chessin concludes from the nine cases cited that gastritis is the rule with gastric ulcer. The ulceration is part of a general process involving the gastric mucosa more or less extensively.

92. Importance of Retention of Starch as Sign of Stenosis of the Pylorus.—Hausmann says that the findings of the currant test indicate a motor disturbance in the stomach, but this may be due to either mechanical causes or to atony of the stomach walls. Of greater differential value is the macroscopic retention of particles of starch; this occurs only with mechanical retention. The test for it is extremely simple; twelve hours after a test supper of rice or barley porridge the stomach contents are aspirated, the patient reclining. The stomach content is set aside in a glass to settle and then all is poured out except about 5 c.c. A few drops of Lugol's solution are well mixed with the sediment and water added until the turbid fluid becomes transparent. Particles of starch, stained dark blue, can be seen floating in the water or settling to the bottom. The presence of visible starch particles indicates mechanical retention, while microscopic findings alone indicate retention from atony of the stomach. With general asthenia there may be microscopic retention of starch at times and not at others when the general condition is improved. His extensive experience demonstrates that macroscopic starch particles may be accepted as a certain sign of mechanical obstruction. Among some instructive cases cited is that of a man of 52 with anacidity and 20 c.c. content with macroscopic minimal retention of starch in the fasting stomach; no blood, no tumor, no lactic acid were evident, but on the above findings alone he correctly diagnosed cancer of the pylorus. In ten years of experience Hausmann has never encountered a case of macroscopic retention of starch which proved to be due to atony alone. His experience has demonstrated further that starch particles may be retained in case of hypersecretion when

fat and meat particles are passed along. This frequently corroborated fact confirms anew the advisability of a fat-albumin diet in cases of stenosis of the pylorus, as Strauss has emphasized. The starch test may thus point the way to effectual dietetic treatment, as he shows by an instructive example, no signs of retention being found after restriction to a fat and albumin diet. The currant test is liable to be misleading as the currants are not always pumped out with the rest of the stomach content.

Berliner klinische Wochenschrift

August 12, XLIX, No. 33, pp. 1549-1596

- 94 *Bacillus-Carriers. (Bacillenträger.) G. Sobernheim.
- 95 Cultivation of the Spirochaeta Pallida. H. Noguehi and Tomaszewski.
- 96 Injury of Tissues from Radiothorium and Products of Radium Emanation. E. P. Tagle.
- 97 *Metastasis of Thyroid Tumor in Bone. (Schilddrüsenmetastasen im Knochen.) F. Regensburger.
- 98 Dislocation of the Fingers in Syringomyelia. (Distensionsluxationen bei Syringomyelie.) Joachimsthal.
- 99 Phonoscope Percussion. (Die "phonoskopische Perkussion," eine neue Untersuchungsmethode.) J. Tornai.
- 100 *Asthma in Children. (Asthma bei Kindern und dessen Behandlung.) H. E. Knopf.
- 101 Roentgenoscopy of Duodenal Ulcer. (Zur Technik der Röntgenuntersuchung des Duodenalgeschwürs.) S. Kreuzfuchs.
- 102 Anaphylaxis. (Ueber Kriterien der Anaphylaxie.) J. Auer.
- 103 Medicolegal Questions. (Der ärztliche Eingriff im Spiegel des Rechts.) H. Lieske.

94. Bacillus-Carriers.—Sobernheim comments on the fact now well established that nearly every infection has a history of cases in which no appreciable symptoms were induced by it, while the prophylaxis of infectious diseases stands and falls with the control of the bacillus-carriers. He gives a table showing that of 1,832 persons examined for diphtheria bacilli (Berlin, 1910-11) they were found in 244 healthy persons, that is, in 13.3 per cent. Dysentery bacilli were found in thirteen healthy persons among 500 examined, and in thirty-three presenting symptoms of dysentery. Paratyphoid bacillus-carriers are so numerous in certain parts of Germany that this germ must be regarded as ubiquitous there, while it is comparatively rare in Berlin, being found only in the sick and the contacts.

97. Metastasis of Thyroid in Bone.—Regensburger's patient was a woman of 55 with a slight enlargement of the thyroid and a tumor in the upper arm which proved to be proliferation of thyroid tissue. The tumor had been developing for two years. In fifty-eight cases on record of thyroid metastasis the interval before death ranged from three months to seventeen years, the metastasis—not the thyroid—being responsible for the fatal outcome. In the present case the arm was exarticulated with apparent success. He reviews the literature on the subject; there seems to be a special affinity between the thyroid and bone tissues, metastasis occurring in the bones with thyroid cancer more frequently than with cancer elsewhere. Winiwarter was unable to find a case of bone metastasis in 903 cases of gastric cancer, but the lungs suffer more frequently than the bones from metastasis of a thyroid cancer.

100. Asthma in Children.—Knopf has encountered asthma in five cases in children and succeeded in curing it in all without exception. The treatment includes besides the usual physical, dietetic and medicinal means, psychic training, change of environment and systematic breathing exercises.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 20, XLII, No. 21, pp. 777-808

- 104 Propaganda for Breast Nursing. (Stillen und Stillunfähigkeit.) H. Koller.
- 105 *Why Epidemics of Cholera are Liable to Die Out After a Heavy Rain. (Warum eine Choleraepidemie nach einem heftigen Gewitter über ein ausgestrecktes Gebiet für längere Zeit verschwindet.) C. O. Gelpke.

August 1, No. 22, pp. 809-840

- 106 *Manifestations of Cerebrospinal Arteriosclerosis and Their Treatment. (Ueber einige Erscheinungsformen der cerebrospinalen Arteriosklerose.) R. Bing.

August 10, No. 23, pp. 841-888

- 107 *Treatment of Parasyphilitic Nervous Disease. (Spezifische Behandlung der parasyphilitischen Nervenkrankheiten.) J. Jadassohn.
- 108 Treatment of Prolapse of the Uterus in Elderly Women. (Prolapsoperationen bei älteren Frauen.) E. Wormser.
- 109 Whooping Cough. (Zur Ätiologie und Pathologie des Keuchstussens.) E. Döbeli.

105. **Rainstorms and Cholera.**—Gelpke recorded a number of interesting facts in regard to cholera during his years of practice in the East Indies (Batavia). His attention was attracted particularly to the way in which a cloudburst or extremely heavy rainstorm was so often followed by the arrest of a prevailing epidemic. This and certain other observations have convinced him that fish play an important part in the transmission and spread of cholera. He relates a case of cholera which had developed in a family living where there were no neighbors for miles in all directions and no strangers had passed that way for weeks. Transmission from human beings was out of the question in this case. He remarks that vultures assemble where there is carrion, and the fish assemble when the carrion is in water, and they may come from long distances. The progress of cholera has been along the rivers, generally from the mouth upward, although cholera germs cannot spontaneously make their way against the stream. But they can be carried by fish going up to spawn. A heavy rain raising the rivers washes away the fishes' eggs and the silt deposited by the turbid waters acts as a filter that prevents contamination of the ground water beneath the streams. India is the home of cholera, and to this contributes the custom of the natives in regard to systematically defecating into running waters.

106. **Cerebrospinal Arteriosclerosis.**—Bing says that the early symptoms of this condition closely resemble those of neurasthenia and sometimes can be differentiated only by the lack of the causes which produce neurasthenia. He is convinced that neurasthenia never develops without certain etiologic factors such as congenital degeneracy or, in the acquired form, a combination of nervous strain and the chronic influence of disagreeable emotions. When the symptoms of neurasthenia develop for the first time at the arteriosclerosis age, the vascular apparatus should be carefully examined; the true and false forms may be associated. The vasomotor cardiac disturbances of true neurasthenia are liable to afford a predisposition for arteriosclerosis. When the intracranial arteriosclerosis is more advanced, there may be paroxysmal pains simulating neuralgia. The absence of tender points along the nerves, and the boring, lancinating character of the pains suggest that they are due to cramps in the vessels rather than to true neuralgia. Motor disturbances of the type of intermittent claudication are more common; Bing has recently encountered two cases of this "intermittent claudication of the spinal cord." It is distinguished from the peripheral form by the absence of vasomotor and pulse disturbances in the legs, and by the transient exaggeration of the knee-jerk and Achilles reflex. Spinal intermittent claudication from syphilitic endarteritis is more common than from arteriosclerosis of the spinal cord. Fleeting paresis of one arm or leg or both and transient motor aphasia may be induced by cerebral arteriosclerosis. These fleeting phenomena occur in the borderland between functional and organic disturbances. Minute multiple defects in the brain substance from the arteriosclerotic process—*lacunes de désintégration cérébrale*—are responsible for the mild and transient hemiplegias of the elderly, gradually retrogressing and never inducing contracture, hemianopsia or conjugated deviation. Patients who have once had this lacunar hemiplegia are liable later to cerebral glossopharyngolabial disturbances, a pseudobulbar paralysis. The disturbances, however, are generally on the other side, but they prove more durable. The paralyzed muscles in this pseudobulbar paralysis do not give the reactions of degeneration. Contractures finally develop in the lips and tongue and the lower part of the face becomes rigid. Treatment must be mainly prophylactic and psychic, reassuring the patients and regulating the diet. Obstinate insomnia and headache often yield to an exclusive milk diet for a time; milk should be taken freely in all its forms, and alkaline mineral waters with a bland egg-vegetable diet. Potassium iodid should be given a trial in all cases of the nervous manifestations of arteriosclerosis. It seems to dilate the vessels and reduce the viscosity of the blood and possibly to promote phagocytosis; it is questionable whether it has an action on the

sclerotic process in the vessels but a prophylactic action in this line is plausible. The iodid has to be kept up for a long time. Bing advises not to go above 0.5 to 1 gm. a day, and suspend for ten days after each twenty days. Potassium iodid and strychnin is his favorite combination. When the patient is wakeful at night and sleeps during the day, this is best combated by letting him sleep at will during the day and giving a little narcotic at night to ensure sleep. Then as he sleeps less during the day, the evening dose can be increased, and thus normal sleeping habits will return. Daily hot brine and mustard footbaths are useful with a tendency to congestion in the head, dizziness and headache, as also brief tepid full baths and douches followed by rubbing. Carbonated baths are not always well borne. The patients do best at a quiet health resort, at about 2,000 feet, sheltered from the wind and with an even climate. General massage is often useful.

107. **Treatment of Tabes and Paralysis.**—Jadassohn discusses the conflicting views in regard to the efficacy of specific treatment of parasyphilitic nervous affections. He agrees most decidedly with those who regard thorough specific treatment as indispensable, if only for the reason that true syphilitic manifestations may be associated with the parasyphilitic, and these can certainly be eliminated from the picture. On account of the unreliability of each alone, he advises a combination of mercury, iodid and salvarsan, testing the tolerance with small doses at first, and then increasing to an energetic dosage, keeping up the specific treatment for a long time and repeating it occasionally during the following years, supplemented by all other therapeutic, tonic and hygienic agencies. He remarks in conclusion that the dangers with salvarsan treatment do not seem to be any greater with tabes and paralysis than with ordinary syphilis, and no greater than those of mercury. He has witnessed the subsidence for many months of the lancinating pains and crises in tabetics given thorough combined specific treatment since the introduction of salvarsan, and he lists sixty-two physicians who have reported similar excellent results, while thirteen state that no benefit was observed. The majority of authors agree that in progressive paralysis specific treatment has no favorable prospects and a number have reported damage from salvarsan.

Deutsche medizinische Wochenschrift

August 8, XXVIII, No. 32, pp. 1481-1528

- 110 Objective Psychology. (Was ist Psychoreflexologie?) W. v. Rechterew.
- 111 Chondrectomy for Freund's Emphysema. H. Braun.
- 112 *Epidemiology of Typhoid. (Ueber Typhusverbreitung.) G. Brückner.
- 113 Clinical Importance of Much's Granula. N. Körber.
- 114 *Conditions Which Permit the Breathing of Compressed Oxygen and Changes in Lungs in Oxygen Poisoning. A. Bornstein and Stroink.
- 115 Case of Addison's Disease. T. Klein.
- 116 Ulnar Paralysis and Cervical Ribs. (Ulnarislähmung und angeborene Halsrippe.) E. Bibergeil and D. Blank.
- 117 Prophylaxis of Puerperal Fever. (Zur Bekämpfung des Puerperalfiebers.) L. Nieszytko.
- 118 Electric Vibration Massage. Herschel.

112. **Typhoid.**—Brückner reviews the data collected by the commission appointed by the government to combat typhoid. The facts recorded render it more certain than ever that the sick or healthy bacillus-carriers are the exclusive source of typhoid. The traffic in articles of food seems to be the main factor in distribution of the disease.

114. **Oxygen Poisoning.**—Bornstein has been experimenting with animals to determine the conditions permitting life in an atmosphere of oxygen. He knows of only one case of actual oxygen poisoning in man, and this was on himself while he was studying the subject. The oxygen seemed to affect the lungs exclusively in his experiments; the alveoli were filled with effusion. The experiences reported justify the conclusion that man can stand oxygen at a pressure of two atmospheres for twenty or thirty minutes without harm.

Medizinische Klinik, Berlin

August 4, VIII, No. 31, pp. 1259-1300

- 119 Tuberculosis of the Nose. (Diagnose und Behandlung der Nasentuberkulose.) O. Körner.
- 120 Excessively High Blood-Pressure of Ovarian Origin. (Zur Deutung seltener Hypertonien.) G. Schickele.
- 121 *Perforation of Esophagus by Foreign Body; Four Cases. A. T. Jurasz.

- 122 Action of Radium on Surgical Processes. (Anwendung des Radiums in der Chirurgie.) A. Sticker.
 123 *Hysteria and General Practice. (Hysterie und Praxis.) A. Steyerthal.
 124 Ultraviolet Rays in Treatment of Leg Ulcer. (Behandlung der Ulcera cruris mit der Quarzlampe.) E. Braendle.
 125 Epidemic of Purpura. A. Ernst.
 126 Microscopic Research on Action of Salvarsan on the Circulation of the Blood. (Mikroskopische Beobachtungen am lebenden Tier über die Wirkung des Salvarsans und des Neosalvarsans auf die Blutströmung.) G. Ricker and W. Knappe.

August 11, No. 32, pp. 1301-1338

- 127 Failing Mental Faculties in the Aged. (Altersschwachsinn.) E. Mattauschek.
 128 Anemia After Tropical Diseases. V. Schilling.
 129 Skin Disease and Balneotherapy. (Hautkrankheiten und Bäder.) E. Vollmer.
 130 Outcome of Operative Treatment of Chronic Inflammation in the Uterine Adnexa. F. Ebeler.
 131 The Blood-Pressure During Thermal Baths. (Blutdruckmessungen bei Thermalbädern und Thermal-Duschemassage.) E. Rothschild.
 132 Fatal Methyl Alcohol Poisoning. (Todesfall nach dem Genuss von Methylalkohol enthaltendem Schnaps.) R. Schlichling.
 133 Wassermann Reaction no Criterion for Local Diagnosis. F. Bruck.
 134 Improved Zinc Chlorid Technic for Staining Tissues. (Verbesserung der Färbungen durch Fixierung des Gewebes mit Chlorzink.) T. Reimann and P. G. Unna.

121. **Perforation of Esophagus by Foreign Body.**—The damage was done probably as the physician pushed down into the stomach a small piece of bone which had lodged in the upper part of the esophagus of a healthy woman of 53. She succumbed to the complications of the consecutive inflammatory process. In three other cases in the same clinic (Payr) two of the patients were saved by opening the thorax and esophagus. The other succumbed to sepsis. Only nine are known to have survived in the fifteen cases Jurasz has found on record of operative treatment of the phlegmon following the perforation.

123. **Hysteria.**—Steyerthal insists that the term hysteria should be discarded. Its use in general practice leads only to misunderstandings. Congenital, mental or psychic inferiority on the one hand and acquired weakness of the nerves, on the other hand, make up the kaleidoscopic picture which we call hysteria. The term should be dropped not only for humane reasons but for the prestige of the profession and medical ethics.

Münchener medizinische Wochenschrift

August 6, LIX, No. 32, pp. 1745-1792

- 135 Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis and Bronchiectasia. (Ueber den künstlichen Pneumothorax bei Lungentuberkulose und Bronchiektasien.) F. Volhard.
 136 Serologic Diagnosis of Tuberculosis with Combined Tuberculin and Tissue Extract. (Die Komplementbindungsreaktion bei Tuberkulose.) C. Hammer.
 137 Elective Culture Media for Cholera Germs. (Choleraelektivnährboden.) A. Dieudonné and K. Baerthlein.
 138 Hecht's Modification of the Wassermann Reaction. G. Brendel and H. Müller.
 139 Inhibiting Influence of Cholesterol on Paroxysmal Hemoglobinuria. (Beeinflussung des hämoglobininischen Anfalles durch Cholesterol.) J. Pringsheim.
 140 Prophylaxis of Tuberculosis in Children. (Bekämpfung der Tuberkulose im Kindesalter.) v. Leube. Commenced in No. 31.
 141 Epilepsy. (Die Epilepsie als klinischer Krankheitsbegriff.) L. W. Weber. Commenced in No. 31.
 142 Anaphylactic Reaction of the Lung. E. Friedberger and H. Ströbel.
 143 Forty Years of Official Organization of the Profession in Bavaria. (Vierzig Jahre staatliche ärztliche Organisation.) W. Mayer.

August 13, No. 33, pp. 1793-1840

- 144 Expectant Treatment of Eclampsia. (Die abwartende Eklampsiebehandlung.) F. Lichtenstein.
 145 Danger of Overestimating Importance of Wassermann Reaction in General Practice. (Was nützt die Wassermannsche Blutprobe in diagnostisch zweifelhaften Fällen dem praktischen Arzt?) L. Roemheld.
 146 Talipes Cavus Traceable to Occult Spina Bifida; Two Cases. (Der Klauenhohlfuss.) E. Bibergeil.
 147 *Fracture of the Fingers. G. Hohmann.
 148 Unfavorable Experiences with Eucalyptus Oil Inunctions in Scarlet Fever and Measles (Milne). M. Kretschmer.
 149 Delicacy and Reliability of Salkowski's Test for Mercury in the Urine. J. Abelin.
 150 Color Reaction of Skin Secretions Over Tuberculous Areas in Lung. (Eine Farbenreaktion des Hautsekretes über tuberkulösen Lungenabschnitten.) C. Fischer (Montana).
 151 *Danger of Encountering Anaphylaxis in General Practice. (Anaphylaxiegefahr in der Praxis.) A. Wiedemann.
 152 General Principles for Social Hygiene: Sexual Enlightenment. (Sexualpädagogische Fragen.) K. Grassmann.

147. **Fracture of the Fingers.**—Hohmann shows by a practical example the necessity of tying a broken finger to its sound neighbor as otherwise the finger is liable to grow

crooked. The displacement from the dressings caused this in his case, compelling operative correction later.

151. **Danger of Anaphylaxis.**—Wiedemann reports a case of threatening anaphylaxis in a boy under 4 years following the internal administration of diphtheria antitoxin, two years after subcutaneous injection of the same. If help had not been constantly at hand the disturbances would probably have proved fatal. The antitoxin internally administered failed to display any influence on the laryngeal diphtheria but the anaphylactic symptoms developed very severe the following day, although beef antitoxin had been substituted for horse antitoxin when the disturbances were noted. He urges the necessity for three sources for diphtheria antitoxin, as the only means to be sure of avoiding the perils of anaphylaxis.

Wiener klinische Wochenschrift, Vienna

August 8, XXV, No. 32, pp. 1215-1246

- 153 Operative Treatment of Acute Circumscribed Phlebitis. K. Büdinger.
 154 Nodose Erythema and Tuberculosis. R. Pollak.
 155 *Paratyphoid Pyelonephritis with Kidney Calculi. B. Roman.
 156 Accessory Mammary Glands. (Zur Kasuistik der sogenannten akzessorischen Milchdrüsen.) M. Fischer.
 157 *The Phthalein Test of Kidney Function. F. Deutsch.
 August 15, No. 33, pp. 1247-1278
 158 Synthetic Antigens for the Meistagmin Reaction with Cancer. G. Izar.
 159 Central Innervation of the Bladder. (Beitrag zur Physiologie des Zwischenhirnes.) R. Lichtenstern.
 160 Malformations Simulating Picture of Banti's Disease. (Fall von Persistenz der Vena umbilicalis mit anderen Anomalien unter dem Bilde des Morbus Banti.) W. Benque.
 161 Manic Depression and Periodical Insanity as Manifestation of Catatonia. M. Urstein.
 162 Prophylaxis of Malaria in Italy. S. Obst.
 163 Peptolytic Ferments in Lumbar Puncture Fluid. (Vorkommen von peptolytischen Fermenten in der Lumbalflüssigkeit.) S. Szecsi.
 164 Action of Cancer Juice on Cancer. (Zur Einwirkung des Karzinompresssaftes auf Karzinom und zur Oxyproteinsäurevermehrung bei Karzinom.) H. Salomon and E. Freund. Commenced in No. 31.

155. **Paratyphoid Pyelonephritis.**—The cadaver of a woman of 43 presented kidney calculi and pyelonephritis due to the paratyphoid B bacillus although apparently free from paratyphoid lesions. Roman discusses the mechanism of the infection and compares the case with others on record in which the paratyphoid bacillus was found in local suppurations. In Ghon's five cases of the kind the meninges were the seat of the suppuration and the patients were all infants.

157-167. **Phthalein Test of Kidney Functioning.**—Deutsch tabulates the details of thirty-two cases of kidney disease in which he applied the Rowntree and Geraghty test. The results, he says, confirm the value of the test both for diagnosis and prognosis. (It was described in THE JOURNAL, 1912, lviii, 1038.) Sehart's impressions are equally favorable.

Zentralblatt für Chirurgie, Leipsic

August 10, XXXIX, No. 32, pp. 1089-1120

- 165 Technic for Diagonal Suture. (Die Diagonalnaht.) G. Sultan.
 166 Rupture of the Combined Gastrocnemius and Soleus. (Subkutane Ruptur des Triceps surae.) E. Sehart.
 August 17, No. 33, pp. 1121-1152
 167 *Advantages of the Phthalein Test of Kidney Function. (Die Phenol-sulfo-phthaleinmethode zur Bestimmung der Nierenfunktion.) E. Sehart. See Abstract 157.
 168 Technic and After-Treatment of Resection of the Knee. W. Kausch.

August 24, No. 34, pp. 1153-1184

- 169 Improved Technic for Suture of Vessels. II. (Zur Technik der Gefäßnaht.) E. Jeger and H. Lampl.
 170 Ligation of Subclavian Artery. (Die Unterbindung der A. subclavia sin. in ihrem I. Abschnitt.) Wieting.
 171 Disadvantages of Iodin Sterilization During Operations on Gastro-Intestinal Canal. (Zur Frage der Jodierung bei Operationen am Magen-Darmtrakt.) E. L. Fieber.

Zentralblatt für Gynäkologie, Leipsic

August 10, XXXVI, No. 32, pp. 1041-1072

- 172 Treatment of Retroflexed Uterus. A. Mayer.
 173 *Postural Protection of Perineum. (Ueber eine weitere Anwendung der Beugelage beim Dammschutz.) M. Samuel.
 174 Rapid Dilatation and Evacuation of the Uterus. (Zur schnellen Erweiterung der Gebärmutter, nebst einigen Bemerkungen zur Technik der Ausräumung.) E. Herz.
 August 17, No. 33, pp. 1073-1096
 175 Bacteria in Field of Operation and Their Significance for the Postoperative Course in Gynecology. (Ueber den Keimgehalt des Operationsfeldes bei gynäkologischen Laparotomien und seine Bedeutung für den postoperativen Verlauf.) E. Holzbach.
 176 Draining After Extensive Operations for Uterine Cancer. (Drainage und Freund-Wertheim'sche Karzinomoperation.) W. Liepmann.

- 177 Inhibiting Action of Hypophysis Extract on Abortion: Three Cases. (Eine ungewöhnliche Wirkung des Hypophysen-extraktes auf den gebärenden Uterus.) R. Patek.
August 24, No. 34, pp. 1097-1136
- 178 What the Peritoneum will Stand. (Was verträgt das Bauchfell, was verträgt es nicht?) A. Sippel.
- 179 Improved Technic for Operative Treatment of Vulvar Cancer. (Wie lassen sich die Dauerresultate bei der Operation des Vulvakarzinoms verbessern?) W. Stoeckel.
- 180 The Artificial Menopause After Removal of Uterine Adnexa. (Zur Bewertung des Ausfallserscheinungen nach Radikaloperationen bei entzündlichen Adnexerkrankungen.) H. Thaler.
- 181 Artificial Vagina Made from Rectum. (Vaginaldefekt und Scheidenbildung aus dem Mastdarm.) G. Schubert.

173. **Postural Protection of Perineum.**—Samuel four years ago called attention to the advantages of the woman's aiding straining during the second stage of labor by clasping her hands under her knees, her legs flexed on the abdomen as she lies on her back. This not only enlarges the pelvic outlet but it reinforces her straining efforts while reducing the intensity of the pain. He is convinced that this position will materially reduce the necessity for operative measures. The knees can be clasped in the same way with the patient lying on her side and this has superior advantages when the head presents. As this stage approaches, he has the woman lie on her side, and pull on her knees until the obstetrician can get hold of the chin through the posterior perineum. The woman must then release her knees and partly straighten the legs, the nurse holding the flexed knee of the upper leg about a foot above the level of the bed. This permits the head to be slowly and cautiously worked loose through the perineum by the obstetrician alone, the mother keeping entirely passive. He gives two illustrations of the method, and declares that it will certainly materially reduce the number of cases of perineal tears.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 4, XXXIII, No. 93, pp. 961-976

- 182 *Pellagra. (Osservazioni critiche a proposito del problema eziologico della pellagra.) E. Bertarelli.
- 183 Postoperative Dilatation of the Stomach: Immediate Cure by Change to the Prone Position. (Caso di gastroplegia postoperatoria.) G. Scola.
August 6, No. 94, pp. 977-984
- 184 Splenic Anemia in Girl of 3; Improvement Under Roentgen-therapy. G. Raffaelli.
August 8, No. 95, pp. 985-992
- 185 Resistance of Blood-Corpuscles in Acute Infections. (Sul comportamento delle resistenze globulari nelle malattie acute d'infezione.) P. Biffis.

August 11, No. 96, pp. 993-1008

- 186 *Tuberculous Peritonitis and Operative Treatment. (Tuberculosis peritoneale e sua cura chirurgica.) G. Bagozzi.
August 13, No. 97, pp. 1009-1016
- 187 *Epinephrin Organotherapy in Tuberculosis. (Dell'opoterapia surrenale nella tubercolosi polmonare.) T. Silvestri.
August 15, No. 98, pp. 1017-1024
- 188 Tonometric Findings Under Inhalation of Tobacco Smoke. P. Biffis.
August 18, No. 99, pp. 1025-1040

- 189 Vital Staining of the Blood. (Ricerche cliniche sulla sostanza granulofilamentosa dei globuli rossi colorabili a fresco.) L. Cecconi.
August 20, No. 100, pp. 1041-1048
- 190 Gastric Ulcer. (Sull'ulcera dello stomaco.) G. Stradiotti.
August 25, No. 102, pp. 1057-1072
- 191 *The Malaria Problem. D. Carazzi.
- 192 Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. C. Molon

182. **Pellagra.**—Bertarelli thinks that not enough attention has been paid to recent research on pellagra by certain Italians, notably Tizzoni's success in transmitting pellagra to monkeys, and his specific precipitin reaction, Vallardi's sero-diagnosis of pellagra by the fixation of complement test, and Volpino and Magri's experimental work. The work of Sambon and Alessandrini has received more attention, and especially the statement that pellagra has been encountered in persons who have never eaten corn. Research in this line is particularly important and should be undertaken by physicians who live in pellagra-infested regions. Volpino states that pellagrins seem to possess a specific anaphylactic sensitivity to subcutaneous injection of extracts of spoiled corn. If these statements are confirmed, this will prove a strong link in the chain of the corn theory, as also the fact that no new cases of pellagra seem to develop in the regions in which

the government has instituted measures to prevent the use of spoiled corn. The old pellagrins are gradually dying off and no new cases can be found although, except for the hygiene of the maize, the habits and customs have remained the same in the community. It is difficult to reconcile the lack of new cases with the infections theory, as the old pellagrins persist in sufficient numbers to prove an ample source for infection if such were possible, and nothing has been done to remove any other factors of the infection if such exist. The evidence to date, Bertarelli adds, seems to be in favor of the assumption that pellagra is an intoxication, and that although the old pellagrins still remain in the environment, yet no new cases develop as the source of the intoxication—the spoiled corn—has been done away with. The whole question is now in the hands of the general practitioners in regions infested with pellagra; to their critical observation and compilation of facts we must look to decide the question once for all.

186. **Operative Treatment of Tuberculous Peritonitis.**—Bagozzi is convinced that old peritoneal effusions lose their bactericidal power but if they are evacuated and new effusions form, this brings an influx of new bactericidal influences. This is his explanation of the benefit unmistakably derived from operative measures in many cases of tuberculous peritonitis. In the last ten years an operation was undertaken in 187 cases of the kind at the Milan hospital; the mortality was 25 per cent. as such patients were not referred to the surgical service until all other measures had been tried and failed, and in a number of the fatal cases other organs were involved in the tuberculosis. He states that the ultimate outcome was known to be very favorable in a large proportion of cases. No other measure gives comparable results, but involvement of other organs is an absolute contra-indication. The best time for the operation is after the acute febrile stage, the end of the first period, but without waiting until the patient becomes debilitated and loses flesh or other organs become involved. Improvement or a cure was realized in both forms of tuberculous peritonitis, with and without effusion. One patient with a fibrinoplastic tuberculous peritonitis recovered completely after a simple laparotomy. The changes set up in the tissues evidently rouse the defensive powers and the organism grapples anew with the infection and this time may conquer.

187. **Epinephrin Organotherapy in Pulmonary Tuberculosis.**—Silvestri thinks that the condition known as the phthisic habitus must be due in part to defective functioning of the ductless glands and that this is an important factor in the course of pulmonary tuberculosis. On these premises he has applied adrenal extract as an adjuvant in the treatment of fourteen tuberculous patients, especially in the incipient cases, and states that in ten the results surpassed all anticipations. He used a commercial preparation in some cases and in others the fresh suprarenal capsule. The improvement in two typical cases reported has been progressive during the year since this treatment was instituted and a complete cure seems at hand. In one of the cases the gravity of the symptoms when the patient was first seen, the progressive improvement and prompt aggravation of symptoms when epinephrin treatment was suspended for a time, with return to progressive improvement when it was resumed again—all point to a specific influence from the treatment. He gave calcium salts at the same time, but these alone did not benefit. Only when the adrenal extract accompanied the calcium did the latter seem to be utilized. Primary or secondary insufficiency of adrenal functioning he thinks is the rule in pulmonary tuberculosis as also abnormal utilization of calcium, both of which are combated by the adrenal-calcium treatment.

191. **The Malaria Problem.**—Carazzi presents evidence to sustain his assertion that in all probability man is merely an incidental host for the malaria germ. Some animal must be the habitual host, and until this animal is discovered all attempts to eradicate malaria are liable to fail. Certain facts observed suggest that possibly the bat may prove to be this third host, as this is known to harbor a parasite extremely similar to that of malaria. Search should be made for this third host of the malaria germ, investigating in particular

whether certain species of small mammals, bats, birds, night hawks, etc., can be found in malarial countries and not elsewhere, and experimentally feeding them with infected anopheles.

Policlinico, Rome

July 21, XIX, No. 30, pp. 1077-1112

- 193 Postoperative Tumors in Abdominal Wall: Two Cases. (Tumori infiammatori cronici, postoperatori, delle pareti addominali.) G. Solaro.

July 28, No. 31, pp. 1113-1148

- 194 Polycythemia. (Della policitemia rubra.) M. Ferretti.
195 Intravenous Injections of Mercuric Chlorid in Treatment of Typhoid and Erysipelas. G. E. Senzi and P. Ercolani.

August 4, No. 32, pp. 1149-1184

- 196 Physiologic Action of Oxygenated Baths. L. Coleschi.
197 Hernia of the Ureter; Two Cases. G. Morandini.
198 Terminal Tuberculosis. G. Jona.

August 11, No. 33, pp. 1185-1225

- 199 *Chemotherapy of Experimental Cancer. L. Grillo.
200 Resisting Powers of the Blood Corpuscles in Acute Infections. (La resistenza globulare nelle malattie acute da infezione.) G. Ayala.
201 Principles for Treatment of Pulmonary Tuberculosis with Artificial Pneumothorax. U. Carpi.

August 18, No. 34, pp. 1226-1260

- 202 Hemorrhoids in Connection with Gastric Disturbances. (Le emorroide nelle malattie gastriche.) V. Cominotti.

199. **Chemotherapy of Experimental Cancer.**—Grillo reports from the laboratory in charge of Gosio that experiments with the various methods of chemotherapy recently introduced by Wassermann, Neuberg and others have given good results, confirming the assertions of the German writers. But he found that a simpler technic seems to be equally successful, the mouse carcinomas subsiding effectually under a simple 1 per thousand solution of the tellurite in physiologic solution. He inoculated about fifty mice as controls to study the spontaneous evolution of the carcinoma; in none of these animals was there any sign of spontaneous retrogression of the tumor such as was evident in the animals injected with the tellurite. (Compare with editorial in THE JOURNAL Aug. 31, 1912, p. 724.)

Semana Medica, Buenos Aires

June 27, XIX, No. 26, pp. 1185-1236

- 203 Fracture of the Olecranon. (Fracturas del olecrano.) L. Bard.
204 Hypophysis Extract in Therapeutics. (Aplicaciones terapéuticas del principio activo leiomiotinético de la hipófisis.) M. I. Puiggari.
205 Origin and Dietetic Treatment of Mucomembranous Enterocolitis. J. R. Goyena.

July 4, No. 27, pp. 1-48

- 206 Experiences with Salvarsan in Syphilis. (Experiencia de un año con el "606.") J. N. Posadas.
207 Dosage by Age. (De como hacer y recordar una tabla de dosificación por edades.) N. C. Capece.

Hospitalstidende, Copenhagen

August 14, LV, No. 33, pp. 905-928

- 208 Case of Pigmented Urticaria. II. Boas.

August 21, No. 34, pp. 929-952

- 209 *The Reaction of the Blood. (Blodets Reaktion.) C. Lundsgaard.

August 28, No. 35, pp. 953-976

- 210 Traumatic Pseudomeningocele. A. Helsted.

209. **The Reaction of the Blood.**—Lundsgaard discusses the value of the various methods in vogue for estimating the reaction of the blood and describes the results of his own efforts to determine the normal standard under standard conditions of temperature, etc. His research confirms anew the constancy of the reaction of the blood which, he states, is a trifle toward the alkaline side of the neutral point.

Hygiea, Stockholm

July, LXXIV, No. 7, pp. 737-848

- 211 *Repeated Laparotomies. (Om tidiga relaparotomier.) L. Norrlin.
212 Syphilis in Animals. (Om syfilis hos djur.) J. Almkvist.
213 Pathogenesis of Tabes. (Några nyare studier till tabes patogenes.) N. R. E. Antoni.

211. **Opening the Abdomen Again.**—Norrlin reports in detail twenty cases in which the abdomen had to be opened again for various reasons before the laparotomy wound had healed. Some are instructive from the mistakes made at the first laparotomy. In some cases the lesions were unusually severe so that the mortality of 50 per cent. in these early relaparotomies is not surprising. In seven cases the trouble had been

gangrenous appendicitis. In another case the assumed appendicitis proved apparently to be cancer with involvement of neighboring lymph-nodes. Necropsy, however, revealed that the trouble was a tuberculous process. The case teaches the danger of neglecting minute investigation of the previous history, and the difficulty of a correct diagnosis even with the abdomen open before one. Another patient passed through three laparotomies in three days and had another later, emerging finally cured from the results of injury of the abdomen from a flying chip of metal.

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- 214 *Chronic Duodenal Ulcer and Its Early Diagnosis. (Det kroniske Duodenalsår og dets "Frühdiagnose.") O. Borchgrevink.
215 Tuberculosis at Christiania. (Lungetuberkulose i Kristiania 1901-1910.) Y. Ustvedt.
216 Anatomie Findings with Epilepsy and Microcephaly. (Anatomiske fund ved enkelte sjældnere hjernesygdomme.) F. Harbitz.
217 Surgery of the Pericardium. II. Wille.

214. **Chronic Duodenal Ulcer.**—Borchgrevink devotes sixty-eight pages to this study based on twelve cases. The previous history suggested the diagnosis in every instance with one exception. In nine cases it was confirmed by the operation and in two at necropsy. The first symptoms had been observed from twenty to twenty-six years before in four patients; from eight to eleven years in three, and from three to six years in four. In one case the first attack of pain had occurred only two weeks before. The pain in all the cases was in the epigastrium, but it radiated differently in different patients, spreading to the back, right side of abdomen, genitals or breast. There was tenderness in the right epigastrium only in two cases. The periodicity of the attacks and the change from the severe pain to long intervals of total freedom from pain were pronounced and characteristic. Two patients suffered from vomiting and five had hemorrhage, three succumbing to the loss of blood. The tendency to hemorrhage was first observed in the twentieth, eighteenth, sixth, fifth or third year after the first symptoms. In seven of the patients the attack of pain came on between one and a half and two and a half hours after the meal, in another about forty-five minutes after the meal, reaching its height in less than two hours. Exercise seemed to bring on the pains earlier than when the patient was at rest. The objective findings were less instructive than the subjective. Gastric secretion did not seem to be influenced by the ulceration in the duodenum but the motor functioning of the stomach was inclined to be abnormally active. As time passed the free intervals became shorter and the pain developed earlier after the meals. A duodenal ulcer may set up hemorrhage in consequence of the influence of an operation elsewhere in the abdomen. In regard to medical treatment of duodenal ulcer, he reminds us that we have to do here with an affection which may have months and even years of free intervals, so that the assumption of a cure under internal measures may prove in the end to be erroneous. At the same time, medical measures may arrest various symptoms; the pains subside while the patient stays in bed. Dieting has also a favorable influence, especially restriction to milk. In one old case the symptoms recurred with unusual severity, and the patient found that temporary abstention from all food gave the most relief. Sodium and bismuth were the most effectual drugs, but even these often failed. The cure has been complete to date in all his operative cases.

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- 218 Two Cases of Ureterocele. V. Meisen.

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- 219 Valvular Action as Cause of Inflammatory Glaucoma. (Om en Klappvirkning at Vorteksinoskleralpladen som Aarsag til det saakaldte inflammatoriske Glaukom.) C. F. Heerfordt.

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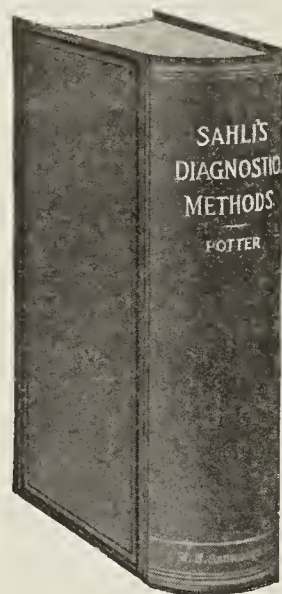
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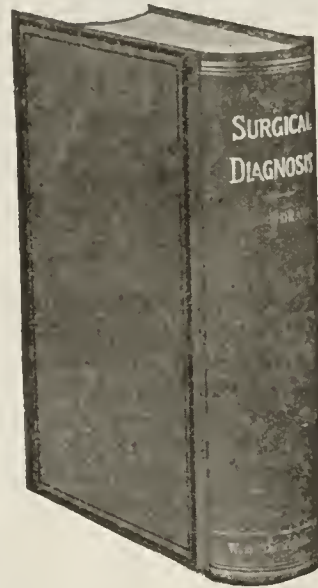
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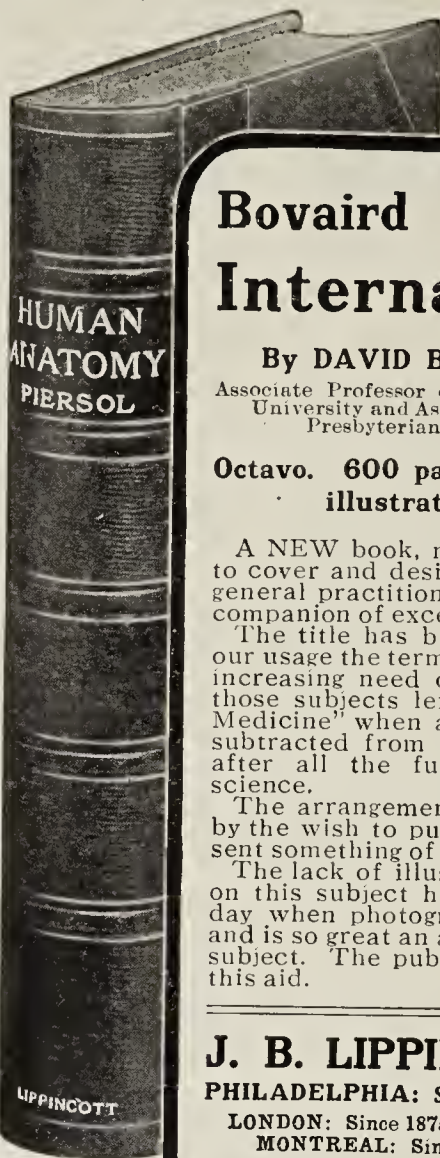
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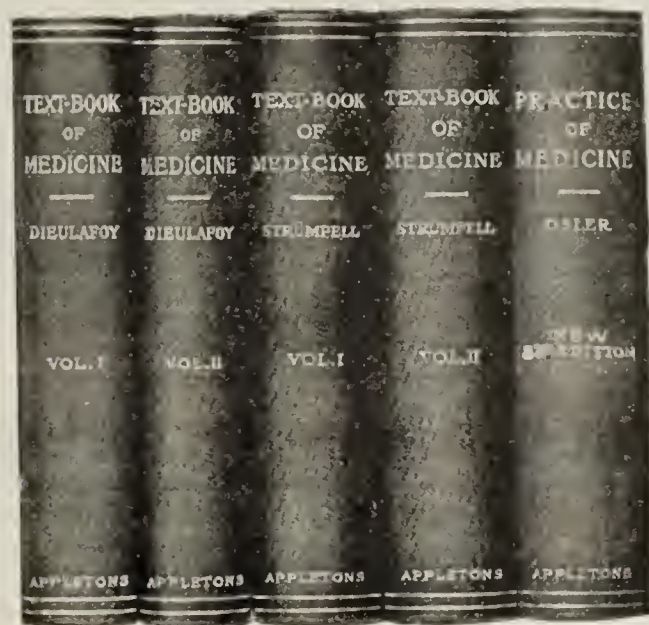
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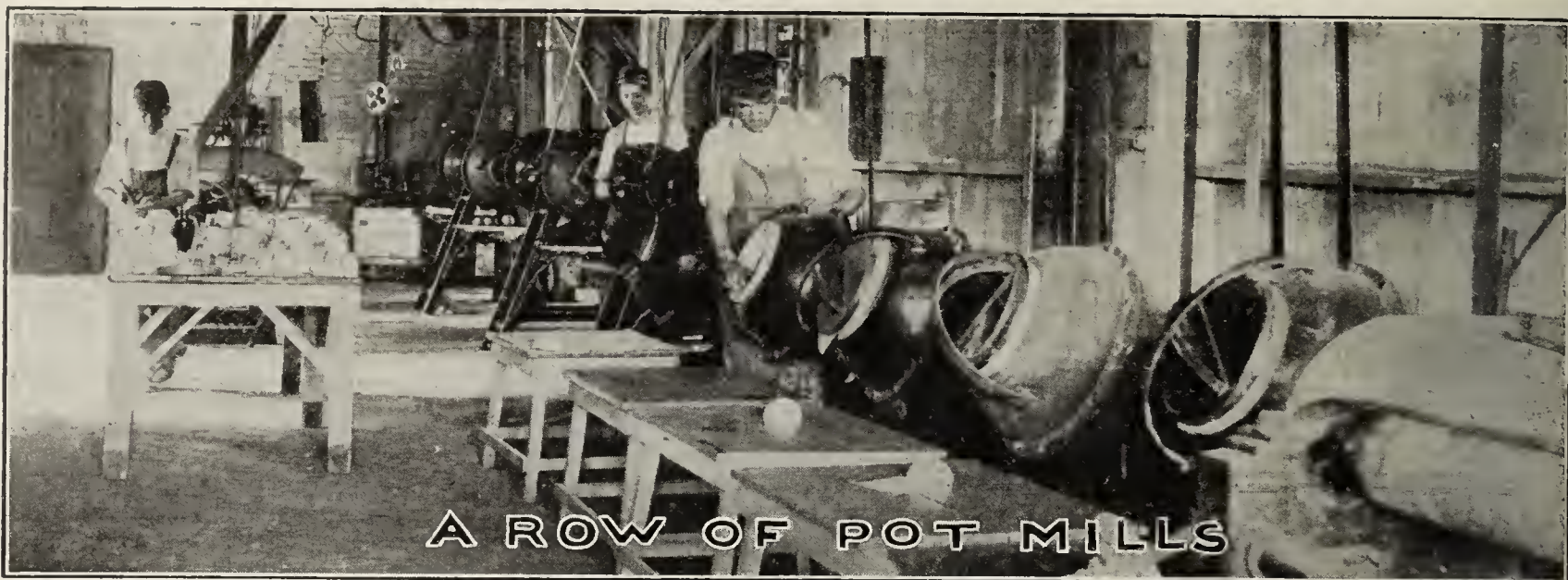
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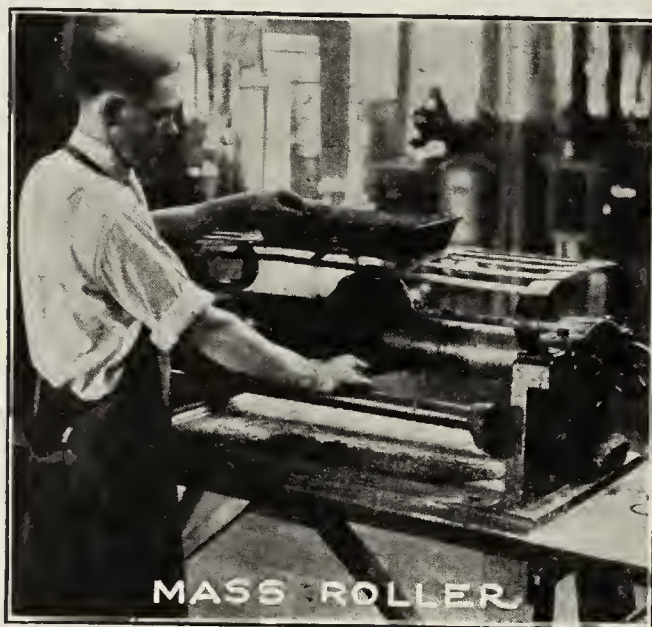
BY referring to the previous article on the stock department, it will be noted that this makes five individual checks to which the component parts of each formula have been subjected. It has been found that it is impossible for error to persist through such close inspection but still further safeguards are taken as will be shown in future articles.

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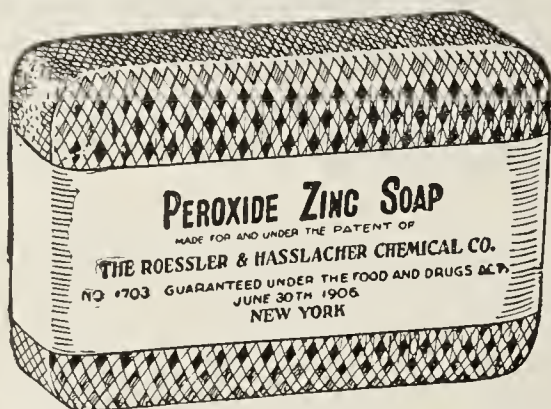
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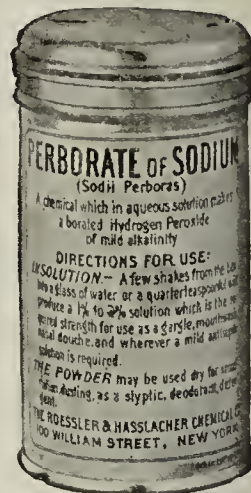
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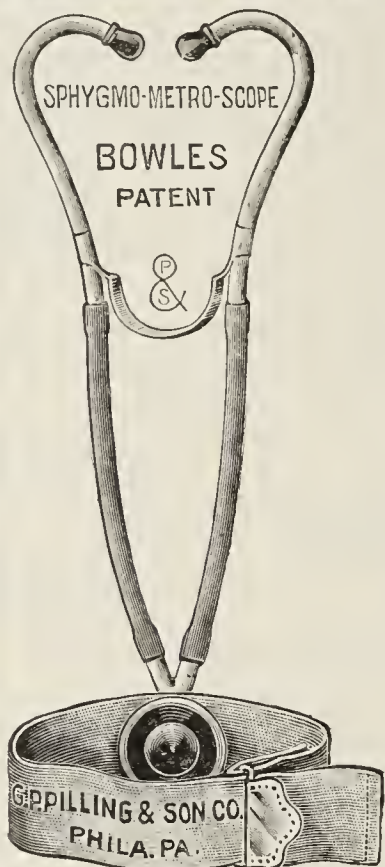
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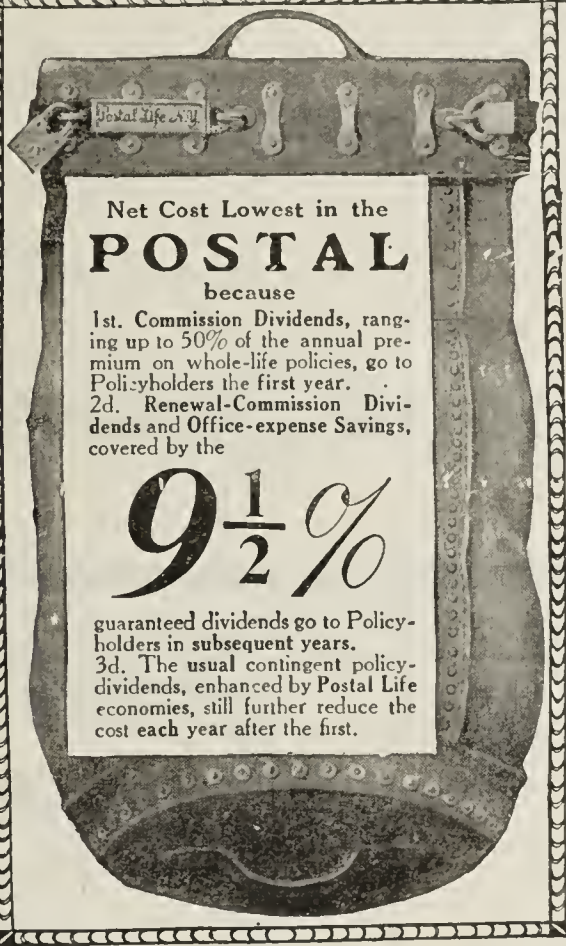
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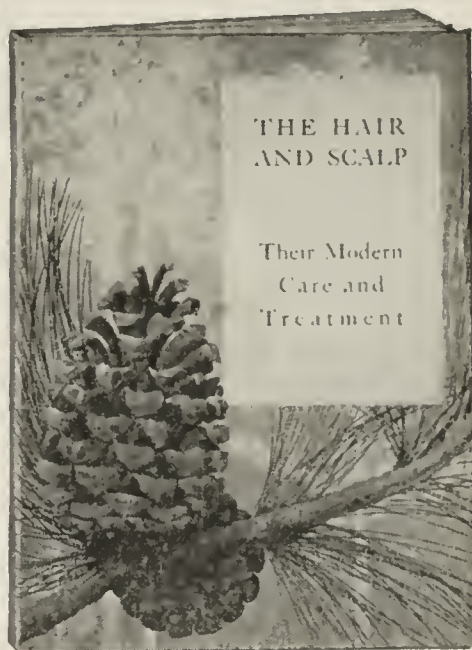
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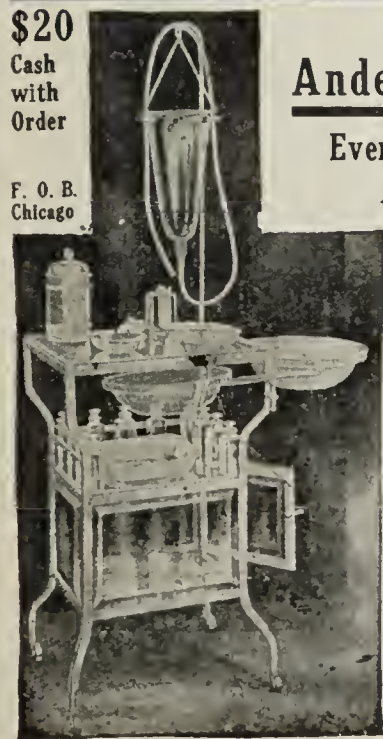
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ANONYMOUS CONTRIBUTIONS, whether for publication, for information, or in the way of criticism, are consigned to the wastebasket unread.

NEWS: Our readers are requested to send us items of news, also marked copies of newspapers containing matters of interest to physicians. We shall be glad to know the name of the sender in every instance.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

FURTHER RESEARCHES INTO INDUCED CELL-REPRODUCTION AND CANCER. By H. C. Ross, M.R.C.S., L.R.C.P., J. W. Cropper, M.B., M.Sc., M.R.C.S., and E. H. Ross.

(Continued on page 22)

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WANTED—ASSISTANT—A GRADUATE of A1 medical school, with general hospital experience; competent laboratory and internist; single, temperate; not over 30 years old, to assist busy surgeon and reside in hospital in midwestern state; excellent chance for right man; state full particulars in first letter. Add. 3492 B. % AMA.

WANTED—BY NOVEMBER 1 IN A PRIVATE general hospital of 75 beds in West Virginia, a competent house surgeon and medical man, either married or single, with hospital experience, to do dressings, emergency surgery, assist in laboratory work and clinical diagnosis, give anesthetics, prescribe in office and do some outside practice if desired; fine opportunity for studious physician, with energy, to advance in internal medicine and every phase of hospital work; x-ray experience or aptness in that line preferred; salary, \$1,500 and quarters to start; write fully, giving age, height, weight and complete particulars of medical education and service; photo if convenient; no reply to your application will mean that the position has been filled. Add. 3472 B. % AMA.

WANTED—PHILIPPINE SERVICE—Male assistant in experimental therapeutics; salary, \$2,000 per year; no examination necessary; eligibility determined on the evidence furnished in connection with application and examination. Form B. I. A. 2 concerning their training and work accomplished. Write for Circular No. 691, which gives full information regarding openings, leaves of absences, transportation, etc. Add. U. S. Civil Service Commission, Philippine Service, Washington, D. C. B

WANTED—PRACTICING PHYSICIAN, graduate from a first-class medical school, to assist in the clinical work of a dispensary in connection with a school, in the department of the chest and lungs; time required two forenoons in each week; an excellent opportunity for one possessing teaching qualifications. Add. 3473 B. % AMA.

WANTED—AN ASSISTANT BY A SURGICAL firm in a good Minnesota town of 10,000; must have one year hospital experience; Scandinavian preferred; splendid opportunity to learn surgery and enter into general practice; salary given first year. Add. 3407 B. % AMA.

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WANTED—YOUNG WOMAN PHYSICIAN to act as assistant physician in hospital for insane; 250 patients; one with general hospital experience preferred; require both professional and other references; salary to begin, \$30 per month, board, lodging and laundry included. Add. 3442 B. % AMA.

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(Continued on page 22)

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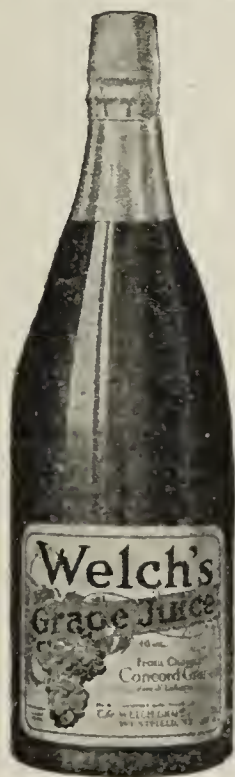
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BOOKS RECEIVED

(Continued from page 20)

M.R.C.S., L.R.C.P. Volume 2. The John Howard McFadden Researches. Cloth. Price, \$1 net. Pp. 125, with illustrations. London: John Murray, 1912.

DARWINISM, MEDICAL PROGRESS AND EUGENICS. The Cavendish Lecture, 1912. An Address to the Medical Profession. By Karl Pearson, F.R.S., Galton Professor of Eugenics, University of London. Paper. Price, 1 shilling net. Pp. 29, with 7 illustrations. London: Dulau & Co., 1912.

THE THERAPY OF SYPHILIS. Its Development and Present Position. By Dr. Paul Mulzer of Berlin, with a Preface by Prof. P. Phlenhuth, M.D., Privy Councilor. Translated by A. Newbold. Cloth. Price, \$1.50. Pp. 248. New York: Rebman Company, 1910.

A GUIDE TO THE DISSECTION OF THE DOG. By O. Charnock Bradley, M.D., D.Sc., F.R.S.E., Principal of the Royal (Dick) Veterinary College, Edinburgh. Cloth. Price, \$3 net. Pp. 241, with 69 illustrations. New York: Longmans, Green & Co., 1912.

PRINCIPLES OF HUMAN PHYSIOLOGY. By Ernest H. Starling, M.D., F.R.C.P., F.R.S., Jodrell Professor of Physiology in University College, London. Cloth. Price, \$5. Pp. 1423, with 564 illustrations. Philadelphia: Lea & Febiger, 1912.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. Proceedings of the Sixty-Second Meeting, 1910. Paper. Price, \$1.50. Pp. 365. Secretary, L. O. Howard, Smithsonian Institution, Washington, D. C.

THE BLOOD OF THE FATHERS. A Play in Four Acts. By G. Frank Lydston. Cloth. Price, \$1.25. Pp. 241. Chicago: Riverton Press, 1912.

REPORT OF THE COMMISSIONERS OF THE STATE RESERVATION AT SARATOGA SPRINGS. Paper. 1912.

ALABAMA STATE MEDICAL ASSOCIATION. Transactions. Cloth. Pp. 654. 1912.

The Public Service

Medical Department, U. S. Army

Changes for the week ended September 21:

Dutcher, Basil H., major, September 12, granted thirty days' leave of absence.

Fisk, Owen C., lieutenant, September 12, relieved from treatment at Walter Reed General Hospital and from further duty at Fort Crook, Neb., and will proceed to Fort Logan H. Roots, Ark., for station and duty.

Moncrief, William H., captain; Huntington, P. W., captain, and Hallet, H. J., lieutenant, September 14, ordered to Fort Scranton, Pa., for duty as judges in first aid competition to be held at that place Sept. 28, 1912.

Each of the following named officers of the Medical Reserve Corps is relieved from duty at the station designated after his name, to take effect at such time as will enable him to comply with this order, and will repair to this city at the proper time and report in person, on or about Sept. 20, 1912, to the commandant of the Army Medical School, for the required course of instruction: First Lieutenants. William B. Borden, General Hospital, Fort Bayard, N. Mex.; Sidney L. Chappell, Fort Totten, N. Y.; Robert H. Duenner, Fort Oglethorpe, Ga.; John S. C. Fielden, Jr., surgeon-general's office; William D. Herbert, Fort Jay, N. Y.; Norman T. Kirk, Soldiers' Home, District of Columbia; Ernest C. McCulloch, Columbus Barracks, Ohio; John S. Saurman, Fort Monroe, Va.; Benjamin B. Warriner, Pacific branch, United States military prison, Alcatraz, Cal.

Hammond, Johnson E., first lieutenant, medical corps, is relieved from duty with Ambulance Company No. 2 and will proceed for duty with Field Hospital No. 2.

Hess, Louis T., major, September 13, granted thirty days' leave of absence, about Sept. 20, 1912.

Sherwood, Charles E., A.D.S., Sept. 4, reports for temporary duty at Calexico, Cal.

Hess, John H., D.S., Sept. 8, left from temporary duty at Fort Huachuca en route to Douglas, Ariz., for temporary duty.

Brechmin, Louis, Jr., major, Sept. 12, left Fort Lincoln, N. Dak., en route to Douglas, Ariz., for duty with 9th Cavalry.

(Continued on page 24)

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WANTED — BY EXPERIENCED YOUNG physician to buy a location in Illinois, Wisconsin or Indiana town of 800 to 5,000 must be good paying practice and competition right; all wool and yard wide; will consider suitable real estate. Add. at once, R. L. Post-Graduate Medical School, 2400 Dearborn St., Chicago. E

WANTED — LOCATION IN PENNSYLVANIA; regular; aged 30; graduate 1910; desires to obtain location in small town or suburbs in vicinity of Philadelphia, but will consider any good proposition; would act as assistant with prospects of taking over practice later. Add. 3485 E, % AMA.

WANTED — LOCATION FOR PRIVATE hospital by young surgeon; 8 years' experience; will build or buy controlling interest in modern hospital building; want location where hospital is desired by other physicians of community who will cooperate; best of references and credentials. Add. 3474 E, % AMA.

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WANTED — IN MASSACHUSETTS OR Connecticut, an unopposed village or country practice without real estate if possible; give cash price and particulars. Add. 3280 E, % AMA.

WANTED—BY EXPERIENCED PHYSICIAN, location in Pennsylvania or Colorado, in town of 1,000 to 10,000 or more; have cash to purchase what suits and bears investigation; might consider eye, ear, nose and throat work or partnership proposition; give full details. Add. 3372 E, % AMA.

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See page 20 for cost of classified and commercial announcement advertisements.

(Continued on page 24)

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Enclosed is my card. Please send
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THE PUBLIC SERVICE

(Continued from page 22)

Pouost, Luther R., lieutenant, Sept. 13, left Fort Riley, Kan., with the 13th Cavalry, en route to El Paso, Tex.

Sherwood, C. E., A.D.S., Sept. 12, left temporary duty at Calexico en route to Presidio of Monterey, Cal.

Scott, George H., captain, Sept. 13, granted leave of absence for one month and ten days, about November 15, with permission to go beyond the sea.

Ingalls, R. E., D.S., Sept. 3, ordered to proceed to Forts Worden, Flagler, Casey, Ward and Lawton, Wash., for temporary duty, instead of Acting Dental Surgeon Charles DeW. Deyton, U. S. Army.

Van Horn, James B., M.R.C., Sept. 14, relieved from duty at A. G. Hospital, Fort Bayard, N. Mex., and ordered home from active duty; granted two months and twenty-nine days' leave of absence, to take effect on his arrival home.

The following named officers of the Medical Reserve Corps are ordered to active duty in the service of the United States on account of an existing emergency. They will repair to this city in time to comply with this order and report in person to the commandant of the Army Medical School, on or about Sept. 20, 1912, for the required course of instruction: First Lieuts. Raymond W. Bliss, Clarence R. Bell, Royal E. Cummings, Edward R. Guinan, Halbert P. Harris, George F. Lull, Fletcher O. McFarland, Stephen H. Smith, Edward T. B. Weidner, Leon M. Wilbor.

McMurdo, H. B., lieutenant, Sept. 16, relieved from duty at Fort McDowell, Cal., and ordered to Fort Huachuca, Ariz., for duty.

Ellsworth, Wilson, M.R.C., September 16, relieved from duty at Fort Huachuca, Ariz., and ordered to Benicia Arsenal, Cal., for duty.

Bochs, Charles J., M.R.C., Sept. 16, relieved from duty at Fort Banks, Mass., and ordered to College Park, Md., for duty with Signal Corps detachment.

Maus, L. Mervin, colonel; Kean, Jefferson R., lieutenant-colonel; Hutton, Paul C., and Van Poole, Gideon McD., majors, Medical Corps, have been detailed to represent the Medical Department of the Army at the meeting of the Association of Military Surgeons of the United States to be held in Baltimore, Oct. 1 to 4.

Treuholtz, Clarence A., captain, is relieved from duty at the Presidio of Monterey, Cal., and will proceed to Fort Bayard, N. Mex.

Scott, Thomas E., first lieutenant, is relieved from duty at Fort Niagara, N. Y., and will proceed to Fort Bayard, N. Mex., and report for duty.

Marietta, Shelley U., first lieutenant, is relieved from duty at the Presidio of Monterey, Cal., and will proceed to Fort Bayard, N. Mex., and report for duty.

Palmer, Fred W., captain, now on temporary duty at Fort Rosecrans, Cal., is relieved from duty at Fort George Wright, Wash., and will report in person to the commanding officer of Fort Rosecrans for duty.

Gibson, Paul W., first lieutenant, relieved from duty at Fort Rosecrans, Cal., to take effect on the expiration of the leave of absence heretofore granted him and will then proceed to the Presidio of Monterey, Cal.

Van Kirk, Harry H., first lieutenant, is relieved from duty at Plattsburg, Barracks, N. Y., and will proceed to the Presidio of Monterey, Cal.

Hallett, Harley J., first lieutenant, is relieved from duty at Fort Hamilton, N. Y., to take effect on the completion of the duty assigned to him in Paragraph 3, Special Orders No. 217, Sept. 14, 1912, War Dept., and will then proceed to Fort Crook, Neb.

Gregory, Junius C., captain, Medical Corps, is relieved from duty in the Philippines division and is detailed in the army transport service, with station at San Francisco.

Henning, O. F., M.R.C., Sept. 17, relieved from duty at Fort Stevens, Ore., and ordered to Fort Columbia, Wash., for duty.

—o—

Medical Corps, U. S. Navy

Shiffert, H. O., surgeon, detached Vermont to waiting orders.

Stuart, A., surgeon, detached naval recruiting station, Atlanta, Ga., to Vermont.

Moran, C. L., P. A. surgeon, ordered to naval hospital, Chelsea, Mass.

Mackenzie, E. G., P. A. surgeon, transferred to retired list, September 2.

Hayden, R., P. A. surgeon, detached Massachusetts to Alert.

(Continued on next page)

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(Continued from page 22)

WANTED—PARTNERSHIP OR ASSISTANTSHIP; ear, nose and throat specialist, well posted except in major operations, coming from two eastern universities and withdrawing from general practice, wishes partnership or position as assistant to specialist; strictly temperate, of good character and well recommended. Add. 3477 H, % AMA.

WANTED—PARTNERSHIP OR ASSISTANTSHIP; a physician who has just returned from 18 months' postgraduate work in Vienna and Berlin, desires partnership or assistantship with first-class specialist doing eye, ear, nose and throat work. Add. 3332 H, % AMA.

WANTED—POSITION OR PARTNERSHIP, contract or good paying general practice in Nevada or New Mexico; willing to invest some money or buy; married; 35, strong and healthy; 10 years' experience in general and hospital practice; reason, wife's health; best of references in regard to ability and character. Add. 3410 H, % AMA.

WANTED—AN OPENING WITH A MAN having large general or surgical practice who desires a partnership with a young man who will do general surgery; have had good training in hospital and general practice; married, aged 30; the past four years have been engaged in private practice, running \$4,000 to \$6,000 a year; reason for change is to enter larger field; good references given and expected; Iowa or South Dakota preferred. Add. 3430 H, % AMA.

WANTED — A PARTNERSHIP OR ASSISTANTSHIP by a young single man, aged 29; a graduate of Johns Hopkins, with 3 years' experience in a large northern hospital; also 1 year's experience in a clinical laboratory; satisfactory references; write in detail. Add. 3423 H, % AMA.

SITUATIONS WANTED

WANTED—CONTRACT PRACTICE, MINE, mill, etc., assistantship to surgeon or hospital position; aged 29, tall and athletic; graduate Jefferson, 1905; Chautauqua School Physical Education, 1908; two years' hospital experience, three physical director; understand massage, diet, etc.; speak several languages; prefer Mexico, southwest, far west or northwest; married; ready within month; references furnished. Add. 3505 I, % A.M.A.

WANTED — SALARIED POSITION BY young married physician, either contract, institution work or as assistant; am a graduate of A1 medical school; have had 4 years of hospital work; 2½ of private practice and just finished nine months of postgraduate work; will go anywhere. Add. 3476 I, % AMA.

WANTED—POSITION AS ANESTHETIST and laboratory assistant by graduate nurse; 3 years' experience in general hospital in Chicago; given 1,000 anesthetics; examine blood, urine, pus, sputum and prepare tissue; prefer Chicago or vicinity, but will go anywhere. Add. 3367 I, % AMA.

WANTED—GRADUATE EASTERN CLASS A college, 14 months' excellent hospital training, 2 years' general practice, aged 30, habits, health good, steady worker, good mixer, familiar with ordinary laboratory methods, wants assistantship to general practitioner or contract work; mill or mine; Virginia certificate; any desired reference; reply in detail, stating salary. Add. 3486 I, % AMA.

WANTED—AN ASSISTANTSHIP OF PARTNERSHIP by a young man, aged 32, single; graduate Univ. of Penna.; hospital experience in east and 2 years' mining contract practice; best references in regard to ability and character; middle west preferred. Add. 3469 I, % AMA.

WANTED — ASSISTANTSHIP OR PARTNERSHIP with a good eye, ear, nose and throat man; I want to get with some one that does good operative and scientific work in these lines; I am not afraid of work; graduate of U. of M., 1905; 7 years' successful general practice; postgraduate work in special hospital; I have done everything except major operating; married, aged 33; speak German. Add. Doctor, 113 S. Division St., Ann Arbor, Mich.

(Continued on next page)

THE PUBLIC SERVICE

(Continued from preceding page)

Halton, E. P., asst. surgeon, detached Alert to Mare Island hospital for treatment.
Johnson, M. K., surgeon, detached academy to Newport torpedo station.

Curtis, L., medical inspector, detached torpedo station to naval recruiting station, Boston.

Orves, R. T., surgeon, detached Alabama to waiting orders.

Wilson, H. D., surgeon, detached recruiting station, Boston, to Alabama.

Stuart, M. A., P. A. surgeon, detached Norfolk hospital to Las Animas hospital.

Dollard, H. L., P. A. surgeon, detached naval recruiting station, Kansas City, to Arkansas.

Allen, D. G., P. A. surgeon, to Norfolk hospital.

—o—

U. S. Public Health Service

Changes for the seven days ended September 18:

Rucker, W. C., asst. surgeon-general; McIntosh, W. P., surgeon, and Wertenbaker, C. P., surgeon, detailed to represent the Service at the annual meeting of the Association of Military Surgeons of the United States to be held in Baltimore, Oct. 1-4, 1912.

Bailhache, Preston H., surgeon, directed to report at the Bureau Monday, Sept. 16, 1912, to the chairman of a board of medical officers for examination as to his present physical condition.

Austin, Iiram W., Stoner, George W., Mead, Frank W., and Banks, Charles E., surgeons, were directed to report at Ellis Island, N. Y., Saturday, Sept. 21, 1912, to the chairman of a board of medical officers for physical examination to determine their fitness for promotion to the grade of senior surgeon.

Gassaway, James M., Carter, Henry R., Kalloch, Parker C., and Glennan, A. H., surgeons, were directed to report at the Bureau Thursday, Sept. 19, 1912, to the chairman of a board of medical officers for physical examination to determine their fitness for promotion to the grade of senior surgeon.

Stoner, G. W., surgeon, White, J. H., surgeon, and von Ezdorf, R. H., P. A. surgeon, detailed to attend the International Congress on Hygiene and Demography to be held at Washington, D. C., Sept. 23-28, 1912.

McLaughlin, A. J., P. A. surgeon, detailed to represent the Service at the annual meeting of the Association of Military Surgeons of the United States to be held in Baltimore, Oct. 1-4, 1912. Directed to proceed to West Point, Va., to investigate two cases reported by the commissioner of health as suspicious of being cholera.

Bogges, John S., P. A. surgeon, relieved from temporary duty at the Hygienic Laboratory in time to arrive at the Mobile quarantine station about Sept. 20, 1912, and take charge of the station during the absence of Passed Assistant Surgeon L. D. Fricks, on official duty.

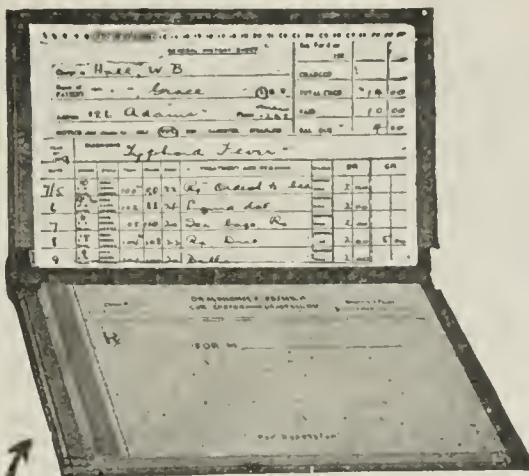
Collins, G. L., P. A. surgeon, granted four months' leave of absence, with pay, to begin about Dec. 15, 1912, and, without pay, for a period of six months thereafter.

Small, Edward M., A. A. surgeon, granted thirty days' extension of annual leave, from Aug. 2, 1912, on account of sickness.

Board of medical officers convened to meet at the bureau, Thursday, Sept. 19, 1912, for the examination of such surgeons as may be ordered to appear before the board to determine their physical fitness for promotion to the grade of senior surgeon. Detail for the board: Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon-General L. E. Cofer, member; Surgeon Duncan A. Carmichael, recorder.

Board of medical officers convened to meet at the bureau, Wednesday, Sept. 18, 1912, for the examination of Surgeon D. A. Carmichael, to determine his physical fitness for promotion to the grade of senior surgeon. Detail for the board: Assistant Surgeon-General A. H. Glennan, chairman; Assistant Surgeon-General W. J. Pettus, member; Assistant Surgeon-General L. E. Cofer, recorder.

Board of medical officers convened to meet at Ellis Island, N. Y., Saturday, Sept. 21, 1912, for the examination of such surgeons as may be ordered to appear before the board to determine their physical fitness for promotion to the grade of senior surgeon. Detail for the board: Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon-General L. E. Cofer, member; Surgeon D. A. Carmichael, recorder.



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(Continued from preceding page)

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WANTED—POSITION WITH G.-U. MAN or busy practitioner; am single; aged 32, good health; graduate of A1 school; been in general practice four years; three months' postgraduate in New York; one term as instructor in G.-U. clinic in medical college; now in successful general practice, but have good reasons for wanting to change; best of references; some one will miss a good chance to get satisfactory help here if you fail to answer this adv. Add. 3451 I, % AMA.

WANTED—BY YOUNG MARRIED PHYSICIAN—Mining, sawmill or contract practice; two years hospital service and two years practice; large experience in emergency surgery; can furnish excellent references. Add. 3277 I, % AMA.

WANTED—POSITION AS WOMAN PHYSICIAN in hospital for insane or allied diseases; at present in charge of acute service in a large state institution, making examinations of all women patients and teaching in nurses' training school; salary \$1,000 and maintenance; 6 years' experience; registered in Michigan; university graduate; best references. Add. 3383 I, % AMA.

WANTED—CONTRACT PRACTICE (MINE or mill) or position as assistant to surgeon with big practice; graduate of Class A school and of University of Chicago; one year general service; best of references; will go anywhere; age 35; married; reciprocity with many states after September 1. Add. 3175 I, % AMA.

WANTED—POSITION AS LOCUM TENENS for three to six months; would consider assistantship; have had postgraduate work in gynecology and obstetrics; 10 years' experience in practice; 33 years of age; best of references; Michigan preferred. Add. 3405 I, % AMA.

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(Continued on next page)

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FOR SALE—COLORADO — \$10,000 SUR-gical and general practice; best location in state; county seat; agricultural district; growing town of 3,500 and fast developing country; medium altitude; fine climate for tubercular trouble; sell at once; modern 8-room furnished residence; office and 8-bed hospital equipment and auto; price, \$12,000; \$5,000 cash, balance time; do not answer unless you have the money and are ready to do business; going abroad. Add. 3466 N, % AMA.

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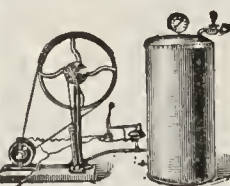
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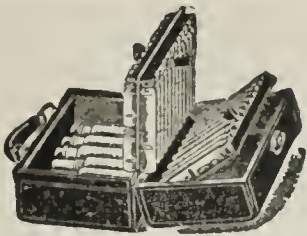
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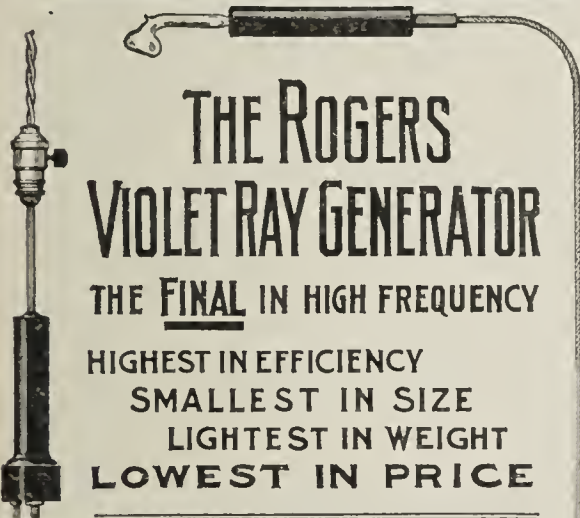
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Michigan town; surrounding country densely
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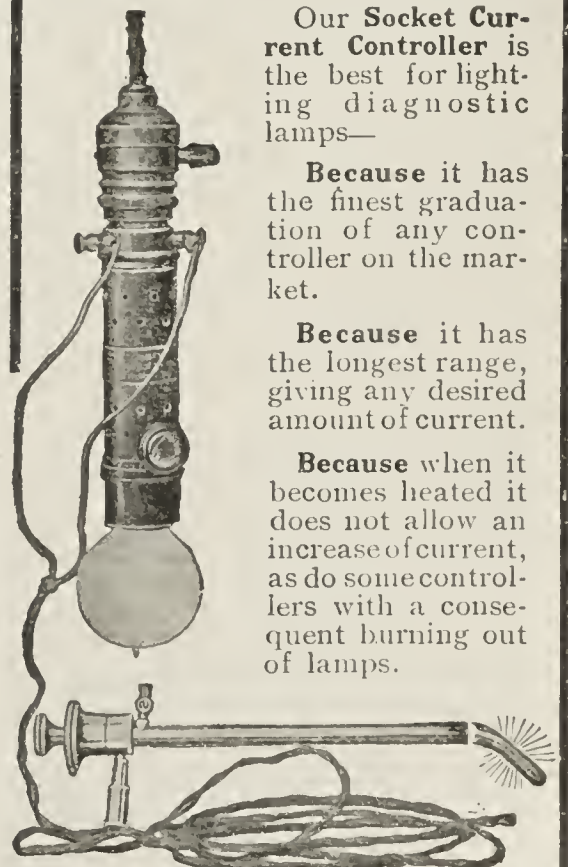
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posed practice; between \$3,000 and \$4,000; monthly payroll \$8,000; collections and roads the best; practice reaches five villages; income limited only by endurance; getting old; will retire; able successor more desired than money; can sell to suit purchaser, but \$500 cash necessary. Add. 3481 N, % AMA.

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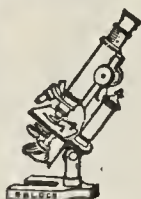
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(Continued on next page)

FOR SALE—TENNESSEE—ON THE L. & N. R. R.; town of 1,000; \$2,000 practice, will sell cheap; good chance for young man to get started; reasons and particulars on request. Add. 3392 N. % A.M.A.

FOR SALE—WASHINGTON—\$8,000 PRAC- tice, town 800, main line railway, 70 miles from city; fine climate, people, churches, schools; in best fruit section of northwest; good fees; collections good; competition right; if you are a surgeon can increase business; 3-room office, fully equipped, \$1,500 cash. Add. 3495 N. % A.M.A.

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FOR SALE—WEST VIRGINIA—NORTH- ern Panhandle section of state; \$2,500 to \$3,000 country practice, including house 8 rooms, elegant shape, good lot, necessary buildings, 1½ acres ground; fine farming community; good roads, schools, churches, collections; no opposition; reason, postgraduate work and going to city. Add. 3459 N. % A.M.A.

FOR SALE — SOUTHERN WISCONSIN— Unopposed practice above \$5,000 yearly in beautiful town between 400 and 500 population, surrounded by best farming community; main, double-tracked railroad line; excellent high school and church advantages; near hospital; modern residence, two lots, barn, garage; nearly new 30 H. P. automobile; horses; vehicles; harnesses; office furniture; drug stock; failing health; collections 98 per cent.; price, \$5,000, practically value of property; \$3,000 cash, balance to suit; will introduce purchaser; best proposition in southern Wisconsin; no triflers. Add. 3247 N. % A.M.A.

FOR SALE—NORTHERN WISCONSIN— \$2,800 practice; railroad town; 600 population; good farming community; collections 90 per cent.; waterworks and electric light next year; 65 miles from St. Paul; competition light; goes to purchaser of my 8-room house for \$1,850; German-speaking doctor preferred; reason for selling, other business. Add. 3467 N. % A.M.A.

FOR SALE — EASTERN WISCONSIN— Unopposed village and country practice of \$2,400 in a prosperous farming community, will be given to the purchaser of my office, drugs and driving outfit; will be sold cheap if taken soon; appears but once. Add. 3470 N. % A.M.A.

FOR SALE—MISSISSIPPI—LEAKE CO.— A \$2,000 country practice to purchaser of \$2,000 worth of property, consisting of 6-room house, 6 acres, outbuildings, etc., for \$1,500; a small cash payment and balance as you make it; reason, going to city; school and churches convenient. For particulars add. 3286 N. % A.M.A.

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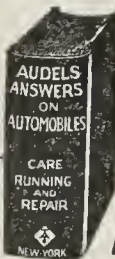


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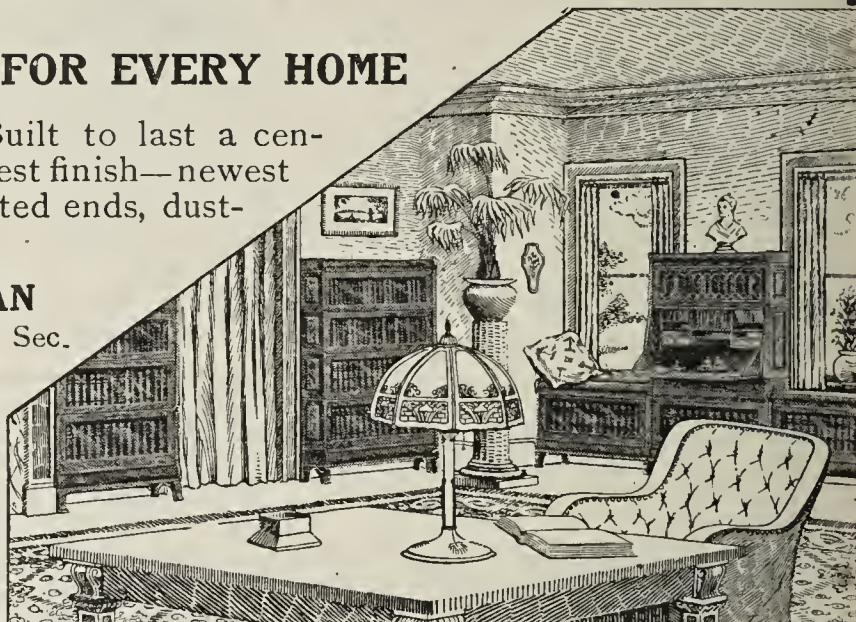
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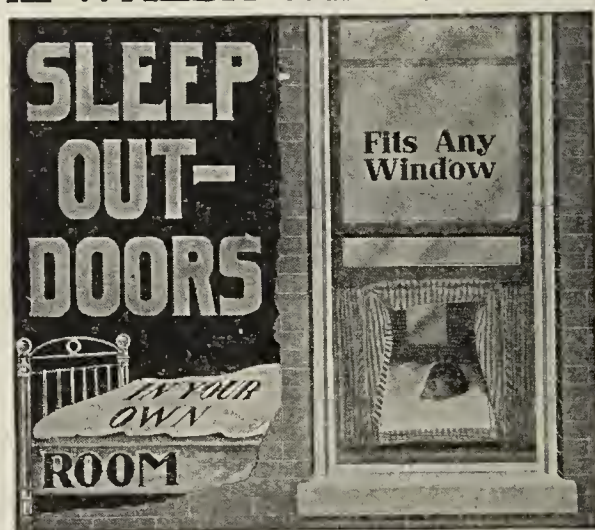
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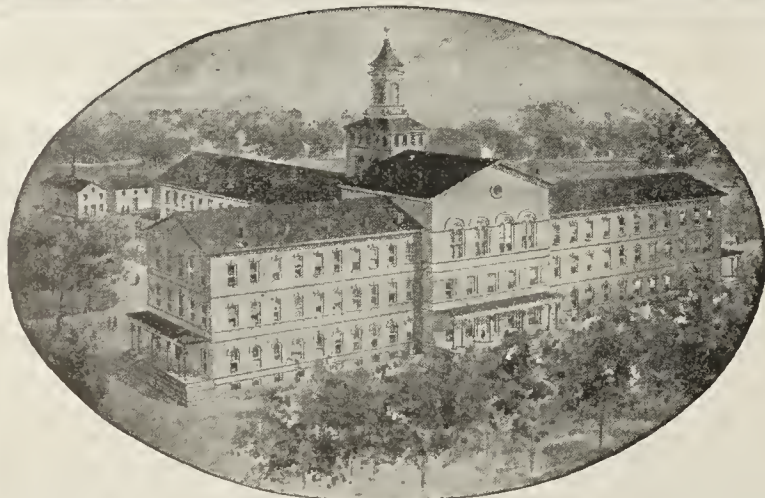
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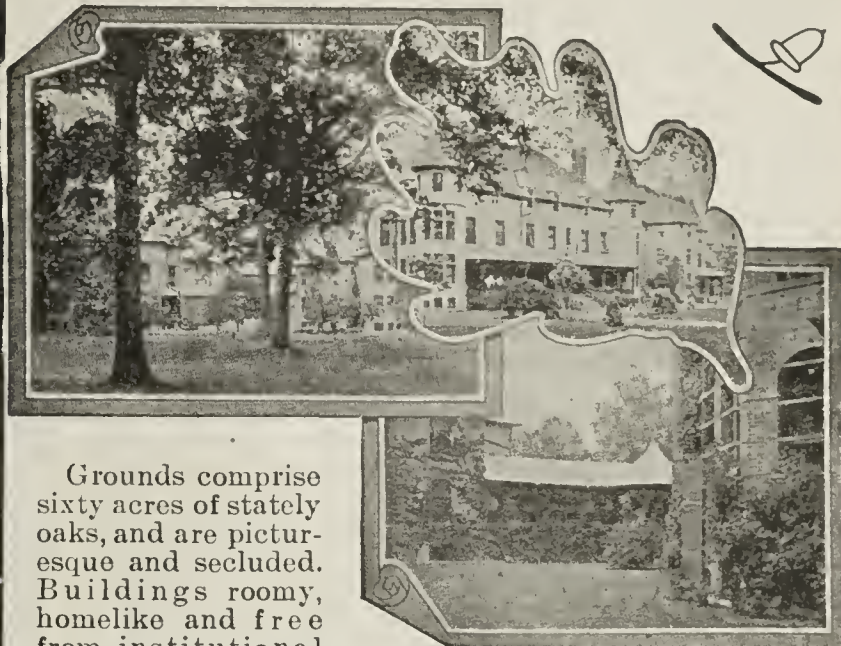
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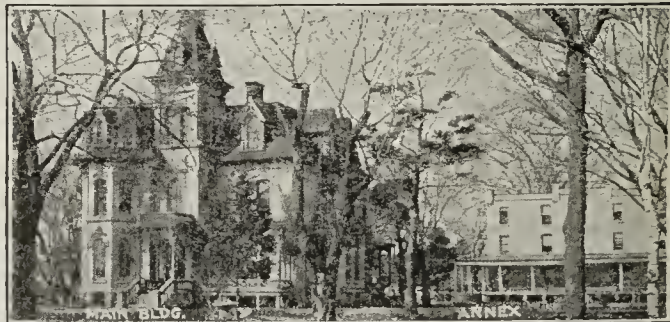
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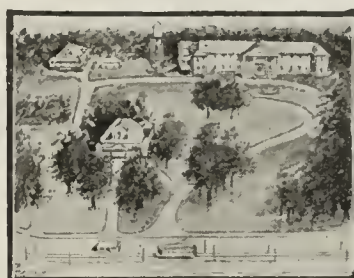
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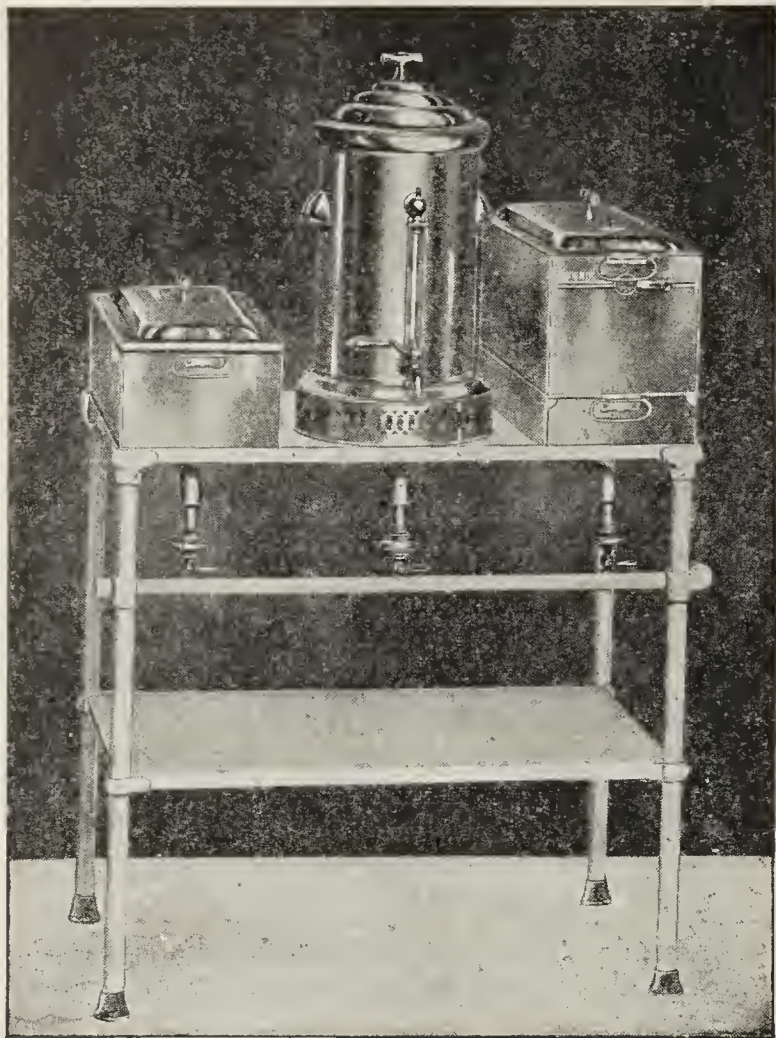
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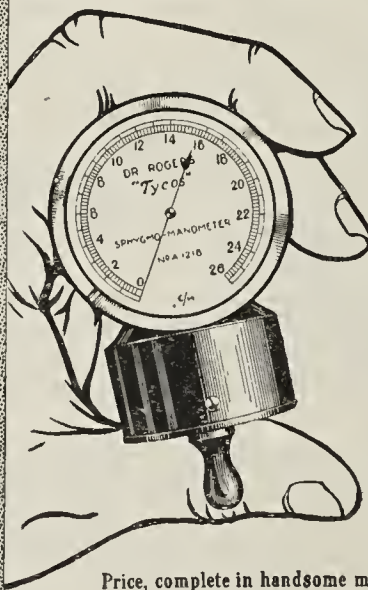
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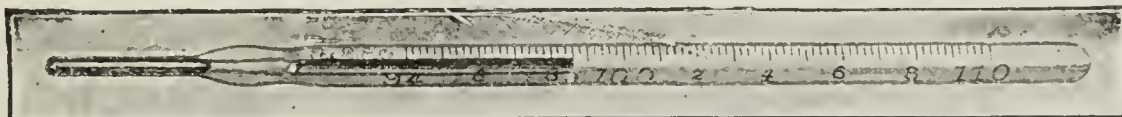
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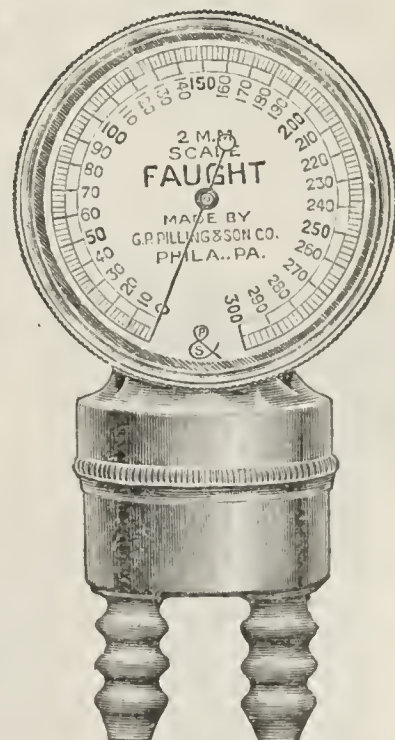
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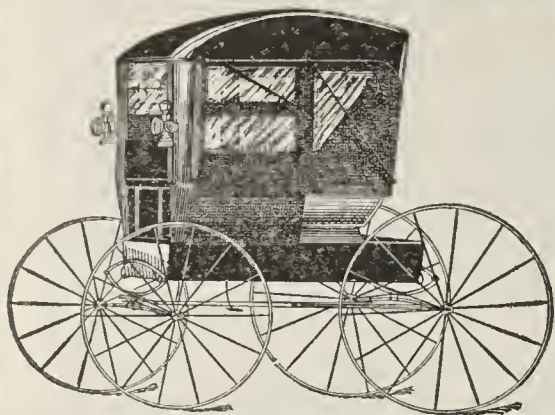
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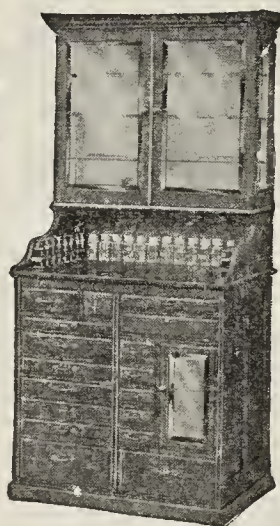
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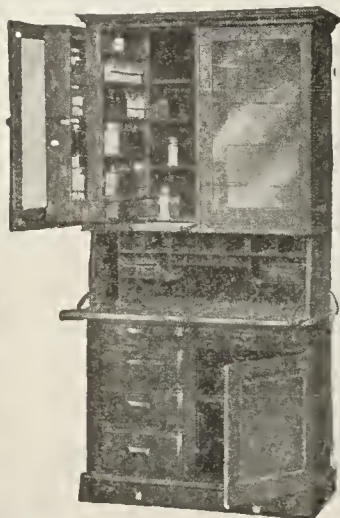
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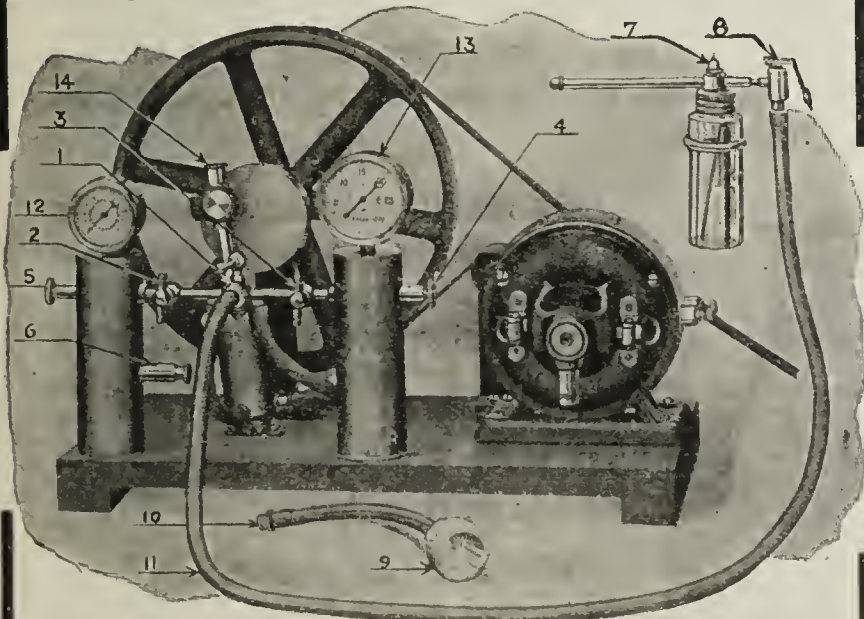
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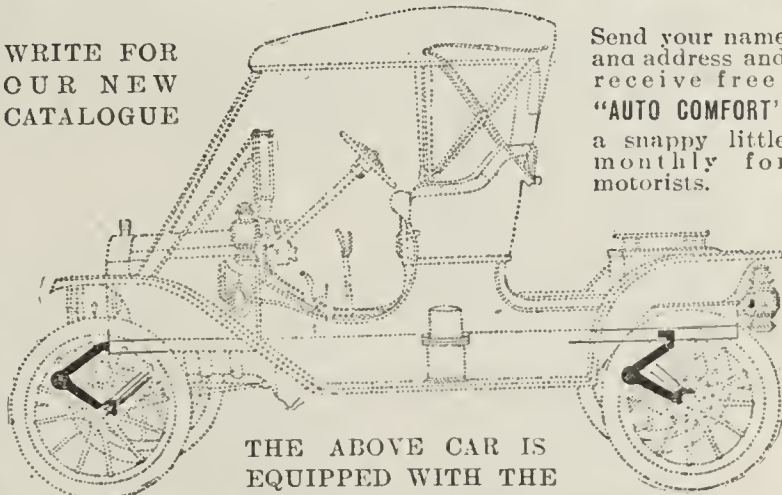
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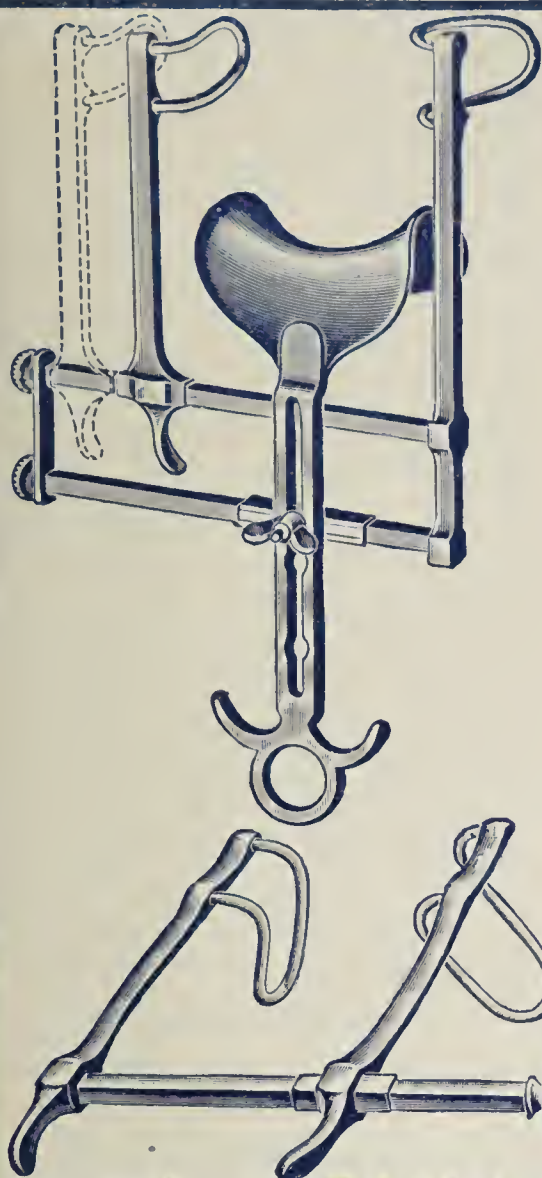


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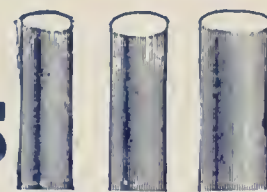
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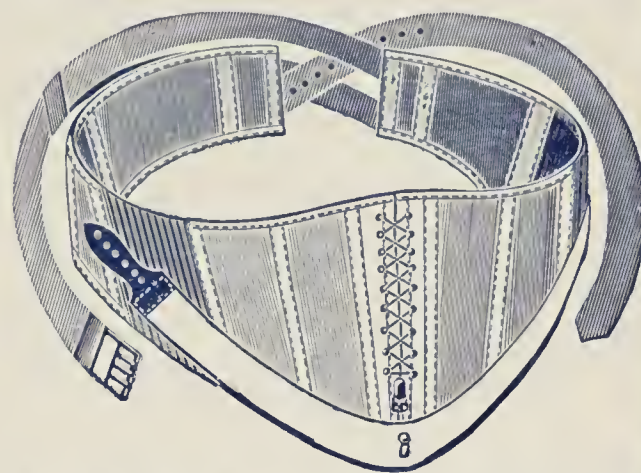
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